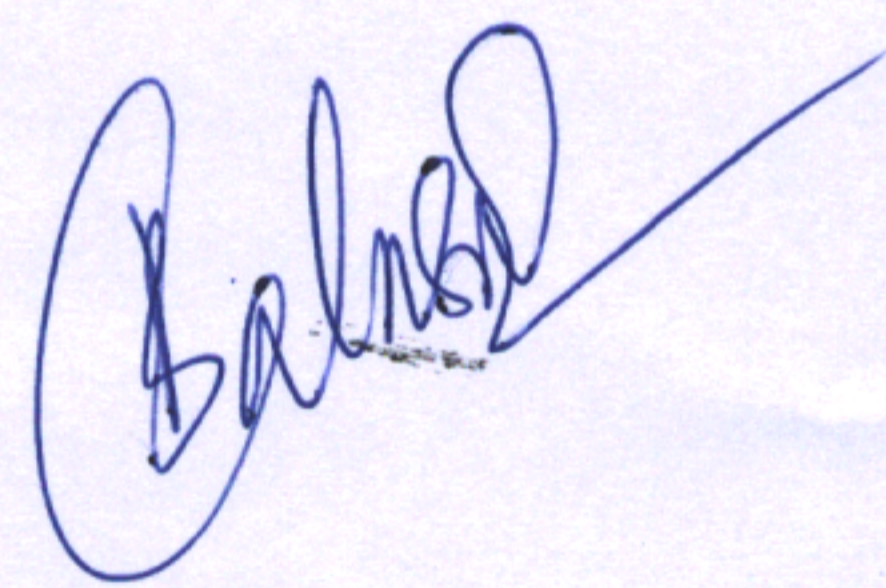


Evidence of Success

Promoting Translational Research and Enrichment of Research Quality



Dr.E. Balasubramanian
Dean-Research and Development

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. w/s 3 of UGC Act, 1956)

ONGOING PROJECTS

List of Ongoing Projects:-

SNo	Project title	PI	Department of PI	Scheme	Project Cost (Lakhs)
1	Performance Testing and Tuning of Bearing Supports of HTFE-25 Core Engine on for Possible Axial and Radial Load Spectra Encountered during Engine Operation	Dr.B.L.Jaiswal	Aero	Hindustan Aeronautical Limited (HAL)	1450000
2	Design and Development of Optimized Miniature Antenna Modules with Duality Function for Inflatable Satellite Antenna Setup	Mr.Prasanna Ram	ECE	Indian Space Research Organisation (ISRO) - Respond	3330000
3	SERB Research Scientist Scheme	Dr.A.Kathiravan	Chemistry	SERB	6225000
4	Energy efficient and optimal path planning strategies for SWARM of UAVs in real time localisation using deep learning based stereo vision system	Dr.E Balasubramanian Dr Kanagachidambaresan	Mech	Indian Space Research Organisation (ISRO) - Respond	2301000
5	Expansion of activities of BioTech - KISAN Hub in Three Aspirational Districts (Kadapa, Vizainagaram and Vishakapatnam) of Andhra Pradesh	Dr. E. Balasubramanian Dr Himadeepthi	Mech	Department of Bio-Technology(DB T) - KISAN	600000
6	MODROB	Dr. P. Chandrasekhar	EEE	All India Council for Technical Education (AICTE) - MODROB	1221000
7	Multifunctional Colloidal Sulfur Particles A Promising Green Pesticide for Practical Agriculture Applications	Dr. Jagajjanani Rao Dr K Tarangini	Bio-Technology	DST - Agro-Tech	2719114
8	SPDC	Dr. P. Chandrasekhar	EEE	All India Council for Technical Education (AICTE) - SPDC	1283400
9	Development of a highly sensitive technique for specific detection of pesticidal	Dr A Gowri Dr Mugesh	Bio-Medical	Department of Bio-	2522000

	residues and heavy metals in crude herbal drugs and herbal products			Technology(DB T)	
10	Developing Novel Applications from Silk Fibres and Silk Proteins	Dr K Tarangini Dr. Jagajjanani Rao	Bio-Techno logy	Department of Bio-Technology(DB T)	5244000
11	Scale effect approach to evaluate the erosion mechanism and performance features in micro abrasive water jet machining process: A study of new approach based on process parameters and materials microstructures	Dr Yuvaraj	Mech	Science and Engineering Research Board (SERB) under the Department of Science and Technology, Government of India - TARE	825000
12	Additive Manufacturing of Next Generation Alloys	Dr Prabhu kumar	Mech	Science and Engineering Research Board (SERB) under the Department of Science and Technology, Government of India - TARE	825000
13	Development of improved process for production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose	Dr Mugesh Mrs Sainandhini	Bio-Techno logy	Department of Bio-Technology(DB T)	5086660
14	1. Slide and swivel joint for aircraft applications. 2. Fuel system components for aircraft applications.	Dr Pavithra	Mech	Defence Research and Development Organisation (DRDO)	2500000
15	Seaweeds Cultivation and Utilization in Odisha coast including Chilika Lake for Ecological Restoration and Livelihood Generation	Dr Kanagachidambaresan Dr A Gowri Dr S Mugesh Dr. K Jagajjanani Rao Dr. E. Balasubramanian	CSE	Department of Bio-Technology(DB T)	6822000
16	Minimizing the post harvesting loss in ware houses through examining rice kernel/paddy quality using infrared measurements,	Dr.E Balasubramanian Dr Kanagachidambaresan	Mech	Tamilnadu State Council For Science And Technology (TNSCST)	200000

	image processing algorithms and IoT platform				
17	Development of 3D printed flexible patch antennas for enhancement of communications range in UAV.	Dr. E. Balasubramanian Mr. R. Prasanna	Mech	Defence Research and Development Organisation (DRDO)	2802600
18	Precision brackishwater aquaculture technology using Machine Intelligence	Dr. Kanagachidambaresan	CSE	Department of Bio-Technology(DBT)	6865854
19	Additive manufacturing of Osteogenic and infection resistant bone tissue engineering scaffolds	Dr A S Praveen	Mech	SERB TARE	825000
20	High strain rate characterization of additive manufactured materials for ballistic loading applications	Dr D Rajamani	Mech	SERB TARE	825000
21	Optimization of Solar photovoltaic based water pumping performance with DC Motor	Dr S Christopher	Mech	SERB TARE	825000
22	Optimizing Supersonic Co-Axial Nozzle design for Mixing Enhancement	Dr Naren Shankar	Mech	SERB TARE	825000
23	Fabrication of Graphene coated Cu heat sink for electric vehicle battery thermal management	Dr Arulprakasajothi	Mech	SERB TARE	825000
24	Design of Cascaded Adaptive Control with O2 and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant.	Dr. Selwin Mich Priyadharson	ECE	Central Power Research institute	2988000
25	UAV Based In-situ Measurements and Hyper spectral Analysis for Water Quality Mapping and Developing Remediation Strategies	Dr. E. Balasubramanian	Mech	SERB Equity	4254035
					64189663



HINDUSTAN AERONAUTICS LIMITED
AERO ENGINE RESEARCH & DESIGN CENTRE
(Formerly known as Engine Test Bed Research & Design Centre)
P.B.No.9310 Old Madras Road
C.V.Raman Nagar, Bangalore - 560 093

Telefax No : 22312968
Fax No : 22311143
CST No : 10984872

E-Mail : imm.aerdc@hal-india.com
Tin No : 29610049195

PURCHASE ORDER

M/s.

VEL TECH RANGARAJAN (DR. SAGUNTHALA R&D INSTITUTE)

#42, AVADI-VEL TECH ROAD, AVADI

CHENNAI 600062

INDIA

Fax :

Phone : 044-26840605

**Email : sec3.veltech@gmail.com,
jaiswalbl@gmail.com**

P.O Number : AE15P511025

P.O DATE : 16/07/2015

YOUR OFFER REF : VTU/RP/HAL/2015 Dtd:02-06-2015

Sir,

Your above mentioned offer to supply stores has been accepted for items listed below covering 1 item/s to the extent specified and in accordance with the Terms and Conditions mentioned herein. This order is governed by our General Condition of Contract (copy encl.).

Please acknowledge the receipt of this order.

SI No	Part No/Nomenclature/ Our Material Code	Qty	UnitDes	Unit Rate In INR	Total In INR
ITEMS ARE AS PER THE ENCLOSURE					
MPR No. & DATE	CLASS	STORE NO	PROJECT		
AE15511071 & 02/05/2015				TOTAL	1500000.00
				Discount	0.00
				NET VALUE	INR 1,500,000.00
Mode Of Shipment					
Terms Of Dispatch					
Terms Of Delivery Date	: within 12 Months after supply of parts from AERDC				
Mode Of Payment	: REFER NOTE No.4				
Forwarder Name					

Yours faithfully
For Hindustan Aeronautics Ltd.

M.RAM PRASAD
SM (IMM)



HINDUSTAN AERONAUTICS LIMITED
AERO ENGINE RESEARCH & DESIGN CENTRE
(Formerly known as Engine Test Bed Research & Design Centre)
P.B.No.9310 Old Madras Road
C.V.Raman Nagar, Bangalore - 560 093
INDIA

Telefax No : 22312968
Fax No : 22311143
CST No : 10984872

E-Mail : imm.aerdc@hal-india.com
Tin No : 29610049195

Purchase Order : AE15P511025

Vendor : VEL TECH RANGARAJAN (DR. SAGUNTHALA R&D INSTITU
INDIA

MPR No : AE15511071

SI No.	P.O. Ln/RelNo	Part No/Nomenclature/ Our Material Code	Qty/ UnitDes	Unit Rate In INR	It Dis in %	Disc. Rate	Total In INR
1	1/1	Performance testing and tuning of bearing supports for possible axial and radial load spectra encountered during engine operation. I. Front bearing support (Test 1) : This comprises of Squeeze Film Damper (SFD) with Squirrel Cage in parallel. Test 1 is conducted with Three different SFD clearances (125 microns, 135 microns & 150 microns) & Three centralizing spring stiffnesses (35000 N/mm, 55000 N/mm & 75000 N/mm). II. Rear bearing support (Test 2) : This comprises of Elastic Ring Damper. Test 2 is conducted with Three different ring configurations i.e. with varying number of pedestals & clearances (45000 N/mm, 75000 N/mm & 1,00,000 N/mm).	1 NOS	1500000.00		1,500,000.00	1,500,000.00
NET VALUE							1,500,000.00

Agents / Agency Commission:

The seller confirms and declares to the buyer that the seller is the original manufacturer or authorized distributor / stockiest of original manufacturer or Govt. Sponsored / Designated Export Agencies (applicable in case of countries where domestic laws do not permit direct export by OEMS) of the stores referred to in this offer / contract / Purchase order and has not engaged any individual or firm, whether Indian or Foreign whatsoever, to intercede, facilitate or in any way to recommend to Buyer or any of its functionaries, whether officially or unofficially, to the award of the contract / purchase order to the Seller; nor has any amount been paid, promised or intended to be paid to any such individual or firm in respect of any such intercession, facilitation or recommendation. The Seller agrees that if it is established at any time to the satisfaction of the Buyer that the present declaration is in any way incorrect or if at a later stage it is discovered by the Buyer that the Seller has engaged any such individual / firm, and paid or intended to pay any amount, gift, reward, fees, commission or consideration to such person, party, firm or institution, whether before or after the signing of this contract / purchase order, the Seller will be liable to refund that amount to the Buyer. The Seller will also be debarred from participating in any RFQ / Tender for new projects / program with Buyer for a minimum period of five years. The Buyer will also have a right to consider cancellation of the Contract / Purchase order either wholly or in part, without any entitlement or compensation to the Seller who shall in such event be liable to refund all payments made by the Buyer in terms of the Contract / Purchase order along with interest at the rate of 2% per annum above LIBOR (London Inter Bank Offer Rate) (for foreign vendors) and Base Rate of SBI (State Bank of India) plus 2% (for Indian vendors). The Buyer will also have the right to recover any such amount from any contracts / Purchase order concluded earlier with Buyer.

HAL has not appointed / authorized any person / agent to deal with the vendors in respect of the said contract. In case, if someone claims and interacts with the vendors it shall be duty of the vendors to bring such instances to the notice of HAL Management.

Notes :

1. This order is governed by our general terms and conditions of contract (Inland Purchase), a copy of which is Enclosed.
2. Supply is subject to acceptance by HAL Inspection Department at our Premises.
3. Liquidated damages of 0.5% per week subject to maximum of 10% would be deducted if fails to supply within the scheduled delivery date in the Purchase order as per HAL's conditions of contract.
4. Payment Terms : First Milestone (Completion of Test-1) - 30% payment through NEFT after User certification & balance 70% payment will be made through NEFT after completion of project Test 2 & User acceptance certificate.
5. Any dispute of difference which may arise out of this contract and Cannot be settled in an amicable way between the contracting parties shall be settled by arbitration. The arbitration shall be conducted in accordance with the Rules of Conciliation and Arbitration of the Indian Council of Arbitration.
6. Any dispute of difference relating to interpretation and application of the provisions of commercial contracts between CPSE, Banks, ports Trusts etc or between CPSE and Government Departments (except differences / disputes concerning railways, Income tax and Excise) shall be referred by either party for Arbitration to the PMA in the DPE through the secretary, DPE
7. Please acknowledge the receipt of purchase order within 1 week from the date of receipt. The same may be forwarded through Post/Mail/Fax. In case the acknowledgement is not received within 1 week, the same will be treated as acknowledged.

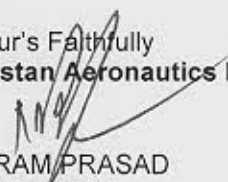
Yours faithfully
For Hindustan Aeronautics Ltd.


M.RAM PRASAD
SM (IMM)

SPECIAL NOTES FOR PO.NO: AE15P511025

1. Notify HAL of nonconforming product and obtain HAL approval for nonconforming product disposition.
2. Notify HAL of changes in product and/or process, changes of suppliers manufacturing facility, location and where required, obtain HAL approval, and Flow to the supply chain the applicable requirements including customer requirements.
3. Right of access by HAL, their customer and regulatory authorities to the applicable areas of all facilities of suppliers, at any level of the supply chain, involved in the order and to all applicable records.
4. Retention of Records: - The records pertaining with the supplies have to be preserved for a period of Ten years.
5. Bribe and Gifts :- Any bribe, commission, gift or advantage given, promised or offered by or on behalf of the contractor or his parties, agent or servant or any one on his or their behalf to any officer, servant, representative or agent of HAL or any person on his or their behalf in relation to the obtaining or to the execution of this or any other contract with HAL shall in addition to any criminal liability which the contractor may incur, subject the contractor to the cancellation of this and all other contracts with HAL and also to payment of any loss or damage resulting from any such cancellation under clauses-8 and 10 thereof Any question or dispute as to the commission of any offence under the present clause shall be settled by HAL in such manner and on such evidence or information as they may think fit and sufficient and their decision shall be final and conclusive.
6. Deliveries / Consequence of Breach: The time and the date of delivery of the stores stipulated in the purchase order shall be deemed to be the essence of the Contract, and delivery must be completed not later prescribed for such delivery HAL shall be entitled:-
 - a) To purchase elsewhere, without notice to the Contractor on the account and at the risk, of Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars are not, in the opinion of HAL which shall be final, readily procurable).
 - b) To cancel the contract, In the event of action being taken under (a) and (b) the Contractor shall be liable for any loss which HAL may sustain on the account, but the Contractor shall not be entitled to any gain on re-purchase made against default.

Your's Faithfully
For Hindustan Aeronautics Ltd.


M. RAM PRASAD
SM (IMM)

भारतीय अन्तरिक्ष अनुसंधान संगठन

अन्तरिक्ष विभाग

भारत सरकार

अन्तरिक्ष भवन

न्यू बी ई एल रोड, बेंगलूर - 560 231, भारत

दूरभाष : +91 80 2341 5474

फैक्स :



Indian Space Research Organisation

Department of Space

Government of India

Antariksh Bhavan

New BEL Road, Bangalore - 560 231, India

Telephone : +91 80 2341 5474

Fax :

Dr. M A Paul

Dy. Director, RESPOND

☎: 080-23415269/22172269

FAX-080-23412471

email:ddrespond@isro.gov.in

ISRO/RES/3/758/2017-18

September 19, 2017

Dear Shri Prasanna,

Subject: RESPOND Project-"Design and development of Optimized Miniature Antenna modules with duality function for Inflatable Satellite Antenna setup" -reg.

This has reference to your submission of the above mentioned research proposal for funding under RESPOND Programme. The domain experts in Department of Space have reviewed the proposal. I wish to inform you that, Chairman, ISRO/Secretary, DOS has approved the following:

1. Funding of the project under RESPOND Programme for a period of **three years** at a total outlay of **₹33.00 Lakhs (Rupees Thirty Three Lakh only)** towards meeting the expenditure of the project (budget details enclosed).
2. Release of grant of **₹18.30 Lakhs (Rupees Eighteen Lakh and Thirty Thousand only)** towards meeting the first year expenditure of the project.

The approval is subject to fulfillment of the following:

- (a) You will have to submit Annual Progress Report (APR), at the end of the year, indicating the progress of the work accomplished during the first year (to enable renewal of the project for second year). However, on conclusion of the project, you will have to send a comprehensive report covering total project activities. The copies of reports should be sent to **Director, SAC, Ahmedabad (Attn: Dr. (Smt.) Parul Patel, RESPOND Coordinator, SAC, Ahmedabad)** and two copies to the undersigned.
- (b) You will have to submit two copies of the Fund Utilization Certificate (FUC) and Audited Accounts Statement (AAS) on completion of the first year of the project (to enable renewal of the project for second year). On completion of the project, you have to send the final FUC and Audited Account Statement for the total expenditure incurred in the project. The FUC and AAS should be sent to

the Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru 560 231 and Director, SAC, Ahmedabad (Attn: Dr. (Smt.) Parul Patel, RESPOND Coordinator, SAC, Ahmedabad) with a copy to the undersigned.

The Department of Space has already issued Financial sanction order for the approved grant (copy enclosed).

As per the revised fellowship norms, you have to appoint a person with PG Degree in Basic Science with NET or equivalent qualification or Graduate Degree in Professional course with NET/GATE or equivalent qualification or PG Degree in Professional course as JRF. You may kindly intimate us and send the details of JRF after appointment.

You are requested to send the enclosed Grant-in-Aid bill and Electronic Transfer Mandate Form duly filled and signed in original to the Pay and Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru : 560 231 with a copy to the undersigned for releasing the grants (to Registrar, Veltech Dr. RR & SR University, Chennai) at the earliest.

With Regards,

Yours sincerely,

मस न पौल
(M A Paul)

**Shri R Prasanna
Asst. Professor
Dept. of ECE
Veltech Dr. RR & SR University
400 Feet Outer Ring Road, Avadi
Chennai: 600 062
Tamil Nadu**

CC: Scientific Secretary, ISRO
Director, SAC, Ahmedabad
Vice Chancellor, Veltech Dr. RR & SR University, Chennai
Registrar, Veltech Dr. RR & SR University, Chennai
Dr. Vijay Kumar Singh, ASG-MSAG, SAC, Ahmedabad
Dr. (Smt.) Parul Patel, RESPOND Coordinator, SAC, Ahmedabad

FILE NO. SB/SRS/2018-19/05/CS
SCIENCE & ENGINEERING RESEARCH BOARD
(Statutory Body Established Through an Act of Parliament : SERB Act 2008)

5 & 5A, Lower Ground Floor
Vasant Square Main
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Vihar
New Delhi-11007
Dated: 12.03.2022

ORDER

Subject: Research project entitled "Porphyrine-sensitized solar cells: Rational Molecular Design, Photoinduced processes, Panchromatic Sensitization and Devices" under the guidance of Dr. A Kathiravan to be implemented at Vel Tech, R & D Institute of Science and Technology, No.42, Avadi- Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pin code 600062.

1. In continuation of this SERB sanction order even no. SB/SRS/2018-19/05/CS, sanction of the Science Engineering Research Board (SERB) is hereby accorded for revising the total cost of the ongoing project from **Rs.4600000/- (Rupees forty six lakh only)** to **Rs.6225000/- (Rupees sixty two lakh twenty five thousand only)** with the revised allocation, based on actual expenditure being as follows:-

(Amount in Rs.)

Budget Head	Original Sanctioned Budget	Revised Budget
Fellowship	Rs.3000000/-	Rs.4500000/-
Research Grant	Rs.1400000/-	Rs.1525000/-
Overhead	Rs.200000/-	Rs.200000/-
Total	Rs.4600000/-	Rs.6225000/-

2. Sanction of the competent authority is hereby accorded to the payment of a sum of **Rs.8,00,000/- (Rs. Eight Lakhs Only)** under 'Grants-in-aid General' to Vel Tech, R & D Institute of Science and Technology, No.42, Avadi- Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pin code-600062 being the release grant for the financial year 2020-2021 for implementation of the above said project.
3. Sanction of the competent authority is also accorded to the carry forward of unspent balance of **Rs. 19,79,558/-** to Vel Tech, R & D Institute of Science and Technology, No.42, Avadi- Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pin code-600062 from FY 2019-2020 to FY 2020-2021 for the same purpose for which it was sanctioned .
4. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in).
5. It is certified that provision of GFR 212 relating to Utilization Certificates (UCs) for the funds released under the grant have been satisfied and the UC/s is/are enclosed herewith.
6. The expenditure involved is debit to Fund for Science & Engineering Research (FSER) This release is being made under Research Scientist Scheme.
7. The Sanction has been issued under the powers delegated to the Science and Engineering Research Board and with the concurrence of the competent authority under delegated powers vide Diary No. SERB/F/8359/2020-2021 dated 12 March, 2021.
8. The release amount of **Rs.8,00,000/- (Rs. Eight Lakhs Only)** will be drawn by the Finance & Budget Officer of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	veltechinspire
Account Name	Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science & Technology
Account Number	75330200000178
Bank Name & Branch Address	Bank of Baroda, Vel Tech Engineering College
IFSC/RTGS Code	BARB0VJVELT
PI's Email ID	akathir23@gmail.com

9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.


10. As per rule 211 of GFR the accounts of Grantee Institution shall be open to inspection by the sanctioning authority / audit whenever the institute is called upon to do so.

11. The institute will furnish to the SERB, Utilization certificate (UCs) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

12. After completion of the project unspent balance if any should be returned as Demand Draft drawn in favour of "Fund for Science and Engineering Research" payable at New Delhi.

13. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

14. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.



Dr. S.V. Prasanna
Scientist - 'D'
Scientist- 'D'
prasanna@serb.gov.in

To,

Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R. Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB, New Delhi.
3.	File Copy
4.	Dr. A Kathiravan Vel Tech, R & D Institute of Science and Technology Avadi, Chennai, Tamil Nadu, Pin code-600062
5.	The Registrar, Vel Tech, R & D Institute of Science and Technology Avadi, Chennai, Tamil Nadu, Pin code-600062


Dr. S.V. Prasanna
Scientist - 'D'
Scientist- 'D'
prasanna@serb.gov.in

भारतीय अन्तरिक्ष अनुसंधान संगठन

अन्तरिक्ष विभाग

भारत सरकार

अन्तरिक्ष भवन

न्यू बी ई एल रोड, बेंगलूरु - 560 231, भारत

दूरभाष : +91 80 2341 5474

फैक्स :



Indian Space Research Organisation

Department of Space

Government of India

Antariksh Bhavan

New BEL Road, Bengaluru - 560 231, INDIA

Tel (Off) : +91 80 2341 5474

Fax :

Dr. M.A. Paul
Assoc. Director, RESPOND & AI
CBPO

☎: 080-23415269/22172269

FAX-080-23412471

respond@isro.gov.in

No. ISRO/RES/3/843/19-20

November 16, 2019

Dear Dr. Balasubramanian,

Subject: RESPOND Project-“Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localization using Deep Learning based Stereo Vision System”-reg.

This has reference to your submission of the above mentioned research proposal for funding under RESPOND Programme. The domain experts in Department of Space have reviewed the proposal. I wish to inform you that Chairman, ISRO / Secretary, DOS has approved the following:

1. Funding of the project under RESPOND Programme for a **period of Three years** at a total outlay of **₹23.01 Lakhs (Rupees Twenty Three Lakh One Thousand only)** towards meeting the expenditure of the project (budget details enclosed).
2. Release of first year grant of **₹ 14.97 Lakhs (Rupees Fourteen Lakh Ninety Seven Thousand only)** towards meeting the First Year expenditure of the project.

The approval is subject to fulfillment of the following:

- (a) You will have to submit Annual Progress Report (APR), at the end of the year, indicating the progress of the work accomplished during the first year (to enable renewal of the project for second year). However, on conclusion of the project, you will have to submit a comprehensive report covering total project activities. The copies of reports should be sent to **Director, NE-SAC, Shillong (Attn: Dr. K K Sarma, Sci/Engr. SG, NE-SAC, Shillong)** and two copies to the undersigned.
- (b) You will have to submit two copies of the Fund Utilization Certificate (FUC) and Audited Accounts Statement (AAS) on completion of the first year of the project (to enable renewal of the project for second year). On completion of the project, you have to submit the final FUC and Audited Account Statement for the total expenditure incurred in the project.

The FUC and AAS should be sent to the Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru 560094 and Director, NE-SAC, Shillong (Attn: Dr. K K Sarma, Sci/Engr. SG, NE-SAC, Shillong) with a copy to the undersigned.


The Department of Space has already issued Financial sanction order for the approved grant (copy enclosed).

As per the revised fellowship norms, you have to appoint a person with PG Degree in Basic Science OR Graduate/Post Graduate Degree in Professional Course selected through a process described through any one of the following:
(a) Scholars who are selected through **National Eligibility Tests - CSIR-UGC NET including lectureship (Assistant Professorship) and GATE** (b) The selection process through National level examinations conducted by Central Government Departments and their Agencies and institutions such as DST, DBT, DAE, DOS, DRDO, MHRD, ICAR, ICMR, IIT, IISc, IISER etc. as JRF. You may kindly intimate us and send the details of JRF after appointment.

You are requested to submit the enclosed Grant-in-Aid bill and Electronic Transfer Mandate Form duly filled and signed in original to the Pay and Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru 560 094 with a copy to the undersigned for releasing the grants (to Registrar, Vel Tech Rangarajan Dr. Segunthala R & D Institute of Science & Technology, Chennai) at the earliest.

With Regards,

Yours sincerely,



(M.A. Paul)

Dr. E Balasubramanian
Associate Professor
Centre for Autonomous Systems Research
Vel Tech Rangarajan Dr. Segunthala R & D Institute
of Science & Technology
Avadi, Chennai: 600 062
Tamil Nadu

CC: Director, CBPO, ISRO HQ
Director, NESAC, Shillong
Vice-Chancellor, Vel Tech RR Dr. S R & D Institute
Registrar, Vel Tech RR Dr. S R & D Institute
Dr. Dibyajyoti Chutia, Sci/Engr. NESAC, Shillong
Dr. K K Sarma, Sci/Engr. SG, NESAC, Shillong

(Rs. In Lakhs)

Sl. No	Item of Expenditure	I st Yr	II nd Yr	III rd Yr	Total
1	Manpower:1 JRF @ ₹31000pm + 8% HRA for I st and 2 nd Yr @ ₹ 35000 pm + 8% HRA for six months	4.02	4.02	2.27	10.31
2	Equipment	9.55	0.00	0.00	9.55
3	Consumables & Supplies	0.50	0.20	0.15	0.85
4	Travel	0.35	0.35	0.20	0.90
5	Contingencies	0.25	0.20	0.20	0.65
Sub Total		14.67	4.77	2.82	22.26
6	Overheads	0.30	0.30	0.15	0.75
Total		14.97	5.07	2.97	23.01

No.DS-2B-13012(2)/65/2019-Sec.II
भारत सरकार/GOVERNMENT OF INDIA
अंतरिक्ष विभाग/DEPARTMENT OF SPACE
* * *

Antariksh Bhavan,
New BEL Road,
Bengaluru - 560 094.

November 14, 2019

Registrar,
Vel Tech Rangarajan Dr. Sagunthala R & D
Institute of Science & Technology,
400 Feet Outer Ring Road,
Avadi, Chennai – 600 062,
Tamil Nadu.

Sir,

Sub: Grant-in-aid - RESPOND- Release of grant for the new project entitled **“Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localisation using Deep Learning based Stereo Vision System”** - reg.

I am directed to convey the sanction of the President to a grant of ₹14,97,000/- (Rupees Fourteen lakh ninety seven thousand only) to meet the expenditure towards the new project entitled **“Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localisation using Deep Learning based Stereo Vision System”** (total project cost is ₹23.01 lakh for a period of two and half years) by Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science & Technology during first year of the project.

2. The amount of ₹14,97,000/- (Rupees Fourteen lakh ninety seven thousand only) will be paid to you by the Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru - 560 094 on receipt of the bill.

3. The grant-in-aid sanctioned shall be subject to the terms and conditions mentioned in the Annexure enclosed.

4. A separate account for the grant-in-aid sanctioned will have to be maintained which are subject to scrutiny by the Indian Audit and Accounts Department who will also have the right of access to the Book of Accounts.

5. Accounts of expenses incurred out of grant should be prepared, maintained and authenticated by approved auditors. The final accounts statement in duplicate duly audited along with Utilisation Certificate in GFR 12A format (GFR 2017) should be sent to the Pay & Accounts Officer, Department of Space, Bengaluru - 560 094 at the end of each financial year of support.

....2/-

6. The expenditure involved is debitable to "Head: 3402.00.103.09.00.31- Space Research- Space Sciences-Respond- GIA-General" - under 'Grant No.93 - Department of Space' for the financial year 2019-2020.

Yours faithfully,

(पूर्णिमा मनोज/Poornima Manoj)
(वरिष्ठ लेखा अधिकारी/Sr.Accounts Officer)

Copy for information and necessary action to:

1. The Director, CBPO, ISRO Hq., Bengaluru
2. Associate Director, RESPOND, ISRO Hq., Bengaluru
(Ref No.ISRO/RE/3/843/19-20 dated 11.10.2019)
3. The Director General of Audit, Scientific Departments, DGACR Building, IP Estate, New Delhi – 110 001.
4. The Director, O/o the Director General of Audit, Scientific Departments, Antariksh Bhavan, New BEL Road, Bengaluru - 560 094
5. Chief Controller of Accounts, DOS
6. Senior Accounts Officer, ISRO Hq., Bengaluru
7. The Pay & Accounts Officer, Department of Space, Bengaluru - With a request to make the payment of ₹14,97,000/- (Rupees Fourteen lakh ninety seven thousand only) in favour of **"The Registrar, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science & Technology, Chennai"** on receipt of the Bill.
8. The Senior Head (Internal Audit), DOS, Bengaluru
9. Dr. E Balasubramani, Associate Professor, Centre for Autonomous Systems Research, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science & Technology, 400 Feet Outer Ring Road, Avadi, Chennai – 600 002, Tamil Nadu.

(पूर्णिमा मनोज/Poornima Manoj)
(वरिष्ठ लेखा अधिकारी/Sr.Accounts Officer)

भारतीय अन्तरिक्ष अनुसंधान संगठन

अन्तरिक्ष विभाग

भारत सरकार

अन्तरिक्ष भवन

न्यू वी ई एल रोड, बेंगलूरु - 560 231, भारत

दूरभाष : +91 80 2341 5474

फैक्स :



Indian Space Research Organisation

Department of Space

Government of India

Antariksh Bhavan

New BEL Road, Bengaluru - 560 231, INDIA

Tel (Off) : +91 80 2341 5474

Fax :

Dr. M A Paul

Assoc. Director, RESPOND & AI

CBPO

ISRO/RES/4/843/21-22

Tel: 080-23415269/22172269

FAX-080-23412471

Email:respond@isro.gov.in

July 12, 2021

Dear Dr. Balasubramanian,

Subject: RESPOND Project - "Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localization using Deep Learning based Stereo Vision System"-reg.

This has reference to the submission of the first year annual progress report of the above-mentioned RESPOND Project; your request for renewal of the project for second year and release of second year grants. In this connection, I wish to inform you that, Chairman, ISRO/Secretary, DOS has approved the following:

1. **Renewal of the project for the second year and a grant of ₹6,24,413/- which includes additional grant of ₹1.50 Lakhs for procurement of high end batteries.**
2. **Release of grant of ₹1,56,103/- (Rupees One Lakh Fifty Six Thousand One Hundred and Three only) for meeting the expenditure of the project for the first quarter during second year.**
3. **Utilization of unspent balance of ₹32,347/-.**

You may kindly note that the above grant is only One fourth of the total grants to be released during second Year of the project (Detailed Budget enclosed). You may kindly submit the Statement of Expenditure for the First Quarter in the attached format immediately after the release of the grant. The Statement of Expenditure shall be signed by Head of the Institute. Based on the Fund status as per the Statement of Expenditure submitted by you, the grants for the next quarter will be released.

In this context, DOS has already issued Financial Sanction Order (copy enclosed). Further,

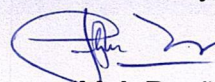
- (a) You will have to submit a comprehensive report (hard copy and soft copy) covering total project activities. The copies of report should be sent to **Director, NESAC, Shillong (Attn: Dr. K K Sarma, RESPOND Coordinator, NESAC, Shillong)** and two copies to the undersigned.

- (b) You will have to submit the final Fund Utilisation Certificate and Audited Accounts Statement for the total expenditure incurred in the project. The FUC and AAS should be sent to the Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru 560 094; Director, NESAC, Shillong (Attn: Dr. K K Sarma, RESPOND Coordinator, NESAC, Shillong) with a copy to the undersigned.

You may kindly note that, as per the Government of India rules, the interest accrued on the amount shall not be used for project purpose and it is mandatory to refund the interest amount accrued in your project to the **Consolidated Fund of India** at the completion of one year. The amount shall be refunded through a Demand Draft (DD) drawn in favor of Pay & Accounts Officer, Dept. of Space Bengaluru. The DD shall be sent to the Pay & Accounts Officer, Dept. of Space, Antariksh Bhavan, ISRO HQs, New BEL Road, Bengaluru: 560 094.

You are requested to submit the enclosed grant-in-aid bill and the Electronic Transfer Mandate Form duly filled and signed in original to the Pay and Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru 560 094 with a copy to the undersigned for releasing the grants (to Registrar, Vel Tech Rangarajan Dr. Segunthala R & D Institute) at the earliest.

Yours Sincerely,



(M A Paul)

Dr. E Balasubramanian
Associate Professor
Dept. of Soil Science
Vel Tech RR & SR R & D Institute of Science and Technology
Avadi, Chennai: 600 002
Tamil Nadu

CC: Director, CBPO, ISRO HQ
Director, NESAC, Shillong
Registrar, Vel Tech RR & SR R & D Institute of Science and Technology
Dr. Dibyajyoti Chutia, Sci/Engr. SF, NESAC, Shillong
Dr. K K Sarma, RESPOND Coordinator, NESAC, Shillong

Antariksh Bhavan,
New BEL Road,
Bengaluru - 560 094.

July 12, 2021

Registrar,
Vel Tech Rangarajan Dr. Sagunthala R & D
Institute of Science & Technology,
400 Feet Outer Ring Road,
Avadi, Chennai – 600 062,
Tamil Nadu.

Sir,

Sub: Grant-in-aid - RESPOND- Release of grant for the ongoing project entitled **“Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localisation using Deep Learning based Stereo Vision System”** - reg.

In continuation to this Department's letter of even number dated 14.11.2019, I am directed to convey the sanction of the President to a grant of ₹6,24,413/- (Rupees Six lakh twenty four thousand four hundred and thirteen only) after adjustment of the unspent balance to meet the expenditure towards the ongoing project entitled **“Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localisation using Deep Learning based Stereo Vision System”** during the second year and also for the following:

- Renewal of the project for the second year
- Additional grants of ₹1,50,000/- for procurement of high end batteries
- Release of a grant of ₹1,56,103/- towards expenditure as first instalment
- Refund of interest earned of ₹22,113/- to Government of India under 'Revenue receipt earned'
- Utilisation of unspent balance of ₹32,347/-
- Revision of the total project cost from ₹23,01,000/- to ₹24,18,413/-

2. The amount of ₹1,56,103/- (Rupees One lakh fifty six thousand one hundred and three only) will be paid to you by the Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru - 560 094 on receipt of the bill.

3. The grant-in-aid sanctioned shall be subject to the terms and conditions mentioned in the Annexure enclosed to this Department's letter dated 14.11.2019.

4. A separate account for the grant-in-aid sanctioned will have to be maintained which are subject to scrutiny by the Indian Audit and Accounts Department who will also have the right of access to the Book of Accounts.

5. Accounts of expenses incurred out of grant should be prepared, maintained and authenticated by approved auditors. The final accounts statement in duplicate duly audited along with Utilisation Certificate in GFR 12A format (GFR 2017) should be sent to the Pay & Accounts Officer, Department of Space, Bengaluru - 560 094 at the end of each financial year of support.

....2/-

6. The future installment of sanctioned grant/release of new grant-in-aid shall be subject to mandatory usage of Expenditure, Advance and Transfer (EAT) module in PFMS portal and an expenditure statement of previous grant released in the format enclosed. An e-Utilisation Certificate shall be submitted in GFR 12A format (GFR 2017) through PFMS- EAT module.

7. The interest earned from grants released, if any, should be returned to Pay & Accounts Officer, Department of Space, Antariksh Bhavan, New BEL Road, Bengaluru – 560 094 in the form of Demand Draft at the end of each financial year of support.

8. The expenditure involved is debit to "Head: 3402.00.103.09.00.31- Space Research-Space Sciences-RESPOND- GIA-General" - under 'Grant No.94 - Department of Space' for the financial year 2021-2022.

Yours faithfully,

(पूर्णमा मनोज/Poornima Manoj)
(वरिष्ठ लेखा अधिकारी/Sr.Accounts Officer)

Copy for information and necessary action to:

1. The Director, CBPO, ISRO Hq., Bengaluru
2. Associate Director, RESPOND, ISRO Hq., Bengaluru
(Ref No.ISRO/RE/3/843/21-22 dated 23.06.2021)
3. The Director General of Audit, Scientific Departments, DGACR Building, IP Estate, New Delhi – 110 001.
4. The Director, O/o the Director General of Audit, Scientific Departments, Antariksh Bhavan, New BEL Road, Bengaluru - 560 094 .
5. Chief Controller of Accounts, DOS.
6. Senior Accounts Officer, ISRO Hq., Bengaluru .
7. The Pay & Accounts Officer, Department of Space, Bengaluru - With a request to:
 - (i) PFMS sanction will be issued for ₹1,56,103/- (Rupees One lakh fifty six thousand one hundred and three only) by PD. However while raising the bill as a DDO, an amount of ₹22,113/- (Rupees Twenty two thousand one hundred and thirteen only) shall be deducted vide Para 2 of this sanction and credit to the appropriate head of account.
 - (ii) After recovery of ₹22,113/- (Rupees Twenty two thousand one hundred and thirteen only) in the bill, the net amount of ₹1,33,990/- (Rupees One lakh thirty three thousand nine hundred and ninety only) may be released to **"The Registrar, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science & Technology, Chennai"** on receipt of the bill.
8. The Senior Head (Internal Audit), DOS, Bengaluru
9. Dr. E Balasubramani, Associate Professor, Centre for Autonomous Systems Research, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science & Technology, 400 Feet Outer Ring Road, Avadi, Chennai – 600 002, Tamil Nadu.

(पूर्णमा मनोज/Poornima Manoj)
(वरिष्ठ लेखा अधिकारी/Sr.Accounts Officer)

Budget for 2nd year of the project: **“Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localization using Deep Learning based Stereo Vision System”** by Dr. E Balasubramanian, Associate Professor, Centre for Autonomous Systems Research, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, Chennai, Tamil Nadu

(in Rs.)		
Sl. No	Item of Expenditure	II nd Yr
1	Manpower:1 JRF @` 31000pm + 8% HRA for 2 nd Yr	4,01,760
2	Equipment	0.00
3	Consumables & Supplies	20,000
4	Travel	35,000
5	Contingencies	20,000
6	Overheads	30,000
Total		5,06,760
Additional grants for high end batteries		1,50,000
Unspent balance		32,347
Net amount to be released		6,24,413

TP-82
G162 T4

BT/KIS/123/SP35966/2019
Government of India
Ministry of Science & Technology
Department of Biotechnology

Block-2, 6-8th Floors,
CGO Complex, Lodi Road,
New Delhi – 110003

Dated: 29.11.2019

ORDER

Sanction of the President is hereby accorded under Rule 18 of the Delegation of Financial Powers Rules, 1978, for the Sub-Project entitled “**Expansion of Activities of Biotech-KISAN Hub in Three Aspirational Districts (Kadapa, Vizainagaram and Visakhapatnam) of Andhra Pradesh**” under Biotech-KISAN Hub at Acharya N.G. Ranga Agricultural University, Guntur, Andhra Pradesh at a cost of ₹ 77.50 lakhs (Rupees Seventy Seven lakhs Fifty thousand only) on the terms and conditions detailed here under:

2.0 The Project:

2.1 Title: Expansion of Activities of Biotech-KISAN Hub in Three Aspirational Districts (Kadapa, Vizainagaram and Visakhapatnam) of Andhra Pradesh

2.2 Investigator:

Name and Address of the Hub Facilitator: Prof. T. Srinivas
O/o Dean of Agriculture, Acharya N.G. Ranga Agricultural University (ANGRAU), Administrative Camp Office, Guntur – 522509, Andhra Pradesh

Name(s) and address(s) of the Principal Investigators and partner institutions:

1. Dr. T. Venkata Sridhar, Assistant Professor (Academic), O/o Dean of Agriculture, ANGRAU, Guntur
2. Dr. P. Punna Rao, Deputy Director of Extension, O/o Director of Extension, ANGRAU, Guntur
3. Dr. G. Sunil Kumar Babu, Coordinator (Polytechnics), ANGRAU, Guntur

Partner Institutions

1. Geospatial Technology Centre, Lam, Guntur
- ✓ 2. Vel Tech Rangarajan Dr. Shaguntula R&D Institute of Science & Technology, Vel Tech. University, Chennai
3. KVK, Rastakuntabavi, Vijainagaram
4. KVK, Utukur, YSR District
5. KVK, Kondempudi, Visakhapatnam

2.3 Project Objectives:

Aspirational Districts to be covered: Kadapa, Vizainagaram and Visakhapatnam (Andhra Pradesh)

Interventions to be carried out and the extent yield gap covered is explained below:

PULSES

Intervention	Extent yield gap covered (%)
Identification and popularization of suitable varieties	15-20

Time of sowing and maintenance of optimum plant population (Seed Treatment, Correct seed rate)	10-15
Weed management	10-15
Integrated Nutrient, Pest and Disease Management	10-15
Supplemental irrigation & Moisture conservation practices	15-20
Mechanization (seed drills, Inter cultivation equipment, Threshers etc.)	5-10
GROUNDNUT	
Identification and popularization of suitable location specific groundnut varieties	15-20
Maintenance of optimum plant population (Seed Treatment, Correct seed rate)	15-20
Intercrops	Additional profit
Weed management	10-15
Integrated Nutrient, Pest and Disease Management	10-15
Supplemental irrigation & Moisture conservation practices	15-20
Mechanization (seed drills, Inter cultivation equipment, Threshers etc.)	5-10
INTEGRATED FARMING SYSTEM WITH GOATARY / POULTRY	
COMMUNITY BASED PROCESSING AND VALUE ADDITION CENTERS FOR PULSES AND GROUNDNUT	15-20

High Altitude Zone (Vizianagaram District – NITI Aayog-Aspiration district)

Major crops: Urdbean, Moongbean, Pigeonpea, Rice, Ragi

Activity 1: Sustainable Pulse Production Technologies: Urdbean / Pigeon pea

Identification of suitable varieties for the area both for pre *Kharif* / *Kharif* / *Rabi* / rice fallows, Integrated Nutrient, Pest and Disease Management (mainly yellow mosaic, leaf curl, maruca, leaf spots etc.,) Value addition to pulses

Activity 2: Encouraging community-based processing and value addition centres for pulses

Identification of suitable community for establishment of mini dal mills, imparting skill-oriented trainings on value added products, marketing etc.,

Activity 3: Encouraging Integrated Farming Systems (IFS)

Identification of suitable components for establishment of IFS, identification suitable field / horticultural / plantation crops, identification of suitable live stock (goat / poultry), establishment of compost units / identification of suitable fodder etc.,

North Coastal Zone (Visakhapatnam District – NITI Aayog-Aspiration district)

Major crops: Urdbean, Moongbean, Sugarcane, Rice

Activity 1: Sustainable Pulse Production Technologies: Urdbean / Moongbean

Identification of suitable varieties for the area both for pre *Kharif* / *Kharif* / *Rabi* / rice fallows, Integrated Nutrient, Pest and Disease Management (mainly yellow mosaic, leaf curl, maruca, leaf spots etc.,) Value addition to pulses

Activity 2: Encouraging community-based processing and value addition centers for pulses

Identification of suitable community for establishment of mini dal mills, imparting skill-oriented trainings on value added products, marketing etc.,

Activity 3: Encouraging Integrated Farming Systems (IFS)

Identification of suitable components for establishment of IFS, identification suitable field / horticultural / plantation crops, identification of suitable live stock (goat / poultry), establishment of compost units / identification of suitable fodder etc.,

SOUTHERN ZONE (Kadapa District – NITI Aayog- Aspiration district):

Major crop: Groundnut / Chickpea

Activity 1: Sustainable Pulse Production Technologies: Urdbean / Moongbean

Identification of suitable varieties for the area both for pre *Kharif* / *Kharif* / *Rabi* / rice fallows, Integrated Nutrient, Pest and Disease Management (mainly yellow mosaic, leaf curl, maruca, leaf spots etc.,) Value addition to pulses

Activity 2: Encouraging community-based processing and value addition centers for pulses

Identification of suitable community for establishment of mini dal mills, imparting skill-oriented trainings on value added products, marketing etc.,

Activity 3: Encouraging Integrated Farming Systems (IFS)

Identification of suitable components for establishment of IFS, identification suitable field/horticultural/plantation crops, identification of suitable live stock (goat/poultry), establishment of compost units/identification of suitable fodder etc.

Activity 4: Real time stress monitoring in groundnut using geospatial tools

Timely real time water management suggestions, soil moisture observations, preparation of moisture stress maps.

Activity 5: Studies on crop and yield variability due to site specific management

Recommendations of site-specific fertilizer management, suggestions of suitable fertilizer inputs, preparation of crop health yield maps.

SCARCE RAINFALL ZONE (Anantapur district):

Major crop: Groundnut

Activity 1: Real time stress monitoring in groundnut using geospatial tools

Timely real time water management suggestions, soil moisture observations, preparation of moisture stress maps.

Activity 2: Studies on crop and yield variability due to site specific management

Recommendations of site-specific fertilizer management, suggestions of suitable fertilizer inputs, preparation of crop health yield maps.

2.4 Time Schedule:

The duration of the project is **two** years from the date of this sanction order.

2.5 Project Cost:

The year-wise estimated cost of the project is as under:

S. No.	Item	Amount (₹ in lakh)		
		Year I	Year II	Total
A.	Nonrecurring			
1.	Equipment / Infrastructure	2.00	0.00	2.00
2.	Software for Remote Sensing Data Processing & Generation of Maps	3.50	0.00	3.50
B.	Recurring			
1.	Manpower (Three posts of Young Professional II @ ₹ 25,000/- fixed per month)	9.00	9.00	18.00
2.	Training to farmers	2.00	2.00	4.00
3.	Activity cost*	25.00	25.00	50.00
Total (A+B):		41.50	36.00	77.50

* Including cost of Consumables / IFS inputs / Value-added unit inputs, data generation or preparation of soil moisture maps and crop health maps using geospatial tools to develop precision agricultural technology in groundnut / contingencies, travel etc. (Minimum 5 activities to be undertaken).

Break up of budget for each Partner Institute

						Amount (₹ in lakh)	
S. No.	Budget Head	Partner I	Partner II	Partner III	Partner IV	Partner V	Total
Year I							
A.	Nonrecurring						
1.	Equipment / Infrastructure	1.00	1.00	0.00	0.00	0.00	2.00
2.	Software for Remote Sensing, Data Processing and Generation of Maps	0.00	0.00	0.00	3.50		3.50
Total A:		1.00	1.00	0.00	3.50		5.50
B.	Recurring						
1.	Manpower (Three posts of Young Professional II)	3.00	3.00	0.00	3.00		9.00
3.	Training to Farmers	0.50	0.50	0.50	0.50	0.00	2.00
4.	Activity Cost	5.00	5.00	5.00	7.00	3.00	25.00
Total B:		8.50	8.50	5.50	13.50		36.00
Total Year I:		9.50	9.50	5.50	17.00		41.50
Year II							
Recurring							
1.	Manpower (Three posts of Young Professional II)	3.00	3.00	0.00	3.00		9.00
3.	Training to Farmers	0.50	0.50	0.50	0.50	0.00	2.00
4.	Activity Cost	5.00	5.00	5.00	7.00	3.00	25.00
Total Year II:		8.50	8.50	5.50	13.50		36.00
Grand Total (Year I + Year II):		18.00	18.00	11.00	30.50		77.50

Partner I: KVK, Utukur, YSR District

Partner II: KVK, Rastakuntabavi, Vijainagaram

Partner III: KVK, Kondempudi, Visakhapatnam

Partner IV: Geospatial Technology Centre, Lam, Guntur

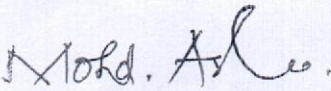
✓ Partner V: Vel Tech Rangarajan Dr. Shaguntula R&D Inst. of S&T, Vel Tech. University, Chennai

3. The Nonrecurring expenditure involved is debitable to Demand No. 87: Department of Biotechnology; 3425: Other Scientific Research (Major Head); 60: Others (Sub-Major Head); 60.200: Assistance to other Scientific Bodies (Minor Head); 29: Biotechnology Research and Development; 29.17: Assistance for Research and Development; 29.17.35: Grant for Creation of Capital Assets for the year 2019-2020 and the Recurring expenditure is debitable to 29.17.31: Grants-in-Aid General for the year 2019-2020.

4. **Other terms and conditions:**

- 4.1 The other terms and conditions governing this sanction are attached at Annexure 'I'.
- 4.2 As per rule 236(1) of GFR 2017, audit of account – the Accounts of all grantee Institutions or Organizations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPE) Act, 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organization is called upon to do so.
- 4.3 A Memorandum of Agreement (MOA) will be signed between the Department and the grantee institute on a Non-Judicial stamp paper of an appropriate value in the format given at Annexure II and the second release to the present project will be effected after execution of MOA between the grantee institution and the DBT.
- 4.4 **The Institute / Agency will keep the whole of the grant in the Bank Account earning interest, and the Interest so earned should be reported to DBT in the Utilization Certificate and Statement of Expenditure.** The Interest so earned will be treated as created to the Institute / Agency and shall be adjusted towards further instalment of the grant and / or at the time of Final Settlement of Accounts.

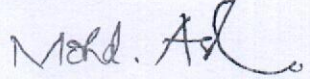
- 5 -
- 4.5 The Non-recurring grant should be utilized in span of 18 months from the date of its release, failing which the PI has to return the remaining / unutilized Non-recurring grant with 10% interest.
 - 4.6 All efforts should be made by the institution(s) to use Expenditure Advance & Transfer (EAT) Module of Public Financial Management System (PFMS) during implementation of the project.
 5. No international travel shall be undertaken from the sanctioned project grant unless specified otherwise.
 6. The **Comptroller, Acharya N.G. Ranga Agricultural University, Guntur, Andhra Pradesh** would be responsible for submission of Statement of Expenditure and consolidated Utilization Certificate to DBT and PIs in respect of grants released against this order from time to time.
 7. This issues under the powers delegated to this Department and with the concurrence of IFD, DBT, vide their SAN No. 102/IFD/SAN/2823/2019-2020 dated 29.11.2019.


(Dr. Mohd. Aslam)
Scientist 'G'

To,
The Pay & Accounts Officer,
Department of Biotechnology,
Ministry of Science & Technology,
CGO Complex, Lodhi Road, New Delhi – 110003

Copy to:

1. The Director of Audit (Scientific Departments), AGCR Building, New Delhi—110002
2. Cash Section, DBT (2 copies)
3. IFD, DBT
4. Sanction Folder
5. Prof. T. Srinivas, O/o Dean of Agriculture, Acharya N.G. Ranga Agricultural University (ANGRAU), Administrative Camp Office, Vijaya Durga Towers, M. G. Inner Ring Road, Guntur – 522509, Andhra Pradesh
6. Dr. P. Punna Rao, Deputy Director of Extension, O/o Director of Extension, Acharya N.G. Ranga Agricultural University (ANGRAU), Vijaya Durga Towers, M. G. Inner Ring Road, Guntur – 522509, Andhra Pradesh
7. Dr. T. Venkata Sridhar, Assistant Professor (Academic), O/o Dean of Agriculture, Acharya N.G. Ranga Agricultural University (ANGRAU), Vijaya Durga Towers, M. G. Inner Ring Road, Guntur – 522509, Andhra Pradesh
8. Dr. G. Sunil Kumar Babu, Coordinator (Polytechnics), Acharya N.G. Ranga Agricultural University (ANGRAU), Vijaya Durga Towers, M. G. Inner Ring Road, Guntur – 522509, Andhra Pradesh
9. The Comptroller, Acharya N.G. Ranga Agricultural University (ANGRAU), Vijaya Durga Towers, M. G. Inner Ring Road, Guntur – 522509, Andhra Pradesh


(Dr. Mohd. Aslam)
Scientist 'G'

Date:09.01.20120

F.No.9-250/RIFD/MOD/Policy-I/2018-19

All India Council for Technical Education
(A Statutory Body under Ministry of HRD, Govt. of India)
Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org



MODROB - Sanction Letter

F.No.9-250/ RIFD/MOD/Policy-I/2018-19

Date:09.01.2020

To,

The Drawing and Disbursing Officer,
All India Council for Technical Education,
Nelson Mandela Marg, Vasant Kunj,
New Delhi- 110070.

Sub: Release of a sum of Rs.976800/- (Rupees Nine Lakh SeventySix Thousand Eight Hundred Only) being the Grant-in-Aid under the scheme Modernization and Removal of Obsolescence (MODROB) for the year 2018-19 payable during the current financial year 2019-20- reg.

Sir,

With reference to the proposal submitted by the institute, this is to convey that the sanction of the Council for payment of Rs.1221000/- (Rupees Twelve Lakh TwentyOne Thousand Only) as Grant-in-Aid under the Modernization and Removal of Obsolescence (MODROB) scheme, as per details given below:

1.	Name and address of the Beneficiary Institution:	Director/ Principal/ Registrar, VEL TECH RANGARAJAN DR.SAGUNTHALA R AND D INSTITUTE OF SCIENCE AND TECHNOLOGY, #42, AVADI -VEL TECH ROAD, AVADI, CHENNAI- 600062, TAMIL NADU. Tamil Nadu -600062		
2.	Title of Project:	Modernization of Power Electronics Lab		
3.	Name of Coordinator:	Dr. CHANDRASEKAR P		
4.	Duration of the project:	2 Years		
4.	Total Grant-in-aid Sanctioned:	Total: Rs.1221000/-	Non-Recurring (85%): Rs.1037850/-	Recurring (15%): Rs.183150183150/-
5.	Amount to be released during the year 2019-20:	1st Installment Rs.976800/-	Non-Recurring (85%): Rs.830280/-	Recurring (15%): Rs.146520/-
6.	Sanctioned grant-in-aid is debitable to:	Major Head 601.18(a) Gen. (Plan Head)		

1. The amount of the Grant shall be drawn by the Drawing and Disbursing Officer, All India Council for Technical Education on the Grant-in-Aid bill and shall be disbursed to and credited to the account of Director/Principal/ Registrar of the Institute through RTGS/PFMS.
2. This Grant-in-Aid is being released in conformity with the terms & conditions as well as norms of the scheme as already communicated, and also being communicated in this letter.

THE INSTRUCTIONS/GUIDELINES TO BE FOLLOWED BY UNIVERSITY/INSTITUTION

I. Release of funds:

- a. The Principal/ Director of the institute and the Coordinator of the project are hereby requested to verify the correctness of the under mentioned bank account/ RTGS details submitted by them along with the Proposal, in which the grant is being released:

Institute PAN No.	Bank Name	Bank Branch Name	Branch Address	Account Holder Name	Account Type	Account Number	IFSC
AABTV8852A	VIJAY A BANK	VEL TECH BRANCH	No. 42, Avadi Vel Tech Road, Avadi (Chennai-600062)	Prof. Vel. Dr. R. Rangarajan (Founder & President)	Current Account	380 2003 0100 0191	VIJB0003802

In case of any omission the same should be reported to AICTE immediately.

- b. The sanction is issued in exercise of the powers delegated to the council and other terms & conditions laid down in the guidelines of the scheme.
- c. 100% grant of the sanctioned amount is being released to Government/Govt. Aided institutions. Utilization Certificate (UC) and other requisite documents are to be submitted within one month of the completion of the project.
- d. To self-financed/Pvt. Institutions 80% of the sanctioned amount is being released as first installment followed by 20% as reimbursement after receipt of UC and other requisite documents as specified in terms & Conditions of MODROB Scheme.

II. Maintenance of accounts:

- a) The Institute shall strictly follow the provisions laid down in the scheme document and sanction order No. F.No.9-250/RIFD/MOD/Policy-I/2018-19 Dated 15.11.2019 issued by this office. All correspondences related to the project must contain this number along with year of sanction of the project; failing which correspondence will not be entertained
- b) Funds covered by this grant shall be kept separately and would not be mixed up with other funds, so as to know the amount of interest accrued on the grant AICTE.
- c) The University/College/Institute shall maintain proper accounts of the expenditure out of the grants, which shall be utilized only on approved items of expenditure (list enclosed).
- d) The Council or its nominee shall have the right to check /verify the account to satisfy that the fund has been utilized for the purpose for it was sanctioned.
- e) The date of release of the grant by AICTE shall be taken as the date of commencement of the project. The Principal / Director / Registrar shall intimate about the receipt of the grant to AICTE. Any expenditure incurred prior to the issuance of the approval letter will not be allowed to be adjusted in the grant and if the Institution / University do not take the project work within one month of the receipt of the grant, the approval shall ipso facto lapse.
- f) After receipt of the grant from AICTE, the Institute shall send a confirmation to AICTE within 2 months of receipt of grant that the sanctioned project has been started/is in progress.

III. Refund of grant by way of a demand draft in favour of Member Secretary, AICTE, New Delhi:

- a) If the college/institute does not have the Letter of Approval (LOA) or Extension of Approval issued by AICTE for the academic year 2019-20, the fund released should be immediately refunded to AICTE with interest accrued thereon.
- b) If project is not started within six months of the issuance of this Offer Letter, the released amount, along with interest accrued thereon, has to be necessarily returned to AICTE.
- c) In any case, if the institute is required to refund the grant or interest accrued thereon or balance amount, the amount will be refunded to AICTE.
- d) It may be ensured that the project is completed within the stipulated time. If the project is not completed in time, no further extension will be granted in any case and institute has to refund the entire amount to AICTE.
- e) As AICTE needs adequate time for depositing the Demand Draft in the bank, the same be immediately dispatched to avoid any lapse of the validity period.

IV. Submission of documents by college/institution after completion of Project/Subsequent years:

The following mandatory relevant documents are required to be submitted by the college/institution within one month of the completion of the project: -

- a) Feedback form in the prescribed proforma.
- b) The Annual Progress Report (APR) in the prescribed format along with the original Statement of actual Expenditure in the prescribed proforma duly signed by the Head of the institution and shall be submitted to AICTE not later than one month after completion.
- c) The Utilization Certificate (UC) supported by Audited Statement of Expenditure to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to the AICTE immediately after completion of the project. It should contain the head-wise break up of expenditure made from the grant-in-aid provided by the Council. Audited Statement of Expenditure indicating expenditure incurred in the total duration of the project in the prescribed format and GFR-19 shall be submitted to the Council.

Date:09.01.20120

F.No.9-250/RIFD/MOD/Policy-I/2018-19

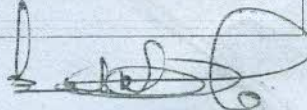
- d) In case of self-financing/private institutions, Statement of actual Expenditure & Utilization Certificate are required to be audited & signed by a Chartered Accountant (with membership no., full address & stamp). Photocopies of formats are enclosed.
- e) Program Evaluation Committee (PEC) is required to be constituted at Institutional level. The constitution of the PEC shall be as under:
- Principal/Director/Registrar of the Institution(Chairperson)
 - Coordinator of the project (Member Secretary),
 - Two HODs and one subject expert (Members).
 - The members of the said PEC shall not be below the rank of Associate Professor. The minutes of the meetings are to be submitted to the Council at end of the project along with other mandatory documents.
- f) Project completion report project indicating the activities undertaking, number of students benefited, laboratory works photographs of students, together with their views is to be submitted.
- g) Attested photocopies of supporting vouchers/bills of expenditure incurred for the completion of Project.
- h) Photographs of equipment's purchased.
- i) The balance amount of the grant will be reimbursed to the university/institution only on submission of the above documents. On receipt of these documents, the total amount of balance of financial assistance, admissible as per the norms, shall be worked out and grant-in-aid shall be released, as second installment, in favour of the beneficiary institution.

V. General instructions

- a) The amount of interest accrued on the grant should be treated as part of the grant to be utilized for that particular project. However, the interest amount accrued along with grant disbursed should not exceed the total grant sanctioned for the project. The Institute receiving the grant should reflect the same in the audited statement of accounts/ utilization certificate and may either refund the interest amount to AICTE or AICTE shall adjust the same in the next installment of grant before its release.
- b) Any unavoidable circumstantial change in the project with respect to name of Project Coordinator for the MODROB project would mandatorily require prior approval of the Council. All such requests should be addressed to AICTE, in advance, recording the specific reasons for proposed changes, failing which the offer for the grant already issued would be treated as automatically withdrawn and the financial assistance released in favour of the beneficiary institution shall be refunded immediately to the Council. Kindly mention the File No.9-250/RIFD/MOD/Policy-I/2018-19 in your future correspondence.
- c) The grantee shall maintain an audited record of assets acquired wholly or substantially out of the Grant-in-Aid and a register of assets shall be maintained by the Institute in the prescribed form i.e.GFR-19.
- d) The College / Institute receiving grant under MODROB is expected to put up a plaque at the main entrance of the Lab/Department, which has been modernized using the grant. All the equipment procured through the project should be super scribed with AICTE project file number.
- e) The assets acquired wholly or substantially out of grant shall not be disposed or encumbered or utilized for the purpose other than those for which the Grant was given without proper sanction of the AICTE and should at any time the institution cease to function, such assets shall revert to the AICTE.
- f) The grantee Institution shall observe all financial norms and guidelines as prescribed by the AICTE/ Government of India from time to time. GOI GFR rules (@<https://doe.gov.in/order-circular/general-financial-rules2017-0>) should be followed during utilization of grant.

List of Equipment's approved :

Name of Equipments
Power Quality Analyzer
Smart Grid Simulator
Solar Array Simulator
Programmable DC Power Supply
AC/DC Current Probe
FPGA Controller
Induction generator coupled with DC motor
3-Phase Variable capacitor Load
Solar Irradiance meter


15 JAN 2020

Date:09.01.20120

F.No.9-250/RIFD/MOD/Policy-I/2018-19

Yours sincerely,

Prof. Dileep N. Malkhede
Advisor-1 (RIFD)

Copy forwarded for information and necessary action to:

1. Name and Address of the Coordinator,
Dr. CHANDRASEKAR P,
VEL TECH RANGARAJAN DR.SAGUNTHALA R AND D
INSTITUTE OF SCIENCE AND TECHNOLOGY,
#42, AVADI -VEL TECH ROAD, AVADI, CHENNAI- 600062,
TAMIL NADU. Tamil Nadu -600062

✓ 2. The Registrar / Director / Principal,
VEL TECH RANGARAJAN DR.SAGUNTHALA R AND D
INSTITUTE OF SCIENCE AND TECHNOLOGY,
#42, AVADI -VEL TECH ROAD, AVADI, CHENNAI- 600062,
TAMIL NADU. Tamil Nadu -600062

3. Guard File

Prof. Dileep N. Malkhede
Advisor-1 (RIFD)



Public Financial Management System-PFMS

(formerly CPMS)

D/o Controller General of Accounts, Ministry of Finance

Welcome: **Dr. AKHILESH MISHRA**
 User Type: **PD**
 Financial Year: **2020-2021**



[akhileshm]
 Logout
 Change Password

Help

AdhocReports

SchemeWiseContactDetails

Home

CAM Reports

Masters

Users

Agency

Sanctions

PreSanction

Sanction Custom Fields

Printing Templates

Sanction Templates

Employee Info. System

Reports

Masters

My Schemes

Agencies

Scheme Allocation

Register/ Track Issue

Utilisation Certificate

OLD UC

Payee Details

Controller: 037-SCIENCE AND TECHNOLOGY
Sanction Status: Approved
Sanction Number: DST/TDT/AGRO-18/2019(G)
Sanction Date: 27/05/2020
Sanction Type: Transfer (DDO Bill)
Sanction Amount: 556768
IFD Number: C/332/IFD/2020-21
IFD Date: 27/05/2020
Scheme: 1819-INNOVATION, TECHNOLOGY DEVELOPMENT AND DEPLOYMENT
PAO: 058296-PAO(DST), New Delhi
DDO: 258297-DEPARTMENT OF SCIENCE & TECHNOLOGY (INCLUDING,NCST)
Remarks: first installment (Gen)

Account Details:

Grant	Department (For UT Grants Only)	Function Head	Object Head	Category	Amount	External PAO	Available Budget
087 - Department of Science and Technology		3425602007000 - INNOVATION TECHNOLOGY DEVELOPMENT AND DEPLOYMENT	31 - GRANTS-IN-AID GENERAL	5 - VOTED	556768		3943595401

Agency	Bank Account No	Amount	Instrument Type
VEL TECH RANGARAJAN Dr SAGUNTHALA R&D INSTITUTE OF SCIENCE AND TECHNOLOGY	380200301000191 - VEL TECH RANGARAJAN	556,768.00	RTGS

ePayment Details

Accredited Bank : *		UNION BANK OF INDIA	Amount : *	556768	Not Payable Before : *	Required
Party Name	IFSC Code	Party Account No	Amount	Payee Remarks		
VEL TECH RANGARA	VIBB0003802	380200301000191	556768	Dr K Jagajjanani Rao		

Note: If the IFSC Code is not automatically shown it means bank A/C is not validated.If payment process is urgent please key in the IFSC Code and process payment.Please ensure IFSC Code is correct.

Back

No. DST/TDT/AGRO-18/2019(G)
Government of India
Ministry of Science & Technology
Department of Science & Technology
(Technology Development Programme (Agro-Tech))

Technology Bhavan, New Delhi
Dated **27.05.2020**.

ORDER

Sub: - Financial support for the project entitled “**Multifunctional Colloidal Sulfur Particles A Promising Green Pesticide for Practical Agriculture Applications**” by **Dr. K Jagajjanani Rao**, Assistant Professor, Department of Biotechnology, **Veltech Rangarajan Dr. Sagunthala R&D Institute of Science & Technology, Tamil Nadu** - release of the first installment of the grant-regd.- Release of the first installment regarding.

Sanction of the President is hereby accorded to the approval to the above mention project at a total cost of **Rs. 27,19,114 /-(Rupees Twenty Seven Lakh Nineteen Thousand One Hundred and fourteen Only)** for the duration of **2 years**. The detailed breakup of the grant for general as well as capital components are given below:-

Total Project Cost = Rs. 27,19,114 /-

Non-Recurring Total Cost = **Rs. 11,54,298 /-**

Recurring Total Cost = **Rs. 15,64,816 /-**

Recurring Head				
Sl. No.	Items	Budget (in Rs.)		
		1 st year	2 nd year	Total
1.	Manpower	4,61,280	4,61,280	9,22,560
2.	Consumables	2,00,000	1,00,000	3,00,000
3.	Contingency	50,000	50,000	1,00,000
4.	Travel	50,000	50,000	1,00,000
5.	Overhead charges(10%)	76,128	66,128	2,57,685
Total		8,37,408	7,27,408	15,64,816

2. The sanction of the President is also accorded to the release **Rs. 5,56,768/- (Rupees Five Lakh Fifty-Six Thousand Seven Hundred and Sixty- Eight Only)** to the “**The Director, Veltech Rangarajan Dr. Sagunthala R & D Institute Of Science & Technology, Chennai, Tamil Nadu**” being the first installment of grant with only six month manpower and no travel budget with all other components as mentioned the above table under “General Component” for the above mentioned project.

3. This sanction is subject to the condition that the grantee organization will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grant received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

4. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

Handwritten signature and date:
27/05/2020

subsequent/final installment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

5. If the grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the release Capital head grant.

6. The grant-in-aid being released is subject to the condition that

- a) A transparent procurement procedure in line with Provisions of General Financial Rules 2017 will be followed by the Institute/Organization under the appropriate rules of grantee organization while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organization immediately on receipt of the grant.
- b) While submitting Utilization Certificate/Statement of Expenditure, the organization has to ensure submission of supporting documentary evidences with regard of the purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

7. As per the GFR 2017 Rule 230 (8) the Grantee Institute should ensure that all the interests or other earnings against Grant-in-Aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts. Such advances will not be allowed to be adjusted against future releases.

8. As per the GFR 2017 Rule 230 (17) "the Grantee Institute should agree to make reservations for Scheduled Castes and Scheduled Tribes or OBC in the posts or services under its control on the lines indicated by the Government of India".

9. As per the GFR 2017, it is mandatory for the grantee organization to purchase the equipment through the Government e-Marketplace (GeM), to the extent available there as the project involves government funding.

10. The grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e. www.bharatkosh.gov.in), immediately after finalization of accounts, as it shall not be adjusted towards future release of Grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/ Utilization Certificate for considering subsequent release of Grant/ Closure of Project accounts.

11. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

12. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

13. Due acknowledgement of technical support/ financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organization in bold letters in all publication / media release as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

14. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

[Handwritten signature]
27/11/2020

3425	Other Scientific Research (Major Head)
60	Others
60.200	Assistance to Other Scientific Bodes (Minor Head)
70	Innovation, Technology Development & Deployment
70.00.31	Grants-in-aid General for the year 2020-21
	Previous: TDP-NRDMS-3425.60.200.26.01.31

16. The amount of release **Rs. 5,56,768 /-** (**Rupees Five Lakh Fifty-Six Thousand Seven Hundred and Sixty- Eight Only**) will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to **"The Director, Veltech Rangarajan Dr. Sagunthala R & D Institute Of Science & Technology, Chennai, Tamil Nadu"**. The bank details for electronic transfer of funds through RTGS are given below: -

Name of A/C Holder	Veltech Rangarajan Dr. Sagunthala R & D Institute Of Science & Technology
Bank A/C No	380200301000191
Name of the Bank & branch	Bank of Baroda. Veltech Engg College Branch, Chennai
RTGS/IFSC code	VIJB0003802
MICR code	600029026

17. As per Rule 234 of GFR 2017, the sanction has been entered at S. No **34** in the register of grants maintained in the Division for the scheme TDP.

18. This issues with the concurrence of IFD Vide their Concurring Dy. No **C/332/IFD/2020-21** dated **27.05.2020**.

Mishra
27.05.2020
(Dr. Akhilesh Mishra)
Scientist-E
Tel: 26590254

To,

The Pay and Accounts Officer,
Department of Science & Technology,
New Delhi.

Copy of information and necessary action to: -

1. The Principal Director of Audit, Scientific Department, IIIrd floor, AGCR Building, I.P. Estate, New Delhi.
2. Drawing and Disbursing Officer, DST, Cash Section. (two copies)
3. **Dr. K Jagajjanani Rao**,
Assistant Professor,
Department of Biotechnology,
Veltech Rangarajan Dr. Sagunthala R&D Institute of Science & Technology,
Tamil Nadu-600055
4. **Director**,
Veltech Rangarajan Dr. Sagunthala R & D Institute Of Science & Technology,
Tamil Nadu 600055
5. The Controller of Accounts, DST
6. Head(TDT), DST
7. Sanction folder (TDT).
8. File copy.

Mishra
27.05.2020
(Dr. Akhilesh Mishra)
Scientist-E

All India Council for Technical Education
(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org



SPDC- Sanction Letter

To

The Drawing and Disbursing Officer,
All India Council for Technical Education,
Nelson Mandela Marg, Vasant Kunj,
New Delhi - 110070.

Subject: Release of a sum of Rs. 6,41,700/- (Rupees Six lakh forty-one thousand seven hundred only) being the 1st installment of the total grant of Rs. 12,83,400/- to conduct the program under the scheme **Skill and Personality Development Program Centre for SC/ST students (SPDC)** for the year 2019-20 payable during the current financial year 2019-20-reg.

Sir,

With reference to the proposal submitted by the institute, this is to convey the sanction of the Council for payment of Rs. 6,41,700/- (Rupees Six lakh forty-one thousand seven hundred only) as 1st installment out of the total approved grant-in-aid of Rs. 12,83,400/- for running of Skill and Personality Development Program Centre for SC/ST students under the Scheme **Skill and Personality Development Program Centre for SC/ST students (SPDC)**, as per details given below:

1	Name and address of the Beneficiary Institution:	Director/ Principal/ Registrar, VEL TECH RANGARAJAN DR.SAGUNTHALA R AND D INSTITUTE OF SCIENCE AND TECHNOLOGY, #42, AVADI -VEL TECH ROAD, AVADI, CHENNAI- 600062, TAMIL NADU -600062		
2	Permanent ID of institute:	1-3863975271		
3	Title of Programme:	SKILL AND PERSONALITY DEVELOPMENT PROGRAMME CENTRE FOR SC/ST STUDENTS		
4	Name of Coordinator:	Dr. CHANDRASEKAR P		
5	Duration of the Programme:	3 Years		
6	Grant-in-aid Sanctioned:	Total: Rs. 12,83,400/-	Non-Recurring (85%): Rs. 10,90,890/-	Recurring (15%): Rs. 1,92,510/-
7	Amount to be released during the year 2019-20:	Total: Rs. 6,41,700/-	Non-Recurring (85%): Rs. 5,45,445/-	Recurring (15%): Rs. 96,255/-
8	Sanctioned grant-in-aid is debitable to:	Major Head 601.1 (b) SPDC Plan Head		

- The amount of the grant shall be drawn by the Drawing and Disbursing Officer, All India Council for Technical Education, New Delhi on the grant-in-aid bill and shall be disbursed to and credited to the account of Director/Principal/Registrar of the institute through RTGS.
- This grant-in-aid is being released in conformity with the terms & conditions as well as norms of the scheme as already communicated, and also being communicated in this letter.

The instructions/guidelines to be followed by University/Institution

I. Release of funds

- The Principal/ Director of the institute and the Coordinator of the program are hereby requested to verify the correctness of the undermentioned bank account/ RTGS details submitted by them along with the Proposal, against which the grant is being released:

Institute PAN No.	Bank Name	Bank Branch Name	Bank Branch Address	Account Holder Name	Account Type	Account Number	IFSC Code
AABTV 8852A	VIJAYA BANK	VEL TECH BRANCH	Vel Tech Engineering College, Alamathi Road, vellanur, Chennai-600 062.	Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science & Technology	Current Account	380 2003 0100 0191	VJB000 3802

In case of any omission the same should be reported to AICTE immediately.

- b) This sanction is issued in exercise of the powers delegated to the Council and other terms and condition laid down in the guidelines of the scheme.

II. Schedule of Funding and Duration of Program

- a) 1st year: 1st installment (50% of the sanctioned grant) is being released as advance.
2nd Year: 2nd installment (40% of sanctioned grant) after receipt of requisite documents.
3rd Year: 3rd installment (10% of sanctioned grant) after receipt of requisite documents.
b) The date of release of the grant by AICTE shall be taken as the date of commencement of the scheme.
c) The duration of the program is for three years.

III. Submission of documents by college/institution to AICTE on receipt of grant

- a) Acknowledgement of receipt of the grant and acceptance of terms and conditions within 15 days of receipt of Sanction Letter.
b) Institute shall send a confirmation to AICTE within 2 months of receipt of grant that the sanctioned program has been started/is in progress.
c) Intimation regarding the constitution of Program Evaluation Committee (PEC).
PEC is required to be constituted at institutional level. The constitution of the PEC shall be as under:
i. Principal/Director/Registrar of the institution (Chairperson)
ii. Coordinator of the scheme (Member Secretary)
iii. Two HoDs and one subject expert (members).

The members of the said PEC shall not be below the rank of Associate Professor.

IV. Maintenance of accounts

- a) The Institute shall strictly follow the provisions laid down in the scheme document and Sanction Letter No. F. No. 65-24/IDC/SPDC/Policy-1/2019-20 dated 03.03.2020 issued by this office. All correspondence related to the scheme must contain this number along with year of sanction of the scheme; failing which correspondence will not be entertained.
b) Funds covered by this grant shall be kept separately and would not be mixed up with other funds, so as to know the amount of interest accrued on the grant.
c) The University/College/Institute shall maintain proper accounts of the expenditure out of the grant, which shall be utilized only on approved items of expenditure (list enclosed).
d) The Council or its nominee shall have the right to check/verify the account to satisfy that the fund has been utilized for the purpose for it was sanctioned. The accounts of the institute will be open for test check by the Council or Controller & Auditor General of India or any other officer designated by them.

V. Refund of grant to AICTE (by way of a demand draft in favour of Member Secretary, AICTE, New Delhi)

- a) If the program is not started within six months of the receipt of the grant, the released amount, along with interest accrued thereon, has to be returned to AICTE.
b) The entire amount of grant already released, along with interest accrued thereon shall be refunded to AICTE if mandatory documents are not submitted by the institute beyond one year of completion of program.

- c) It may be ensured that the scheme is completed within the stipulated time. If the scheme is not completed in time, no further extension will be granted in any case and institute has to refund the entire amount to AICTE.

VI. Submission of documents by institution in subsequent years

The following mandatory relevant documents are required to be submitted by the University/Institution within one month of the completion of subsequent year:

- a) **The Annual Progress Report (APR)** in the prescribed format along with Statement of Expenditure and Audited Utilization.
- b) **Utilization Certificate (UC)** supported by Audited Statement of Expenditure to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to the AICTE. It should contain the head-wise break up of expenditure made from the grant-in-aid provided by the Council. In case of self-financing/private institutions, Statement of actual Expenditure & Utilization Certificate are required to be audited & signed and sealed by a Chartered Accountant endorsing the membership number and complete postal address.
- c) **Scheme Completion Report (SCR)** in the prescribed format along with the copies of **invoice/bills** for the equipments purchased and copy of **stock entry register** where entry of the equipments have made duly verified. Audited Statement of Expenditure indicating expenditure incurred in the total duration of the project in the prescribed format and **GFR-19** shall be submitted to the Council. Photocopies of formats are enclosed.
- d) A complete Status Report of the project indicating the activities undertaking, number of students benefited, laboratory works photographs of students, together with their views.
- e) Report of Program Evaluation Committee (PEC).
- f) The minutes of the meetings of Program Evaluation Committee (PEC) are to be submitted to the Council at the end of the scheme along with other mandatory documents.
- g) The University/Institution is expected to submit the above said mandatory documents viz. Utilization certificate, Expenditure Statement and completion certificate etc. within one month of completion of SPDC Scheme. However, delay of further 2 months may be condoned by AICTE in special circumstances as explained by the institute. Delay in submission of documents after three months of the completion of the SPDC scheme shall invite a penalty of 10% of the total sanctioned amount of the SPDC scheme, to be deducted from the balance amount of 2nd installment.

VII. General Instructions

- a) The amount of interest accrued on the grant should be treated as part of the grant to be utilized for that particular scheme. However, the interest amount accrued along with grant disbursed should not exceed the total grant sanctioned for the scheme. The Institute receiving the grant should reflect the same in the audited statement of accounts/ utilization certificate and may either refund the interest amount to AICTE or AICTE should adjust the same in the next installment of grant before its release.
- b) Any expenditure incurred prior to the issuance of the sanction letter will not be allowed to be adjusted in the grant.
- c) Any unavoidable circumstantial change in the scheme with respect to name of Scheme Coordinator for the SPDC scheme would mandatorily require prior approval of the Council. All such requests should be addressed to AICTE, in advance, recording the specific reasons for proposed changes, failing which the offer for the grant already issued would be treated as automatically withdrawn and the financial assistance released in favour of the beneficiary institution shall be refunded immediately to the Council.
- d) The grantee shall maintain an audited record of assets acquired wholly or substantially out of the grant-in-aid and a register or assets shall be maintained by the institute in the prescribed form i.e. GFR-19.
- e) The University / Institute receiving grant under SPDC is expected to put up a plaque at the main entrance of the Lab/Department, which has been modernized using the grant. All the equipment procured through the scheme should be superscribed with AICTE scheme file number.

- f) The beneficiary institute will make best efforts to promote the scheme by mentioning the sponsorship/ support from AICTE, carrying the Logo of AICTE in program and other means.
- g) Any change in the equipment's recommended/sanctioned shall not be acceptable in any circumstances.
- h) Any expenditure above the sanctioned amount of grant is to be incurred from institute's own funds.
- i) The Institute/University shall not charge any overhead on this program and will provide all the administrative support for completion of the program.
- j) The assets acquired wholly or substantially out of AICTE's grant shall not be disposed or encumbered or utilize for the purpose other than those for which the grant was given without proper sanction of the AICTE and should at any time the institution cease to function, such assets shall revert to the AICTE, New Delhi
- k) Kindly mention the File No. 65-24/IDC/SPDC/Policy-1/2019-20 in your future correspondence.
- l) **GOI General Financial Rules (GFR)** should be followed during utilization of grant. URL addresses <http://doe.gov.in/orders-circular/GFR>.
- m) All the proformas related to SPDC scheme may be found at <https://www.aicte-india.org/schemes/institutional-development-schemes>

VIII. List of Equipment Approved

S.No.	Name of the Equipment	SPECIFICATIONS
1.	PC Systems-Intel Core I5 3470 3.2G	HP Pro 3330 MT PC consisting of - Intel Core I5 – 3470 3.2 G 6 M HD 2500 CPU - 500 GB 7200 RPM SATA 1st Hard Drive - 16GB DDR4 RAM - HP USB Optical BLK Mouse - HP USB JB Keyboard - HP LV1911 22 Inch LEDLCD Monitor - HP Pro 3330 MT 300 W aPFC chasis
2.	Laser Printer	HP multi function printer COPY / SCAN / PRINT
3.	LCD Projector	BENQ projector 2300 Lumens
4.	Audio System	AHUJA make, 150W.
5.	Tablets	Samsung Tablets
6.	Books and journals' Subscriptions	Books and journals related to skill development
7.	Software	Skillrack test software (or) other equivalent software for conducting aptitude tests

Yours, sincerely,

Dr. Neeraj Saxena
Dr. Neeraj Saxena
Advisor-II (IDC)

Copy forwarded for information and necessary action to:

1. **Name and Address of the Coordinator**
Dr. CHANDRASEKAR P,
Electrical Engineering,
VEL TECH RANGARAJAN DR.SAGUNTHALA R AND D
INSTITUTE OF SCIENCE AND TECHNOLOGY, #42, AVADI -VEL
TECH ROAD, AVADI, CHENNAI- 600062, THIRUVALLUR Tamil Nadu-600062.
2. **The Registrar / Director / Principal,**
VEL TECH RANGARAJAN DR.SAGUNTHALA R AND D
INSTITUTE OF SCIENCE AND TECHNOLOGY, #42, AVADI -VEL
TECH ROAD, AVADI, CHENNAI- 600062, THIRUVALLUR Tamil Nadu-600062.
3. **Guard File.**

BT/PR34335/TRM/120/264/2019

**Government of India
Ministry of Science & Technology
Department of Biotechnology**

Block-2, 6-8 Floors,
CGO Complex, Lodi Road,
New Delhi – 110003

Dated: 14.08.2020

ORDER

Sanction of the President is hereby accorded under Rule 18 of the Delegation of Financial Powers Rules, 1978, for implementation of the Project entitled **“Development of a highly sensitive technique for specific detection of pesticidal residues and heavy metals in crude herbal drugs and herbal products”** at a total cost of **₹ 25.22 lakhs (Rupees Twenty Five lakhs Twenty Two thousand only)** at Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai on the terms and conditions detailed here under.

2.0 The Project:

2.1 Project Title: Development of a highly sensitive technique for specific detection of pesticidal residues and heavy metals in crude herbal drugs and herbal products

2.2 Investigator:

Name of the PI(s) & Implementing Institute: Dr. Gowri Annasamy
Department of Biomedical Engineering, Vel Tech Rangarajan
Dr. Sagunthala R&D Institute of Science and Technology, No. 42, Avadi-
Vel Tech Road, Avadi, Chennai – 660062

Name of the Co-PI & Implementing Institute: Dr. Mugesh Sankaranarayanan, Assistant Professor, Department of
Biotechnology, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of
Science and Technology, 400 Feet Outer Ring Road, Avadi, Chennai –
660062

2.3 Project Objectives:

- i) To synthesize and develop highly sensitive nanocomposites for qualitative and quantitative sensing of five priority herbal products in the market.
- ii) To fabricate SERS active PMMA waveguides.
- iii) Testing the analytical spectral profile and SERS efficacy of the nanocomposites.
- iv) Testing the substrates for detection of pesticidal residues and heavy metal ions by both optical spectroscopy and SERS from the five priority herbal products.
- v) Validation of the sensitivity of the proposed substrates with conventional tools and exploration of marketing opportunities for large scale production.

2.4 Time Schedule: The duration of the project is **two** years from the date of this sanction order.

2.5 Manpower:

S. No.	Designation	No. of Positions	Emoluments (in Rupees)
1.	Junior Research Fellow*	One	₹ 31,000/- fixed per month + 24% HRA

* As per DST OM No. SR/S9/Z-08/2018 dated 30.01.2019;

2.6 Equipment Items:

S. No.	Name of Equipment	No. of Items	Estimated Cost (₹ in lakhs)
1.	Muffle Furnace	One	0.33
2.	Autoclave	One	0.13
3.	Microcentrifuge	One	1.30
4.	Lab Refrigerated Incubator Shaker	One	2.29
5.	Fiber Optics Spectrometer	One	4.20
Total:			8.25

2.7 Project Cost:

The year-wise estimated cost of the project is as under:

		Amount (₹ in lakh)		
S. No.	Item	Year I	Year II	Total
A.	Nonrecurring			
1.	Equipment	8.25	0.00	8.25
B.	Recurring			
1.	Manpower	4.61	4.61	9.22
2.	Consumables	2.75	2.50	5.25
3.	Travel	0.25	0.25	0.50
4.	Contingencies	0.50	0.50	1.00
5.	Overheads	0.50	0.50	1.00
Total (A+B):		16.86	8.36	25.22

3. The Non-recurring expenditure involved is debitable to Demand No. 88: Department of Biotechnology; 3425: Other Scientific Research (Major Head); 60: Others (Sub-Major Head); 60.200: Assistance to other Scientific Bodies (Minor Head); 29: Biotechnology Research and Development; 29.17: Assistance for Research and Development; 29.17.35: Grants for Creation of Capital Assets for the year 2020-2021 and the Recurring expenditure is debitable to 29.17.31: Grants-in-Aid General for the year 2020-2021.

4. Other terms and conditions:

- 4.1 The other terms and conditions governing this sanction are attached at Annexure 'I'.
- 4.2 As per rule 236(1) of GFR 2017, audit of account – the Accounts of all grantee Institutions or Organizations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPE) Act, 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organization is called upon to do so.
- 4.3 A Memorandum of Agreement (MOA) will be signed between the Department and the grantee institute(s) on a Non-Judicial stamp paper of an appropriate value in the format given at Annexure II. The *first* release to the implementing institutes will be affected after execution of MOA between the grantee institution(s) and the DBT.
- 4.4 ***The Institute(s) / Agency(ies) will keep the whole of the grant in the Bank Account earning interest, and the Interest so earned should be reported to DBT in the Utilization Certificate and Statement of Expenditure.*** The Interest so earned will be treated as created to the Institute(s) / Agency(ies) and shall be adjusted towards further instalment of the grant and / or at the time of Final Settlement of Accounts.

- 4.5 All efforts should be made by the institution(s) to use Expenditure Advance & Transfer (EAT) Module of Public Financial Management System (PFMS) during implementation of the project.
5. No international travel shall be undertaken from the sanctioned project grant unless specified otherwise.
6. The **Registrar, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai** would be responsible for submission of Statement of Expenditure and consolidated Utilization Certificate to DBT and PIs in respect of grants released against this order from time to time.
7. The continuation of the project beyond 31.03.2021 will be based on appraisal and approval of the DBT umbrella scheme on 'Biotechnology Research & Development' for continuation in the 15th Finance Commission period.
8. This issues under the powers delegated to this Department and with the concurrence of IFD, DBT, vide their SAN No. 102/IFD/SAN/663/2020-2021 dated 14.08.2020.



(Dr. Mohd. Aslam)
Scientist 'G'

To,

The Pay & Accounts Officer,
Department of Biotechnology,
Ministry of Science & Technology,
CGO Complex, Lodhi Road,
New Delhi – 110003

Copy to:

1. The Director of Audit (Scientific Departments), AGCR Building, New Delhi—110002
2. Cash Section, DBT (2 copies)
3. IFD, DBT
4. Sanction Folder
5. Dr. Gowri Annasamy, Department of Biomedical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, No. 42, Avadi-Vel Tech Road, Avadi, Chennai – 660062
6. The Registrar, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, No. 42, Avadi-Vel Tech Road, Avadi, Chennai – 660062



(Dr. Mohd. Aslam)
Scientist 'G'

BT/PR35666/TDS/121/52/2020
Government of India
Ministry of Science & Technology
Department of Biotechnology

Block-2, 6-8th Floors,
CGO Complex, Lodi Road,
New Delhi – 110003

Dated: 31.08.2020

O R D E R

Sanction of the President is hereby accorded under Rule 18 of the Delegation of Financial Powers Rules, 1978, for implementation of the Project entitled **“Developing Novel Applications from Silk Fibres and Silk Proteins”** at a total cost of **₹ 89.99 lakhs (Rupees Eighty Nine lakhs Ninety Nine thousand only)** jointly at Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (VTRDSIST), Chennai (₹ 52.44 lakhs) and Central Silk Technological Research Institute (CSTRI), Bengaluru (₹ 37.55 lakhs) on the terms and conditions detailed here under:

2.0 The Project:

2.1 Project Title: Developing Novel Applications from Silk Fibres and Silk Proteins

2.2 Investigator:

**Name of the PI &
Implementing Institute:**

1. Dr. Tarangini Korumilli, Department of Biotechnology, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (VTRDSIST), No.42, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai – 600062, Tamil Nadu
2. Dr. Naveen V Padaki, Central Silk Technological Research Institute (CSTRI), CSB Complex, B.T.M. Layout, Madivala, Bengaluru – 16/, Karnataka

**Name of the Co-PI(s) &
Implementing Institute(s):**

1. Dr. Jagajjanani Rao Korukonda, Department of Biotechnology, VTRDSIST, Chennai
2. Dr. Subhas V. Naik, CSTRI, Bengaluru
3. Dr. Abhilasha, CSTRI, Bengaluru

2.3 Project Objectives:

Component I: Developing antimicrobial and UV resistant silk fibres/yarns

1. Pre-treatment of silk fibres with *Aegle marmelos* leaf extract and chitosan.
2. Development of green synthesis approach for *in situ* and *ex situ* nanoparticle (Ag, Cu and ZnO) deposition onto the pre-treated silk fibres.
3. Optimization of process parameters for stable and uniform impregnation of nanoparticles with a low degree of polydispersity.
4. Antimicrobial assessments, fibre strength, wetting property and particle leaching studies of the augmented fibres.
5. Fibre weaving and application of nanoparticles impregnated fibres for hospital clothing and sportswear.

Component II: Development of silk sericin based edible coating material

1. Sericin composite coating agent formulation using biomaterials i.e. chitosan, *Aloe vera*, *Abelmoschus esculentus* extract (mucilage).
2. Selection and optimization of key coating parameters on various fruits and vegetables.
3. Shelf-life, field and safety study along with third party assessments of synthesized edible coating material/s.
4. Finalization of coating strategy and large-scale applicability.

2.4 Time Schedule:

The duration of the project is **three** years from the date of this sanction order.

2.5 Manpower:

S. No.	Designation	No. of Positions	Emoluments (in Rupees)
I. VTRDSIST, Chennai			
1.	Junior Research Fellow	One	₹ 31,000/- fixed per month + 24% HRA for Year I and II, ₹ 35,000/- fixed per month + 24% HRA for Year III
II. CSTRI, Bengaluru			
1.	Junior Research Fellow	One	₹ 31,000/- fixed per month + 24% HRA for Year I and II, ₹ 35,000/- fixed per month + 24% HRA for Year III

* As per DST OM No. SR/S9/Z-08/2018 dated 30.01.2019;

2.6 Equipment:

S. No.	Name of Equipment	No. of Items	Estimated Cost (including GST)	
			In Foreign Currency	(₹ in lakhs)
I. VTRDSIST, Chennai				
1.	Washing Fastness Tester	One	--	0.84
2.	Automatic Twist Tester	One	--	0.53
3.	Laboratory Pad Dry Machine	One	--	0.84
4.	Digital Light Fastness Tester	One	--	1.21
5.	Lea Strength Tester	One	--	0.74
6.	Ultrasonic Automizer / Sprayer	One	US\$ 4,065	3.06
			(US\$ 1 = ₹ 75.32 as on 01.06.2020)	
7.	Crockmeter	One	--	0.32
8.	GSM Cutter	One	--	0.08
9.	Moisture Balance	One	--	0.61
10.	Digital Refractometer BRIX/RI	One	--	0.35
11.	Humidity Chamber	One	--	0.91
12.	Probe Sonicator	One	--	2.23
13.	ATR-FTIR with accessories	One	US\$ 15,654	11.79
Total I:				23.51
II. CSTRI, Bengaluru				
1.	Freeze Dryer for Sericin	One	--	15.96
2.	Hydro Extractor	One	--	0.74
3.	Autoclave	One	--	2.42
Total II:				19.12
Grand Total (I+II):				42.63

2.7 Project Cost:

The year-wise estimated cost of the project is as under:

I. Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (VTRDSIST), Chennai

		Amount (₹ in lakh)			
S. No.	Item	Year I	Year II	Year III	Total
A.	Nonrecurring				
1.	Equipment	23.51	0.00	0.00	23.51
B.	Recurring				
1.	Manpower	4.61	4.61	5.21	14.43
2.	Consumables	5.00	3.00	2.00	10.00
3.	Travel	0.50	0.50	0.50	1.50
4.	Contingencies	0.50	0.50	0.50	1.50
5.	Overheads	0.50	0.50	0.50	1.50
Total I (A+B):		34.62	9.11	8.71	52.44

II. Central Silk Technological Research Institute (CSTRI), Bengaluru

		Amount (₹ in lakh)			
S. No.	Item	Year I	Year II	Year III	Total
A.	Nonrecurring				
1.	Equipment	19.12	0.00	0.00	19.12
B.	Recurring				
1.	Manpower	4.61	4.61	5.21	14.43
2.	Consumables	0.75	1.00	1.00	2.75
3.	Travel	0.10	0.20	0.20	0.50
4.	Contingencies	0.25	0.25	0.25	0.75
5.	Overheads	0.00	0.00	0.00	0.00
Total II (A+B):		24.83	6.06	6.66	37.55
Grand Total (I+II):		59.45	15.17	15.37	89.99

3. The nonrecurring expenditure involved is debit to Demand No. 88: Department of Biotechnology; 3425: Other Scientific Research (Major Head); 60: Others (Sub-Major Head); 60.200: Assistance to other Scientific Bodies (Minor Head); 29: Biotechnology Research and Development; 29.17: Assistance for Research and Development; 29.17.35: Grants for Creation of Capital Assets for the year 2020-2021 and the recurring expenditure involved is debit to 29.17.31: Grants-in-Aid General for the year 2020-2021.

4. Other terms and conditions:

- 4.1 The other terms and conditions governing this sanction are attached at Annexure 'I'.
- 4.2 As per rule 236(1) of GFR 2017, audit of account – the Accounts of all grantee Institutions or Organizations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPE) Act, 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organization is called upon to do so.
- 4.3 A Memorandum of Agreement (MOA) will be signed between the Department and the grantee institute(s) on a Non-Judicial stamp paper of an appropriate value in the format given at Annexure II and the **first release to VTRDSIST** and **second release to CSTRI** will be effected after execution of MOA between the grantee institution(s) and the DBT.

- 4.4 ***The Institute(s) / Agency(ies) will keep the whole of the grant in the Bank Account earning interest, and the Interest so earned should be reported to DBT in the Utilization Certificate and Statement of Expenditure.*** The Interest so earned will be treated as created to the Institute / Agency and shall be adjusted towards further instalment of the grant and / or at the time of Final Settlement of Accounts.
5. No international travel shall be undertaken from the sanctioned project grant unless specified otherwise.
6. The ***Registrar, VTRDSIST, Chennai*** and ***the Director, CSTRI, Bangalore*** would be responsible for submission of Statement of Expenditure and consolidated Utilization Certificate to DBT and Pls in respect of grants released against this order from time to time.
7. This issues under the powers delegated to this Department and with the concurrence of IFD, DBT, vide their SAN No. 102/IFD/SAN/891/2020-2021 dated 31.08.2020.



(Dr. Mohd. Aslam)
Scientist 'G'

To,

The Pay & Accounts Officer,
Department of Biotechnology,
Ministry of Science & Technology,
CGO Complex, Lodhi Road,
New Delhi – 110003

Copy to:

1. The Director of Audit (Scientific Departments), AGCR Building, New Delhi—110002
2. Cash Section, DBT (2 copies)
3. IFD, DBT
4. Sanction Folder
5. Dr. Tarangini Korumilli, Department of Biotechnology, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (VTRDSIST), No.42, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai – 600062, Tamil Nadu
6. Dr. Naveen V Padaki, Central Silk Technological Research Institute (CSTRI), CSB Complex, B.T.M. Layout, Madivala, Bengaluru – 560068, Karnataka
7. The Registrar, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (VTRDSIST), No.42, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai – 600062, Tamil Nadu
8. The Director, Central Silk Technological Research Institute (CSTRI), CSB Complex, B.T.M. Layout, Madivala, Bengaluru – 560068, Karnataka



(Dr. Mohd. Aslam)
Scientist 'G'

FILE NO. TAR/2020/000429
SCIENCE & ENGINEERING RESEARCH BOARD(SERB)
(A statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 19-Dec-2020

ORDER

Subject: Financial Sanction under Teachers Associateship for Research Excellence (TARE) to Dr. YUVARAJ N, Vel Tech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology , 00 Feet Outer Ring Road, Avadi, Chennai 600062, India, Chennai, Tamil Nadu-600062- under the mentorship of Dr. Puneet Tandon, at Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing Dumna Airport Road, Jabalpur - 482005- Release of 1st grant.

Sanction of Science and Engineering Research Board (SERB) is hereby accorded to the above mentioned grant at a total cost of Rs. 18,30,000/- (Rs. Rupees Eighteen Lakh Thirty Thousand only) for a duration of 36 months. The date of start of the project will be 02 December, 2020. The items of expenditure for which the total allocation of Rs. 18,30,000/- has been approved are given below:

The following budget is proposed for

Vel Tech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology , 00 Feet Outer Ring Road, Avadi, Chennai 600062, India, Chennai, Tamil Nadu-600062 (Parent)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 0 (@0/- per month (consolidated))
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing Dumna Airport Road, Jabalpur - 482005 (Host)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 60,000 (on completion of 90 days mandatory attendance in the host institute every year)
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

2. Sanction of the SERB is also accorded to the payment of Rs. 2,75,000/- (Rupees Two Lakh Seventy Five Thousand only) to Vel Tech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology, 00 Feet Outer Ring Road, Avadi, Chennai 600062, India , Rs. 3,35,000/- (Rupees Three Lakh Thirty Five Thousand only) to Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing Dumna Airport Road, Jabalpur - 482005 being the first installment of the grant for the year 2020-2021 for implementation of the said research project.

3. The expenditure involved is debitable to

Fund for Science & Engineering Research (FSER)

This release is being made under Teachers Associateship For Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics)

4. The Sanction has been issued to with the approval of the competent authority vide Diary No. SERB/F/5861/2020-2021 dated 19 December, 2020

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

8. The release amount of Rs. 2,75,000/- (Rupees Two Lakh Seventy Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology , 00 feet outer ring road, avadi, chennai 600062, india, Chennai, Tamil nadu-600062 (Parent):

PFMS Unique Code	veltechinspire
Account Name	Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology
Account Number	75330200000178
Bank Name & Branch	Bank of Baroda Vel Tech Engineering College and #42, Avadi - Vel Tech Road, Avadi, Chennai, Tamilnadu, India, Pin-600062
IFSC/RTGS Code	BARB0VJVELT
Email address of PI	yuvaceg09@gmail.com
Email id of A/C Holder	registrar@veltech.edu.in
Email address of concerned officer	ms_tare@serbonline.in

The release amount of Rs. 3,35,000/- (Rupees Three Lakh Thirty Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing Dumna Airport Road, Jabalpur - 482005 (Host):

PFMS Unique Code	iiitdmj
Account Name	PDPM IIITDMJ Project Account 02
Account Number	50493049746
Bank Name & Branch	Allahabad Bank Mehgawan, IIITDM, Campus Branch, Jabalpur. Tel: 0761-2633356 Email: btmehgawan@allahabadbank.in
IFSC/RTGS Code	ALLA0212433
Email address of PI	yuvaceg09@gmail.com
Email id of A/C Holder	registrar@iiitdmj.ac.in
Email address of concerned officer	ms_tare@serbonline.in

9 Both the institutes will furnish Utilization certificate(UCs) financial year wise to the SERB and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

10. The institute will maintain separate audited accounts for the fellowship. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.


11. The File no. TAR/2020/000429 may also be mentioned in all research communications arising from the above project with due acknowledgement of SERB.

12. As this is the first grant for the fellowship, no previous U/C is required.

13. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE AND ENGINEERING RESEARCH" payable at New Delhi.

14. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

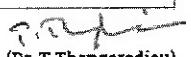
15. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India


(Dr. T Thangaradjou)
Scientist E
ms_tare@serbonline.in

To,
Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R. Building, IIIrd Floor I P. Estate, Delhi-110002
2.	Sanction Folder, SERB, New Delhi.
3.	File Copy
4.	<p>(i) Dr. YUVARAJ N Mechanical Engineering Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, 90 feet outer ring road, avadi, chennai 600062, india, Chennai, Tamil nadu-600062 Email: yuvaceg09@gmail.com Mobile: 919842079202</p> <p>(ii) Dr. Puneet Tandon Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing Dumna Airport Road, Jabalpur - 482005</p> <p>(Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)</p>
5.	<p>(i) Registrar, Vel Tech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology, 90 Feet Outer Ring Road, Avadi, Chennai 600062, India</p> <p>(ii)Registrar Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing Dumna Airport Road, Jabalpur - 482005</p> <p>(Receipt of Grant may be intimated by name to the undersigned)</p>


(Dr. T Thangaradjou)
Scientist E
ms_tare@serbonline.in

FILE NO. TAR/2020/000416
SCIENCE & ENGINEERING RESEARCH BOARD(SERB)
(A statutory body of the Department of Science & Technology, government of India)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 15-Dec-2020

ORDER

Subject: Financial Sanction under Teachers Associateship for Research Excellence (TARE) to Dr. PRABHUKUMAR S, Veltech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology , Avadi, Chennai, Thiruvallur District, Tamilnadu, Chennai, Tamil Nadu-600062- under the mentorship of Dr. K. Siva Prasad, at National Institute of Technology, Tiruchirappalli Tanjore Main Road, National Highway 67,near BHEL - 620015- Release of 1st grant.

Sanction of Science and Engineering Research Board (SERB) is hereby accorded to the above mentioned grant at a total cost of Rs. 18,30,000/- (Rs. Rupees Eighteen Lakh Thirty Thousand only) for a duration of 36 months. The date of start of the project will be 02 December, 2020. The items of expenditure for which the total allocation of Rs. 18,30,000/- has been approved are given below:

The following budget is proposed for

Veltech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology , Avadi, Chennai, Thiruvallur District, Tamilnadu, Chennai, Tamil Nadu-600062 (Parent)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 0 (@0/- per month (consolidated))
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

National Institute of Technology, Tiruchirappalli Tanjore Main Road, National Highway 67,near BHEL - 620015 (Host)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 60,000 (on completion of 90 days mandatory attendance in the host institute every year)
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

2. Sanction of the SERB is also accorded to the payment of Rs. 2,75,000/- (Rupees Two Lakh Seventy Five Thousand only) to Vel Tech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology, No.42, Avadi-Vel Tech Road, Poonamallee - Avadi High Rd, Vel Nagar , Rs. 3,35,000/- (Rupees Three Lakh Thirty Five Thousand only) to National Institute of Technology, Tiruchirappalli Tanjore Main Road, National Highway 67,near BHEL - 620015 being the first installment of the grant for the year 2020-2021 for implementation of the said research project.

3. The expenditure involved is debit to

Fund for Science & Engineering Research (FSER)

This release is being made under Teachers Associateship For Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics)

4. The Sanction has been issued to with the approval of the competent authority vide Diary No. SERB/F/5594/2020-2021 dated 14 December, 2020

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

8. The release amount of Rs. 2,75,000/- (Rupees Two Lakh Seventy Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Veltech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology , Avadi, Chennai, Thiruvallur district, Tamilnadu, Chennai, Tamil Nadu-600062 (Parent) :

PFMS Unique Code	veltechinspire
Account Name	Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology
Account Number	75330200000178
Bank Name & Branch	Bank of Baroda Vel Tech Engineering College, 42, Avadi - Vel Tech Road, Avadi, Chennai, Tamil Nadu, India, PIN - 600062
IFSC/RTGS Code	BARB0VJVELT
Email address of PI	drprabhukumars@veltech.edu.in
Email id of A/C Holder	registrar@veltech.edu.in
Email address of concerned officer	ms_tare@serbonline.in

The release amount of Rs. 3,35,000/- (Rupees Three Lakh Thirty Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

National Institute of Technology, Tiruchirappalli Tanjore Main Road, National Highway 67, near BHEL - 620015 (Host) :

PFMS Unique Code	NIT19
Account Name	DIRECTOR, NIT, AC 11 DEF PROJ
Account Number	10023883042
Bank Name & Branch	State Bank of India NIT CAMPUS, Post Bag No:3, National Institute of Technology, Tiruchirappalli - 620015
IFSC/RTGS Code	SBIN0001617
Email address of PI	drprabhukumars@veltech.edu.in
Email id of A/C Holder	deanrc@nitt.edu
Email address of concerned officer	ms_tare@serbonline.in

9. Both the institutes will furnish Utilization certificate (UCs) financial year wise to the SERB and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

10. The institute will maintain separate audited accounts for the fellowship. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

11. The File no. **TAR/2020/000416** may also be mentioned in all research communications arising from the above project with due acknowledgement of **SERB**.

12. As this is the first grant for the fellowship, no previous U/C is required.

13. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "**FUND FOR SCIENCE AND ENGINEERING RESEARCH**" payable at New Delhi.

14. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.


15. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.


(Dr. T. Thangaradjou)
Scientist E
ms_tare@serbonline.in

To,
Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to:-

1.	The Principal Director of Audit, A.G.C.R Building, 11th Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB, New Delhi.
3.	File Copy
4.	<p>(i) Dr. PRABHUKUMAR S Mechanical Engineering Veltech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Avadi, Chennai, thiruvallur district, tamilnadu, Chennai, Tamil nadu-600062 Email: drprabhukumars@veltech.edu.in Mobile: 919738663934</p> <p>(ii) Dr. K. Siva Prasad National Institute of Technology, Tiruchirappalli Tanjore Main Road, National Highway 67, near BHEL - 620015</p> <p>(Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)</p>
5.	<p>(i) Registrar, Vel Tech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology, No.42, Avadi-Vel Tech Road, Poonamallee - Avadi High Rd, Vel Nagar</p> <p>(ii) Dean - Research and Consultancy National Institute of Technology, Tiruchirappalli Tanjore Main Road, National Highway 67, near BHEL - 620015</p> <p>(Receipt of Grant may be intimated by name to the undersigned)</p>


(Dr. T. Thangaradjou)
Scientist E
ms_tare@serbonline.in

No. BT/PR 34305/NDB/39/677/2020

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Block 2, 6-8th Floors
CGO Complex, Lodhi Road,
New Delhi- 110 003
Dated:11.01.2021

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules, 1978, for the implementation of the project entitled "**Development of improved process for production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose**" for a period of 3 Year 0 Month at a total cost of **Rs. 8480020** (Rupees Eighty Four Lakhs Eighty Thousand and Twenty Only) on the terms and conditions detailed here under:-

2 The Project :

2.1 Title : Development of improved process for production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose

2.2 Details of the Investigators:

Project Coordinator

Dr. Mugesh Sankaranarayanan

Assistant Professor
Department of Biotechnology
Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology,
No:42, Veltech-Avadi Road, Chennai- 600062

Principal Investigators:

Dr. Mugesh Sankaranarayanan

Assistant Professor
Department of Biotechnology
Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
No:42, Veltech-Avadi Road, Chennai- 600062

Prof. Guhan Jayaraman

Professor
Department of Biotechnology
Indian Institute of Technology Madras
Chennai-600036, Tamil Nadu

CO-PIs:

Ms. SaiNandhini R.

Assistant Professor
Department of Biotechnology
Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
No: 42, Vel Tech – Avadi Road, Chennai-600062

Dr. NiravPravinbhai Bhatt

Assistant Professor
Department of Biotechnology
Indian Institute of Technology Madras
Chennai-600036, Tamil Nadu



डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'

बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

2.3 Objectives:

Overall Objectives:

1. To develop a method for the production of 3-HP from crude glycerol and lignocellulosic biomass derived glucose using the recombinant *Escherichia coli*.
2. To develop a tolerant *E. coli* strain by ALE process and to produce 3-HP at lab scale with a titre > 70 g/L.
3. To develop of an integrated and economical process, including downstream purification, for production of pure 3-HP (> 95% purity) from waste resources.

Institute wise Objectives:

Indian Institute of Technology, Madras

1. Pretreatment of crude glycerol and generation of glucose from lignocellulosic biomass
2. Strain adaptation on pretreated glycerol and cellulolytic glucose; Development of strain tolerance to 3-HP by adaptive laboratory evolution; Purification process development for shake flask scale
3. Process optimization and development of fed- batch strategies for production of 3-HP at high titres using a tolerant strain.
4. Downstream process development for the purification of 3-HP from the fermentation broth at bioreactor level.

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

1. To improve 3-HP titre and yield by the deletion of competing pathway genes such as *yqhD*, *poxB*, *pta* and *ackA*.
2. To separate growth and production by deleting *glpK* and *gldA* to use glucose for growth and glycerol for 3-HP production.
3. To enhance the tolerance of the production host, *E. coli* W by deleting *yieP* gene.
4. To find the best combination of mutations to enhance 3-HP titre


2.4 Time Schedule:

The duration of the project is 3 Year 0 Month from the date of this sanction order.

2.5 Project Cost:

The total cost of the project is Rs. **8480020/-** (Rupees Eighty Four Lakhs Eighty Thousand and Twenty Only) as per details given below:

Institute	Year I	Year II	Year III	Total Cost(Rs.)
1. Indian Institute of Technology, Madras	1111280	1111280	1170800	3393360
2. Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	3004580	1011280	1070800	5086660
Total (Rs.)	4115860	2122560	2241600	8480020


डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी, मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Institute wise details are:

Budget Head	Year I	Year II	Year III	Total(Rs.)
1. Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology				
Equipment	1993300.00			1993300.00
Manpower	461280.00	461280.00	520800.00	1443360.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	50000.00	50000.00	50000.00	150000.00
Consumables	400000.00	400000.00	400000.00	1200000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	3004580.00	1011280.00	1070800.00	5086660.00
2. Indian Institute of Technology, Madras				
Manpower	461280.00	461280.00	520800.00	1443360.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	50000.00	50000.00	50000.00	150000.00
Consumables	500000.00	500000.00	500000.00	1500000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	1111280.00	1111280.00	1170800.00	3393360.00

2.6 Equipment

The details of the equipment sanctioned for the implementation of the project at **Annexure-I**

2.7 Manpower:

The details of the manpower sanctioned for the implementation of the project at **Annexure-II**

2.8 Quarterly Deliverables

The quarterly deliverables of the project sanctioned for the implementation of the project at **Annexure-IIA**.

3. Head of Account:

The **Recurring and Non-Recurring** expenditure involved is debitable to:

Demand No. 88	Department of Biotechnology
3425	Other Scientific Research 2020-2021
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.31	Grants -in-Aid General
3425.60.200.29.17.35	Grants for creation of capital assets

4. Terms & Conditions:

The institute/Agency will keep the whole of the grant in a bank account earning interest and the interest so earned would be report to DBT in the Utilization Certificate and Statement of Expenditure. As per the provision contained in GFR Rule 230(8), all interests/other earning occurred against Grants-in-aid shall be mandatory remitted to the Consolidated fund of India through the online portal www.bharatkosh.gov.in only.

4.1 The other terms and conditions governing this sanction are attached at Annexure- III.

4.2A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA between the grantee institutions and DBT. In case of NGO's and Private Institution's, execution of MOA is mandatory before first release. A format of the MoA is enclosed in Annexure-IV

4.3 The Institute/Agency will keep the whole of the grant in a Bank Account earning interest, and the interest so earned should be reported to DBT in the Utilization Certificate and Statement of Expenditure. The Interest so earned will be treated as created to the institute/Agency and shall be adjusted towards further installment of the grant and or at the time of Final Settlement of Accounts.

5. No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.

6. The Registrar, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Tiruvallur, Tamil Nadu and The Registrar, IIT Madras, Chennai, Tamil Nadu would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.

7. PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-08/2018 dated 30 Jan 2019. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.

8. As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organizations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG (DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organizations is called upon to do so.

9. If the Research Project involves biological resources, the obligations under the Biological Diversity Act 2002 as applicable shall be complied with by the Project Investigator, the details of such obligations can be accessed at www.nbaindia.org

10. If this project works requires any Statutory Clearance (such as Ethical Committee Clearance, Informed Consent, Animal Ethics Committee Clearance, Institutional Bio-safety Committee Clearance, National Biodiversity Authority approval etc.), Project investigator(s) and Host Institution(s) shall compulsory comply the same before undertaking such activities.

11. This issues, under the power delegated to this Department and with the concurrence of IFD vide their **SAN No. 102/IFD/SAN/1957/2020-2021 dated 11.01.2021.**

12. This sanction order has been noted at serial no. **51** in the Register of Grants.

(Dr. Manoj Kumar Modi)

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'


बायोटेक्नोलॉजी विभाग / Dept. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

To,

The Pay & Accounts Officer,
Department of Biotechnology,
New Delhi - 110 003.

Copy to:

- 1 The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110 002.
- 2 **Dr. Mugesh Sankaranarayanan** (Project Co-ordinator), Assistant Professor, Department of Biotechnology, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, 42 Avadi-Vel Tech Road, Chennai, Tamil Nadu 600062
- 3 The Registrar, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, 400 feet outer ring road, Avadi, Chennai 600062, India., Tiruvallur - 600062, Tamil Nadu
- 4 The Registrar, Institute of Science and Technology, Madras, Chennai - 600036, Tamil Nadu
- 5 **Prof. Guhan Jayaraman**, Professor, Department of Biotechnology, Department of Biotechnology, Bhupat and Jyoti Metha School Of Biosciences, Indian Institute of Technology Madras, Chennai - 600 036, Tamil Nadu
- 6 Ms. Sai Nandhini R., Assistant Professor, Department of Biotechnology, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, No: 42, Vel Tech - Avadi Road, Chennai- 600062
- 7 Dr. Nirav Pravinbhai Bhatt, Assistant Professor, Department of Biotechnology, Indian Institute of Technology Madras, Chennai-600036, Tamil Nadu
- 8 Cash Section, DBT (2 copies).
- 9 Sanction Folder.
- 10 File Copy.


(Dr. Manoj Kumar Modi)
Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्यो. मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Annexure -I

Details of the Equipment sanctioned for the implementation of the project entitled "**Development of improved process for production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose**":

Vel Tech RangarajanDr.Sagunthala R&D Institute of Science and Technology			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Refrigerated Centrifuge	1	250000.00
2.	Centrifuge	1	80000.00
3.	PCR Thermocycler	1	247800.00
4.	Orbital Shaker	2	305000.00
5.	Gel documentation system	1	400000.00
6.	Electroporator	1	254000.00
7.	Vortex Mixer	3	19500.00
8.	Electrophoresis Power Supply LCD Model	1	80000.00
9.	Hot air oven	1	37000.00
10.	Mini Submarine Gel Apparatus	1	65000.00
11.	Micro pipettes	1	75000.00
12.	Mini Vertical PAGE Electrophoresis	1	30000.00
13.	Autoclave	1	150000.00
Total			1993300.00


(Dr. Manoj Kumar Modi)
Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Annexure -II

Details of the manpower sanctioned for the implementation of the project entitled "**Development of improved process for production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose**":

Head	No. of Position	Year I	Year II	Year III	Total (Rs.)
1. Indian Institute of Technology Madras					
Junior Research Fellow(JRF) @ Rs.31000/- +24% HRA per month for 1 st and 2 nd year and Senior Research Fellow (SRF) @ Rs. 35000/- +24% HRA per month for 3 rd year	One	461280	461280	520800	1443360
Total(Rs.)		461280	461280	520800	1443360
2.Vel Tech RangarajanDr.Sagunthala R&D Institute of Science and Technology					
Junior Research Fellow(JRF) @ Rs.31000/- +24% HRA per month for 1 st and 2 nd year and Senior Research Fellow (SRF) @ Rs. 35000/- +24% HRA per month for 3 rd year	One	461280	461280	520800	1443360
Total(Rs.)		461280	461280	520800	1443360

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DSTOM No. SR/S9/Z-08/2018 dated 30.01.2019 for JRF/SRF

(Dr. Manoj Kumar Modi)
Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योग. मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Annexure –IIA

The quarterly deliverables of the project sanctioned of both Institutes for the implementation of the project entitled **"Development of improved process for production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose"**:

Indian Institute of Technology Madras

S. No	Objectives/ Activities	Milestones and deliverables											
		Year I				Year II				Year III			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Pretreatment of crude glycerol and generation of glucose	Analysis of crude glycerol for impurities	Optimization of purification process										
2	process development for shake flask			Adaptive laboratory evolution at high 3-HP	Fermentation process parameters evaluation	Adaptive evolution in crude glycerol/ glucose	shake flask purification process development						
3	Fed-batch Process development						Mixed feeding process of glycerol and glucose	Effect of dissolved oxygen	Optimized process for high cell density and high 3- HP Ittre				
4	Downstream process development and integration with fermentation									development of downstream process	Integration of purification with fermentation	Patent and publications	Report writing

(Dr. Manoj Kumar Modi)
Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

S. No	Objectives/ Activities	Milestones and deliverables											
		Year I				Year II				Year III			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Removal of competing pathway	Deletion of yqhD and poxB genes	Deletion of pta and ackA genes	Expression of recombinant and enzyme activities in deletion									
2	Separate of growth and 3-HP production			Deletion of glpK	Deletion of glpK and gldA	Deletion of gldA and recombinant gene expression	Expression of recombinant gene and enzyme activities in deletion mutants						
3	Enhance tolerance of host strain						Deletion of yieP	Evaluation of yieP mutant at high 3-HP	Expression of recombinant gene and enzyme activities in deletion mutants				
4	Evaluating the best combinational mutations									Deletion of the best combinational genes	Expression of recombinant gene and enzyme activities in deletion mutants	Patent and publications	Report writing


(Dr. Manoj Kumar Modi)
Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi



தமிழ்நாடு தமில்நாடு TAMIL NADU

METALLIC BELLOWS INDIA PVT LTD
10 MAR 2021

90AB 414252
S. KUMARAVELU
Stamp Vendor
L. 26/CH (S) 2010 Dt. 02.03.2011
M. 10/22, Iewarya Colony, Indira Nagar,
Adyar, Chennai-600 020.

AGREEMENT FOR THE DESIGN & DEVELOPMENT OF SLIDE AND SWIVEL JOINT (SSJ)

Further to the NDA and MOU dated 15th October 2020 and 21st October 2020 the following specific agreement is drawn for the project - Design and Development of Slide and Swivel Joints (SSJ). The total cost of the project is Rs. 16.40 lakhs (Rupees sixteen lakhs forty thousand only)

1. Commencement date for the Project is 18th December 2020 as per the agreement signed with DRDO under TDF scheme.
2. Completion of Milestone 1 & 2 are. 4 and 10 months i.e., before 17.04.2021 and 17.10.2021.
3. Advance of Rs. 3.50 lakhs (Rupees three lakh and fifty thousand only) will be given once the agreement is signed. M/s Vel Tech is requested to submit Photo-stat copies of the bill and relevant documents at the end of each milestone.
4. All invoices are to be raised under the categories of manpower, academia, sub-contract, travel and contingency and overheads by Vel Tech. This document supersedes any other document signed for payment terms.

For METALLIC BELLOWS (I) PVT. LTD.

Director

Prof. Dr. E. Kannan
Registrar

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
Deemed to be University Est. 2003 - F.E.C. Act, 1987

5. The principal investigator and team will be required to undertake domestic and local travel as and when required for the completion of all milestones. The principal investigator and team will be associated with the project until the completion.
6. Monthly Rs. 50,000/- (Rupees fifty thousand only) will be released to Vel Tech before 10th of every month. The Photostat copy of bills for the amount have to be submitted by the end of the month. This will be for a period of 7 months. The balance amount will be divided and given at the end of milestone 3, milestone 4 and milestone 5 (completion of the project after submission of all relevant documents).
7. If MBIPL decides to discontinue the agreement with the Vel Tech from this project, cost of work until time of withdrawal will be calculated and paid to the Vel Tech.
8. If the Vel Tech decides to discontinue the agreement then all costs related to the project given to Vel Tech until the time of withdrawal will be returned. There will be one month notice period for termination to come into effect.
9. The material developed will not be used without getting prior approval from all the agencies involved.

For METALLIC BELLOWS (I) PVT. LTD.

Padma Ramesh
Director
METALLIC BELLOWS INDIA PVT LTD

(MBIPL)

[Signature]
VEL TECH RANGARAJAN DR. SAGUNTHALA
R&D INSTITUTE OF SCIENCE & TECHNOLOGY
(VEL TECH)

Prof. Dr. E. Kannan
Registrar

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Est. u/s 3 of UGC Act, 1956)

Cost Head Expenses (Table-1) -

Cost Head (In Lacs)	Project Cost			Milestone-1 (27.1%) (Advance / T0 + 4 Month)			Milestone-2 (33.8%) (T0 + 10 Month)		
	Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost
Manpower	1.5384	2.3076	3.8460	0.7692	1.1538	1.9230	0.7692	1.1538	1.9230
Academia	1.8000	2.7000	4.5000	0.1600	0.2500	0.4000	0.4000	0.5900	0.9900
Sub-contract	1.0256	1.5384	2.5640	0.5128	0.7692	1.2820	0.5128	0.7692	1.2820
Travel	1.6000	2.4000	4.0000	0.1440	0.2160	0.3600	0.3520	0.5280	0.8800
Contingency & Overheads	0.5960	0.8940	1.4900	0.1907	0.2861	0.4768	0.1848	0.2771	0.4619
Total	6.5600	9.8400	16.4000	1.7767	2.6751	4.4418	2.2188	3.3181	5.5369

Cost Head Expenses (Table-1) - FUE

Cost Head (In Lacs)	Project Cost			Milestone-1 (24.7%) (Advance / T0 + 4 Month)			Milestone-2 (30.5%) (T0 + 12 Month)		
	Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost
Manpower	0.6035	1.2065	1.8100	0.3017	0.6033	0.9050	0.3017	0.6033	0.9050
Academia	0.9002	1.7998	2.7000	0.0900	0.1800	0.2700	0.1800	0.3600	0.5400
Sub-contract	0.3034	0.6066	0.9100	0.1517	0.3033	0.4550	0.1517	0.3033	0.4550
Travel	0.8002	1.5998	2.4000	0.0800	0.1600	0.2400	0.1600	0.3200	0.4800
Contingency & Overheads	0.2601	0.5199	0.7800	0.0832	0.1664	0.2496	0.0806	0.1612	0.2418
Total	2.8672	5.7328	8.6000	0.7067	1.4129	2.1196	0.8741	1.7477	2.6218

SS

Prof. Dr. E. Kannan
Registrar

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Est. up 3rd 12/01/2017)



Date : 06.03.2021

Annexure

SLIDE & SWIVEL JOINT

Milestone-3 (13.6%) (T0 + 12 Month)			Milestone-4 (14.2%) (T0 + 16 Month)			Milestone-5 (11.3%) (T0 + 24 Month)		
Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.4300	0.6500	1.0800	0.4500	0.6800	1.1300	0.3600	0.5300	0.9000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.3840	0.5760	0.9600	0.4000	0.6000	1.0000	0.3200	0.4800	0.8000
0.0775	0.1162	0.1937	0.0775	0.1162	0.1937	0.0656	0.0983	0.1639
0.8915	1.3422	2.2337	0.9275	1.3962	2.3237	0.7456	1.1083	1.8639

SYSTEM COMPONENTS

Milestone-3 (13%) (T0 + 16 Month)			Milestone-4 (13%) (T0 + 20 Month)			Milestone-5 (18.8%) (T0 + 24 Month)		
Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost	Lead DA	DRDO share	Total Project cost
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.1800	0.3600	0.5400	0.1800	0.3600	0.5400	0.2701	0.5399	0.8100
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.1600	0.3200	0.4800	0.1600	0.3200	0.4800	0.2400	0.4800	0.7200
0.0338	0.0676	0.1014	0.0338	0.0676	0.1014	0.0286	0.0572	0.0858
0.3739	0.7475	1.1214	0.3739	0.7475	1.1214	0.5387	1.0771	1.6158

For METALLIC BELLOWS (I) PVT. LTD.

Radma Ramesh

Director

No. BT/PR40444/NDB/39/747/2020

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Block 2, 6-8th Floors
CGO Complex, Lodhi Road,
New Delhi- 110 003

Dated:10.03.2021

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules, 1978, for the implementation of the project entitled "**Seaweeds cultivation and utilization in Odisha coast including Chilika Lake for ecological restoration and livelihood generation**" under the Marine Bioresource and Biotechnology Network Programme for a period of 3 Year at a total cost of **Rs.18892000** (Rupees One Crores Eighty Eight Lakhs Ninety Two Thousand Only) on the terms and conditions detailed here under:-

2 The Project :

2.1 Title : "Seaweeds cultivation and utilization in Odisha coast including Chilika Lake for ecological restoration and livelihood generation" under the Marine Bioresource and Biotechnology Network Programme.

2.2 Details of the Investigators:

Prof. Dinabandhu Sahoo

Professor
Department of Botany
University of Delhi, North Campus
Delhi- 110007

Dr. G. R. Kanagachidambaresan

Associate Professor
Department of Computer Science and Engineering
Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
Avadi-Vel Tech Road, Vel Nagar, Avadi
Chennai, Tamil Nadu-600062

CO-PIs:

Dr. K. Jagajjanani Rao

Assistant Professor
Department of Biotechnology
Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
No.42, Avadi-Vel Tech Road
Vel Nagar, Avadi, Chennai
Tamil Nadu - 600062

Dr. A. Gowri

Assistant Professor
Department of Biomedical Engineering.
Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
No.42, Avadi-Vel Tech Road
Vel Nagar, Avadi, Chennai
Tamil Nadu - 600062



डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi

वैज्ञानिक 'ई' / Scientist 'E'

बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology

विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.

भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Dr. Mugesh Sankaranarayanan

Assistant Professor

Department of Biotechnology

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

No.42, Avadi-Vel Tech Road

Vel Nagar, Avadi, Chennai

Tamil Nadu - 600062

Dr. E. Balasubramanian

Professor

Department of Mechanical Engineering

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology

No.42, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai, Tamil Nadu - 600062

Prof. Renu Deswal

Professor

Department of Biotechnology

University of Delhi

Delhi - 110007

2.3 Objectives:**Institute wise Objectives:**

Component 1: Seaweeds cultivation and utilization in Odisha coast including Chilika Lake for ecological restoration and livelihood generation (University of Delhi, North Campus).

1. Collection of different species of *Gracilaria* and *Enteromorpha* from Indian Coasts.
2. Laboratory and tank culture of suitable species
3. Development of suitable protocol/technology for cultivation of the selected species/strains.
4. Processing of biomass for utilization
5. Environmental monitoring
6. Preparation of audio-visual and training material.

Component 2: Drone Assisted Mapping of Seaweeds of Odisha Coast including Chilika Lake especially for *Gracilaria* sp. and *Enteromorpha* sp. and Development of Value Added Seaweeds Products (Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology)

1. Mapping of *Enteromorpha* and *Gracilaria* seaweed biomass through deployment of unmanned Aerial Vehicles (UAV) and Under Water Vehicles (UWV).
2. Nutritional analysis of both the wild and cultivated seaweeds through modern biochemical tools /methods.
3. Development of high value products from seaweeds for food, agro, pharmaceuticals and other ancillaries industries.

2.4 Time Schedule:

The duration of the project is 3 Year from the date of this sanction order.

2.5 Project Cost:

The total cost of the project is Rs. **18892000/-** (Rupees One Crores Eighty Eight Lakhs Ninety Two Thousand Only) as per details given below:

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi

वैज्ञानिक 'ई' / Scientist 'E'

बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology

विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.

भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Page No. [2 / 9]

Institute wise details are:

Budget Head	Year I	Year II	Year III	Total(Rs.)
1. University of Delhi, North Campus				
Equipment	3436000.00			3436000.00
Manpower	1652000.00	1652000.00	1830000.00	5134000.00
Consumables	800000.00	400000.00	300000.00	1500000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	100000.00	100000.00	100000.00	300000.00
Training/Workshop	800000.00	300000.00	300000.00	1400000.00
Total (Rs.)	6888000.00	2552000.00	2630000.00	12070000.00
2. Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology				
Equipment	3105000.00			3105000.00
Manpower	759000.00	759000.00	819000.00	2337000.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	100000.00	100000.00	100000.00	300000.00
Consumables	180000.00	300000.00	300000.00	780000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	4244000.00	1259000.00	1319000.00	6822000.00

2.6 Equipment

The details of the equipment sanctioned for the implementation of the project at **Annexure-I**

2.7 Manpower:

The details of the manpower sanctioned for the implementation of the project at **Annexure-II**

2.8 Quarterly Deliverables

The quarterly deliverables of the project sanctioned for the implementation of the project at **Annexure-IIA**

3. Head of Account:

The **Non-Recurring** and **Recurring** expenditure involved is debitable to:

Demand No. 88	Department of Biotechnology
3425	Other Scientific Research 2020-2021
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.31	Grants -in-Aid General
3425.60.200.29.17.35	Grants for creation of capital assets

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

The institute/Agency will keep the whole of the grant in a bank account earning interest and the interest so earned would be report to DBT in the Utilization Certificate and Statement of Expenditure. As per the provision contained in GFR Rule 230(8), all interests/other earning occurred against Grants-in-aid shall be mandatory remitted to the Consolidated fund of India through the online portal www.bharatkosh.gov.in only.

4.1 The other terms and conditions governing this sanction are attached at Annexure- III.

4.2 A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA between the grantee institutions and DBT. In case of NGO's and Private Institution's, execution of MOA is mandatory before first release. A format of the MoA is enclosed in Annexure-IV

5. No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.

6. The Registrar, University of Delhi, North Campus, Delhi, Delhi (UT) and The Registrar, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai, Tamilnadu would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.

7. PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-05/2019 dated 30 Jan 2019. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.

8. As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organizations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG (DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organizations is called upon to do so.

9. If the Research Project involves biological resources, the obligations under the Biological Diversity Act 2002 as applicable shall be complied with by the Project Investigator, the details of such obligations can be accessed at www.nbaindia.org

10. If this project works requires any Statutory Clearance (such as Ethical Committee Clearance, Informed Consent, Animal Ethics Committee Clearance, Institutional Bio-safety Committee Clearance, National Biodiversity Authority approval etc.), Project investigator(s) and Host Institution(s) shall compulsory comply the same before undertaking such activities.

11. Continuation of the project beyond 31.3.2021 will be subject to appraisal and approval of the DBT umbrella scheme on "Biotechnology Research and Development" for continuation beyond 14th FCC.

12. Any international travel of private persons/non-officials in the project using Govt. funds shall be strictly regulated by the instructions contained in Para 18 of the Department of Expenditure OM No.4(4)/E.Coord/2015 dated 5.01.2016 or any subsequent modifications/clarifications thereon to be issued from time to time.

13. The retention of the equipments purchased out of the project grant after completion of the project is not allowed in case of the private institutes/organizations/NGOs as per the extant Govt. instructions. Hence, the University/Institute will abide by the instructions issued by the Govt./Department in the matter from time to time

14. This issues, under the power delegated to this Department and with the concurrence of IFD vide their **SAN No.102/IFD/SAN/2838/2020-2021 dated 09.03.2021.**

15. This sanction order has been noted at serial no. **81** in the Register of Grants.

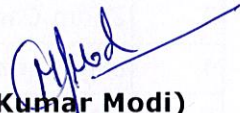
डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
(Dr. Manoj Kumar Modi)
बायोटेक्नोलॉजी विभाग / Dept. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

To,

The Pay & Accounts Officer,
Department of Biotechnology,
New Delhi - 110 003.

Copy to:

- 1 The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110 002.
- 2 Prof. Dinabandhu Sahoo(Project Co-ordinator), Marine Biotechnology Laboratory, Department of Botany, University of Delhi, Delhi-110007
- 3 The Registrar, University of Delhi, North Campus, Delhi - 110007, Delhi (UT)
- 4 The Registrar, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, NO.42, Avadi-Vel Tech Road, Avadi, Chennai - 600062, Tamilnadu
- 5 **Prof. Dinabandhu Sahoo**, Professor, Department of Botany, University of Delhi, North Campus, Delhi, North Delhi - 110007, Delhi (UT)
- 6 **Dr. G. R. Kanagachidambaresan**, Associate Professor, Department of Computer Science and Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai-600062, Tamilnadu
- 7 Dr. A. Gowri , Assistant Professor, Department of Biomedical Engineering., Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai-600062, Tamilnadu
- 8 Dr. E. Balasubramanian , Professor, Department of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai-600062, Tamilnadu
- 9 Dr. K. Jagajjanani Rao, Assistant Professor, Department of Biotechnology, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai-600062, Tamilnadu
- 10 Dr. Mugesh Sankaranarayanan, Assistant Professor, Department of Biotechnology, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai-600062, Tamilnadu
- 12 Cash Section, DBT (2 copies).
- 13 Sanction Folder.
- 14 File Copy.


(Dr. Manoj Kumar Modi)
Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Dr. Manoj Kumar Modi
Scientist 'E'
Department of Biotechnology
M/o Science & Tech.
Govt. of India, N. Delhi

Annexure -I

Details of the Equipment sanctioned for the implementation of the project entitled "**Seaweeds cultivation and utilization in Odisha coast including Chilika Lake for ecological restoration and livelihood generation**" under the Marine Bioresource and Biotechnology Network Programme:

University of Delhi, North Campus			
SNo.	Name of Equipments	No.	Cost(Rs.)
1.	Incubator	2	2993000.00
2.	pH meter	1	71000.00
3.	Balance	1	99000.00
4.	Salinity meter	1	11000.00
5.	Oven	1	113000.00
6.	Hot plate	1	18000.00
7.	Fridge	1	50000.00
8.	Vortex	1	68000.00
9.	Magnetic Stirrer	1	13000.00
Total			3436000.00
Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology			
SNo.	Name of Equipments	No.	Cost (Rs.)
1.	Floating UAV and Underwater Vehicle	-	1332925.00
2.	Sensors	-	27666.00
3.	Zoom Cameras and Underwater Cameras	-	244409.00
4.	Lab Freeze Dryer	1	882000.00
5.	Ultra-pure Water Purification System	1	525000.00
6.	Multi-parameter pH/ORP/EC/TDS/salinity/DO/Pressure/Temperature Waterproof Meter	1	93000.00
Total			3105000.00


(Dr. Manoj Kumar Modi)
Scientist 'E'


डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक 'ई' / Scientist 'E'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Annexure –II

Details of the manpower sanctioned for the implementation of the project entitled "**Seaweeds cultivation and utilization in Odisha coast including Chilika Lake for ecological restoration and livelihood generation**" under the Marine Bioresource and Biotechnology Network Programme:

Head	No. of Position	Year I	Year II	Year III	Total (Rs.)
1.University of Delhi, North Campus					
Project Associate-I @ Rs. 31000/-p.m + 24% HRA for 1 st and 2 nd year and Project Associate -II @ Rs. 35000/-p.m + 24% HRA for 3 rd year	Three	1384000.00	1384000.00	1562000.00	4330000.00
Scientific Administrative Assistant @Rs. 18000/-p.m + 24% HRA for all three years	One	268000.00	268000.00	268000.00	804000.00
Total(Rs.)		1652000.00	1652000.00	1830000.00	5134000.00
2.Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology					
Project Associate-I @ Rs. 31000/-p.m + 24% HRA for 1 st and 2 nd year and Project Associate -II @ Rs. 35000/-p.m + 24% HRA for 3 rd year	One	461400.00	461400.00	521400.00	1444200.00
Project Assistant @Rs. 20000/- +24% HRA for all three years	One	297600.00	297600.00	297600.00	892800.00
Total(Rs.)		759000.00	759000.00	819000.00	2337000.00

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DST OM No. SR/S9/Z-05/2019 dated 10.07.2020.


(Dr. Manoj Kumar Modi)
Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
 वैज्ञानिक 'ई' / Scientist 'E'
 बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
 विज्ञान और प्रौद्योगिकी, मंत्रालय / M/o Science & Tech.
 भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Annexure –IIA

The quarterly deliverables of the project entitled **"Seaweeds cultivation and utilization in Odisha coast including Chilika Lake for ecological restoration and livelihood generation" under the Marine Bioresource and Biotechnology Network Programme:**

Institute	Objectives	Time schedule												Deliverables
		1 st year				2 nd year				3 rd year				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Delhi Univ Obj-1	Appointment of project staff, purchase of chemicals, consumables. Collection of different species of <i>Gracilaria</i> and <i>Enteromorpha</i> from some parts of Indian coasts ,their culture in the laboratory. Raising of seedlings from spores and thallus and pilot testing in the in vitro conditions. Transfer of seedlings to tanks and the field. Monitoring of growth.													Monitoring of growth.
Vel Tech Instit Obj-1	Mapping of seaweeds through deployment of Unmanned Aerial Vehicles (UAV) and Under Water Vehicles(UWV)													A versatile tool to map the seaweeds using UAVs, UWVs and machine learning
Delhi Univ Obj-2	Selection of suitable varieties and Multi locational trials at different seasons. Regular evaluation of product quality during storage period to know the shelf life. Environmental monitoring. Setting up of Self Help Groups (SHG) in their respective villages.													Self Help Groups and Innovative harvesting techniques
Delhi Univ Obj-3	Development of harvesting techniques, postharvest process, Development of economics of cultivation. Training of SHG members.													
Vel Tech Instit Obj-2	Nutritional analysis of both the wild and cultivated seaweed biomass through modern biochemical tools /methods													Analytical characterization of the seaweeds to investigate their biochemical constituents will be developed Development of database on the

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डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi
वैज्ञानिक ई / Scientist E
बायोटेक्नोलॉजी विभाग / Dept. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Institute	Objectives	Time schedule												Deliverables
		1 st year				2 nd year				3 rd year				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
														seaweeds in different monsoons will be created.
Delhi University	Expansion of cultivation areas, Measurement of physical and biological parameter from different cultivation sites. Training of SHG members.													Trained SHG and Economic cultivation methods
Obj-4	Development of economics of cultivation and making itself sustainable.													
	Continuation of the above activities. Assessment of environmental parameters. Drafting of final report													
Vel Tech Institute	Development of high value products from seaweeds for food, agro, pharmaceuticals and other ancillaries industries													Economic value added products such as food, cosmetics, fertilizers and
Obj-3														Agar from seaweeds will be produced.

(Dr. Manoj Kumar Modi)

Scientist 'E'

डा. मनोज कुमार मोदी / Dr. Manoj Kumar Modi

वैज्ञानिक 'ई' / Scientist 'E'

बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology

विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.

भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi



தமிழ்நாடு அறிவியல் தொழில்நுட்ப மாநில மன்றம்
TAMIL NADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

(Established by Government of Tamilnadu)
Directorate of Technical Education Campus, Chennai - 600 025

Phone : 044 - 2230 1428
Telefax : 044 - 2230 1552

Web : www.tanscst.nic.in
E-mail : ms.tanscst@nic.in/enquiry.tanscst@nic.in

DR. R. SRINIVASAN, M.Sc., Ph.D., F.I.C.S., M.A.C.S. (USA).
Member Secretary

Letter No.TNSCST/STPI/AS-01/2019-20/

3707

29.03.2021

To

The Registrar
Vel Tech Rengarajan Dr Sakunthala R&D
Institute of Science and Technology
Avadi, Chennai-600062

Sir/Madam,

Sub: TNSCST – S&T Project on "Minimizing the post harvesting loss in ware houses through examining rice kernel/ paddy quality using infrared measurements, image processing algorithms and IoT5 platform" –Approval –grant release- intimation – Reg.

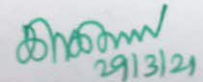
Ref: Proposal dated 16.03.2020

I am happy to inform you that State Council has approved your above cited research proposal for funding. A copy of the terms and conditions governing the grant is enclosed herewith for your reference. The approved budget for the project entitled "Minimizing the post harvesting loss in ware houses through examining rice kernel/ paddy quality using infrared measurements, image processing algorithms and IoT5 platform" is Rs.2,00,000/- for Two years. Kindly acknowledge your acceptance in a week time for the above budget and details including terms and conditions.

Kindly Find enclosed herewith cheque for first year approved grant of Rs.1,30,000/- (Rupees One lakh and thirty thousand only). You have to submit a declaration stating that the above cited "project has not receiving any funds from any other funding agency". All communication should be sent through the proper channel.

With best wishes,

Yours faithfully,


29/3/21

Member Secretary

Encl: 1.Cheque for Rs.1,30,000/- No: 691128 dt.29.03.2021
2.Terms and conditions

Copy to:
Dr.E.Balasubramanian
Professor/Mech. Engg.
& Dr.G.R .Kanaga chidambaresan
Associate Professor (Comp.Science)
Vel Tech Rengarajan Dr Sakunthala R&D
Institute of Science and Technology
Avadi, Chennai-600062


Sector : AGRICULTURAL SCIENCES

Title : Minimizing the post harvesting loss in ware houses through examining rice kernel/ paddy quality using infrared measurements, image processing algorithms and IoT5 platform

Investigator : Dr.E.Balasubramanian
Professor/Mech. Engg.
& Dr.G.R .Kanaga chidambaresan
Associate Professor (Comp.Science)
Vel Tech Rengarajan Dr Sakunthala R&D Institute
of Science and Technology
Avadi,Chennai-600062

Recommended Budget Rs. 200000/- for two years

Sl. No.	Head	1 st Year Rs.	2 nd Year Rs.	Total Rs.
1.	Salaries Technical Assistant (one) Rs.5000/- p.m	60000.00	60000.00	120000.00
2.	Equipments	60000.00	-	60000.00
3.	Travel	10000.00	10000.00	20000.00
	Total	130000.00	70000.00	200000.00


29/3/21
MEMBER SECRETARY



TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
DOTE Campus, Chennai – 600 025.

TERMS AND CONDITIONS OF PROJECT GRANT

1. Approval of the research proposal and the grant being released is for the specific project sanctioned and should be exclusively spent on this project within the stipulated time. The Grantee Institution is not permitted to seek or utilize funds from any other organization (Government, Semi-Government, Autonomous or private Bodies) for this research project. Any unspent balance out of the amount sanctioned should be surrendered to the Council.
2. For, permanent, Semi-permanent assets acquired solely or mainly out of the grant, an audited record in the form of a register in the prescribed proforma (Annexure - I) shall be maintained by the Institution. The term 'assets' means (i) immovable property and (ii) movable property of a capital nature, where the value exceeds Rs.1,000/-. The Institution is required to send to the Council a list of assets acquired out of the grant. The grant shall not be utilized for construction of any building unless specific provision is made for this purpose. Full facilities by way of accommodation etc. for the project shall be given by the Institution.
3. All the assets acquired from the grant will be the property of the Council and should not without the prior sanction of the council be disposed off, or encumbered or utilized for purposes other than those for which the grant has been sanctioned.
4. At the conclusion of the project, the council will be free to sell or otherwise dispose off assets which are the property of the Council. The Institution shall render to the Council necessary facilities for arranging the sale of assets to the Institution or transfer them to any other Institution if considered appropriate.
5. The Institution will furnish half-yearly progress reports of the work on the project on 30/6 & 31/12 of each year (Annexure II). In addition, the Council may designate Scientists/Specialists to visit the Institution Periodically to review the progress of work and for suggesting such measures to ensure realisation of the objectives of the project. During the progress of the project the Institution will provide all facilities to the Scientists/specialists by way of accommodation, etc. On completion of the project ten copies of a final consolidated Technical Report (Annexure III) and summary of the work done on the project should be sent to the Council within three months of the project completion..
6. The Institution will furnish to the Council, a statement of accounts along with the progress report, at the time of seeking further installment of the grant (Annexure IV). Carry-forward of unspent funds to the next financial year for utilization for the same project may be considered only with the specific approval of the Council.
7. The Institution will furnish to the council, a utilization certificate in duplicate and an audited statement of Accounts pertaining to the grant, immediately at the end of each financial year (Annexure V).

8. The Institution will maintain separate audited accounts for this project. If it is found expedient to keep a part or whole of the grant in a bank account earning interest, the interest earned, should reported to the council. The interest thus earned will be treated as a credit to the Institution to be adjusted towards further instalment of the grant.
9. Investigators wishing to publish the research papers based on the research work done under Council project should acknowledge the assistance received from the Council indicating the name of the Scheme.
10. The Institution may not entrust the implementation of the work for which the grant is being sanctioned to another Institution and to divert the grant receipts as assistance to the latter Institutions. In case the Institution itself is not in a position to execute or complete the project, it may be required to refund forthwith to the Council the entire amount of grant-in-aid received by it.
11. The staff that may be employed for the project by the institution are not to be treated as employees of the Council and the employment of such staff at the time of Completion or termination of the project will not be the concern/responsibility of the council. They will be subjected to administrative control and service rules as applicable (Leave, TA and DA, etc.) of the Institution where the project is based. For the expeditious implementation of the research projects, the investigator-incharge will take the assistance of the concerned Institution in the process of selection and appointment of staff and payment to them. In case of any special posts, the pay may be decided in consultation with the Council.
12. The Council reserves the right to terminate the grant at any stage if it is convinced that the grant has not been properly utilized or appropriate progress is not being made.
13. The Project will become operative with effect from the date on which the project is initiated by the Institution. The date will be intimated by the Institution to the Council.
14. If the Principal Investigator to whom a grant for a project has been sanctioned wishes to leave the Institution where the project is based, the Institution/Investigator will inform the same to the council and with its consultation evolve steps to ensure successful completion of the project, before relieving the Principal Investigator.

-oOo-

COST DETAILS OF PERMANENT EQUIPMENT/ASSETS

Sl.No	Name of equipment asset With model name, etc. And date of procurement	Quantity	Sanctioned Amount (Rs)	Actual (*) Expenditure (Rs)	Other (**) Expenses if any (Rs)
(1)	(2)	(3)	(4)	(5)	(6)

(*) This should include only the cost of equipment, insurance and freight charges.

(**) Other expenses such as bank charges, agency commission etc. should be avoided through appropriate negotiations. Unavoidable expenses incurred, if any, may be indicated.

#####

TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
DOTE Campus, Chennai – 600 025.

PROJECT PROGRESS REPORT (Half Yearly)

IMPORTANT POINTS:

- i. 2 copies of the report are required
- ii. Report should be sent even if project has not become fully operational. Please write 'Nil' against items where there is nothing significant to report or if these items are not relevant.
- iii. Report should cover the work done during the period ending 30/6 and 31/12 every year. (June & December).
- iv. Timely submission of report is essential to facilitate release of funds.
- v. Report should be in the format given below with cover page followed by report under the sections indicated below.
- vi. The Report should be discussed and finalised by the project team before despatch to the Council.

COVER PAGE

Title of the Project
 Date of start

Council Sanction Letter

No:..... And date.....

Total cost of the Project Rs.

Report for the period : From..... to

Name of the Principal Investigator :

Name of the Institution :

A. PRELIMINARY:

1. Title of the Project

2. a) Name & Address of project
Implementing Agency :
- b) Name of Principal
Investigator :
3. Name of Council Project
Officer :
4. a) Duration of the Project
(as approved) :
- b) Date of actual commencement :
5. Objectives :
6. Target date fixed for each phase
eg., staff appointment, Survey of
previous work, questionnaires
preparation, analysis, conclusions,
report preparation, etc. (Dates to
be indicated against each
activity).
7. Approved financial outlay :
8. Approved breakup of grants :
- (a) No. & Designation of Staff
approved :
- (b) Staff salary (indicate scale of pay:
Or consolidated amount) :
- (c) Equipment (including furniture,
If any) (List of items with cost) :
- (d) Contingencies :
- i. Travel Cost
- ii. Stationery
- iii. Consumable Stores
- iv. Others (Please list)

9. Date of approval of project
10. Grants received so far
(Date & Amount)
11. Summary of Progress reported
In the previous reports

B. PROGRESS (A) PHYSICAL

i. Work completed so far and achievement as regards

- a. each objectives listed at A (5)
- b. each phase indicated in item A (6)

ii. Details of Project Team

Sl.No	Sanctioned Post	Name of incumbent & Date of joining	Monthly Emoluments	Reasons if un- filled

iii. Procurement/usage of equipment:

S. No	Name of the equipment acquired	Make & Model	Procurement date	Utilisation rate (100 % 75%, 50%)	Remarks Regarding Service maintenance, breakdown etc

iv. Impediments/difficulties

v. Results reported during the year

a. Papers published/communicated in Scientific Journals.

Sl.No	Name of the authors Acquired	Title of the Paper	Name of the Journal	Vol/Page	Year

b. Participation in conferences/Seminars

Sl.No	Name of the Conference With dates & venue	Title of the paper, if Presented	Names of the team Members Who are attended

(b) Financial:

- (i) Amount spent under each subhead upto 31st March and upto date
- (ii) Balance available as on date of report
- (iii) Whether a further instalment is required (with commitments indicated)
- (iv) Remarks, if any

(c) General

- (i) Whether utilisation certificate for previous financial year has been sent

(ii) Is any assistance required from the Council (other than financial)

(iii) Visits of Scientists and interaction with other agencies

(a) Give names of the Scientists from other institutions whom you may have invited in connection with the project.

(b) In case the results of the project are of likely use to any agency of industry indicate progress towards promoting interaction with them.

iv. Self assessment of progress

(a) Does the project team feel that the project can be completed within the approved duration.

(b) If not, steps to be taken for speeding up the work may be suggested.

v. Date(s) on which the report was discussed by the project team:

Name

Signature

Date

1. Principal Investigator
2. Principal Co-Investigator
3. Members of the project team & Designation

Principal Investigator

PROJECT COMPLETION REPORT

Notes:-

1. Ten copies of the Final Report should be sent within three months of the completion or termination of the Project.
2. Cover page should be as per format attached.

1. Title of the Project
2. Principal Investigator and co-Investigator
3. Implementing Institutions and other collaborating Institutions.
4. Date of commencement.
5. Planned date of completion
6. Actual date of completion.
7. Objectives as stated in the project proposal.
8. Deviation made from original objectives if any, while implementing the project and reason thereof.
9. Experimental work giving full details of experimental set up, methods adopted, data collected, supported by necessary tables, charts, diagrams, photographs.
10. Detailed analysis of results indicating contributions made towards increasing the state and knowledge in the subject.
11. Conclusion –Summarising the achievements and indicating scope for future work.
12. S&T benefits accrued:
 - i. Benefits to society or target group :
 - ii. List of research publications (if any) :

Sl.No	Authors	Title of paper	Name of the Journals	Vol.Page	Period	Year

- iii. Manpower trained :
- iv. Others trained (Personnel) :
- v. Patents taken, if any :
- vi. Ph.D's produced, if any :

13.	a. Project Cost	:		
	b. Actual expenditure	:	Amount	Percentage of total Cost
	i. Salaries	:		
	ii. Equipment	:		
	iii. Consumables (supplies & materials)	:		
	iv. Contingencies	:		
	v. Travel	:		
	vi. Others, if any	:		
	Total	:		100%

.....
Name and Signature and Date

- a.
(Principal Investigator)
- b.
(Co-Investigator)
- c.
(Head of Institution)

FORMAT FOR COVER-PAGE OF PROJECT COMPLETION PROJECT

Council Ref. No.

Title of the Project
Project completion report
Name of Investigator & Address
Year

ANNEXURE - IV

Statement of accounts at the time of seeking further instalment of the grant.

&

ANNEXURE - V

**UTILIZATION CERTIFICATE (TWO COPIES)
FOR THE FINANCIAL YEAR 200 (ENDING 31ST MARCH)**

1. Title of the Project/Scheme :
2. Name of the Institution :
- Principal Investigator :
4. Council letter No. & date sanctioning the project :
5. Amount brought forward from the previous financial year quoting Council letter no. & date in which The authority to carry forward the Said amount was given. :
i. Amount
ii. Letter No.
iii. Date
6. Amount received during the financial year (Please give No. & Date of council sanction letter for the amount) :
i. Amount
ii. Letter No.
iii. Date.
7. Total amount available for expenditure (excluding commitments) during the financial year : Rs.
8. Actual expenditure (excluding commitment) incurred during the financial year (upto 31st March) : Rs. Head Allotted Expenditure Balance
9. Balance amount available at the end of the financial year : Rs.
10. Unspent balance refunded if any (please give details of cheque No. etc.) : Rs.
11. Amount to be carried forward to the financial year (if applicable) : Rs.

UTILISATION CERTIFICATE

Certified that out of Rs. of grant -in-aid sanctioned during the year
In favour of under the Council Letter No. and
Rs. on account of unspent balance of the previous year, a sum of Rs. has
utilized for the purpose of for which it was sanctioned and
that the balance of Rs. remaining unutilized at the end of the year has been
surrendered to the council (vide) challan No. dated)/ will be adjusted towards the grant
-in-aid payable during the next year.....

Signature of Principal
Investigator
with date

Signature of
Accounts Officer
with date.

Signature of Head of the
Institution
with date.

2. Certified that I have satisfied myself that the conditions to which the grant-in-aid was sanctioned have been fulfilled/ are being fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned:-

Kinds of checks exercised.

- 1.
- 2.
- 3.
- 4.
- 5.

Signature :
Designation :
Date :

Indian Bank

Branch: DOTE CAMPUS
DOTE OFFICE BUILDINGS
GUINDY, CHENNAI
IFS Code: IDIB000D050

29032021
D D M M Y Y Y Y

The Registrar, VETech Ranganathan Dr Sakunthala R & D Institute of Sci & Tech. Chennai

या धारक को OR BEARER

PEES रुपये one lakh Thirty Thousand only

अदा करें

₹

1,30,000/-

खा.सं.
A/c No.

SB 479135159

FOR MEMBER SECRETARY TN STATE COUNCIL SCIENCE & TE

CBS Code: 01636

AUTHORISED SIGNATORY

Please sign above

PAYABLE AT PAR AT ALL OUR BRANCHES

992000080

691128 6000191191 135159 31

Tele : 23007803
Fax : 23007853
Email : ardb@hqr.drdo.in

ARDB/01/1081982/M/I
Government of India
Ministry of Defence
Aeronautics R&D Board,
DRDO HQ Annexe,
Room no 411, Old Lastec Building,
Metcalf House
Delhi-110 054

25 May 2021

To,
The Registrar
Vel Tech Institute, Avadi
Chennai-600062

**SANCTION OF PROJECT UNDER GRANT-IN-AID SCHEME OF
AERONAUTICS R&D BOARD**

1. Under the powers vested in the Aeronautics R&D Board vide Govt. of India, Ministry of Defence letter No. Aero/4806/5/69/105/S/D(R&D) dated 12th Feb 1971 and in exercise of power delegated vide SI No. 3.1 of GoI, MoD letter No. DRDO/DFMM/PL/83226/M/01/1976/D(R&D) dated 18th Dec 2019 as amended from time to time, I am directed to convey the sanction of the board for the following project:-

TITLE OF THE PROJECT: "Development of 3D printed flexible patch antennas for enhancement of communication range in UAV"

Project No. : 1081982
Name of the PI : Dr. E. Balasubramanian, Vel Tech Institute, Chennai.
Name of the Co-PI : Mr. R Prasanna, Vel Tech Institute, Chennai.
Domain Scientist : Dr. P V Satyanarayan Murthy
User Relevant Lab : NAL, Bangalore

2. Cost: Total fund for the project is Rs. **Rs 28.026 /- lacs** (Twenty eight lakh two thousand six hundred rupees only). The year wise break up of the project cost is given as under.

Head	I Year	II Year
Staff Salary (JRF@ 31000/- for 2 years + 24% HRA)	4.613	4.613
Special Equipment (Annex I)	08.10	--
Consumable Stores, Chemicals etc.	2.7	2.7
Contingency	0.45	0.45
TA/DA	0.45	0.45
Procured services	0.75	0.75
Overhead	1.0	1.0
Total	18.063	9.963
Grand Total: . Rs 28.026 /- lacs (Twenty eight lakh two thousand six hundred rupees only)		

3. PDC: Two Year

4. The Deliverables of the project are:-

1. Two microstrip 3D printed patch antennas having 433 MHz and 5.8GHz frequency of transmission for UAV applications.
2. Two patch antennas fabricated using screen printing and printed circuit board (PCB) based milling.
3. Detailed design document for developing patch antenna structures including simulation results.

... 2/-

5. **Procedure for Release of funds** : The grantee institute will prepare Contingent bill duly completed, signed on revenue stamp with official seal by the competent financial authority of the institute and certificate from the Institute that no UCs are pending from the PI/ Institute and the same will be forwarded to 'The Secretary, Aeronautics R&D Board, DRDO HQ Annexe, Room no 411, 4th Floor Old Lastec Building, Metcalf House, Delhi-110054' within 30 days for counter signature and submission to PCDA(R&D), West Block V, RK Puram, New Delhi-110066 for release of installment. The following documents may be submitted to comply the requirement of G.F.R 2017 and release of first installment:-

- a) ECS mandate form duly filled and countersigned by Dean/Registrar of the Institute.
- b) Contingent bill (03 Copies) duly signed by PI and countersigned by Dean/Registrar.
- c) Certificate from the Grantee institution that grants has not been obtained or applied for the same purpose/ task to be carried out under the MOC with AR&DB or activity from any other Ministry/Department of Government of India or State Government.

6. **Commencement date of the Project**:-The date of receipt of the grant would be reckoned as the **commencement date** of the project which has to be intimated to this Sectt. as well as the PCDA (R&D), West Block V, RK Puram, New Delhi-110066 without any ambiguity.

7. **Accounting and Audit of Grant**:-

(i) Audited Statement of accounts and Utilisation certificate duly certified by the executive financial authority of the Institution and countersigned by competent audit authority is to be submitted alongwith the Annual Technical Report by the end of each financial year.

(ii) Grantee Institute to open a saving bank account and refund the accrued interest. In case of common account held by Institute the Institute can reflect the interest accrued separately and refund the accrued interest to AR&DB every end of the financial year through Demand Draft/MRO in favour of PCDA (R&D) New Delhi drawn at New Delhi. Unspent balance on completion of the project should be sent to the undersigned by the grantee institution through a Demand Draft/MRO in favour of PCDA (R&D) drawn at New Delhi, for doing the needful.

8. a. **Special Equipment**:-

(i) Under the special equipment head, procurement of laptop is not permitted and subsequently any request for regularization of the same would not be considered by AR&DB.

(ii) The equipment purchased from the project fund would be taken on the ledger charge of the institution and details of the same may kindly be submitted to this office alongwith Equipment Retention Form duly certified by the auditors of the institution that necessary check has been applied and the inventory acquired under the project has been found in order.

(iii) On completion of the project the grantee institute would forward the consolidated list of equipment and may also forward a formal request for retention of equipment and an undertaking by the grantee institute for the following:-

- DRDO or any associated lab will make use of the equipment retained in the institute under the project as and when required without any payment.
- Any expenditure incurred for maintenance/up-keep of the retained equipment will be borne by the institute.
- In case of disposal of the retained equipment, required by the institute, due to of non-performance, prior approval of DRDO to be obtained and the money generated is to be refunded to AR&DB

9. The grantee institute shall incorporate necessary clause to provide reservation for SC & ST or OBC in post and services for appointing project staff under grants-in-aid scheme.
10. Details of project staff employed is to furnished soon upon appointment and also, if any changes happen thereon.
11. **Policy on Ownership of Intellectual Properties:-**
- a) All foreground information and foreground intellectual property created during the performance of the Project, whether or not legally protected, shall be owned jointly by DRDO and Grantee Institution. DRDO and Grantee Institution shall be deemed to have a royalty-free license to use such joint information and foreground intellectual property for their own R&D purposes.
- b) Grantee Institution shall not publish any research paper covering foreground information generated during the performance of the Project before seeking written consent from DRDO to ensure that no proprietary information is released and no legal rights covering foreground information are jeopardized. Normally, such decision for publication shall be provided by DRDO within 30 days of receipt of such request from Grantee Institution.
- c) Grantee Institute shall promptly report to DRDO about any Intellectual Property generated during the performance of the Project. DRDO and Grantee Institution shall confer and consult each other regarding preparation, filing, prosecution, maintenance of Intellectual Property Rights applications including patent applications covering foreground information, generated during the performance of the project. DRDO shall be responsible for filing, prosecution, grant and maintenance of such Intellectual Property Applications including patent application and Grantee Institute shall render all possible help to DRDO regarding the same. DRDO shall also bear all expenses related to filing, prosecution, grant and maintenance of such Intellectual Property Applications including patent applications.
- d) Grantee Institution may commercially exploit any foreground information and foreground Intellectual Property, generated during the course of the Project, whether or not legally protected, for purposes other than Government Applications only after conclusion of separate agreements to be negotiated between Grantee Institution and DRDO. Grantee Institution shall maintain an account of its incomes arising out of such commercial use and any royalty income shall be shared equally between DRDO and Grantee Institution.
- e) Notwithstanding any provisions mentioned above or any future licensing agreements, DRDO shall be deemed to have all rights including a nonexclusive, irrevocable, royalty-free, perpetual license for the unlimited commercial development, series production, continuing engineering support, product improvement, or have developed, any Foreground Information and Foreground Intellectual Property, generated during the performance of the Project, whether or not legally protected, for the purposes of Government Applications including armed forces and paramilitary forces.
- f) Whenever DRDO informs Grantee Institution that the interest of national security requires Grantee Institution to refrain from commercially exploiting the product/process based upon any foreground information and foreground Intellectual Property, generated during the performance of project, whether or not legally protected, or stipulate conditions in such commercial sale, Grantee Institution shall abide by DRDO requirements.
- g) DRDO shall not be responsible and shall not accept any liability for infringement, innocent or otherwise, by PI or the Grantee Institute of the Intellectual Property Rights of third parties.
- h) The grantee institution shall maintain an account of its incomes arising out of commercial use and any royalty income shall be shared equally between DRDO and grantee institution.
- i) A copy of Govt. of India letter No. ERIP/0307022/M/01/1208/D(R&D) dated 15th July 2016 issued in this regard is enclosed.

12. **Publication of Technical Papers: -**

(a) Grantee Institution shall not publish any research paper covering foreground information generated during the performance of the project before seeking written consent from DRDO to ensure that no proprietary information is released and no legal rights covering foreground information are jeopardized. Normally such decision for publication shall be provided by DRDO within 30 days of receipt of such request from Grantee institution.

(b) The PI will seek prior permission from DRDO for the publication of the technical papers, if any, related to the project work, in Indian/foreign journals including thesis of the research students. PI will submit a formal request alongwith copy of the paper to Secretary, AR&DB for further necessary action in this regard. The assistance rendered by the AR&DB will be acknowledged in the paper. Three copies of reprint of published paper will sent to the secretary AR&DB. The PI should also consider – submitting one or two papers, out of research work carried out under the project, to the Defence Science Journal (DSJ), being published by Defence Scientific Information & Documentation Centre (DESIDOC/DRDO), Metcalf House, Delhi-110054.

13. **RTI Act 2005:-**

i) The grantee institutions shall not disclose any information Under RTI Act 2005, as DRDO is placed under second schedule and is exempted from disclosure of information under Sec 24(i) of the act except information pertaining to the allegations of corruptions and human right violations.

ii) In case any application is received by the grantee institution for seeking information pertaining to DRDO project under RTI act 2005, it may not be replied to directly and the same transferred to CPIO, DRDO HW for necessary action under section (63) of RTI act at the following address:

314A, 'B' Block, RTI
DRDO Bhavan, Rajaji Marg, New Delhi-110011

14. **Progress Review Mechanism: -**

(a) Review of the progress would be carried out by the Panel Coordinator and the Specialist panel members in the team. Annual progress will be reviewed by the Board.

(b) On completion of the project, a meeting will be arranged by the Panel Coordinator for presentation by PI in consultation with respective panel members, Scientists of the user lab and Secretary AR&DB for final review of the project and application/dissemination of the project outcome.

15. **Closure Report:-** Closure Report containing hard and soft copies of the technical report, data and know how alongwith the information required in the enclosed format will be obtained by the Panel Coordinator from the PI within 60 days after completion of the project PDC to verify the report contents along with Statement of Expenditure, Statement of Accounts & Utilisation Certificate as per Annexure III of Grant-in-Aids rules duly audited from the Competent Audit Authority of Institution/organization signed in ink in duplicate.

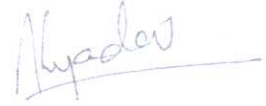
16. The PCDA (R&D), DRDO HQ Cell, West Block V, RK Puram, New Delhi-110066 will make disbursement of money year wise as sanctioned in para 2 above on submission of contingent bill duly filled and signed by the PI & Institute authority and also countersigned by AR&DB. The expenditure will be debited to Major Head 2080- Defence Services, R & D, Minor Head 004-Research/Research & Development and Code Head 852/02 (AR&DB Grant-in-aid) of Defence Services Estimates.

17. **Audit:** The accounts of grantee institute or organization shall be open to inspection by the sanctioning authority and audit, both by the controller & Auditor General of India under provision of CAG (DPC) act 1971 and internal audit by the principal Accounts Office of the Ministry or Department, whenever the institution or Organization is called upon to do so.

18. It is requested that the documents given above at para 5 may be submitted to this office at the earliest for further necessary action.

19. This is issued with the concurrence of the IFA(R&D), New Delhi vide their U.O. No IFA/R&D/0031/AR&DB/0062 dated 20 Apr 2021.

20. Sanction Code is DGTM/AR&DB/GIA/21-22/ 014 dated 26 Apr 2021.



(Ashok Kumar Yadav)
Secretary, AR&DB

Encl : As above

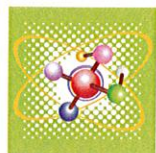
Copy to :-

- (1) Principal CDA(R&D), West Block V, RK Puram, New Delhi-110066
- (2) IFA (R&D), DRDO Bhawan
- (3) Dy. Director of Audit, Defence Services, Southern Command, Pune – 411 001
- (4) Principal Director of Audit, Air Force & Navy, 'M' Block, N. Delhi-110 001
- (5) Director of Audit, Defence Services, Southern Command, Pune
- (6) Dr. Amol A Gokhale (Chairman, Steering Committee)
(Former DS & Director, DMRL, Hyderabad)
Professor, Mechanical Engineering Department, IIT Bombay
Powai, Mumbai-400076
- (7) Shri PS Krishnan (Panel Chairman, UAS Panel)
(DS & Ex-Director, Aeronautical Development Establishment)
CV Raman Nagar PO Bangalore-560075
- (8) Director, NAL, Post Bag no 1779, Bangalore- 560017
- (9) Dr. P V Satyanarayana Murthy, Sr. Principal Scientist, NAL, Post Bag no 1779, Bangalore- 560017
- (10) Dr. E. Balasubramanian, Principal Investigator, Vel Tech Institute, Avadi, Chennai-600062
- (11) Mr. R Prasanna, Co- Principal Investigator, Vel Tech Institute, Avadi, Chennai-600062

Control No: 05 (2021-22)



सूचना का
अधिकार



MINISTRY OF
SCIENCE & TECHNOLOGY

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
बायोटेक्नोलॉजी विभाग
ब्लॉक-2, 7 वां तल, सी० जी० ओ० कम्पलेक्स
लोदी रोड, नई दिल्ली-110003
GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY
Block-2, 7th Floor C.G.O. Complex
Lodi Road, New Delhi-110003

Dr. Lokesh Kumar Narnoliya
Scientist - C
Email : lokesh.narnoliya@dbt.nic.in

BT/PR38273/AAQ/3/980/2020

Dated: 15.11.2021

Dear Dr. Ramasubramanian,

I am pleased to convey the approval of this department for the multi-centric project entitled "**Precision brackishwater aquaculture technology using Machine Intelligence**". Please find the enclosed Administrative order of **Rs. 132.45934 lakhs (Rs. 68.65854 lakhs to VTRSTU component + Rs. 63.8008 lakhs to CIBA component)**. (other formats required to be furnished to this Department from time to time has been sent to you through e-mail).

You are requested to go through the terms and conditions carefully and the date of sanction of the project is the starting date of the project. The first release of grant is being made with a condition that the **Memorandum of Agreement**, in Rs.100/- stamp paper, would be signed by the concerned party and returned back to the Department within three months for execution. Clearance of Animal Ethics committee or any other regulatory body may be obtained before initiating such work, if needed. A copy of clearance may also be submitted to the Department accordingly. The financial assistance provided for the project should exclusively be used for the specific purpose for which they are provided. This should be as per the approved budget for specific head and for a stipulated period only. (1.) **Approved equipment should be procured as per the provisions of GFR 2017 & manual of procurement of goods & services 2017** and balance available, if any, under Non-recurring head after completion of 18 months will be deposited to **bharatkosh account**. (2.) **Interest earned from the grant will be deposited to bharatkosh account after completion of each financial year.** (3.) **The manpower approved for the project should be appointed strictly as per guidelines.** This department neither will bear any over expenditure and any expenditure after the last date of the project nor any additionality will be provided.

With kind regards,

Yours sincerely,

Lokesh

(Dr. Lokesh Kumar Narnoliya)

Dr. Kanagachidambaresan Ramasubramanian
Associate Professor
Computer Science and Engineering
Vel. Tech Dr. RR & Dr. SR Technical University
Avadi, Tiruvallur, Chennai-600062, Tamilnadu

Copy to:

1. Dr. Muralidhar M. Principal Scientist, Aquaculture Environment, Central Institute of Brackishwater Aquaculture, #75, Santhome High Road, MRC Nagar, Chennai-600028, Tamilnadu.

No. BT/PR38273/AAQ/3/980/2020
GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Block 2, 6-8th Floors
CGO Complex, Lodhi Road,
New Delhi- 110 003

Dated: 15.11.2021

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules, 1978, for the implementation of the project entitled "**Precision brackishwater aquaculture technology using Machine Intelligence**" for a period of 3 Year 0 Month at a total cost of Rs. **13245934** (Rupees One Crores Thirty Two Lakhs Fourty Five Thousand Nine Hundred and Thirty Four Only) on the terms and conditions detailed here under:-

2 The Project :

2.1 Title : Precision brackishwater aquaculture technology using Machine Intelligence

2.2 Details of the Investigators:

Project Coordinator

Dr. Kanagachidambaresan Ramasubramanian

Associate Professor
Computer Science and Engineering
Vel. Tech Dr. RR & Dr. SR Technical University
Avadi, Tiruvallur, Chennai-600062, Tamilnadu

Principal Investigators:

Dr. Kanagachidambaresan Ramasubramanian

Associate Professor
Computer Science and Engineering
Vel. Tech Dr. RR & Dr. SR Technical University
Avadi, Tiruvallur, Chennai-600062, Tamilnadu

Dr. Muralidhar M.

Principal Scientist
Aquaculture Environment
Central Institute of Brackishwater Aquaculture
#75, Santhome High Road, MRC Nagar, Chennai-600028, Tamilnadu

CO-PI:

Mr. Ashok Kumar Jangam

Scientist
Nutrition Genetics and Biotechnology Unit
Central Institute of Brackishwater Aquaculture
#75, Santhome High Road, MRC Nagar, Chennai - 600028, Tamilnadu

Dr. Suvana Sukumaran

Scientist
Environment Section, AAHED
Central Institute of Brackishwater Aquaculture
#75, Santhome High Road, MRC Nagar, Chennai - 600028, Tamilnadu

Dr. Dhilip Kumar V.

Associate Professor
Department of Computer Science and Engineering
Vel. Tech Rangarajan Dr.Sagunthala R& D Institute of Science and
Technology, Avadi, Tiruvallur, Chennai-600062, Tamilnadu

Lokesh
Dr. Lokesh Kumar Narnoliya
Scientist 'C'
Department of Biotechnology
Govt. of India
C.G.O. Complex, Lodhi Road
New Delhi-110003

2.3 Objectives:

Overall Objectives:

1. To develop a robust and standalone Wireless Sensor Network to gather real time environmental and weather parameters data from farmers ponds.
2. To develop and implement mobile phone based advisory system for location specific and personalized advisories to farmers.
3. To develop Deep learning support system for big data analytics and system specific technical interventions for shrimp farming based on weather and environmental parameters data.
4. To assess the gaps, capacity requirements and suggest policy measures to upscale the precision aquaculture (IoT and machine intelligence model) in India.

Institute wise Objectives:

Central Institute of Brackishwater Aquaculture

1. To develop Deep learning support system for big data analytics and system specific technical interventions for shrimp farming based on weather and environmental parameters data.
2. To assess the gaps, capacity requirements and suggest policy measures to upscale the precision aquaculture (IoT and machine intelligence model) in India.

Vel. Tech Dr. RR & Dr. SR Technical University

1. To develop a robust and standalone Wireless Sensor Network to gather real time environmental and weather parameters data from shrimp culture ponds
2. To develop and implement mobile phone based advisory system for location specific and personalized advisories to farmers

2.4 Time Schedule:

The duration of the project is 3 Year 0 Month from the date of this sanction order.

2.5 Project Cost:

The total cost of the project is Rs. **13245934/-** (Rupees One Crores Thirty Two Lakhs Forty Five Thousand Nine Hundred and Thirty Four Only) as per details given below:

Institute	Year I	Year II	Year III	Total Cost(Rs.)
1. Central Institute of Brackishwater Aquaculture	2933840	1633840	1812400	6380080
2. Vel. Tech Dr. RR & Dr. SR Technical University	4588574	1108880	1168400	6865854
Total (Rs.)	7522414	2742720	2980800	13245934

Institute wise details are:

Budget Head	Year I	Year II	Year III	Total(Rs.)
1. Vel Tech Dr. RR & Dr. SR Technical University				
Equipment	3279694.00			3279694.00
Manpower	758880.00	758880.00	818400.00	2336160.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	50000.00	50000.00	50000.00	150000.00
Consumables	400000.00	200000.00	200000.00	800000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	4588574.00	1108880.00	1168400.00	6865854.00

hokan
Dr. Lokesh Kumar Narnoliya
Scientist 'C'
Department of Biotechnology
Govt. of India
C.G.O. Complex, Lodhi Road
New Delhi-110003
Page No. 53 / 61

2. Central Institute of Brackishwater Aquaculture				
Equipment	1400000.00			1400000.00
Manpower	1383840.00	1383840.00	1562400.00	4330080.00
Overhead	50000.00	50000.00	50000.00	150000.00
Travel	50000.00	50000.00	50000.00	150000.00
Consumables		100000.00	100000.00	200000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Total (Rs.)	2933840.00	1633840.00	1812400.00	6380080.00

2.6 Equipment

The details of the equipment sanctioned for the implementation of the project at **Annexure-I**

2.7 Manpower:

The details of the manpower sanctioned for the implementation of the project at **Annexure-II**

2.8 Deliverables:

The details of the periodical deliverables are given at **Annexure-III**. Based on this, the progress of the project would be monitored by the designated Committee(s).

3. Head of Account:

The **Non-Recurring** expenditure involved is debitable to:

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research 2021-2022
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance to Research and Development
3425.60.200.29.17.35	Grants for creation of capital assets

The **Recurring** expenditure involved is debitable to:

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research 2021-2022
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance to Research and Development
3425.60.200.29.17.31	Grants -in-Aid General

4. Terms & Conditions:

- In case the whole or a part of the amount of the grant in aid is being refunded, the rate of ten percent per annum thereon shall be recovered.
- The Non-recurring amount should be utilized within 18 months from the date of Sanction Order.
- Continuation of this project may be subject to appraisal and approval of the continuation of schemes under which this project is funded.
- The PI should put whole of the grant in interest bearing account and report the interest earned in UC/SEs. If the Institute fails to give the interest earned details, Overhead grant may be withheld in subsequent releases.

Dr. Laxmi Kumar Narnoliya
Scientist, Department of Biotechnology
Ministry of Science & Technology
Government of India
C-Block, Complex, Lodhi Road
New Delhi-110003

- 4.1 The other terms and conditions governing this sanction are attached at Annexure- III.
- 4.2 A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA between the grantee institutions and DBT. In case of NGO's and Private Institution's, execution of MOA is mandatory before first release. A format of the MoA is enclosed in Annexure-IV.
- 4.3 The Institute/Agency will keep the whole of the grant in a Bank Account earning interest, and the interest so earned should be reported to DBT in the Utilisation Certificate and Statement of Expenditure. The interest earned should be remitted to the Consolidated fund of India through Bharat Kosh portal(www.bharatkosh.gov.in) as per GFR-2017-230(8) after finalization of the account for a given Financial Year.
5. No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.
6. The Director, Central Institute of Brackishwater Aquaculture, Chennai, Tamilnadu and The Principal, Vel Tech Dr. RR & Dr. SR Technical University, Chennai, Tamilnadu would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.
7. PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-05/2019 dated 30 Jan 2019. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.
8. As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organizations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG (DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organizations is called upon to do so.
9. If the Research Project involves biological resources, the obligations under the Biological Diversity Act 2002 as applicable shall be complied with by the Project Investigator, the details of such obligations can be accessed at www.nbaindia.org
- 10 (I) "The PIs/Implementing Agencies shall strictly adhere to the GoI instructions issued vide OM No.F.4.1.2021-PPD dated 30.6.2021 in the matter of issue of Global tender Enquiry with special reference to instructions contained under para 4 of the said OM for procurement of equipments, spares and consumables for research purposes and shall not issue Global Tenders Enquiries before seeking the approval of the competent authority".
- (II) "After incurring the expenditure on import of such items and at the time of submission of UCs to the department next year, the PIs will also furnish the copy of the approval sought from the competent authority for issue of the GTE for such items of import. The release of next installment of grant will be subject to the fulfillment of the above condition."
11. This issues, under the power delegated to this Department and with the concurrence of IFD vide their SAN No. **102/IFD/SAN/1676/2021-2022** dated: **12.11.2021**
12. The expenditure by the implementing agency is to be incurred only through the EAT module of PFMS.
13. This sanction order has been noted at serial no. **31** in the Register of Grants.

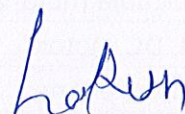
(Dr. Lokesh Kumar Narnoliya)
Scientist C

Dr. Lokesh Kumar Narnoliya
Scientist 'C'
Department of Biotechnology
Govt. of India
C.G.O. Complex, Lodhi Road
New Delhi-110003

To,
The Pay & Accounts Officer,
Department of Biotechnology,
New Delhi - 110 003.

Copy to:

- 1 The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110002.
- 2 The Director, Central Institute of Brackishwater Aquaculture, 75, Santhome High Road, RA Puram, Chennai - 600028, Tamilnadu
- 3 The Principal, Vel. Tech Dr. RR & Dr. SR Technical University, #42 Avadi-Vel Tech Road, Avadi, Chennai - 600062, Tamilnadu
- 4 Dr. Kanagachidambaresan Ramasubramanian (Project Coordinator & PI), Associate Professor, Department of Computer Science and Engineering, Vel Tech Dr. RR & Dr. SR Technical University, Avadi, Tiruvallur, Chennai - 600062, Tamilnadu
- 5 Dr. Muralidhar M, Principal Scientist, Aquaculture Environment, Central Institute of Brackishwater Aquaculture, #75, Santhome High Road, MRC Nagar, Chennai - 600028, Tamilnadu
- 6 Dr. Dhilip Kumar V, Associate Professor, Department of Computer Science and Engineering, Vel Tech Rangarajan Dr. Sagunthala R& D Institute of Science and Technology Avadi, Chennai - 600062, Tamilnadu
- 7 Dr. Suvana Sukumaran, Scientist, Environment Section, AAHED, Central Institute of Brackishwater Aquaculture, #75, Santhome High Road, MRC Nagar, Chennai - 600028, Tamilnadu
- 8 Mr. Ashok Kumar Jangam, Scientist, Nutrition Genetics and Biotechnology Unit, Central Institute of Brackishwater Aquaculture, #75, Santhome High Road, MRC Nagar, Chennai - 600028, Tamilnadu
- 9 Cash Section, DBT (2 copies).
- 10 Sanction Folder.
- 11 File Copy.



(Dr. Lokesh Kumar Narnoliya)
Scientist C

Dr. Lokesh Kumar Narnoliya
Scientist 'C'
Department of Biotechnology
Govt. of India
C.G.O. Complex, Lodhi Road
New Delhi-110003

Annexure -I

Details of the Equipment sanctioned for the implementation of the project entitled "**Precision brackishwater aquaculture technology using Machine Intelligence**":

Vel Tech Dr. RR & Dr. SR Technical University			
S. No.	Name of Equipment	No.	Cost(Rs.)
1.	PH Sensor	15	54270.00
2.	Do Sensor	15	226695.00
3.	Turbidity sensor	15	12210.00
4.	Temperature sensor	15	21900.00
5.	TDS sensor	15	17235.00
6.	Air quality sensors	15	12435.00
7.	Temperature & humidity sensor-open	1	2279.00
8.	Co sensor	5	3860.00
9.	Co2 sensor	1	5201.00
10.	Particulate Matter Sensor SPS30	1	5641.00
11.	portable multi-water quality sensor(CIBA)	1	430500.00
12.	BL DC motor	1	11588.00
13.	Smart phone	1	22999.00
14.	button phone	1	1316.00
15.	speaker	1	7999.00
16.	Head set	1	2999.00
17.	Jumper cables	3	669.00
18.	3D-printer	1	31000.00
19.	3d-Printing material-5kg	5	4780.00
20.	3D- printing	1	80000.00
21.	GSM modem with Interface	15	24225.00
22.	Water flow meter	15	6240.00
23.	GPRS modem	15	21915.00
24.	Soldering hot gun	1	5800.00
25.	IP Wi-Fi Camera	5	5950.00
26.	Wi-Fi Modem	1	2330.00
27.	Water Linked M64 Acoustic Modem	2	301508.00
28.	Underwater thruster	4	61504.00
29.	Electronic speed controller	5	2695.00
30.	Water pump	1	3360.00
31.	Dashboard smart TV	1	74990.00
32.	Double side printer'	1	16799.00
33.	Solar Panel	15	21465.00
34.	Solar panel	1	11924.00
35.	Voltage Regulator	25	4600.00

Dr. Lokesh Kumar Narnoliya
 Scientist 'C'
 Department of Biotechnology
 Govt. of India
 C.G.O. Complex, Lodhi Road
 New Delhi-110003
 Page No. 16/17

36.	Red Indicator bulb	15	5400.00
37.	Anemometer	1	3950.00
38.	Integrated Relay Board with Communication module	15	98475.00
39.	Xbee Pro	20	55180.00
40.	NVDIA-Jetson Nano	3	36567.00
41.	Jetson Xavier AGX module	3	371970.00
42.	SD card-128 GB	3	4197.00
43.	Jetson TX2	2	118998.00
44.	Raspberry Pi camera(8mp)	3	6585.00
45.	Raspberry pi camera(infrared)	3	3285.00
46.	Raspberry Pi Zero W	20	18200.00
47.	SD card- 64 bit GB	15	11550.00
48.	Raspberry Pi pico	15	4380.00
49.	Xbee Pro holder Omni Antenna	30	6300.00
50.	NVIDIA A100 series Rack	1	888104.00
51.	PCB Breakout for Dongle	30	24300.00
52.	Vice	1	2500.00
53.	Axe blade	5	2020.00
54.	Angle Grinder	2	4310.00
55.	Portable Drilling Machine	1	2499.00
56.	Soldering Station-3N	2	9502.00
57.	Welding Machine	1	4499.00
58.	Bosch Drill Bit set	1	5812.00
59.	Metal sheet titanium drill kit	1	16657.00
60.	Tool Kit Rack	1	7800.00
61.	Battery	1	11150.00
62.	AC motor-1.5 HP	1	5499.00
63.	Swimming pool	1	4599.00
64.	Battery(6v -10 AH)	15	22395.00
65.	Submersible Small DC motar-5V	15	2130.00

Total 3279694.00

Central Institute of Brackishwater Aquaculture

S. No.	Name of Equipment	No.	Cost(Rs.)
1.	Insitu Data monitoring meters and kits(Lumpsum)	3	1400000.00
Total			1400000.00

(Dr. Lokesh Kumar Narnoliya)

Scientist C

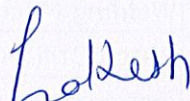
Dr. Lokesh Kumar Narnoliya
Scientist 'C'
Department of Biotechnology
Govt. of India
C.G.O. Complex, Lodhi Road
New Delhi-110003

Annexure -II

Details of the manpower sanctioned for the implementation of the project entitled "**Precision brackishwater aquaculture technology using Machine Intelligence**":

Head	No. of Position	Year I	Year II	Year III	Total (Rs.)
1. Central Institute of Brackishwater Aquaculture					
Project Associate-I @ Rs. 31,000/- + 24% HRA pm 1 st and 2 nd year (to be appointed as per the DST guidelines OM No. SR/S9/Z-05/2019 dated 10th July, 2020)	3	1383840	1383840	0	2767680
Project Associate-II @ Rs. 35,000/- + 24% HRA pm for 3rd year (To be appointed as per the DST guidelines OM No. SR/S9/Z-05/2019 dated 10th July, 2020)	3	0	0	1562400	1562400
Total(Rs.)		1383840	1383840	1562400	4330080
2. Vel Tech Dr. RR & Dr. SR Technical University					
Junior Research Fellow @ Rs. 31,000/- + 24% HRA pm for 1st & 2 nd year (to be appointed as per the DST guidelines OM No. SR/S9/Z-08/2018 dated January 30, 2019)	1	461280	461280	0	922560
Senior Research Fellow @ Rs. 35,000/- + 24% HRA pm for 3rd year (to be appointed as per the DST guidelines OM No. SR/S9/Z-08/2018 dated January 30, 2019)	1	0	0	520800	520800
Project Assistant @ Rs. 20,000/- + 24% HRA pm for three year (to be appointed as per the DST Order No. SR/S9/Z-05/2019 dated 10th July, 2020 w. e. f. 10th July, 2020)	1	297600	297600	297600	892800
Total(Rs.)		758880	758880	818400	2336160

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DST OM No. SR/S9/Z-05/2019 dated 10.07.2020.


(Dr. Lokesh Kumar Narnoliya)
Scientist C

Dr. Lokesh Kumar Narnoliya
 Scientist 'C'
 Department of Biotechnology
 Govt. of India
 C.G.O. Complex, Lodhi Road
 New Delhi-110003

Annexure -III

Details of the Quarterly, Half yearly and yearly deliverables of the project entitled "**Precision brackishwater aquaculture technology using Machine Intelligence**":

Quarterly, Half yearly and yearly deliverables and achievements

S. No.	Quarterly Deliverables of the project	Time line
1.	Sensor Interfacing and Prototyping, Purchase and integration of sensors with the PCB board and ready to mount module creation	Q1 [0-3 Months]
2.	Sensor Interfacing and Prototyping Voltage characteristics and power constraints verification with existing market product, Integrated testing with CIBA	Q2
3.	Sensor Calibration and diagnosis software architecture development, in house code development and lab verification, Embedded code development	Q3
4.	Software development, android and system software creation	Q4
5.	Software testing and bug identification Prototype testing installation in real time and data gathering	Q5
6.	Network formation and interfacing	Q6
7.	Pattern recognition with pond data.	Q7
8.	Pattern recognition with different aspects with multiple ponds in cloud environment.	Q8
9.	Prototype testing in three location installation and data gathering	Q9
10.	Prototype testing, reliability verification and fault tolerant measurement	Q10
11.	Validation and publication	Q11
12.	Publication and report closure	Q12

(Dr. Lokesh Kumar Narnoliya)

Scientist 'C'

Dr. Lokesh Kumar Narnoliya
Scientist 'C'
Department of Biotechnology
Govt. of India
C.G.O. Complex, Lodhi Road
New Delhi-110003

FILE NO. TAR/2021/000119
SCIENCE & ENGINEERING RESEARCH BOARD(SERB)
(A statutory body of the Department of Science & Technology, government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 07-Jan-2022

ORDER

Subject: Financial Sanction under Teachers Associateship for Research Excellence (TARE) to **Dr. PRAVEEN A. S., Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062-** under the mentorship of **Dr. S. SANKARAN, at Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036-** Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned grant at a total cost of **Rs. 18,30,000/- (Rs. Rupees Eighteen Lakh Thirty Thousand only Only)** for a duration of 36 months.
The date of start of the project will be 15 December, 2021 .The items of expenditure for which the total allocation of **Rs. 18,30,000/-** has been approved are given below:

The following budget is proposed for

Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062 (Parent)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 0 (@0/- per month (consolidated))
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036 (Host)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 60,000 (on completion of 90 days mandatory attendance in the host institute every year)
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 2,75,000/- (Rupees Two Lakh Seventy Five Thousand only)** to **Vel Tech Dr. Rangarajan Dr. Sakunthala R&D Institute Of Science And Technology, NO.42, Avadi-Vel Tech Road,Avadi, Chennai, Rs. 3,35,000/- (Rupees Three Lakh Thirty Five Thousand only)** to **Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036** being the first installment of the grant for the year 2021-2022 for implementation of the said research project.

3. The expenditure involved is debitable to

Fund for Science & Engineering Research (FSER)

This release is being made under Teachers Associateship For Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics)

4. The Sanction has been issued to with the approval of the competent authority vide Diary No. **SERB/F/6758/2021-2022** dated **05 January, 2022**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

8. The release amount of **Rs. 2,75,000/- (Rupees Two Lakh Seventy Five Thousand only)** will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062 (Parent) :

PFMS Unique Code	veltechinspire
Account Name	Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
Account Number	75330100003365
Bank Name & Branch	Bank of Baroda Vel Tech Engg College Branch, #42, Avadi Alamathi Road, Vel Tech Engineering College, Avadi, Chennai, Tamil Nadu - 600062
IFSC/RTGS Code	BARB0VJVELT
Email address of PI	draspraveen@veltech.edu.in
Email id of A/C Holder	registrar@veltech.edu.in
Email address of concerned officer	ms_tare@serbonline.in

The release amount of **Rs. 3,35,000/- (Rupees Three Lakh Thirty Five Thousand only)** will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036 (Host) :

PFMS Unique Code	IITM
Account Name	The Registrar, Indian Institute of Technology - Madras
Account Number	2722101016150
Bank Name & Branch	Canara Bank IIT - Madras Branch, IIT - Madras Campus Post Office, Sardar Patel Road, Adayar, Chennai - 600036
IFSC/RTGS Code	CNRB0002722
Email address of PI	draspraveen@veltech.edu.in
Email id of A/C Holder	deanicsr@iitm.ac.in
Email id of Mentor	Dr. S. SANKARAN

9. Both the institutes will furnish Utilization certificate (UCs) financial year wise to the SERB and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

10. The institute will maintain separate audited accounts for the fellowship. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

11. The File no. **TAR/2021/000119** may also be mentioned in all research communications arising from the above project with due acknowledgement of **SERB**.

12. As this is the first grant for the fellowship, no previous U/C is required.

13. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "**FUND FOR SCIENCE AND ENGINEERING RESEARCH**" payable at New Delhi.

14. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

15. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.


(Dr. T Thangaradjou)
Scientist F
msls@serb.gov.in

To,
Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R. Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB, New Delhi.
3.	File Copy
4.	<p>(i) Dr. PRAVEEN A. S. Mechanical Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, NO.42, Avadi-Vel Tech Road, Avadi, Chennai, TAMIL NADU-600062 Email: draspraveen@veltech.edu.in Mobile: 919447900113</p> <p>(ii) Dr. S. SANKARAN Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036</p> <p>(Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)</p>
5.	<p>(i) Registrar, Vel Tech Dr. Rangarajan Dr. Sakunthala R&D Institute Of Science And Technology, NO.42, Avadi-Vel Tech Road, Avadi, Chennai</p> <p>(ii) Dean IC and SR Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036</p> <p>(Receipt of Grant may be intimated by name to the undersigned)</p>


(Dr. T Thangaradjou)
Scientist F
msls@serb.gov.in

Fwd: Sanction Order : TAR/2021/000401

1 message

Dean - R&D, Vel Tech, Chennai <drd@veltech.edu.in>

Thu, Feb 17, 2022 at 12:42 PM

To: "R & D Office Vel Tech, Chennai" <drdoffice@veltech.edu.in>, "R & D Office Vel Tech, Chennai" <drdoffice1@veltech.edu.in>

Dr E Balasubramanian

Dean R & D

Vel Tech Rangarajan Dr Sagunthala R & D Institute
of Science and Technology

M:+91 9940024007

<http://balasubramanian-uav.co.in/>

e: drd@veltech.edu.in

w: www.veltech.edu.in

400 feet Outer Ring Road, Avadi,
Chennai-600 062, Tamil Nadu, India.



Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)



----- Forwarded message -----

From: **D. Rajamani** <drajamani@veltech.edu.in>

Date: Thu, 17 Feb 2022 at 12:39

Subject: Fwd: Sanction Order : TAR/2021/000401

To: Dean - R&D, Vel Tech, Chennai <drd@veltech.edu.in>

----- Forwarded message -----

From: **Raja Mani** <manimurugan1991@gmail.com>

Date: Thu, 17 Feb 2022, 12:38 pm

Subject: Fwd: Sanction Order : TAR/2021/000401

To: <drajamani@veltech.edu.in>

----- Forwarded message -----

From: <SERB_Administrator@serbonline.in>

Date: Thu, 17 Feb 2022, 12:35 pm

Subject: Sanction Order : TAR/2021/000401

To: <serbinfo1@gmail.com>



Science and Engineering Research Board
(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

Dear Dr. D Rajamani,

The below details for **Science & Engineering Research Board (SERB)** Sanction Order (*attached to this mail*)

Sanction Order No TAR/2021/000401

Sanction Date 10 February, 2022

PI Name Dr. D Rajamani
Institute/University Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062
Account Number 75330100003365
Bank & Branch Name BANK OF BARODA Vel Tech Engg. Colg. Branch, 42, Avadi Alamathi Road, Vel Tech Engineering College, Avadi, Chennai, Tamilnadu - 600062
Amount INR 275000/-
In Rupees Two Lakh Seventy Five Thousand
UTR No RBI0472212646453
Transaction Date 15 February, 2022

SERB Reference Number:

Bill No
Diary No / Finance No SERB/F/8246/2021-2022

Sanction Order No TAR/2021/000401
Sanction Date 10 February, 2022
PI Name Dr. D Rajamani
Institute/University Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062
Account Number 39424557008
Bank & Branch Name STATE BANK OF INDIA 45/1, APMC YARD, Tumkur Road, Bengaluru - 560022
Amount INR 335000/-
In Rupees Three Lakh Thirty Five Thousand
UTR No RBI0472212646822
Transaction Date 15 February, 2022

SERB Reference Number:

Bill No GIA/6860/2021-22
Diary No / Finance No SERB/F/8246/2021-2022

Confirmation of receipt of funds may be sent by **email** only.

IMPORTANT:

1. **SEPARATE Utilization Certificates (UCs)** for **Recurring and Non Recurring (even if DISBURSED BY SERB THROUGH ONE SANCTION ORDER** for your project) should be **sent directly** to the grant Sanctioning Authority by name (signatory of the sanction order) **within twelve months of the closure of the financial year in which the grants were released irrespective of whether the subsequent instalment of grant is due for release or not.**

2. However, if any unspent balance is to be **refunded**, kindly ensure that the unutilized amount may be refunded immediately by way of an **a/c payee cheque/DD** drawn in favour of "**Fund for Science & Engineering Research**", payable at **New Delhi** and **forwarded to the undersigned at the address given below:**

--

Under Secretary

Science & Engineering Research Board (SERB)

(A statutory body under the Government of India's Department of Science & Technology)

3rd & 4th Floor, Block II

Technology Bhavan, New Mehrauli Road
New Delhi - 110016

+91-11-40000328/9

+91-11-40000319/49/52

+91-9818223293

+91-9818223294

***** LEGAL DISCLAIMER *****

Please do not reply to this mail !!

[SERB is now on Social-Media. Kindly follow us on Twitter: @serbonline <https://www.twitter.com/serbonline>]

This is a system generated information and does not require any signature. This E-Mail may contain Confidential and/or legally privileged Information and is meant for the intended recipient(s) only. If you have received this e-mail in error and are not the intended recipient/s, kindly notify us at info@serbonline.in and then delete this e-mail immediately from your system. Any unauthorized review, use, disclosure, dissemination, forwarding, printing or copying of this email or any action taken in reliance on this e-mail is strictly prohibited and may be unlawful. Internet communications cannot be guaranteed to be timely, secure, error or virus-free. The sender does not accept any liability for any errors, omissions, viruses or computer problems experienced by any recipient as a result of this e-mail.

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Fw: SERB-Notification

1 message

S. Christopher <christo_spc@yahoo.com>

Thu, Dec 2, 2021 at 8:21 PM

Reply-To: "S. Christopher" <christo_spc@yahoo.com>

To: "drd@veltech.edu.in" <drd@veltech.edu.in>, "drdoffice@veltech.edu.in" <drdoffice@veltech.edu.in>, "hodmech@veltech.edu.in" <hodmech@veltech.edu.in>

Cc: "Prof. Dr. S. Christopher" <drschristopher@veltech.edu.in>

Dear Sir,

I am happy to inform that my project is sanctioned under TARE SERB scheme.

To this I have forwarded the approval email for your reference.

Thank you.

Sent from Yahoo Mail on Android

----- Forwarded message -----

From: "SERB_Administrator@serbonline.in" <SERB_Administrator@serbonline.in>**To:** "serbinfo1@gmail.com" <serbinfo1@gmail.com>**Cc:****Sent:** Thu, 2 Dec 2021 at 15:58**Subject:** SERB-Notification SERB India |

Science and Engineering Research Board
(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

SCIENCE & ENGINEERING RESEARCH BOARD (SERB)

(Statutory Body Established Through an Act of Parliament : SERB Act 2008)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

File Number: TAR/2021/000392

Dated: 02-Dec-2021

Subject: Project titled "OPTIMIZATION OF SOLAR PHOTOVOLTAIC BASED WATER PUMPING PERFORMANCE WITH DC MOTOR"

Dear Dr. Christopher Stephen,

We are happy to inform you that your application cited above has been approved by the Science and Engineering Research Board for funding under **Teachers Associateship for Research Excellence (TARE)**. The following are the approved items for a period of three years.

Research Grant ? As per SERB-TARE norms

Fellowship ? As per SERB-TARE norms

Overhead Charges ? As per SERB-TARE norms

1. This approval letter is valid subject to the fulfilment of all the eligibility criteria for the TARE and submission of required documents.
2. You are requested to submit the joining report in the host institute and submit relevant documents within one month from the date of receipt of this letter. Projects requires ethical / biosafety / stem cell / wildlife clearances etc.candidate will be allowed to join the host institute only after acquiring such clearances.
3. The grant will be effective from the date of joining in the host institution.
4. Follow the norms of host and parent institutions while implementing the project. Please visit our website www.serbonline.in for the terms & conditions of the grant.

Kindly quote the reference number in all future correspondence. The reference no. **TAR/2021/000392** should be mentioned in all research outputs(publications/patent etc.) arising from the TARE grant.

Kindly follow the below steps only then you will be able to acknowledge the approval letter:

1. Go to www.serbonline.in through your credentials
2. Go to Menu --> Proposal submission --> View submitted proposals

A certificate stating that any visit abroad for a period more than eight weeks would be undertaken after due permission from SERB, may also be submitted.

Kindly upload RTGS details of the parent as well as host institute to facilitate transfer of the fund as per the template

Yours sincerely,

(Dr. T Thangaradjou)

Scientist F

Dr. Christopher Stephen

Mechanical

Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062

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TAR/2021/000893

The updated RTGS details of the Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062 is as below:

PFMS Unique Code	veltechinspire
Account Name	Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
Account Number	75330100003365
Bank Name & Branch	Bank of Baroda Vel Tech Engg College Branch Chennai #42, Avadi Alamathi Road Vel Tech Engineering College Avadi Chennai Tamilnadu 600062.
IFSC/RTGS Code	BARB0VJVELT
Email id of A/C Holder	registrar@veltech.edu.in


Dr. T. Thangaradjou
Scientist 'F'

FILE NO. TAR/2021/000093
SCIENCE & ENGINEERING RESEARCH BOARD(SERB)
(A statutory body of the Department of Science & Technology, government of India)

Science and Engineering Research Board
3rd & 4th Floor, Block II
Technology Bhavan, New Mehrauli Road
New Delhi - 110016

Dated: 07-Jan-2022

ORDER

Subject: Financial Sanction under Teachers Associateship for Research Excellence (TARE) to **Dr. Naren Shankar, Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062-** under the mentorship of **Dr. Muruganandam TM**, at **Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036-** Release of 1st grant.

Sanction of **Science and Engineering Research Board (SERB)** is hereby accorded to the above mentioned grant at a total cost of **Rs. 18,30,000/-** (Rs. Rupees Eighteen Lakh Thirty Thousand only) for a duration of 36 months.

The date of start of the project will be 06 December, 2021. The items of expenditure for which the total allocation of **Rs. 18,30,000/-** has been approved are given below:

The following budget is proposed for

Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062 (Parent)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 0 (@0/- per month (consolidated))
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036 (Host)

Sl. No.	Budget Head	Amount
1.	Fellowship	Rs. 60,000 (on completion of 90 days mandatory attendance in the host institute every year)
2.	Research Grant	Rs. 2,50,000/- per annum
3.	Overheads	Rs. 25,000/- per annum

2. Sanction of the **SERB** is also accorded to the payment of **Rs. 2,75,000/-** (Rupees Two Lakh Seventy Five Thousand only) to **Vel Tech Dr. Rangarajan Dr. Sakunthala R&D Institute Of Science And Technology, NO.42, Avadi-Vel Tech Road,Avadi, Chennai , Rs. 3,35,000/-** (Rupees Three Lakh Thirty Five Thousand only) to **Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036** being the first installment of the grant for the year 2021-2022 for implementation of the said research project.

3. The expenditure involved is debitable to

Fund for Science & Engineering Research (FSER)

This release is being made under Teachers Associateship For Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics)

4. The Sanction has been issued to with the approval of the competent authority vide Diary No. **SERB/F/6754/2021-2022** dated **05 January, 2022**

5. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (www.serb.gov.in).

6. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.

7. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

8. The release amount of **Rs. 2,75,000/-** (Rupees Two Lakh Seventy Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062 (Parent) :

PFMS Unique Code	vetechinspire
Account Name	Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
Account Number	75330100003365
Bank Name & Branch	Bank of Baroda Vel Tech Engg College Branch Chennai #42, Avadi Alamathi Road Vel Tech Engineering College Avadi Chennai Tamilnadu 600062.
IFSC/RTGS Code	BARB0VJVELT
Email address of PI	narensankar@veltech.edu.in
Email id of A/C Holder	registrar@veltech.edu.in
Email address of concerned officer	ms_tare@serbonline.in

The release amount of **Rs. 3,35,000/-** (Rupees Three Lakh Thirty Five Thousand only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036 (Host) :

PFMS Unique Code	IITM
Account Name	The Registrar, Indian Institute of Technology - Madras
Account Number	2722101016150
Bank Name & Branch	Canara Bank IIT - Madras Branch Canara Bank IIT - Madras Branch IIT - Madras Campus Post Office Sardar Patel Road Adayar Chennai - 600036.
IFSC/RTGS Code	CNRB0002722
Email address of PI	narensankar@veltech.edu.in
Email id of A/C Holder	deanicsr@iitm.ac.in
Email id of Mentor	Dr. Muruganandam TM

9. Both the institutes will furnish Utilization certificate (UCs) financial year wise to the SERB and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.

10. The institute will maintain separate audited accounts for the fellowship. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.

11. The File no. **TAR/2021/000093** may also be mentioned in all research communications arising from the above project with due acknowledgement of **SERB**.

12. As this is the first grant for the fellowship, no previous U/C is required.

13. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "**FUND FOR SCIENCE AND ENGINEERING RESEARCH**" payable at New Delhi.

14. The organization/institute/university should ensure that the technical support/financial assistance provided to them by the Science & Engineering Research Board, a statutory body of the Department of Science & Technology (DST), Government of India should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

15. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by the Science & Engineering Research Board, a statutory body of Department of Science & Technology (DST), Government of India.


(Dr. T Thangaradjou)
Scientist F
msls@serb.gov.in

To,
Under Secretary
SERB, New Delhi

Copy forwarded for information and necessary action to:-

1.	The Principal Director of Audit, A.G.C.R. Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB, New Delhi.
3.	File Copy
4.	<p>(i) Dr. Naren Shankar Department of Aeronautical Engineering Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, NO.42, Avadi-Vel Tech Road, Avadi, Chennai, TAMIL NADU-600062 Email: narensankar@veltech.edu.in Mobile: 919940175934</p> <p>(ii) Dr. Muruganandam TM Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036</p> <p>(Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)</p>
5.	<p>(i) Registrar, Vel Tech Dr. Rangarajan Dr. Sakunthala R&D Institute Of Science And Technology, NO.42, Avadi-Vel Tech Road, Avadi, Chennai</p> <p>(ii) Dean IC and SR Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600036</p> <p>(Receipt of Grant may be intimated by name to the undersigned)</p>


(Dr. T Thangaradjou)
Scientist F
msls@serb.gov.in

Fwd: Sanction Order : TAR/2021/000096

1 message

Dean - R&D, Vel Tech, Chennai <drd@veltech.edu.in>
To: "R & D Office Vel Tech, Chennai" <drdoffice@veltech.edu.in>

Wed, Feb 16, 2022 at 11:17 AM

----- Forwarded message -----

From: **Registrar Vel Tech, Chennai** <registrar@veltech.edu.in>
Date: Wed, 16 Feb, 2022, 10:38 am
Subject: Fwd: Sanction Order : TAR/2021/000096
To: vice chancellor <vicechancellor@veltech.edu.in>, Director R & D <drd@veltech.edu.in>, Finance Officer Vel Tech, Chennai <fo@veltech.edu.in>

----- Forwarded message -----

From: <SERB_Administrator@serbonline.in>
Date: Wed, Feb 16, 2022 at 10:34 AM
Subject: Sanction Order : TAR/2021/000096
To: <serbinfo1@gmail.com>



Science and Engineering Research Board
(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

Dear Dr. Arulprakasajothi M,

The below details for **Science & Engineering Research Board (SERB)** Sanction Order (*attached to this mail*)

Sanction Order No TAR/2021/000096
Sanction Date 13 January, 2022
PI Name Dr. Arulprakasajothi M
Institute/University Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062
Account Number 75330100003365
Bank & Branch Name Bank of baroda Vel Tech engineering college branch, 42, Avadi Alamathi Road, Vel Tech engineering college, Avadi, chennai, Tamilnadu, 600062
Amount INR 275000/-
In Rupees Two Lakh Seventy Five Thousand
UTR No RBI0432205712726
Transaction Date 11 February, 2022

SERB Reference Number:

Bill No
Diary No / Finance No SERB/F/6753/2021-2022

Sanction Order No TAR/2021/000096

Sanction Date 13 January, 2022
PI Name Dr. Arulprakasajothi M
Institute/University Vel Tech Rangarajan Dr. Sagunthala R & D Institute Of Science And Technology , NO.42, Avadi-Vel Tech Road,Avadi, Chennai,TAMIL NADU-600062
Account Number 0311000100958570
Bank & Branch Name Punjab National Bank PNB, IIT KAMAND, MANDI, HP PIN - 175075
Amount INR 335000/-
In Rupees Three Lakh Thirty Five Thousand
UTR No RBI0432205712699
Transaction Date 11 February, 2022

SERB Reference Number:

Bill No

Diary No / Finance No SERB/F/6753/2021-2022

Confirmation of receipt of funds may be sent by **email** only.

IMPORTANT:

1. **SEPARATE Utilization Certificates (UCs)** for **Recurring and Non Recurring (even if DISBURSED BY SERB THROUGH ONE SANCTION ORDER** for your project) should be **sent directly** to the grant Sanctioning Authority by name (signatory of the sanction order) **within twelve months of the closure of the financial year in which the grants were released irrespective of whether the subsequent instalment of grant is due for release or not.**

2. However, if any unspent balance is to be **refunded**, kindly ensure that the unutilized amount may be refunded immediately by way of an **a/c payee cheque/DD** drawn in favour of "**Fund for Science & Engineering Research**", payable at **New Delhi** and **forwarded to the undersigned at the address given below:**

--

Under Secretary

Science & Engineering Research Board (SERB)

(A statutory body under the Government of India's Department of Science & Technology)

3rd & 4th Floor, Block II

Technology Bhavan, New Mehrauli Road
New Delhi - 110016

+91-11-40000328/9

+91-11-40000319/49/52

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+91-9818223294

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Thanks & Regards,

Dr. E. Kannan

Registrar

m: +91 9445049400

e: registrar@veltech.edu.in

w: www.veltech.edu.in

400 feet Outer Ring Road, Avadi,
Chennai-600 062, Tamil Nadu, India.



Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)





सत्यमेव जयते

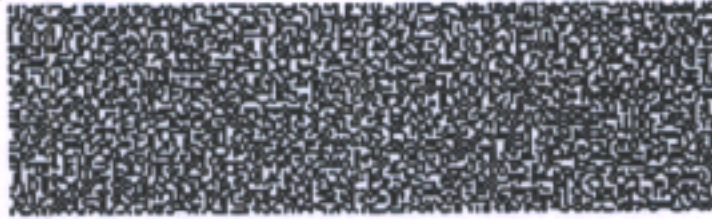
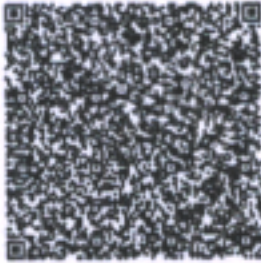
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Certificate Issued Date	: 20-Dec-2021 04:45 PM
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Description of Document	: Article 37 Note or Memorandum
Description	: M O U
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Stamp Duty Paid By	: CENTRAL POWER RESEARCH INSTITUTE
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Please write or type below this line

MEMORANDUM OF UNDERSTANDING (MoU) BETWEEN CENTRAL POWER RESEARCH INSTITUTE (CPRI), BANGALORE and VEL TECH RANGARAJAN Dr. SAGUNTHALA R& D INSTITUTE OF SCIENCE AND TECHNOLOGY for the project on "Design of Cascaded Adaptive Control with O₂ and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant" under RSOP scheme of Ministry of Power (MoP), Government of India.

x

Page 1 of 20

x

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

This MoU regarding the Research Scheme on Power for R and D in Indian Power sector, titled **"Design of Cascaded Adaptive Control with O₂ and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant"** (herein after referred to as the "Project") is made for execution of the project on this **28th December 2021** between parties, namely,

CENTRAL POWER RESEARCH INSTITUTE a Society under the Societies Registration Act of 1960 (Karnataka Act No. 17 of 1960), having its Head Office at Sir C.V. Raman Road, Sadashivanagar, Bangalore – 560 080, represented by Director General, CPRI (hereinafter referred to as **CPRI** in short, which expression unless repugnant to the context mean and include their successors and assigns),

AND

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology deemed to be university established under 3 of UGC Act, 1956, having its campus in/at **No.42, Avadi-Vel Tech Road, Avadi, Chennai - 600062**, represented by Registrar (herein after referred to as in short **Vel Tech**, the **Project implementing Organization** which expression shall where the context so requires or admits, be deemed to include its successor and permitted assignees).

1. Definitions

a	SCRD means Standing Committee on R&D constituted by the Ministry of Power (MoP), GoI
b	TC refers to Technical Committee on Thermal Research constituted by MoP, GoI
c	'Project Implementing Organization' shall mean Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology responsible for implementing the project "Design of Cascaded Adaptive Control with O₂ and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant" as per the approved project proposal.
d	'Funding Organization' shall mean MoP supporting the project financially.
e	'Project' means RSOP Project titled "Design of Cascaded Adaptive Control with O₂ and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant" , Project code: RSOP/21-26/TH/1, Accounts code: RSOP-VelTech-120 and FAS code: 340

f	'Coordinating Organization' means CPRI, coordinating various activities of the project with project implementing organization and funding organizations namely the Ministry of Power, Government of India.
g	'Competent Authority' for the purpose of Clause 25(VI) shall be Chief Accounts Officer of CPRI or his nominee and for all legal and administrative matters it shall be Chief Administrative Officer of CPRI or his nominee.
h	'Parties' refer to the organizations participating in the project namely CPRI and Vel Tech.
i	'RSOP' means Research Scheme on Power
j	PI means Principal Project Investigator who is responsible for all technical and financial matters of the project.

It is agreed by and between the parties that the project would be executed jointly within the following objective and scope of the project and the responsibilities of each of the implementing agencies.

2. Objectives of the Research project

The objectives of this project are as follows:

- **Optimizing air and fuel flow control based on combustion flame image and adaptive control is proposed.**
 - ❖ Combustion flame temperature of a thermal power plant will be measured from combustion flame images in LabVIEW software by using wavelet transformation technique, clustering through Fuzzy K means algorithm, defining temporal trends by DFT (Discrete Fourier Transform) and ANN (Artificial Neural Network) for decision making.
 - ❖ Adaptive control model for fuel and air will be developed in this proposal along with combustion flame image for optimization in air and fuel flow.
- **Validating and analyzing the performances in comparison of conventional combustion control mode with the proposed mode of optimized combustion air and fuel control design.**
 - ❖ First validating the performance of fabricated lab scale mimic panel in conventional combustion control mode based on the thermal power plant data and its characteristics.
 - ❖ Next this proposed scheme, combustion flame image and adaptive based combustion air and fuel control design will be performed in the fabricated lab scale mimic panel.
 - ❖ Finally analyzing by comparison in performances of conventional control method and the proposed optimized scheme will be executed.

3. Major Deliverables of the Research project

The major deliverables of this project are as follows:

- **Optimizing air and fuel flow control based on combustion flame image and adaptive control is proposed.**
 - ❖ Combustion flame temperature of a thermal power plant will be measured from combustion flame images in LabVIEW software by using wavelet transformation technique, clustering through Fuzzy K means algorithm, defining temporal trends by DFT (Discrete Fourier Transform) and ANN (Artificial Neural Network) for decision making.
 - ❖ Adaptive control model for fuel and air will be developed in this proposal along with combustion flame image for optimization in air and fuel flow.
- **Validating and analyzing the performances in comparison of conventional combustion control mode with the proposed mode of optimized combustion air and fuel control design.**
 - ❖ First validating the performance of fabricated lab scale mimic panel in conventional combustion control mode based on the thermal power plant data and its characteristics.
 - ❖ Next this proposed scheme, combustion flame image and adaptive based combustion air and fuel control design will be performed in the fabricated lab scale mimic panel.
 - ❖ Finally analyzing by comparison in performances of conventional control method and the proposed optimized scheme will be executed.

4. Financial Outlay of the Project

- (i) This project is funded by MoP under RSOP scheme. The total financial outlay of the project as per approved proposal is Rs. 29.88 lakhs.
- (ii) The break-up of the total project cost is given in approved project proposal, which is part of this document as an *Annexure I*.

5. Project Schedule

The project shall be completed within two years as per the approved project proposal in *Annexure I*. The project start date shall be the date on which MoU is signed.

6. Mode of Financing


- (i) The approved cost of the project is Rs. 29.88 lakhs. The entire project cost will be funded by MoP through the coordinating agency namely **CPRI**.
- (ii) In case the project gets completed in less than the approved cost of Rs. 29.88 lakhs, the unutilized amount with interest accrued if any shall be refunded to **CPRI**.
- (iii) The grant-in-aid will be disbursed through Public Finance Management System (PFMS) as mandated by the MoP, GoI.

7. Release of Funds

- (i) Release of 1st installment of funds shall be arranged by **CPRI** after signing of MoU.
- (ii) Release of subsequent installment of funds by **CPRI** will be subject to satisfactory physical and financial progress of the project and also upon recommendation by the Technical Committee. This is also subject to complete utilization of funds released earlier.

8. Roles and Responsibilities of Project Coordinating Organization - CPRI

- (i) Technical Committee on "Thermal Research" will monitor and steer the project for its successful completion.
- (ii) **CPRI** shall maintain a separate account for the funds released by MoP for execution of this project.
- (iii) **CPRI** would release the funds to **Vel Tech** for execution of the project depending upon the financial and physical progress of the project and recommendations of the Technical Committee.
- (iv) **CPRI** would be free to use the equipment/facilities; softwares procured/developed for any scientific work or technology development/demonstration purpose on their own or can request **Vel Tech** for use of this infrastructure by any other organization / agency or manufacturer for scientific technology development / demonstration purpose.
- (v) **CPRI** will facilitate to get necessary approvals from Central Government under section 35 of IT act towards expenditure incurred on scientific research wherever applicable.

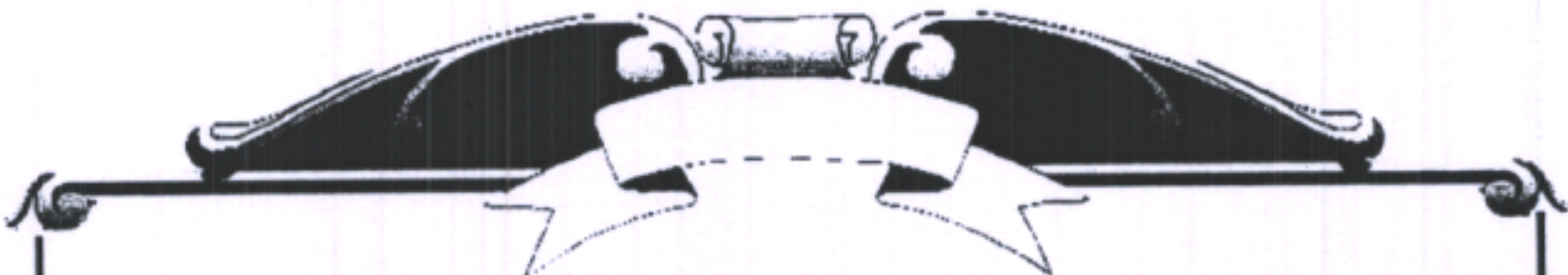
- 
- (vi) Head, R&D Management Division shall be the contact person for all matters concerning the project.

9. Roles and Responsibilities of Project Implementing Organization-Vel Tech

- (i) **Vel Tech** shall make arrangements for proper operation and maintenance of equipment procured under the project. **Vel Tech** shall acknowledge procurement of equipment under this project by a 'TRUST RECEIPT' which is given in *Annexure II*, to this document. *Appendix I* of the Trust Receipt should be filled and signed by the PI and forwarded to CPRI as and when capital plant/equipment/ machinery are procured and installed – which will be appended to the original MoU.
- (ii) **Vel Tech** shall furnish their bank account details, duly attested by their bankers, in the RTGS form to be provided by **CPRI**, to facilitate the transfer of funds.
- (iii) **Vel Tech** shall ensure that funds released are utilized only for the purpose of the Project, as per the approved project proposal.
- (iv) **Vel Tech** shall provide free access to **CPRI** officers and Technical Committee members and their representatives to all facilities/assets and records relating to the project located at their works.
- (v) **Vel Tech** shall meet the expenditure towards local hospitality of TC members / **CPRI** officials / its representatives, from the funds provided by **CPRI** for this project, when the review meetings are held at **Vel Tech**, from Institutional Overhead.
- (vi) The PI is expected to attend progress review meetings, as and when organized, to present the progress/outcome of the research project before the Technical Committee. Such meetings should mandatorily be attended in person by the PI.
- (vii) If the PI to whom the project has been sanctioned wishes to leave the institute/organization, the institute/organization /PI will inform the same to CPRI in advance and in consultation with CPRI, evolve steps to ensure successful completion of the project by designating the Co-PI as the PI before relieving the PI, in consultation with CPRI or appointing a new PI, in consultation with CPRI.

10. Monitoring of RSOP Project

10.1 Review and Quarterly Progress Reports (QPR)

- 
- (i) Technical Committee on "Thermal Research", with support from CPRI, will be responsible for monitoring the progress of the project. The progress shall be reviewed from time to time.
 - (ii) Progress of the project shall be furnished on quarterly basis to R&D Management Division of CPRI by the Principal Investigator.
 - (iii) It is the responsibility of the PI to furnish the progress (Technical and Financial) of the project for each quarter within 10 days after completion of the quarter. For the purpose of furnishing quarterly reports, specified quarters are April- June, July-September, October-December and January- March. The first QPR should be submitted at the end of the quarter immediately following the project start date.. The Quarterly Progress Reports (QPR) are to be furnished in the prescribed formats enclosed in *Annexure III* for reporting technical and financial progress.

10.2 Monitoring of RSOP


- (i) Financial progress of RSOP projects is monitored by the R&D Management Division of CPRI.
- (ii) Progress of the project is reviewed by the Technical Committee on Thermal Research at respective implementing organization or CPRI or any other place which is decided by the Technical Committee.
- (iii) Based on the recommendations of Technical Committee and on the basis of satisfactory progress of project, Head, R&D Management Division shall recommend release of funds to Accounts Division at Head Office of CPRI.

10.3 Review by Technical Committee on Thermal Research

- (i) The Technical Committee shall review and steer the implementation of RSOP projects towards successful completion.
- (ii) The Technical Committee will meet from time to time to review the progress of project and submit report to Director General, CPRI and SCRD.

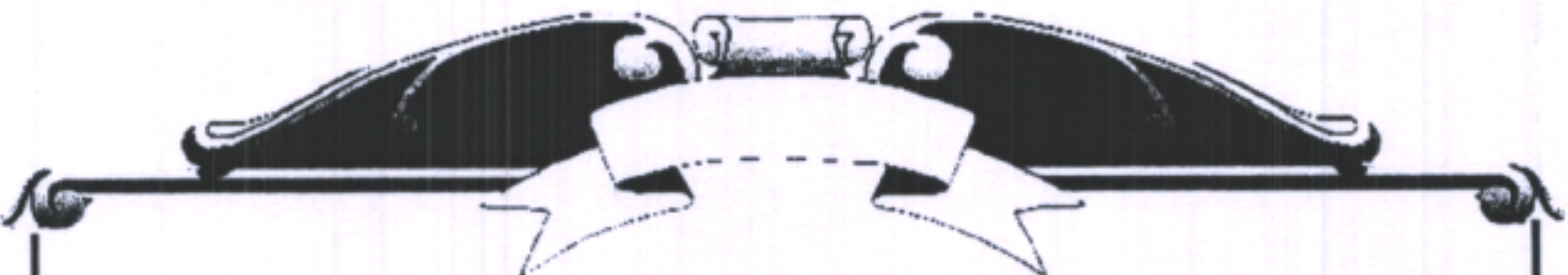
11. Fund Utilization Certificate (UC)

- (i) The quarterly Utilization Certificate (UC), in the prescribed format enclosed in *Annexure III*, will be duly submitted by Principal Investigator to R&D Management Division of CPRI. The UC shall be attested by authorized person of the Organization / Institute.

- 
- (ii) Satisfactory technical progress and submission of Quarterly Progress Reports and Utilization Certificates are pre-requisites for release of subsequent installment of project grant.
 - (iii) Annual Audited Utilization Certificate (AUC) indicating the financial statements shall be certified by Auditors of **Vel Tech** and submitted to **CPRI** before 15th May of the succeeding financial year.

12. Mandatory Obligations of project implementing Organization – **Vel Tech**

- (i) It is obligatory on the part of **Vel Tech** to ensure free access to Technical Committee members and SCRD members / **CPRI** officials / its representatives to all facilities/assets and records relating to the project located at their works.
- (ii) Information regarding publication of technical paper shall be furnished to **CPRI** within 15 days of publication with one hard copy of published paper and an electronic copy. **Vel Tech** shall duly acknowledge **CPRI** for funding this project in all publications, reports, publicity, presentations materials etc.
- (iii) None of the parties including Technical Committee members shall transfer technology or information on technology to any third party without the consent of **CPRI** and **Vel Tech**.
- (iv) **Vel Tech** shall furnish all deliverables of the project such as full documentation pertaining to development, design, detailed specification of all components and material manufacturing process, sourcing of material, test results etc. to **CPRI**.
- (v) **Vel Tech** shall furnish all details, documents/test reports etc., as required for registration of patent.
- (vi) Any procurement(s) made under this project should be in accordance with the norms of G.F.R. of the GoI as amended from time to time.
- (vii) The assets acquired/ created wholly or substantially by **Vel Tech** out of Government grants except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in the G.F.R. shall not be disposed off, encumbered or utilized for any other purpose/project, without obtaining the prior approval of the DG, **CPRI/SCRD** (as applicable) which sanctioned the grant. In case of winding up or dissolution of the organization, all the assets acquired to that effect out of the grants-in-aid by the Ministry should be returned forthwith to **CPRI**.

- 
- (viii) The Utilization Certificate in respect of utilization of grants for the purpose/object for which it was sanctioned should be furnished by **Vel Tech** with an audited statement of accounts, within six months of the closure of the financial year. The utilization certificate should also disclose whether the specified, quantified and qualitative targets that should have been reached against the amount utilized, were in fact reached, and if not the reasons thereof. They should contain an output based performance assessment.
- (ix) **Vel Tech** shall be required to maintain subsidiary accounts of the Government grant and furnish to the Accounts Officer, **CPRI**, a set of audited statement of accounts after utilization of the grants-in-aid or whenever called for.
- (x) The annual report and audited accounts of **Vel Tech** will have to be submitted to the Ministry, in Hindi and English, in required quantities by the grantee to be laid on the table of the both Houses of Parliament within 9 months of the close of the succeeding financial year of the grantee if the non-recurring grant is Rs. 50 lakhs and above as one-time assistance.
- (xi) The accounts of the grants are open to check and shall be audited by the Comptroller and Auditor General of India in accordance with the provisions laid down in Section 14 of the Comptroller and Auditor General, Ministry of Power whenever in the institution is called up to do so.
- (xii) No expenditure over and above the sanctioned grant shall be incurred by the **Vel Tech** without obtaining the prior approval of the DG, **CPRI** and **SCRD**, as applicable.
- (xiii) The grants-in-aid should not be a source of profit. If after examination of the Audited Accounts, Ministry comes to the conclusion that the grants-in-aid have been source of profit, then **Vel Tech** shall forthwith refund the amount of grants-in-aid to **CPRI**.
- (xiv) **Vel Tech** may keep all the instructions regarding economy in view while incurring the expenditure. The organization shall not incur any expenditure on those items, the purchase of which items have been banned.
- (xv) The organization would maintain separate account for the project. The grant should be kept in a bank account and the interest earned should be reported to **CPRI**. The interest thus earned will be treated as a credit to the organization and will either be adjusted towards further installments of the grant and will be refunded to **CPRI** after the project completion.
- (xvi) In the event of the **Vel Tech** failing to comply with the conditions or committing breach of the conditions, the **Vel Tech** shall be jointly and severally liable to refund to the **CPRI** the whole or part of the grant with interest.

(xvii) In the event of short closure of the project due to non-technical reasons, penal interest is chargeable wherever applicable if **Vel Tech** fails to furnish progress report/audited statement of Accounts/Audited Utilization certificate etc., within six months after acceptance of short closure by the DG, CPRI and approval by the SCRD.

(xviii) In the event of short closure of the project **Vel Tech** will be liable for refund of the full amount.

13. Project Reorientation

13.1 Reorientation of Project work/activities

The scope and the work/activities of project can be re-oriented without deviating from broad objective and scope of the approved project, based on the recommendations of the Technical Committee.

13.2 Re-appropriation of budget

The project budget can be re-appropriated of within the approved outlay, if deemed necessary, based on the recommendations of the Technical Committee.


13.3. Cost and Time Over-Run

- (i) **Vel Tech** shall inform Technical Committee in advance about the possible time and cost overrun of the project with due justification for the same.
- (ii) Additional expenditure if any not recommended by Technical Committee towards the project will be borne by **Vel Tech**.
- (iii) In the event of any technical problems beyond the control of **Vel Tech** in completing the project, the same shall be discussed with Technical Committee.

14. Knowledge Dissemination

The information on technologies / products developed as part of RSOP scheme will be made available on CPRI website (<http://www.cpri.in>). Workshop or Symposium would be conducted by the project implementing organization /CPRI to disseminate the knowledge gained through the research findings.

15. Project Completion Report

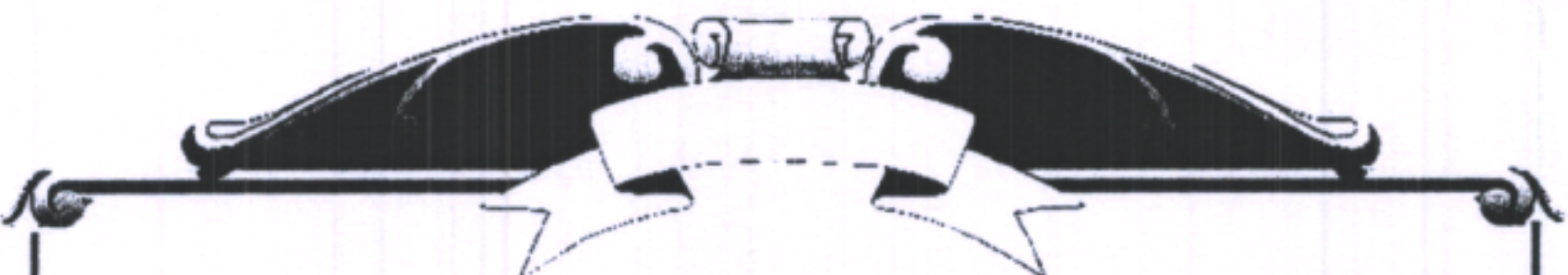
- 
- (i) The Project implementing Institution shall make a presentation to the Technical Committee and SCRD, once the project is completed. The abstract of the completion report shall be submitted in relevant formats to R&D Management Division of CPRI.
 - (ii) The Technical Committee would recommend the project closure with the deliverables as stipulated in the original project proposal.
 - (iii) **Vel Tech** shall submit draft technical report within two months from the date of approval by Technical Committee.
 - (iv) **Vel Tech** shall forward four copies of the final technical report to **CPRI** and the soft copy in CD. The report shall include complete technology parameters, so that the document can serve as Technology Transfer Document.
 - (v) The Project shall be deemed to be completed when the Technical Committee certifies to the effect in writing and is accepted by DG CPRI, who is the Convener of SCRD.

16. Patent and Technology Transfer Mechanism

- (i) **CPRI** and **Vel Tech** will jointly patent the product/Technology/process developed. The patents will be applied in the name of Head, R&D Management Division, **CPRI** or his nominee and **Vel Tech** and the patent rights will jointly vest with **CPRI** and **Vel Tech**. The expenditure towards patent shall be borne by **Vel Tech** and booked to project cost.
- (ii) Technology transfer fees and Royalty shall be decided by mutual consent of **CPRI** and **Vel Tech** after achieving key milestones.
- (iii) Transfer of technology to a third party shall be allowed with mutual consent between **CPRI** and **Vel Tech** and all commercial benefits such as royalty shall be available to **CPRI** and **Vel Tech** and will be equally shared.

17. Confidentiality

During the tenure of the MoU and thereafter for 2 years or the validity of patent whichever is longer, **CPRI**, **Vel Tech** and Technical Committee members shall undertake on their behalf and on behalf of their employees/ associates to maintain strict confidentiality and prevent disclosure thereof of all the information and data exchanged/generated pertaining to work under this MoU for any purpose other than this MoU. Each Party shall keep all Confidential Information provided by the other party strictly confidential and agree not to disclose any Confidential Information of the other Party to any third party without the prior written consent of the other, or to use any such confidential information for any purpose other than as contemplated by this Agreement. Each Party hereby agrees to keep any




Confidential Information transmitted to it or obtained by it from the other Party relating to the processes employed by the Parties in this project strictly confidential and not to disclose the same or, any part thereof save to those of its employees, affiliates, representatives who require to know the same strictly on need to know basis. Each Party agrees to use all reasonable efforts/endeavors to ensure that any employees, affiliates or representatives to whom such disclosure is made shall keep such information confidential and shall not use the same for their own purposes or for the purposes of any third Party or for any purpose other than provided for under this MOU.

18. Statutory Requirements

- (i) All aspects of this Research and Development work will be carried out in accordance with statutory provisions like Workmen's Compensation Act, Labour (Regulation and Abolition) Act, Contract Labour (Regulation and Abolition) Act, Employees Provident Act or any other related enactment passed by the Parliament or State Legislature and any rules/laws made there under by the either Central or respective state Governments.
- (ii) This MoU shall not be used as a general MoU between CPRI and Vel Tech since this MoU is specific only to implementation of the approved RSOP scheme for the project on *"Design of Cascaded Adaptive Control with O₂ and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant"*.
- (iii) Since the project is sanctioned to Vel Tech under any circumstances, it shall not be transferred to any other Institution. Transfer of project money within the Institution or with other Institutions under the same Management is not permitted under any circumstances.
- (iv) If the force majeure conditions continue beyond six months, the signatories shall then mutually decide about the future course of action.

19. Force Majeure

None of the participating agencies / bodies shall be held responsible for non-fulfillment of their respective obligations under this contract due to the exigency of one or more of the force majeure events such as but not limited to Acts of God, war, natural calamities such as flood, earthquakes etc., and strike, lockout, epidemics, riots, civil commotion etc. provided on the occurrence of cessation of any such events, the party affected thereby shall give a notice in writing to the other party within one month of such occurrence or cessation.



20. Validity of Agreement

The MoU comes under immediate force on the date of signing and is valid for 5 years (Five years), from the date of completion of project or till grant of patent rights, whichever is later. It may, if required, be extended with mutual consent of the parties.

21. Amendments to the MoU

No amendment or modification of this MoU shall be valid unless the same is made in writing by all the parties or their authorized representatives and specifically stating the same to be an amendment of this MoU. The modifications / changes shall be effective from the date on which they are made / executed, unless otherwise agreed to.

22. Settlement of Disputes and Arbitration

- (i) In the event of any dispute or any difference among the parties, such disputes or differences shall be resolved amicably by mutual consultation or through the good offices of the Director General, CPRI and Vel Tech.
- (ii) In the event of any dispute between the parties to this Memorandum of Understanding, it will be resolved as per the Indian Arbitration and Conciliation Act 1996.
- (iii) The venue for arbitration shall be Bangalore and the language of arbitration shall be English or Hindi.

23. Jurisdiction


The courts at **Bangalore** shall have jurisdiction in all matters concerning this MoU including any matter arising out of the arbitration proceedings or any award made therein.

24. Financial Settlement

In the event of termination of the MoU vide the rights and obligations of the parties hereto shall be sealed by mutual decisions; the financial settlement shall take into consideration not only the expenditure incurred but also expenditure committed by the parties pertaining to the project.

25. Terms and Conditions Stipulated by MoP

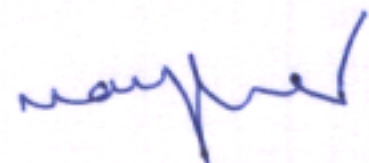
The Project Implementing Organization shall comply with the following terms & conditions as stipulated by Ministry of Power, Government of India.

- 
- I. The grant-in-aid is a non-recurring grant and shall be spent by the Project Implementing Organization only for the purpose/object for which it is sanctioned and the expenditure should be incurred within the approved time limit of the project. Any unspent amount shall be refunded to CPRI, within three months from the date of completion of the project.
 - II. The assets acquired/ created wholly or substantially by the Project Implementing Organization out of Government grants except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in the G.F.R. shall not be disposed off, encumbered or utilized for the another purpose/object, without obtaining the prior approval of DG and SCRD, as applicable. In case winding up or dissolution of the organization, all the assets acquired to that effect out of the grants-in-aid by CPRI should be returned forthwith.
 - III. The Utilization Certificate in respect of utilization of grants for the project/purpose/object for which it was sanctioned should be furnished by the Project Implementing Organization with an audited statement of account, for release of next installment of funds for the project, based on the recommendation and approval of TC.
 - IV. The Utilization Certificate should also disclose whether the specified, quantified and qualitative targets that should have been reached against the amount utilized, were in fact reached, and if not the reasons thereof.
 - V. The Project Implementing Organization shall be required to maintain subsidiary accounts of grants released by CPRI and furnish to the Account Officer CPRI, a set of audited statement of accounts after utilization of the grants-in-aid or whenever called for.
 - VI. The accounts of the grants are open to check by the MoP and shall be audited by the competent authority as applicable.
 - VII. The Project Implementing Organization shall follow and comply with the instructions issued by the Government of India from time to time regarding reservations for candidates belonging to Schedule Caste and Scheduled Tribes for recruitments under this project, proportionate to the posts under the organization. The Project Implementing Organization will submit to CPRI the progress made in this regard.
 - VIII. Grant-in-aid will be transferred through Public Finance Management System (PFMS).
 - IX. Procurement(s) made under the project should be in accordance with the norms of G.F.R. of the GoI as amended from time to time.

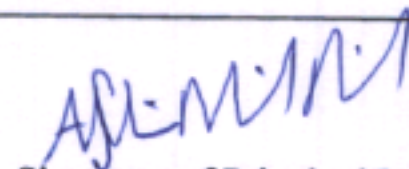
26. Members associated with this Project

1. Dr. J. L. MAZHER IQBAL

Professor,
Electronics and Communication
Engineering Dept,
Vel Tech Rangarajan Dr. Sagunthala
R&D Institute of Science and
Technology.



Signature of Team Member



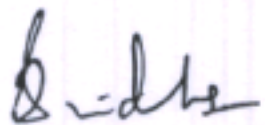
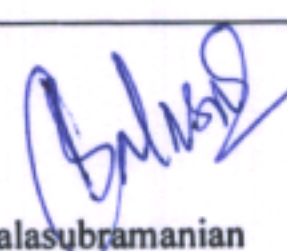
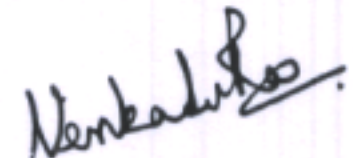

Signature of Principal Investigator

Dr. A. SELWIN MICH PRIYADHARSON

Professor

Electronics and Communication Engineering
Dept,
Vel Tech Rangarajan Dr. Sagunthala R&D
Institute of Science and Technology.

IN WITNESS WHEREOF PARTIES HERETO HAVE ENTERED INTO THIS AGREEMENT EFFECTIVE AS THE DAY AND YEAR FIRST ABOVE WRITTEN.

For and on behalf of CPRI	For and on behalf of Vel Tech
 Shri B. Sridhar Chief Administrative Officer Central Power Research Institute	 Dr. E. Balasubramanian Dean R&D Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology
 Dr. M Venkateswara Rao Joint Director & HoD R & D Management Division, Central Power Research Institute, Bangalore 560 080	 Prof. Dr. E. Kannan Registrar Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology



Annexure I

(1) Copy of the Approved Project Proposal: ENCLOSED.

x.....*[Signature]*.....
✓

x.....*[Signature]*.....


Annexure-II

TRUST RECEIPT

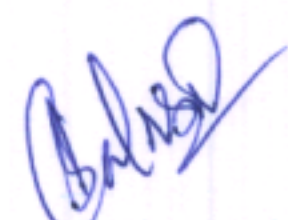
In the matter of MoU dated **28th December 2021** between **Central Power Research Institute (CPRI)** and **Vel Tech , Chennai** regarding Project on "**Design of Cascaded Adaptive Control with O₂ and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant**", the plant, Machinery and Equipment though purchased in the name of **Vel Tech** with the funds provided by **CPRI**, for the subject project, will be in Trust with **Vel Tech** during the implementation of the project and thereafter till they are useful for the purpose stated in the above MoU.

The Plant and Machinery and equipment will not be transferred or disposed of by us without the prior written approval of **CPRI**, and would remain with **Vel Tech**.

IN WITNESS THERE OF **Vel Tech** has executed these presents on **28th December 2021**,
Signed by

Sl.No	Name	Occupation & Address	Signature
1	Dr. E. Kannan	Registrar Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	 Prof. Dr. E. Kannan Registrar

For and on behalf of the **Vel Tech** in the presence of

Sl.No	Name	Occupation & Address	Signature
1	Dr. E. Balasubramanian	Dean R&D Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology	 Dr. E. Balasubramanian Dean-Research and Development

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Regd. under UGC Act, 1956)

APPENDIX – I

SCHEDULE

Particulars of Equipment handed over	Quantity	Particulars of Dispatch title documents	Value of the equipment	Signature of attorney in token receipt
		PR/GR/Bill carrier of lading No & date		

For and on behalf of Vel Tech

1. Signature: _____

Prof. Dr. E. Kannan
Registrar

2. Name: Dr. E. Kannan

3. Designation & Seal: Registrar

Signature: _____

Name: Dr. E. Balasubramanian

Designation & Seal: Dean R&D

Dr. E. Balasubramanian
Dean-Research and Development

Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University) Est. w/o 3 of UGC Act, 1956

Registrar

Vel Tech Rangarajan Dr. Sagunthala
R&D Institute of Science and
Technology

Dean R&D

Vel Tech Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology



Annexure-III

- (1) Prescribed Format for QPR**
- (2) Prescribed Format for UC**

x

[Handwritten signature]

x

[Handwritten signature]

Fwd: Sanction Order : EEQ/2021/000310

1 message

Balasubramanian Esakki <esak.bala@gmail.com>

Thu, Mar 3, 2022 at 11:47 AM

To: "R & D Office Vel Tech, Chennai" <drdoffice@veltech.edu.in>, drdoffice1@veltech.edu.in

----- Forwarded message -----

From: <SERB_Administrator@serbonline.in>

Date: Thu, Mar 3, 2022 at 11:42 AM

Subject: Sanction Order : EEQ/2021/000310

To: <serbinfo1@gmail.com>

**Science and Engineering Research Board**
(Statutory Body Established Through an Act of Parliament : SERB Act 2008)
Department of Science and Technology, Government of India

Dear Dr. Balasubramanian Esakki,

The below details for **Science & Engineering Research Board (SERB)** Sanction Order (*attached to this mail*)**Sanction Order No** EEQ/2021/000310**Sanction Date** 25 February, 2022**PI Name** Dr. Balasubramanian Esakki**Institute/University** Vel Tech Dr. Rangarajan Dr. Sakunthala R&D Institute Of Science And Technology , No.42, Avadi-vel Tech Road,Avadi, Chennai, Chennai, Tamil Nadu-600062**Account Number** 75330100003365**Bank & Branch Name** Bank of Baroda Vel Tech Engg College, No 42 Avadi Alamathi Road, Vel Tech Engineering College, Avadi,Chennai, Tamilnadu 600062**Grants in Aid Capital:****Amount** INR 1938945/-**In Rupees** Nineteen Lakh Thirty Eight Thousand Nine Hundred and Forty Five**UTR No** RBI0602225993884**Transaction Date** 28 February, 2022

SERB Reference Number:

Bill No

Diary No / Finance No SERB/F/9138/2021-2022

Grants in Aid General:**Amount** INR 750055/-**In Rupees** Seven Lakh Fifty Thousand and Fifty Five**UTR No** RBI0602225994768**Transaction Date** 28 February, 2022

SERB Reference Number:

Bill No GIA/7621/2021-22

Confirmation of receipt of funds may be sent by **email** only.

IMPORTANT:

1. **SEPARATE Utilization Certificates (UCs)** for **Recurring and Non Recurring (even if DISBURSED BY SERB THROUGH ONE SANCTION ORDER** for your project) should be **sent directly** to the grant Sanctioning Authority by name (signatory of the sanction order) **within twelve months of the closure of the financial year in which the grants were released irrespective of whether the subsequent instalment of grant is due for release or not.**

2. However, if any unspent balance is to be **refunded**, kindly ensure that the unutilized amount may be refunded immediately by way of an **a/c payee cheque/DD** drawn in favour of "**Fund for Science & Engineering Research**", payable at **New Delhi** and **forwarded to the undersigned at the address given below:**

--

Under Secretary

Science & Engineering Research Board (SERB)

(A statutory body under the Government of India's Department of Science & Technology)

3rd & 4th Floor, Block II

Technology Bhavan, New Mehrauli Road
New Delhi - 110016

+91-11-40000328/9

+91-11-40000319/49/52

+91-9818223293

+91-9818223294

***** LEGAL DISCLAIMER *****

Please do not reply to this mail !!

[SERB is now on Social-Media. Kindly follow us on Twitter: @serbonline <https://www.twitter.com/serbonline>]

This is a system generated information and does not require any signature. This E-Mail may contain Confidential and/or legally privileged Information and is meant for the intended recipient(s) only. If you have received this e-mail in error and are not the intended recipient/s, kindly notify us at info@serbonline.in and then delete this e-mail immediately from your system. Any unauthorized review, use, disclosure, dissemination, forwarding, printing or copying of this email or any action taken in reliance on this e-mail is strictly prohibited and may be unlawful. Internet communications cannot be guaranteed to be timely, secure, error or virus-free. The sender does not accept any liability for any errors, omissions, viruses or computer problems experienced by any recipient as a result of this e-mail.

'SAVE PAPER - THINK BEFORE YOU PRINT!'

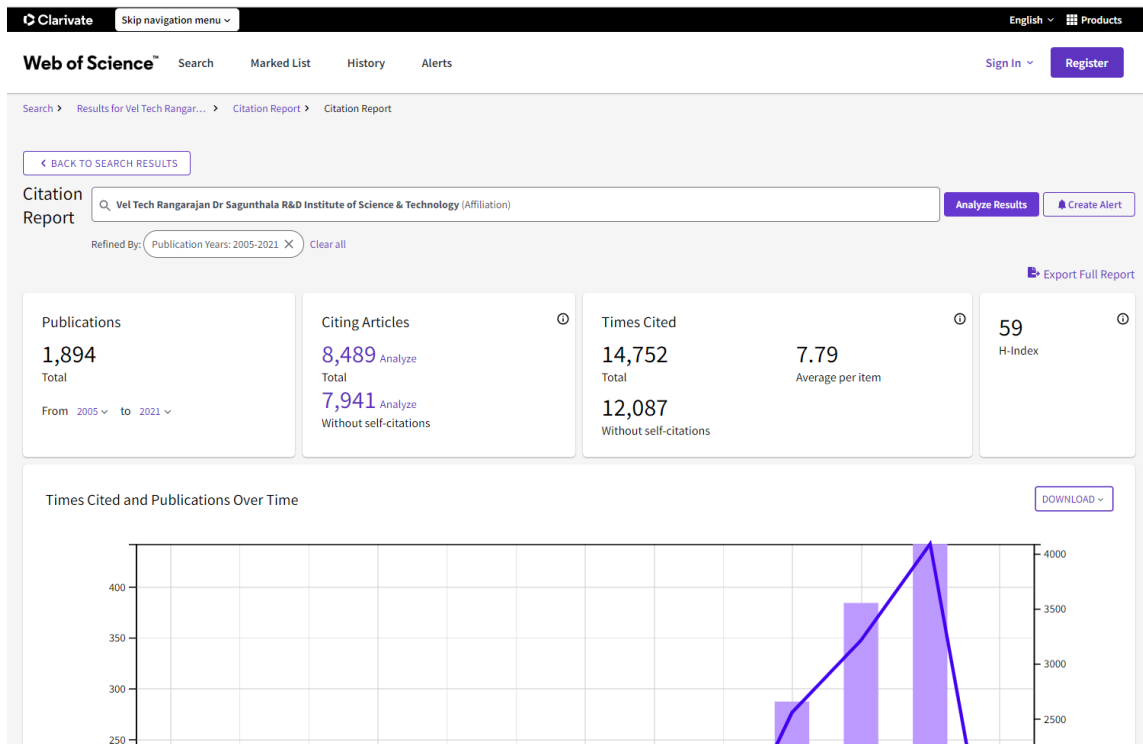
* Don't want to receive such notification anymore? [Click here](#) to send a mail to unsubscribe

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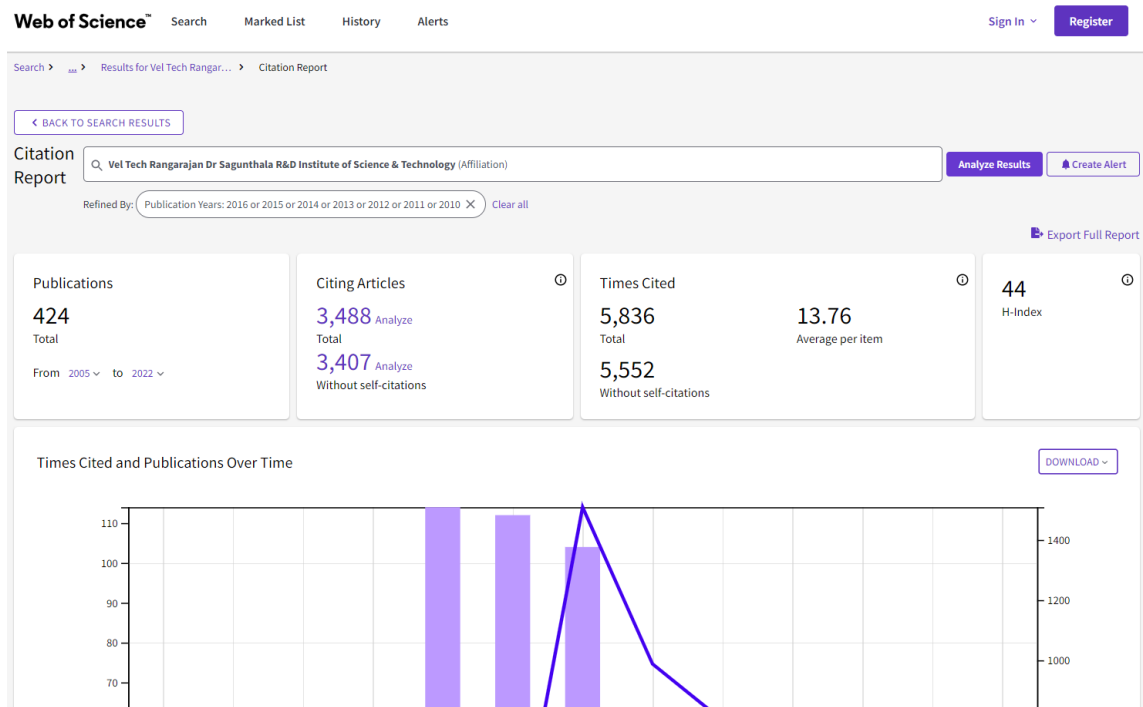
Sincerely,
Balasubramanian E
<http://balasubramanian-uav.co.in/>

H-INDEX

WoS H-Index (until 2021)



WoS H-Index (until 2016)



Brought to you by Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology (Deemed to be University)



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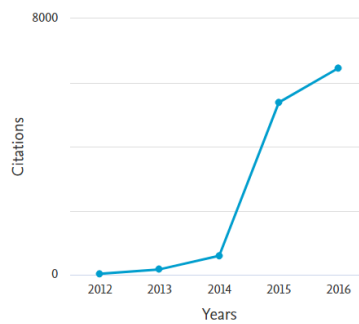
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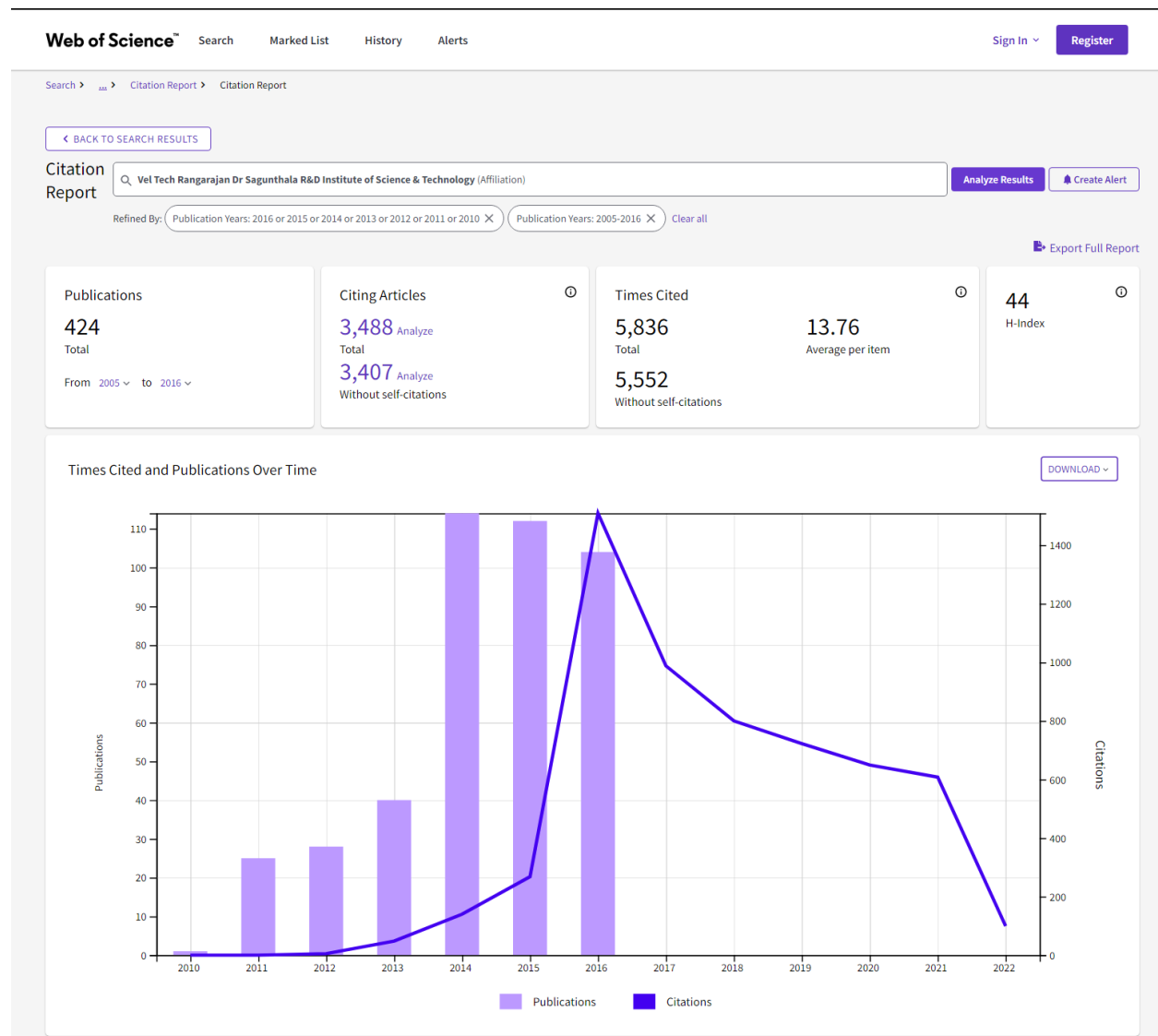
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Date range: 2012 to 2016 ☐ Exclude self citations of all authors ☐ Exclude citations from books [Update](#)

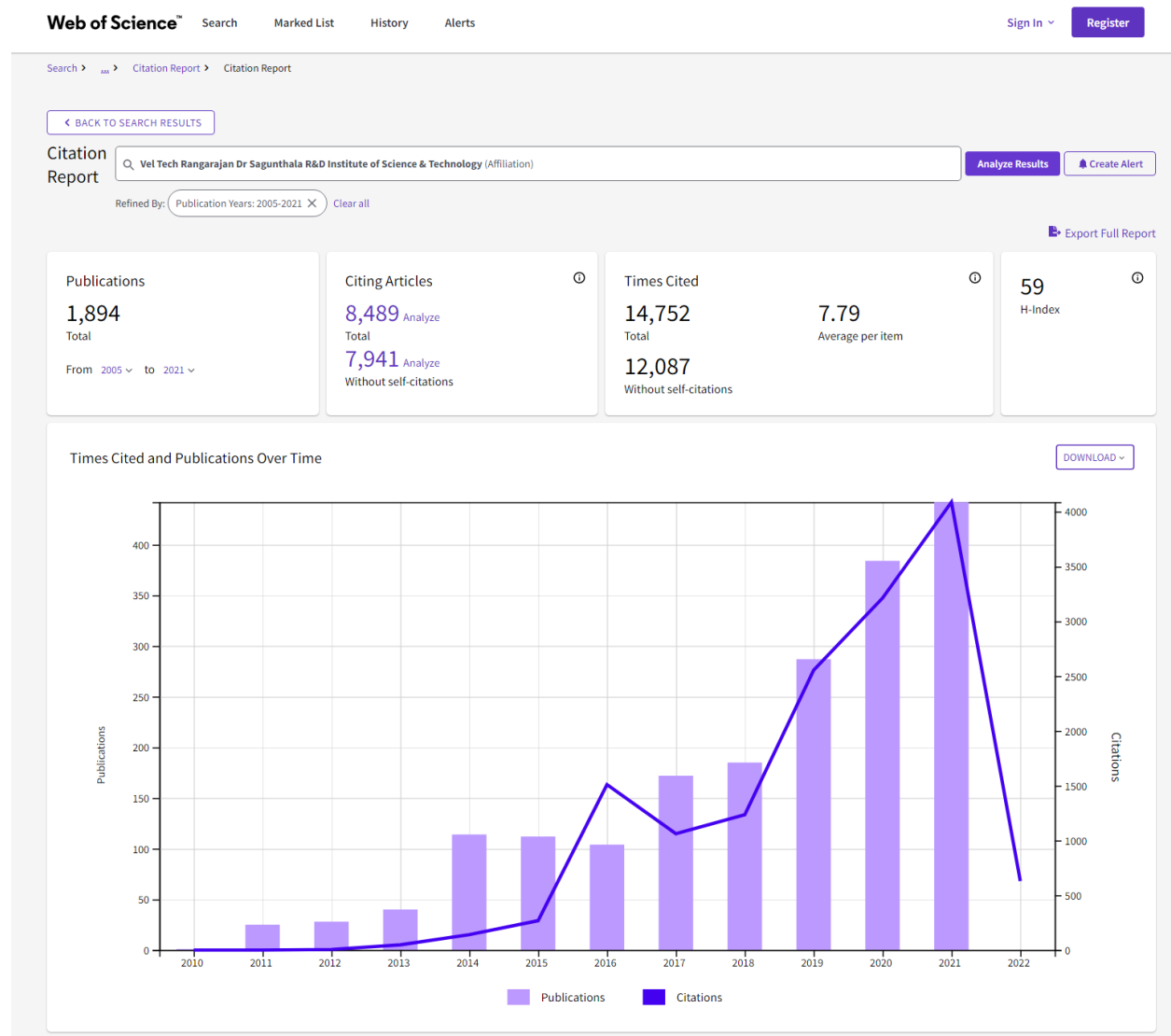
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CITATIONS

WoS Citation (until 2016)



WoS Citations (Until 2021)



Scopus Citations (until 2016)

Year	Paper Count	Sum of Cited by
2003	1	9
2006	1	
2008	3	10
2009	16	192
2010	27	503
2011	70	2659
2012	97	3730
2013	107	2798
2014	267	4275
2015	485	10124
2016	312	3561
Grand Total	4749	27861

Scopus Citations (until 2021)

Year	Paper Count	Sum of Cited by
2003	1	9
2006	1	
2008	3	10
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2010	27	503
2011	70	2659
2012	97	3730
2013	107	2798
2014	267	4275
2015	485	10124
2016	312	3561
2017	429	3494
2018	735	3972
2019	703	3212
2020	650	2255
2021	705	1154
2022	141	43
Grand Total	4749	41991

[illegible]

PATENT



Patent Published and Granted List

S.no	Name of the Teacher	Patent Number	Title of the patent	Year of Award / publish of patent	published/ Awarded
1	1.DR.P.NAGARAJAN 2.DR.G.MOHAN BABU 3.R.PRASANNA	201741000167	Design of power gated double edge triggered flip flop using sleep transistor technique (PG-STDETF) for low power clocking system	2017	published
2	1.K.GANESH 2.P.SHIVAPRIYA	201741000831	Wireless electronic voting machine	2017	published
3	1.C.BALA SARAVANAN 2.DR.P.SARASU 3.DR.E.KANNAN 4.P.ANANDHA KUMAR	201741000827	"16-QAM assisted full duplex bluetooth" for increased transmission range in multimedia applications	2017	published
4	1.MADHAN RAJ.K	201741002878	Electronic based fired empty case counting machine	2017	published
5	1.DR.P.CHANDRA SEKAR 2.K.BARATHI 3.S.VINOTH JOHN PRAKASH	201741004211	A modern electronic based fire extinguisher	2017	published
6	1.R.PRASANNA 2.S.MANOJ ARAVIND 3.ANUPAM YADAV 4.MANISH KUMAR SUMAN 5.CHAMAN SHIRHODIA 6.C.S.KARTHICK	201741005898	Customization of cow-bull horn based biomimicry antenna designs for near and far field applications	2017	published
7	1. Sunil kumar Thakur 2. Dr. P.K. Dhal	201741010752	Solar based Automatic domestic and industrial cleaning system	2017	published
8	1.S.ARAVIND	201741012880	Theft car detector using Raspberry PIE	2017	published
9	1.DR.SELVIN MICH PRIYADHARSAN	201741015396	Design of automatic sprinkler for multi applications based on Wireless Sensor Network (WSN)	2017	published
10	1.J.M.BABU 2.DR.R.VELU 3.DR.AMALA JUSTUS SELVAM 4.AATMESH JAIN 5.KANCHI SASI KUMAR	201741018915	Diesel engine operated with datura stramonium bio diesel	2017	published
11	1.J.M.BABU 2.DR.R.VELU	201741013518	Diesel engine operated with lotus bio diesel	2017	published
12	1.KONDALA MAHESHWAR 2.SUNIL KUMAR THAKUR	201741013519	Gear shifter by using motor and buttons for two wheelers	2017	published
13	1.DR.K.MEENA 2.DR.N.MALARVIZHI	201741017081	Promoting a single card digital identity through multi-modal biometric recognition system	2017	published
14	1.DUVVURI ANIRUDH SATHYA 2.R.GOPIKARAMANAN	201741018918	Electromagnetic engines	2017	published
15	1.SUNIL KUMAR THAKUR 2.NIDAGHA KUMAR RAYAGURU	201741021064	Novel human urine based microbial fuel cells-a way to generate clean electricity from waste water	2017	published
16	1.DR.M.KAVITHA 2.J.ANJALI 3.P.ANUPRIYA 4.M.MAGESHWARI	201741022530	Scalable and effective audit service for storage data in cloud using CP-WABE-RE	2017	published
17	1.G.SURENDAR 2.R.JAGANRAJ	201741024176	Sliding block transmission mechanism for hybrid aerial robot	2017	published
18	1.MANOJ ARAVIND 2.ANUPAM YADAV 3.MANISH KUMAR SUMAN 4.CHAMAN SHISHODIA 5.R.PRASANNA	201741025954	Caudal fish fin based biomimicry loop antenna for near and far field applications	2017	published
19	1.P.R.JOE DHANITH 2.GEETHA PRIYA.G.H	201741028400	Semantic similarity between words in a web search engine	2017	published



Patent Published and Granted List

S.no	Name of the Teacher	Patent Number	Title of the patent	Year of Award / publish of patent	published/ Awarded
20	1.DR.E.BALA SUBRAMANIAN 2.DR.D.C.HARAN PRAGALATH 3.DR.RISHI GUPTA 4.HARISH RATHOD 5.DR.U.CHANDRASEKHAR 6.DR.P.SARASU	201741029804	Elevated civil infrastructures health assessment using rotary using UAV's	2017	published
21	1.B.ALLWYN	201741030466	Design of Hybrid UAV for Emergency payload delivery	2017	published
22	1.DR.P.SIVA MURUGAN	201741031506	Isochoric heating process in place of isentropic compression on a vapor compression cycle	2017	published
23	1.J.SARAVANAN	201741035452	Rain - Tower urban Run - off minimizer harvesting rain water	2017	published
24	1.Mr.R.ARUN RAJ 2.Mr.RATNESH KUMAR 3.R.SHYAM SUNDAR	201741039476	Bike powered using hydrogen gas with the help of urine electrolysis	2017	published
25	1.Mr.T.CHITHRAS 2.Mr.HEMANTH KUMAR 3.Mr.CHIANJEEV	201741042974	Generation Of Electricity Through Moving Trains On Railways By Using T- Box Generator	2017	published
26	1.Mr.GANDLA MAHARNISHA	201841029826	A Method For Improving The Spatial Resolution Of Real Time Enhanced Satellite Image Fusion And Registration Using 2D Curvelet Transform	2018	published
27	1.Dr.BALASUBRAMANIAN.E 2.Mr.U.CHANDRA SEKHAR 3.Mr.SILAMBARASAN.M 4.Mr.BHUVANESHWARAN 5.Mr.YANG LANG JIEH	201841029828	Medical Assistive Device For Geriatric care and orthopedic Rehabilitation	2018	published
28	1.SARAVANAN.J 2.BHARATH.M	201841038457	Modular Outdoor Air Pollution Controller	2018	published
29	1.Mr.G.R.KANAGACHIDAMBARESAN 2.V.MAHIMA 3.Mr.R.RAJKUMAR	201841038781	Automated Medicine Box	2018	published
30	1.Mr.MATHEW ALPHONSE 2.Mr.ANKAM VINOD KUMAR 3.Mr.T.NARASIMHA REDDY 4.Mr.J.PURUSHOTHAM	201841044457	MULTI-DIRECTIONAL WIND ENERGY CONVERTER	2018	published
31	1.Mr.SURRENDAR.J 2.Dr.E.BALASUBRAMANIAN 3.Mr.SILAMBARASAN.M 4.Mr.VIKRAM.P 5.JAGANRAJ.R 6.DR.P.SARASU 7.Mr.RAMESH KUMAR.C	201841044458	Adjustable Frame Unmanned Amphibious Aerial Vehicle with Extended Floats.	2018	published
32	1.T.BHARATHI 2.DR.P.CHANDRASEKHAR	201841029827	Self Dependent Machine For Automotive Applications	2018	published
33	1.DR.NATARAJAN SOMASUNDARAM 2.D.V.A.RAGHAVA MURTHY	201841032442	Reconfigurable Imager and Light Communication Transceiver with Beacon Signalling	2018	published
34	1.K.RAJA	201841042318	Exhaust Gas Heat Utilization in I.C Engines using Pre-Heater	2018	published
35	1.DR.G.R.KANAGACHIDAMBARESAN	201941006567	PLC integrable IoT device for automated testing device	2019	published
36	Dr G R Kanagachidambaresan	201941006600	Raspberry Pi Based Safety System For Industrial Workers Using Deep Learning	2019	published
37	1.A.SANGEETHA	201941006643	A Passive energy dissipation device to improve global stiffness of RC Framed building	2019	published
38	Dr P Balamurugan	201941016288	I-Mobile case charger: Intelligent mobile phone protective case and charger	2019	published



Patent Published and Granted List

S.no	Name of the Teacher	Patent Number	Title of the patent	Year of Award / publish of patent	published/ Awarded
39	Dr G R Kanagachidambaresan	201941021183	Automatic Robotic Mechanism For Industrial Water Quality Monitoring Using Internet Of Things	2019	published
40	Dr Shankar Raman Dhanushkodi	201941025521	Continuous rechargeable seawater battery system	2019	published
41	Saravanan j	201941028871	STORM RESISTANT FENCING PANELS FOR TREES AND AGRICULTURAL FIELDS	2019	published
42	Dr. S. Kandasamy	201941031691	Design for Earthquake Load Modelling using Critical Excitation Method	2019	published
43	Dr. S. Kandasamy	201941035722	Long term performance of Freeze-Thaw and Corrosion Resistance of Steel Fibre Reinforced Concrete applications	2019	published
44	T.Balaji A.T.Ravichandran	201941037858	VETRIVER HARVESTING SYSTEM	2019	published
45	Dr. S. Kandasamy	201941038678	High performance of heedless Glass Fibre Reinforced Concrete panels	2019	published
46	Dr. S. Kandasamy, Mr. S. Baskar	201941041653	Investigating the effect of hybrid nano materials on the mechanical properties and durability of concrete	2019	published
47	Kirubakaran.V Dr.David Shard Bhatt R.Naren Shankar R.Jaganraj C.Rakesh kumar	201941043839	Turbo Charged LPG Stove	2019	published
48	M.Bharath Dr.J.Logeshwari Mr.M.S.Harikrishanan	201941048807	A VERTICAL AXIS WIND TURBINE WITH MODIFIED BLADE STRUCTURE	2019	published
49	G.Divya J.Anne Marry	201941050045	Corrosion Resistance Reinforced concrete with Calotropis Gigantea as corrosion inhibitor	2019	published
50	Dr.G.R.Kanaga Chidamabaresan Mr.G.Charan Mr.S.Prisvin David VeeranSelvam	201941050046	A Machine and method for prepackaging Inspection	2019	published
51	Dr.G.R.Kanaga Chidamabaresan Mr.C.Elangovan Dr.Carmel Marry Belinda Mr.V.Mahima	201941050307	An AI Based fruit ripening system	2019	published
52	Dr.P.K.Dhal Mr.Shri Kant Kumar Singh Mr.Nikita Shanker	201941051176	Arduino based Automatic Anti-collision System	2019	published
53	Mr.S.Sivaranjani	201941051954	AN IMPROVED INTERNAL CURING CONCRETE COMPOSITION WITH LWA AND A PROCESS OF PREPARATION THEREOF	2019	published
54	Pavithra.E Arivukarasan	201941051955	Security Surveillance System	2019	published
55	Mr.Rushikesh milind puranik Dr.J.M.Babu	201941051956	Advanced Intake Design for Internal Combustion Engine	2019	published
56	Dr.G.R.Kanaga Chidamabaresan Mrs K.Prema Mr.V.Suriyaa	201941051957	AN AUTOMATIC SYSTEM AND METHOD FOR FISH POSITIONING	2019	published
57	Mr.Kirubakaran.V Dr.David Shard Bhatt Mr.R.Naren Shankar Mr.C.Rakesh kumar	201941051958	A method and apparatus for increasing the Efficiency of an Engine	2019	published
58	Dr.S.Samson	201941051959	A method for Evaluating Groundwater Pollution	2019	published



Patent Published and Granted List

S.no	Name of the Teacher	Patent Number	Title of the patent	Year of Award / publish of patent	published/ Awarded
59	Mr.P. Elavarasan	201941053295	Turbocharger based Air-conditioning System	2019	published
60	Dr. S. Kandasamy	201941054095	Effect surface treatment of recycled concrete aggregate on properties of fresh and hardened	2019	published
61	1.Mr.SARAVANAN.J 2.Mr.NELSON PONNUDURAI	201941013857	A Fabricated detachable emission filter for exhaust outlets	2019	published
62	Dr R Suguna	2020102208	An Intelligent Embedded Tool Recognition System For Cnc Machines Using Deep Learning Algorithms	2020	Awarded
63	Mr.Jayakumar Loganathan	2020102384	A Collaborative Mining Network (Cmn) To Execute Computationally Intense Mining Tasks In Mobile Blockchain	2020	Awarded
64	Mr.C Chandru Vignesh	2020102835	User Friendly Navigaion System Through Voice Commands For The Visually Impaired As Well As Elder People	2020	Awarded
65	Dr V Sivakumar	202041035276	Kiosk For Dispensing Magazine Cum Newspaper Using Unified Payment Interface And Internet Of Things	2020	published
66	Dr N M Massodhu Banu	202041043299	Acoustic soft noise cancellation in headphones using sharc	2020	published
67	Dr V Sivakumar	202041045167	An Artificial Intelligence Vision Based Home Intruder Detection And Alarming The House Or Corporate People	2020	published
68	Dr.K.Maharajan	202041046487	Concrete Crack Detection And Quality Monitoring System On GSM-IOT Sensors With Raspberry PI	2020	published
69	Dr Jagadeesan	202041055890	Detection Of Critical Safety Events In Manufacturing Industries Using Data Mining	2020	published
70	Nelson Ponnudurai Abirami	202041057272	Rubber in-filler concrete	2020	published
71	Dr. R. Jaganraj G. Kannan Nagraj Kuppuswamy	202041057274	Control of Asymmetric Powered UAV	2020	published
72	M.Vyshak Dr.S.Baskar	202041057275	Real-Time Artificial intelligence (AI) based segregation using robotic arm	2020	published
73	Kirubakaran V Dr. David Shard Bhatt	202041057276	Variable Area Snout for Gas Turbine Combustor	2020	published
74	Dr. J.V Sai Prasanna Kumar	202041057446	All composite Liner-Less CNG pressure Vessels	2020	published
75	Dr. S. Mohammed Iqbal Dr. R. Naren Shankar Dr.N.Dilip Raja Dr.M.Arulprakasajothi Dr.R.Jaganraj	202041057447	Parabolic Inverted Trough Flatbed Evaporator with Heat Storage Compartment and Tower Condenser for Solar Desalination	2020	published
76	Dr. Pavithra. E	202041057448	GUIDED SUPPORT WHEEL FOR PUNCTURED TWO WHEELERS	2020	published
77	Mr.T. Bharathi Dr.S.Ramesh	202041057449	A device for an electric vehicle	2020	published
78	1.G.KAMALANATH 2.M.RAMESH 3.E.JAYASELAN	1653/CHE/2010 Granted no: 340588	Wind Turbine for home appliances	2020	Awarded



Patent Published and Granted List

S.no	Name of the Teacher	Patent Number	Title of the patent	Year of Award / publish of patent	published/ Awarded
79	1.C.RAJKUMARAN 2.B.HARIKRISHNAN 3.M.BALA MURUGAN	1666/CHE/2010 Granted no: 350123	Power generation device using spiral torsion spring during opening & closing of doors.	2020	Awarded
80	1.M.ANNAPURANI 2.S.GOWTHAM 3.R.MAHESH 4.R.SURIYA	201741035453 Granted no: 353021	Partial replacement of coarse aggregated by using E - Waste in high strength concrete	2020	Awarded
81	1.SARAVANAN.J 2.SRIDHAR.M 3.SONA TAHSEEN.C.K	201841038456 Granted no: 350032	A METHOD FOR DEFLUORIDATION OF GROUNDWATER USING CORN COB AND LECA BALLS	2020	Awarded
82	1.R.PRASANNA 2.R.GOWRISHANKAR RAO 3.N.G.RENGANATHAN	3866/CHE/2014 Granted no: 336136	Graphene Based Dome Shaped Phase Array Antenna for Space Communication	2020	Awarded
83	Ranjan Jena Soumya	2021101326	Smart Assisting Device For Deaf Blindness To Shop At Supermarket	2021	published
84	Dr A Prakash	202141000112	Low Cost Virus Free Air Circulator For Personal Protective Equipment For The Hospital Staff In The Covid-19 Wards	2021	published
85	Dr S Sankara Narayanan	202141003327	Internet Of Things Based Speed Control Mechanism On Moving Vehicles In Smart Cities	2021	published
86	Dr N Gomathi	202141005228	Iot With Ai Powered Covid-19 Detection On Masses	2021	published
87	Dr K Meena	202141008994	Iot Based Smart Air Conditioner Controller For Clean Room	2021	published
88	Dr.D.Sundaranarayana	202141009376	An Intelligent Earphone For Remote Health Monitoring Using Artificial Intelligence	2021	published
89	1. G. MANOJ 2.NEERAJ P R 3.VIMAL VENU	1918/CHE/2010 Granted no: 358619	Pedal Powered washing machine	2021	Awarded
90	1.AGNEEL MATHEWS.S 2.AILWYN JOHN KUMAR	201641041444 Granted no: 356422	Automatic flowrate measurement and control of water flow using telemetry	2021	Awarded
91	T.Udhaya Kumar	201941051177 Granted no: 356751	A COMPOSITION OF GEOPOLYMER CLINKER AGGREGATE AND A PROCESS THEREOF	2021	Awarded
92	1.Narayanan.p 2.a.thiyagu 3.s.boopathi	1669/CHE/2010 Granted no:359196	Grass cutter using wire	2021	Awarded
93	Mr. R. Prasanna Dr. S. Sivaperumal Ms. R. Rachel Jeeva Light	202141044584	Printing Non Metallic Antenna on Ceramic and Glass structure for space and terrestrial antenna application	2021	published
94	Mr. R. Prasanna Dr.N. Masoodhu Banu Dr. S. Sivaperumal Ms. R. Rachel Jeeva Light	202141044586	Graphene based screen printed Antenna on Flexible substrates for wireless Energy Harvesting Applications	2021	published
95	Mr. R. Prasanna Dr.N. Masoodhu Banu Dr. S. Sivaperumal Ms. R. Rachel Jeeva Light	202141044585	Multilayer screen printed flexible Graphene Antenna for ISM Band Applications and Energy Harvesting	2021	published
96	Mr. R. Prasanna Dr.N. Masoodhu Banu Dr. S. Sivaperumal Ms. R. Rachel Jeeva Light	202141052733	A Compact Unidirectional Graphene based Array antenna with Efficient phase optimized feeding structure	2021	published
97	Dr N Malarvizhi Mr Arun Kumar Dash Mr Akshay Suresh Mr V Sanjay	202141052734	Intelligent Indoor Route Information system for visually Impaired People	2021	published
98	Mr P B Senthilkumar Mr Vikash Goyal Mr Jay Bipinbhai Parmar Mr Aman Kumar Arya	202141052735	Design and Fabrication of UNI-pedal for Brake and Acceleration	2021	published



Patent Published and Granted List

S.no	Name of the Teacher	Patent Number	Title of the patent	Year of Award / publish of patent	published/ Awarded
99	Dr.S.P. Saravanan Prof. Marc Desmet, Dept of Geosciences Environment, University of Tours, France	202141044772	Assesment of Urban flood risk reduction in indian megacities using the DPSIR Framework	2021	published
100	Dr M Vinod Kumar Ms. Razan Alzein Dr K.R. Aswin Siddharth Mr J Saravanan Dr S Kandasamy	202141044773	Method of constructing lightweight concrete slab	2021	published
101	Dr Muniandy Elangovan Mr Sunil Kumar Arora (Director, M/s Bond Marine Consultancy Ltd)	202141052736	IoT based safety system for Manufacturing Industry	2021	published
102	Dr M Arulprakasajothi Mr Aja Rashid Attar Mr Shardul Rahul Utpat Mr Sourabh Anil Patil Mr Ishan Sachin Wagh Mr Rohit Navnath Sanap	202141052738	A SOLID FLUID HEATER SYSTEM	2021	published
103	Dr N YUVARAJ	202141052737	RECYCLING OF GARNET ABRASIVE WASTES FOR THE DEVELOPMENT OF SUSTAINABLE MATERIALS	2021	published
104	Dr N YUVARAJ	202141052739	USE OF HEAT TREATMENT SALT WASTES AS POTENTIAL ABRASIVES IN WATER JET MACHINING PROCESS	2021	published
105	Mr Diangtihun Blah Mr Komara Bhargavi Priya Mr Koppisetty Upendra ramu Dr K Karthikumar Dr N K Rayaguru	202141054894	WATER PURIFICATION USING SENSORS	2021	published
106	Ms. D.G.S Nivedha Ms. V.Yamini	202141054897	POLLUTANT ABSORBENTS FOR PAINTS	2021	published
107	Dr M Vinod Kumar Mr Taha Abou Hamza Dr S Samson Dr K Tamilarasan Mr M Sridhar	202141054898	A NOVEL LIGHT WEIGHT CONCRETE BUBBLE DECK COMPOSITE SLAB INTEGRATED WITH VARIOUS PROFILED STEEL SHEETS FOR FLOORING SYSTEM OF TALL BUILDINGS	2021	published
108	Dr HARIKRISHNA PAIK Mr K PREMCHAND, V R Siddhartha Engg College, Vijayawada	202141054891	BALANCED ANTIPODAL VIVALDI ANTENNA FOR DF AND ECM SYSTEMS	2021	published
109	Dr Muniandy Elangovan B SRIMANICKAM P LAKSHMANAN	202141054892	HANDY AND PORTABLE CAR SHED	2021	published
110	Dr Muniandy Elangovan Mr Sunil Kumar Arora (Director, M/s Bond Marine Consultancy Ltd)	202141054893	HANDY AND PORTABLE CAR SHED (AUTOMATIC)	2021	published
111	Dr Muniandy Elangovan Mr Sunil Kumar Arora (Director, M/s Bond Marine Consultancy Ltd)	202141054895	AC POWERED UAV FOR PESTICIDE SPRAY	2021	published
112	P Dilli Babu Dr Muniandy Elangovan Balaji Thiru B Srimanickam	202141054896	SOLAR POWERED BICYCLE	2021	published
113	J.M.BABU	2688/CHE/2014 Granted no:380952	Introduction of Hydrogen Oxygen Mixture at Different Injection Pressure of Diesel Engines	2021	Awarded
114	1.DR.P.CHANDRA SEKAR 2.K.BARATHI 3.S.VINOTH JOHN PRAKASH	201741004211 Granted no:381296	A modern electronic based fire extinguisher	2021	Awarded

RESEARCH LABS

Research Park - R & D Activities



Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

Overview of Research Park

Vel Tech promotes state-of-the-art multidisciplinary research among students and faculty members. Vel Tech Research Park houses well established National facilities. Centres of Excellence and Cutting - Edge Laboratories to promote research among students and faculty members. Vel Tech has received grants worth of more than 25 Crores from diverse funding agencies such as DST, SERB, DBT, DRDO, ISRO, CSIR and other International Collaborations (Indo - Taiwan, Indo - France, Indo - Canada, Indo - Korea). In association with various organizations and industries, sophisticated laboratories were established at Research Park. To name a few, the Dassault System Lab, Francecol, 3D Printing and Scanning Lab, Cyber Security Lab, Artificial Intelligence Lab and Unmanned Aerial Vehicles (UAV) Lab. Research team of Vel Tech involved in development of UAVs in association with University of Victoria, Canada and Daegu Gyeongbuk Institute of Science and Technology (DGIST), South Korea for bridge inspection and water quality monitoring.

Research Centres @ Research Park

- Automotive Engine Test Facility
- Bio Sensors & Instrumentation Lab
- Biochemical and Genome Engineering Lab
- Centre for Advanced Scientific Computing
- Centre for Autonomous System Research
- Centre for FEM and CFD Simulations
- Centre for Materials and Manufacturing
- Combustion Lab
- Composites Research Centre
- Green Synthesis and Novel Bio & Nanomaterials Lab/Bio incubator Facility
- IoT and Edge Analytics Laboratory
- Metal Forming Lab
- Molecular Photoscience Lab
- Telecom Centre of Excellence
- Thermal Energy Storage Lab



Congratulations For Receiving

Funds from Various Funding Agencies

Total Ongoing Projects: 17

Total Amount: 689.51 Lakhs



Dr. E. Balasubramanian

Dean R & D, Professor - Mechanical

No. of Funded / Consultancy Projects : 05

Funding Agencies: ISRO, DBT (PI & CO-PI), TNSCST, DRDO

International Project: INDO - KOREA

Total Project Cost: 66.00 Lakhs

Dr. B. L. Jaiswal

Professor - Aeronautical

No. of Funded / Consultancy Projects : 04

Funding Agencies: GTRE, CVRDE, GE India Pvt Ltd, HAL

Total Project Cost: 300.00 Lakhs



Dr. A. Gowri

Associate Professor - Bio Medical

No. of Funded / Consultancy Projects : 01

Funding Agencies: DBT (PI & CO - PI)

Total Project Cost: 25.22 Lakhs



Dr. K. Jagajjanani Rao

Associate Professor - Biotechnology

No. of Funded / Consultancy Project : 01

Funding Agencies: DST, DBT (CO-PI)

Total Project Cost: 27.19 Lakhs



Dr. S. Mugesesh

Associate Professor - Biotechnology

No. of Funded / Consultancy Project : 01

Funding Agency: DBT (PI & CO - PI)

Total Project Cost: 50.86 Lakhs

Dr. K. Tarangini

Assistant Professor - Biotechnology

No. of Funded / Consultancy Project : 01

Funding Agencies: DBT, DST (CO - PI)

Total Project Cost: 52.44 Lakhs



Dr. A. Kathiravan

SERB - Research Scientist

No. of Funded / Consultancy Project : 01

Funding Agency: SERB RS

Total Project Cost: 62.25 Lakhs



Dr. G. R. Kanagachidambaresan

Associate Professor - CSE

No. of Funded / Consultancy Project : 01

Funding Agencies: DBT, (PI & CO - PI) ISRO & TNSCST (CO-PI)

Total Project Cost: 68.22 Lakhs



Dr. P. Chandrasekar

HOD & Professor - EEE

No. of Funded / Consultancy Projects : 02

Funding Agency: AICTE

Total Project Cost: 25.04 Lakhs

Mr. R. Prasanna

Assistant Professor - ECE

No. of Funded / Consultancy Projects : 02

Funding Agencies: ISRO, DRDO (CO - PI)

Total Project Cost: 35.10 Lakhs



Dr. E. Pavithra

Associate Professor - Mechanical

No. of Funded / Consultancy Project : 03

Funding Agency: DRDO

Total Project Cost: 32.00 Lakhs



Dr. S. Prabhukumar

Associate Professor - Mechanical

No. of Funded / Consultancy Project : 01

Funding Agency: SERB TARE

Total Project Cost: 18.30 Lakhs

Dr. N. Yuvaraj

Associate Professor - Mechanical



No. of Funded / Consultancy Project : 01

Funding Agency: SERB TARE

Total Project Cost: 18.30 Lakhs

Thermal Energy storage Lab

Dr. M.Arulprakasajothi, Ph.D. (JNTU, Annapur)

Professor/Mechanical Engineering

ORCID ID: 0000-0003-2862-6294

SCOPUS ID: 57205068503

Email: arulprakasajothi@veltech.edu.in

Mobile: +91 9443439684



Research areas: Energy Storage-- Thermal management of energy systems- IC Engines and Emissions- Additive manufacturing for heat transfer applications.

Research overview

- Heat transfer study on Graphene-based Nanocomposite PCM
- Thermal performance study on heat sink for electronic cooling
- Surface temperature measurement using color changing paint (Sponsored by **VEL TECH SEED FUND -Completed**)
- Fabrication of Graphene coated Cu heat sink for electric vehicle battery thermal management (SERB/TARE- under review)
- Development of solar desalination setup using 3d printed ceramic membrane coated with carbon nanotubes.(Submitted to DST)

National/International collaboration

- West virginia university - EV thermal management
- IITD-Trichy/Anna University, Chennai - Water desalination
- IIT Mandi –Application of nanomaterial for energy systems
- TIFR-Mumbai- Additive manufacturing for heat transfer applications

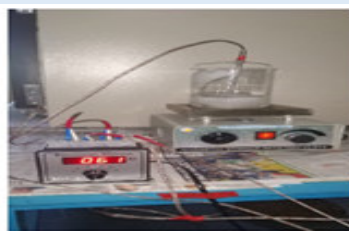
Research snippets



Research facilities



Setup for heat sink study



Setup for nano PCM study



Heat transfer study on PCM

Centre for Autonomous System Research

Dr. E. Balasubramanian, Ph.D. (Concordia University, Montreal, Canada)

Dean R & D, Professor in Mechanical Engineering

ORCID ID: 0000-0003-4663-4132

SCOPUS ID: 54882273000

Email: balasubramaniane@veltech.edu.in

Mobile: +91 9445801978



Research areas: Unmanned Aerial Vehicles, Robotics and Control, Additive Manufacturing, Mechanisms and Finite Element Analysis

Research overview

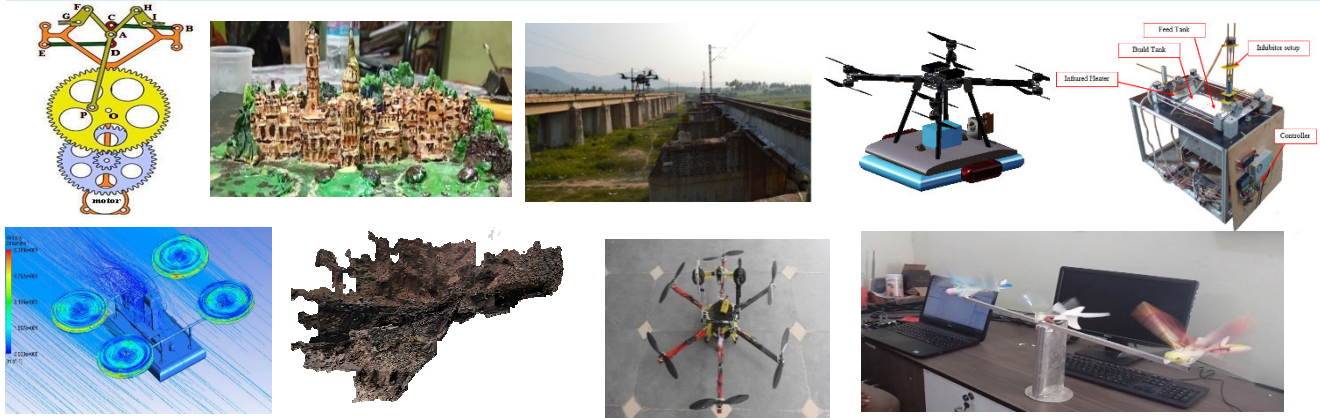
- Development of UAVs for diverse applications including water quality monitoring, bridge and heritage structure inspection supported by DST through **Indo – Korea** and **Indo – Canada** collaborative research.
- Design of Flapping wing micro aerial vehicles and control of SWARM of Ornithopters using Image Processing supported by DST through **Indo – Taiwan** collaborative research
- Custom made powder based additive manufacturing systems, design of test rig to measure aerodynamic forces of Ornithopters, integration of sensors and data acquisition systems with the funding support of SERB and DRDO
- UAV path planning and control of SWARM of UAVs for 3D mapping of Landslides with the funding support of ISRO

National/International collaboration

- Tamkang University, Taiwan – Flapping Wing Micro Vehicle: Mechanism Design, CFD and Aerodynamics
- University of Victoria, Canada – Structural Health Monitoring of Bridges and 3D Mapping of Monuments
- DGIST and Rovitek, South Korea – Amphibious UAV for *in-situ* water quality monitoring
- National Yunlin University of Science and Technology, Taiwan – Morphed Quad rotors
- Sun Moon University, South Korea – Autonomous UAVs and Navigation



Research snippets



Research facilities

Test Rig for MAV



6 – Axis Load Cell



IR Camera



Water Quality Sensors



Centre for FEM and CFD Simulations

Dr. M.Elangovan, Dr. Eng. (Hiroshima University, Japan)

Professor/Mechanical Engineering

ORCID ID: 0000-0003-2349-3701

SCOPUS ID: 36558988300

Email: drmelangovan@veltech.edu.in

Mobile: +91 9902946655



Research areas: Ship Design, Seakeeping, Marine Hydrodynamics, Computational Fluid Dynamics, Remotely Operated Vehicle (ROV), IoT and Industrial Robotics

Research overview

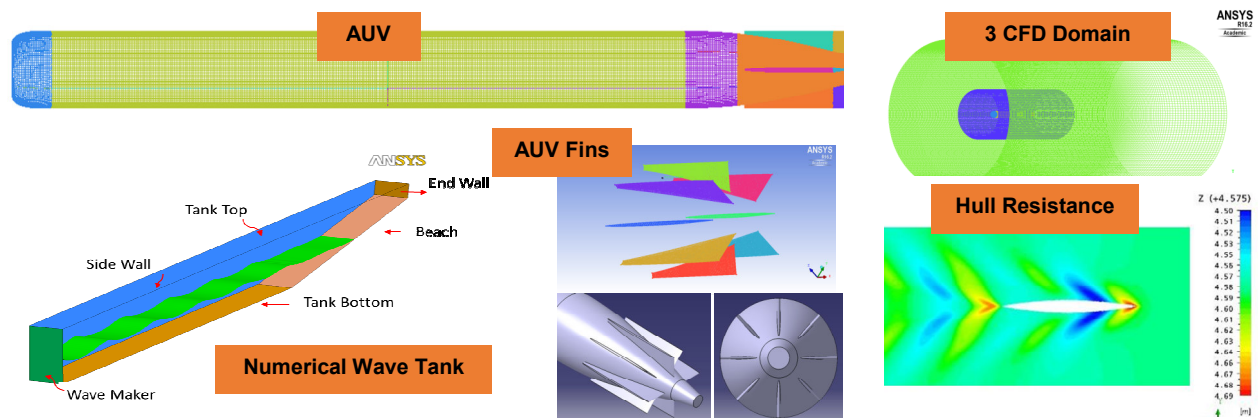
- Potential Solver for Sea keeping of High-Speed Ship
- Optimization of high-speed vessel and evaluation of hydrodynamic performance
- Design of Sail as an Auxiliary propulsion system for bulk carriers and general cargo vessel.
- CFD for different Applications and Projects Slamming, Sloshing and Run up
- Green Water and Wedge Impact load analysis
- Analysis of propeller
- Trim curve generation using CFD
- Duct performance analysis using CFD

National/International collaboration

University of Padova, Italy- Design and Development of Millipede Robot for Disaster Rescue Operations

- BRNS, India - Numerical analysis of Active Plasma Actuator using CFD for Drag Reduction
- NSTL, Visakhapatnam - Estimation of Ship Unsteady forces and Motions using RPM Method

Research snippets



Research facilities

- High End Computational Server for Simulations– 2 Nos.
- Simulation Software: Ansys CFD
- Mathematic modelling and simulation software: MATLAB
- Modelling Software: CATIA and Solidworks

Biosensors and Instrumentation Lab

Dr. A. Gowri, Ph.D. (IIT Madras Chennai)

Associate Professor (Research) / Biomedical Engineering

ORCID ID: 0000-0002-2669-4229

SCOPUS ID: 57197739860

Email: dragowri@veltech.edu.in

Mobile: +91 9176282183



Research areas Optical Biosensors and Chemosensors, Surface Enhanced Raman Spectroscopy (SERS), Noble metal nanoparticles synthesis, Medical image processing, Biomedical Instrumentation.

Research overview

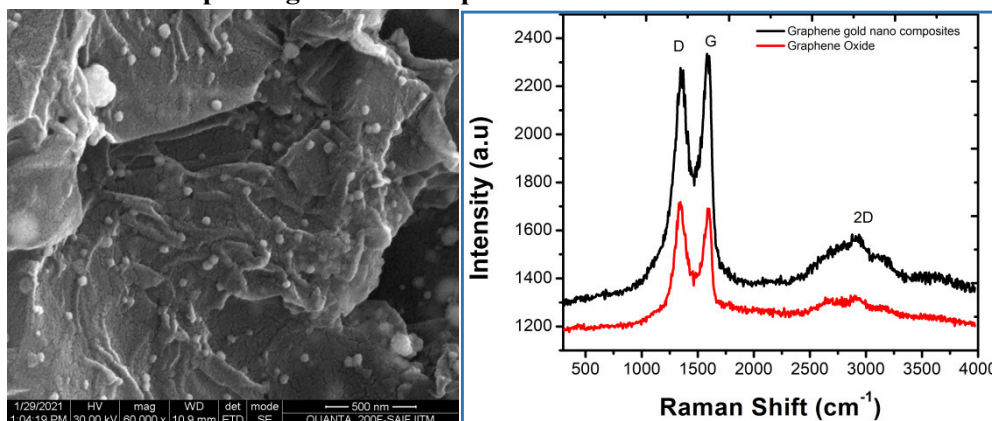
- Development of Graphene gold nanocomposite based SERS substrates for sensing pesticides and heavy metals in herbal products (Funded by **DBT, GOI - Ongoing**)
- Development of plasmonic labels and nanocomposites based sensors for sensing clinically significant biomarkers and environmental toxins (Funded by **VEL TECH SEED GRANT**)
- Application of image processing tools for biosensing applications
- Design of optoelectronics circuitry for prototype development and sensing automation
- Design of microfluidic channel based biosensors for clinical diagnosis

National/International collaboration

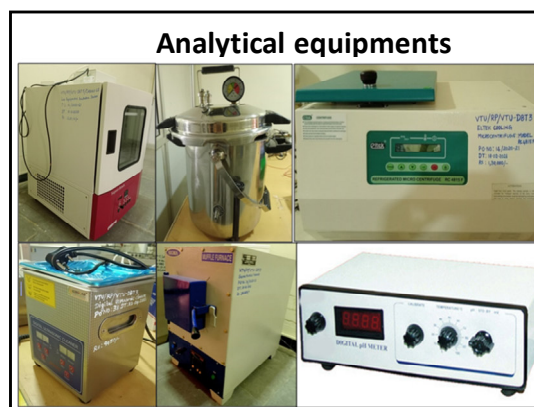
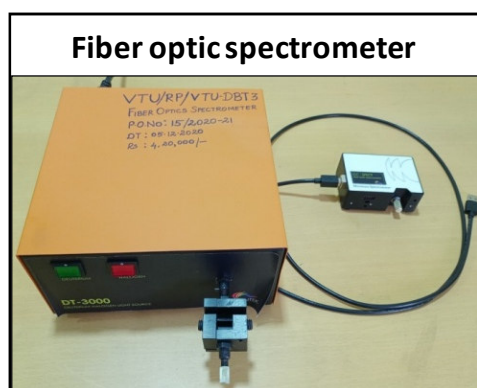
- IIT Madras, Chennai – Fiber optic sensor development and SERS substrates characterization
- Tamkang University, Taiwan - Microfluidic channel based biosensor development

Research snippets

Graphene gold nanocomposites and SERS enhancement



Research facilities



Interfaces & Nanomaterials Lab

Dr.K Jagajjanani Rao, Ph.D. (NIT Rourkela)

Associate Professor (Res)/Biotechnology

ORCID ID: 0000-0002-9592-7655

SCOPUS ID: 57209807799

Email: drjagajjananirao@veltech.edu.in

Mobile: +91 9529398871



Research areas: Green Nanotechnologies, Applied Biotechnology, Water Treatment, Multifunctional Materials, Photocatalysis and so forth

Research overview

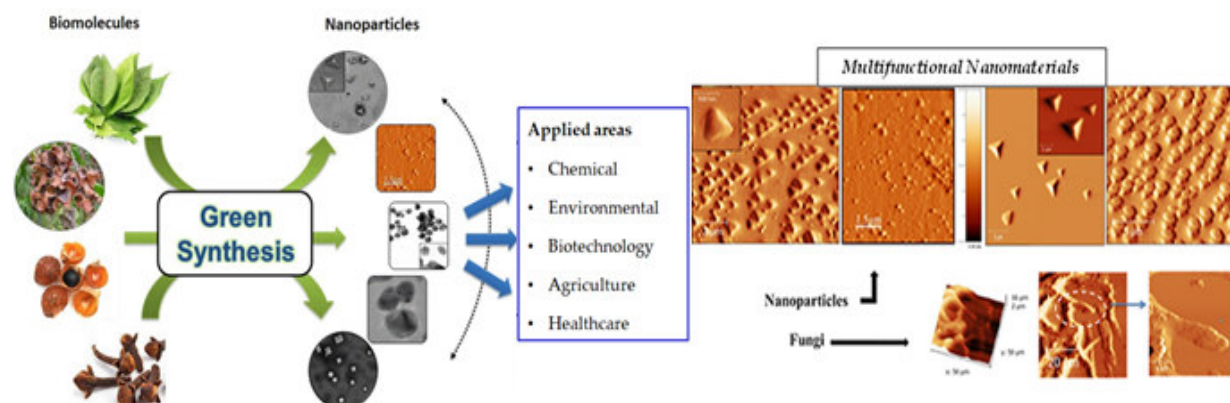
- Green pesticides against phytopathogens and plant growth improvements (supported by **DST AgroTech** grant, PI)
- Smart textile materials using natural silk fibres (supported by **DBT Silk project** grant, Co-PI), Algal biomass to value added products (supported by **DBT Seaweed project** grant, Co-PI)
- Green synthesis and optimization of process parameters to produce novel isotropic & anisotropic mono/multimetallic/hybrid nanomaterials
- Organic-inorganic nanocomposites for water and waste water treatment
- Novel nanocides for antibacterial and antifungal applications
- Natural foaming agents (bathing/shampoo materials) with active silver for healthcare and personal hygiene

National/International collaboration

- Technical University of Liberec, Czech Republic - Nano & Biomaterial Composites for Environment
- Central Silk Board, Bangalore, National Institute of Technology Rourkela, Odisha—Smart Fabrics, Multifunctional Nanomaterials
- Central Tuber Research Institute, Thiruvananthapuram, Kerala – Plant Growth Promoters
- IIT Chennai, University of Rajasthan, Jaipur - Green Pesticides, Natural Foaming Agents
- United Nations Industrial Development Organisations (UNIDO) – Novel Waste Water Treatment Strategies



Research snippets



Research facilities



- Clean/sterile cabinets
- AAS, Tensile tester
- Spray dryer, Biosafety cabinets
- Adv. UV/Vis-NIR Spectroscopy
- Sonicators, Hotplate stirrers
- Multiparameter meters, etc.

Molecular Photoscience Laboratory

Dr. A. Kathiravan, Ph.D. (Bharathidasan University, Trichy)

SERB Research Scientist/Department of Chemistry

ORCID ID: 0000-0001-6131-460X

SCOPUS ID: 17346285100

Email ID: drakathiravan@veltech.edu.in

Mobile: +91 8754219382



Research area: Photophysics/photochemistry of solar energy and sensory materials

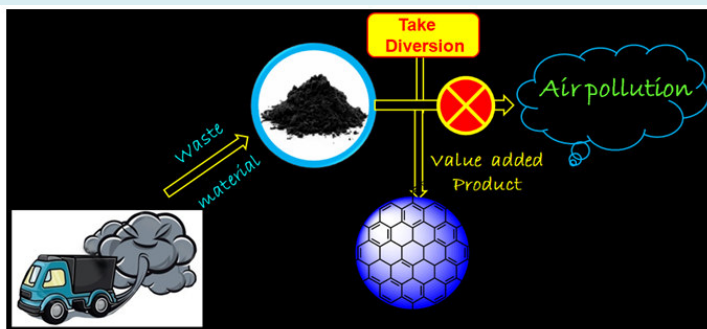
Research overview

- Porphyrine-sensitized solar cells: Rational Molecular Design, Photoinduced Processes, Panchromatic Sensitization and Devices (Sponsored by **SERB SRS** - Ongoing)
- Investigating Electron Injection Dynamics of Pyrene derivatives on TiO₂ surface towards Dye Sensitized Solar Cells
- Light induced processes of Porphyrin molecules, materials and devices for solar energy conversion
- Functionalized carbon dots were successfully introduced for forensic applications
- Anion induced chemosensor for carbon dioxide gas was successfully developed.

National/International collaboration

- The University of Melbourne, Australia – Photophysical process of nanomaterials
- University of Gdansk, Poland – Computational studies of sensory molecules
- North Eastern Hill University, India – Synthesis of photoactive molecules

Research snippets



Research facilities



Spectrofluorimeter



Spectrophotometer

IoT and Edge computing Lab

Dr. G. R. Kanagachidambaresan, Ph.D. (Anna University, Chennai)

Associate Professor/CSE

ORCID ID: 0000-0003-1421-1848

SCOPUS ID: 54787714400

Email: drgrkanagachidambaresan@veltech.edu.in

Mobile: +91 9994120988

Research areas : IoT, Edge Computing, Expert system design, Machine Learning



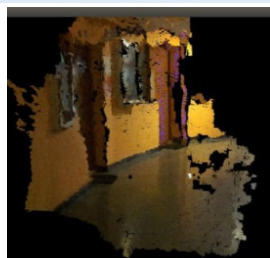
Research overview

- The ZED and LIDAR sensors are mounted on a UAV swarm to indigenously avoid obstacles and gather 3d terrain information. The gathered information is matched with the KNN and ransac algorithm approach to avoid outliers and reduce noise
- On-board Image processing with Drone technology for mapping, image stitching and surveillance is done through Wireless Personal Area Networks
- The 3dimensional cloud mosaic is created with the Iterative Closest Point (ICP) through GPU and rendered to the Ground Control Station (GCS)
- Single Board Computer based measurements of water and air quality parameters for agriculture, Industrial and environmental monitoring is done through Internet of things devices
- Water qualities such as pH, Turbidity, Temperature, salinity, TDS, Chlorophyll are monitored for efficient prawn growth management. Machine learning based sensor data cleansing and accurate prognosis is achieved for better advisories

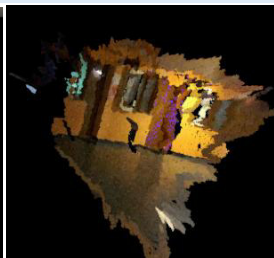
National/International collaboration

- Delhi University – Seaweed mapping
- ICAR-CIBA – Brackish water prawn advisory system
- Anna University, Chennai – Digital Elevation model
- UCLouvain – Belgium- Visiting Professor,
- University of Johannesburg – Visiting Professor

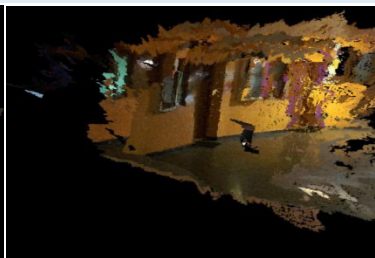
Research snippets



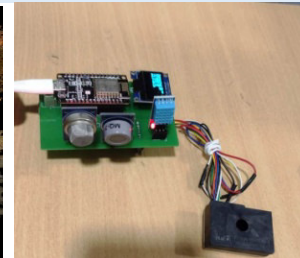
PCD1



PCD2

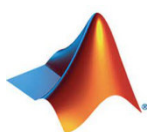


Merged PCD



Air Quality sensor

Research Facilities (Open Source Programming)



Centre for Advanced Scientific Computing

Dr. Kanak Kalita, Ph.D. (IIST, Shibpur)

Assistant Professor/Mechanical Engineering

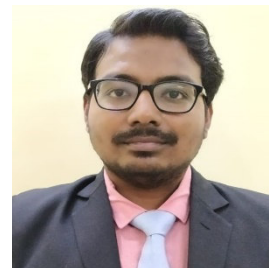
ORCID ID: 0000-0001-9289-9495

SCOPUS ID: 56461099200

Email: kanakkalita@veltech.edu.in

Mobile: +91 9748656017

Research areas: Composite Structures, Finite Element Method, Computational Mechanics, Optimization, Machine learning Metamodels, Fuzzy Decision Making, Process Optimization



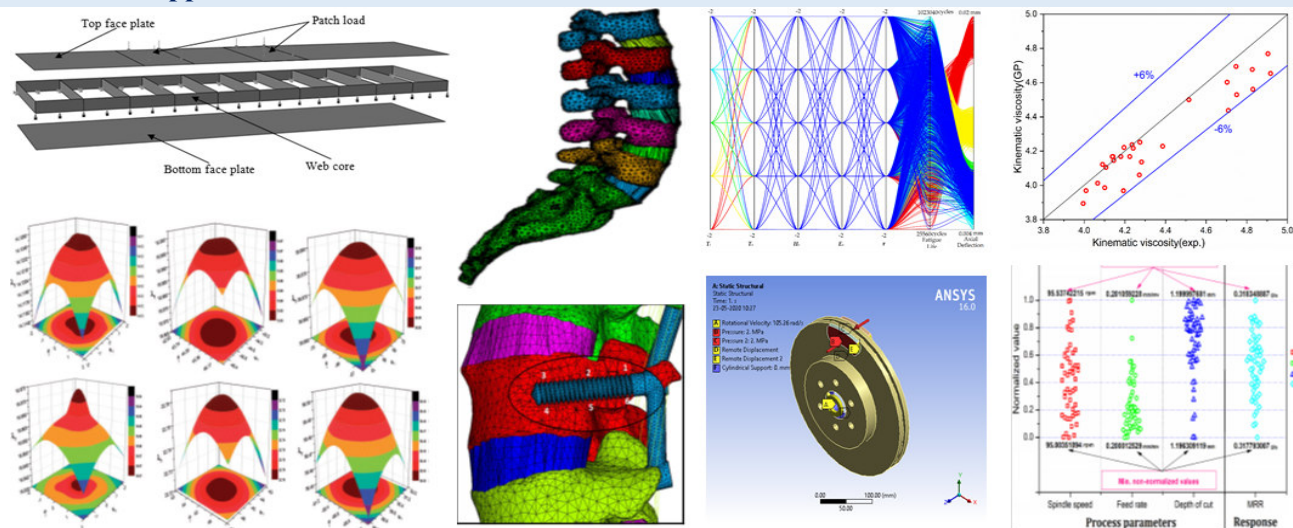
Research overview

- Development of high-fidelity finite element models for aerospace, automobile, structural and biomechanical applications.
- Development of metaheuristic/nature-inspired tools and frameworks for global optimization.
- Machine learning based surrogate modelling & high-volume data crunching for expensive CFD, FEM applications.
- Fuzzy-based uncertainty modelling & multicriteria decision making.
- Ongoing project “Influence of Artificial Aging on Stir Cast Aluminum alloys and MMC” (Sponsored by ***TMA Pai University Research Grant***)

National/International collaboration

- University of Eastern Finland – metaheuristics
- VSB - Technical University of Ostrava – manufacturing process modelling
- University of Defence in Belgrade – multicriteria decision making
- National Research Council, Italy– machine learning metamodels
- IIT, Kanpur – multiscale modelling of composites structures

Research snippets



Research facilities

- Advanced GPU and non-GPU workstations
- Application software(s) — ANSYS v2019, Creo 7.0, Matlab v2019a, Python 3.10.0 (Anaconda 2.1), Weka 3.9

Centre for Advanced Scientific Computing

Dr. Logesh R., Ph.D.

Associate Professor/Computer Science and Engineering

ORCID ID: 0000-0002-0034-4714

SCOPUS ID: 56728666300

Email: logeshcse@veltech.edu.in

Mobile: +91-9486453607

Research areas: Artificial Intelligence, Big Data, Cyber-Physical Systems, Internet of Things and FinTech



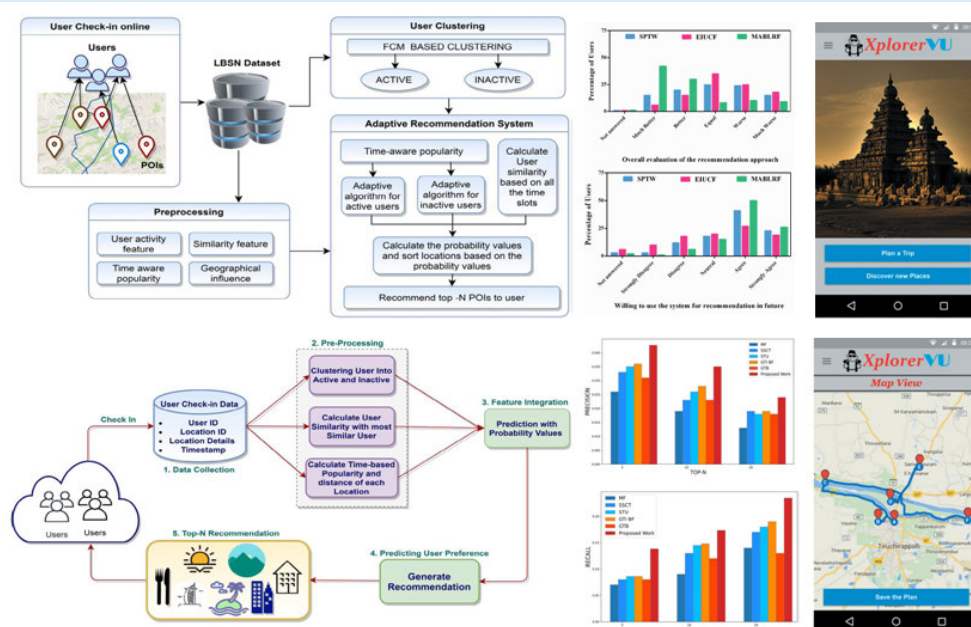
Research overview

- Development of a novel framework for generating personalized recommendations
- Development of a Distributed System (blockchain-based) to manage user preferences
- SECRESY: A secure privacy preserving framework for location recommendations
- Designing Nature-Inspired Models for case specific Intelligent Systems
- Machine Learning approaches for Planning Systems
- Real-Time Systems Development for Autonomous Decision Making

National/International collaborations

- University of New South Wales – Intelligent Systems
- University of Eastern Finland – Nature-Inspired Computing
- Incheon National University – Blockchain
- Staffordshire University – Recommender Systems and Big Data
- SASTRA – Decision-Support Systems

Research snippets



Research facilities

- Advanced GPU and non-GPU workstations
- Application software(s) – Matlab v2019a, Python 3.10.0, R 4.1.11, Julia 1.6.3, Solidity 0.8.9
- Cloud Solutions – Amazon AWS, Google Cloud, Alibaba Cloud

Biochemical Engineering Lab

Dr. S. Mugesh

Associate professor (Research) / Department of Biotechnology

ORCID ID: 0000-0002-59342633

SCOPUS ID: 55241400800

Email: drmugeshs@veltech.edu.in

Mobile: +91 6381958233



Research areas: Metabolic Engineering, Synthetic Biology, Genome Engineering, Biochemical Engineering, Fermentation Technology

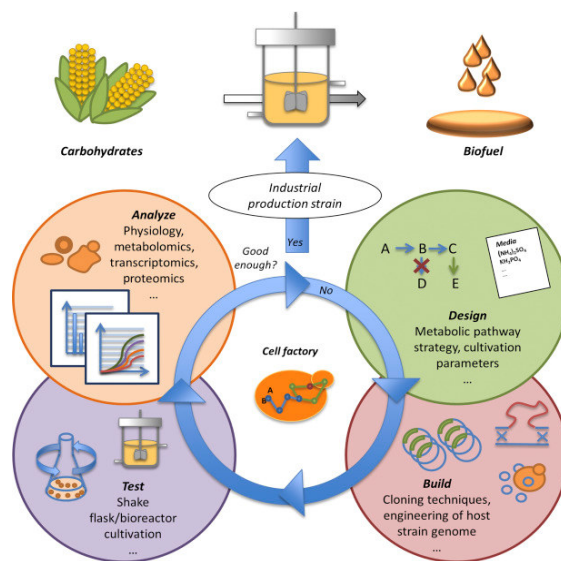
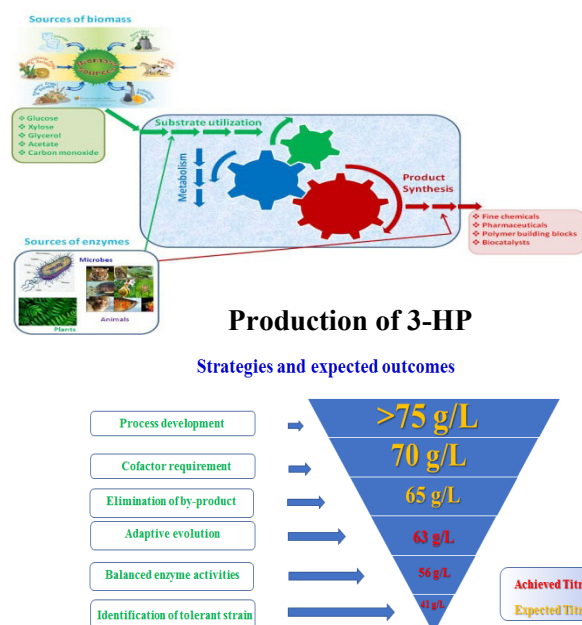
Research overview

- Sustainable production of value added chemicals – 3- Hydroxypropionic acid, 2, 4-dihydroxybutyrate.
- Microbial production of nutraceuticals – Vitamin B12.
- Strain and process development of bioactive compound

National/International collaboration

- Ulsan National Institute of Science and Technology, Ulsan, Republic of Korea.
- Pusan national University, Busan, Republic of Korea
- Jiangsu Normal University, Jiangsu, China
- Indian Institute of Technology, New Delhi, India
- Indian Institute of Technology, Chennai, India

Research snippets



Research facilities

- Thermo cycler
- Electroporator
- Gel documentation system
- Refrigerated Centrifuge
- Minispin centrifuge
- Deep Freezer (-20°C)
- Shaker Incubator
- Ice Flaking machine

Advanced Computing Lab

Dr. E. Pavithra, Ph.D. (Anna University, Chennai)

Associate Professor/Mechanical Engineering

ORCID ID:0000-0002-8345-191X

SCOPUS ID: 54394045200

Email: drepavithra@veltech.edu.in

Mobile: +91 9962017333



Research areas: Material characterization of super alloys, high temperature fatigue analysis, cryogenics of milling cutters, behavioral properties of steel hoses on corrosion and bellows expansion joint.

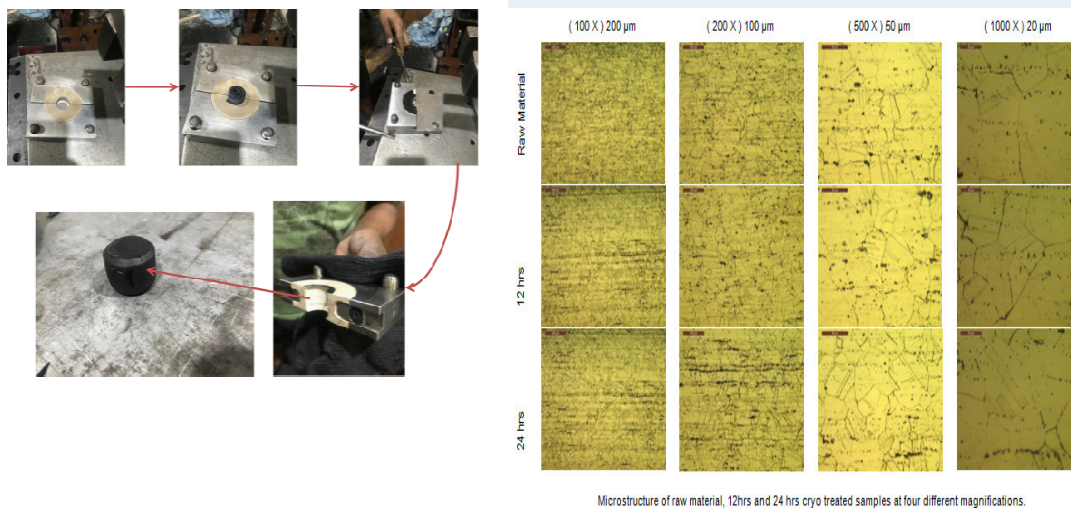
Research overview

- Design and development of slide and swivel joint (SSJ), fuel system components (FSC), and pressure measuring instruments (PMI). (Sponsored by **DRDO-TDF, GoI - Ongoing**)
- Characterization of Hastelloy and ULTEM material based injection tooling for automotive components (Sponsored by **VEL TECH SEED FUND -Completed**)
- Investigation on the metal hoses and characterisation study on corrosion resistance.
- Study of milling cutters using cryogenic medium

National/International collaboration

- Metallic Bellows (I) Private Limited, Chennai - Metal Bellows Expansion Joints
- Aeronautical Development Agency, Bangalore - SSJ, FSC and PMI
- Madras Hydraulic Hose PVT LTD, Chennai - Metal hoses

Research snippets



Research facilities

- Advanced GPU and non-GPU workstations
- Application software(s) — ANSYS v2019, Creo 7.0, Matlab v2019a, Python 3.10.0 (Anaconda 2.1), Weka 3.9

Centre for Materials and Manufacturing (CM²)

Dr. Prabhukumar S, Ph.D. (Deakin University, Australia)

Associate Professor/Mechanical Engineering

ORCID ID: 0000-0003-3735-8236

SCOPUS ID: 55561036100

Email: drprabhukumars@veltech.edu.in

Mobile: +91 9788683934



Research Areas : Additive Manufacturing, Physical & Mechanical Metallurgy, Powder Metallurgy, Polymer Composite Materials, Materials Characterization

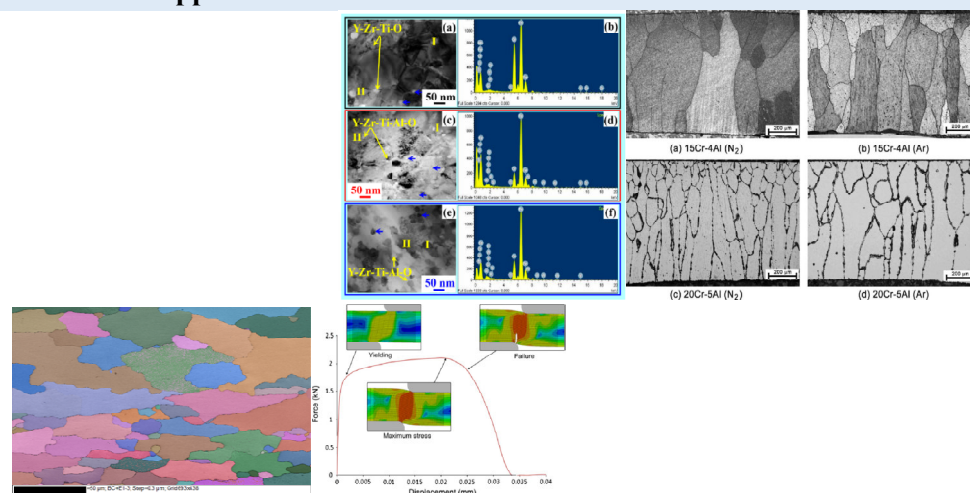
Research Overview

- Additive Manufacturing of Next Generation Alloys (Sponsored by **SERB under TARE scheme, GoI - Ongoing**).
- Mechanical, Microstructural and Corrosion Studies on Al-Si Alloys Processed Through Additive Manufacturing.
- Mechanical, Microstructural and Corrosion Studies on Maraging Steels Processed Through Additive Manufacturing.
- Development of 17Cr Ferritic ODS Steel through Vacuum Hot Pressing for High Temperature Applications.
- Development of Areca-Kenaf Fiber Reinforced Hybrid Epoxy Composite for Automotive Applications.

National/International Collaboration

- NIT Trichy – Additive Manufacturing of Next Generation Alloys
- Tallinn University of Technology, Estonia–Selective Laser Melting of Metallic Materials
- IIT Madras, Chennai –Materials Characterization of Additive Manufactured Alloys

Research Snippets



Research Facilities

- Trinocular Inverted Metallurgical Microscope
- Twin Disc Table Top Grinder/Polisher



Telecom Centre of Excellence Lab

Prasanna Ram, M.E., (Ph.D.)

Assistant Professor/Electronics and Communication Engineering

ORCID ID: 0000-0002-0919-1216

SCOPUS ID: 57216504981

Email: rprasanna@veltech.edu.in

Mobile: +91 9791313515



Research areas: Graphene Antennas, Flexible Electronics, Biodegradable antennas, Material coatings, Electronic cooling, RF energy harvesting, Nanosatellite antenna, Fuel cells, Printed Electrodes, Green electronics

Research overview

- Design and Development of Optimized Miniature Antenna Modules with Duality Function for Inflatable Satellite Antenna Setup
- Development of 3D printed flexible patch antennas for enhancement of communication range in UAV
- Graphene Coated on CFRP Sandwich Antenna Reflector Dish & Plate (Copper Coating on Epoxy-Carbon Composite for Radio Frequency Reflector Antennas)
- Design and Development of Tailored porous Graphene Electrode for Efficiency Improvement of Vanadium Redox Flow Battery structures.
- Rectenna based Waste Radiation to Energy Converter to reduce electromagnetic pollution
- Development of heat pipe technology embedded in LTCC layers of 5 mils and 10 mils in MMIC Transceivers

National/International collaboration

- Space Application Centre, ISRO, Ahmedabad
- VSSC, ISRO, Trivandrum
- RCI, DRDO, Hyderabad
- BEL, Bangalore
- AR&DB, DRDO, Bangalore

Research snippets



Research facilities



Composite Research Lab

Dr. A. S. Praveen, Ph.D. (NIT-Trichy)

Associate Professor/Mechanical Engineering

ORCID ID: 0000-0001-5877-3805

SCOPUS ID: 56200653000

Email: draspraveen@veltech.edu.in

Mobile: +91 9447900113



Research areas: Thermal spray coatings, Tribology, 3D printing of ceramics (Extrusion based)

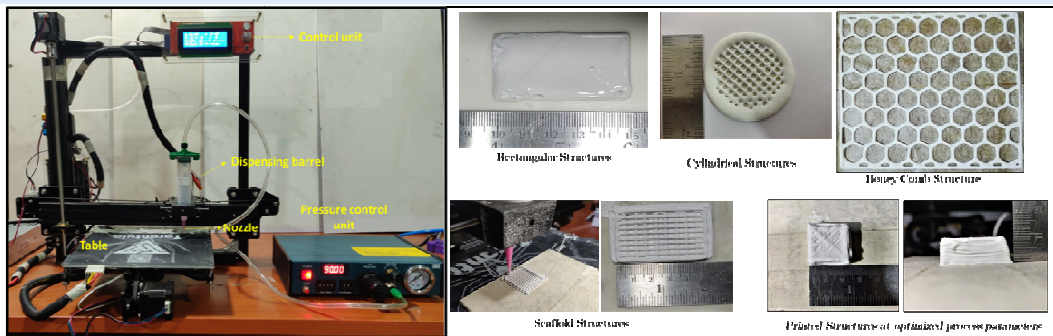
Research overview

- Development of alumina/tricalcium phosphate structures using direct ink writing technique for biomedical applications.
- Development of bio-mimetic structures using fused deposition modeling.
- High temperature erosion and corrosion resistant Fe-based thermal spray coatings.
- Fused deposition modeling process parameter optimization of PLA/Al composite material.
- 3D printing of multiwalled carbon nanotube/polyvinyl alcohol composites for electronic circuit applications.

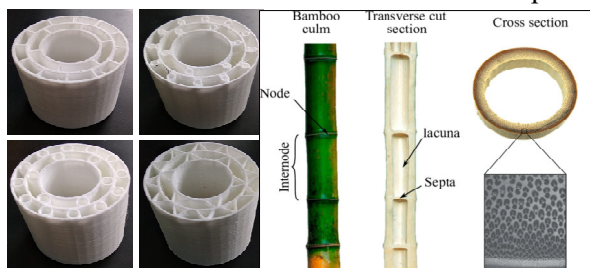
National/International collaboration

- University of Wolverhampton, UK - DMLS of Ti6Al4V alloy and Ni-based thermal spray coatings
- University of Pretoria, South Africa - PCM based heat sink
- Indian Institute of Science (IISc) - Characterisation of 3D printed samples
- Visvesvaraya National Institute of Technology (VNIT Nagpur) - Fe-based thermal spray coatings

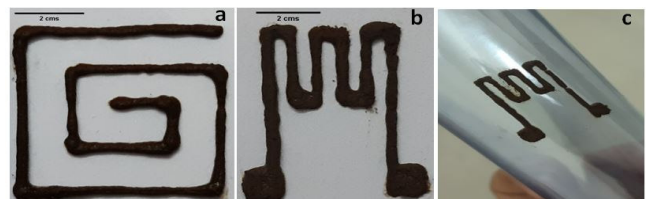
Research snippets



In-house developed 3D printer and printed structures



FDM printed structures inspired by bamboo tree



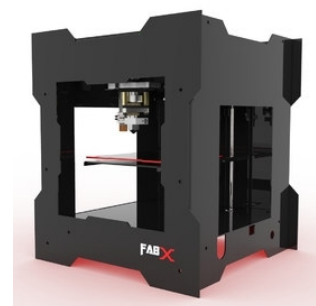
3D printed electronic circuits

Research facilities

- Extrusion based 3D printer
- FDM printer
- Tensile testing machine (20N)
- Box furnace (900 °C)
- Magnetic stirrer
- Mechanical stirrer
- Hot plate



Tensile testing machine
(Shimadzu - 20N)



FDM printer (FAB-X)

Metal Forming Lab

Dr. Sachin Salunkhe, Ph.D. (NIT, Surat, Gujarat)

Associate Professor/Mechanical Engineering

ORCID ID: 0000-0001-6542-2050

SCOPUS ID: 57190508694

Email: drsalunkhesachin@veltech.edu.in

Mobile: +91 9822362643

Research areas : AI techniques to sheet metal works, Wear analysis of dies, High Strain Behavior, Additive Manufacturing, Fatigue analysis.



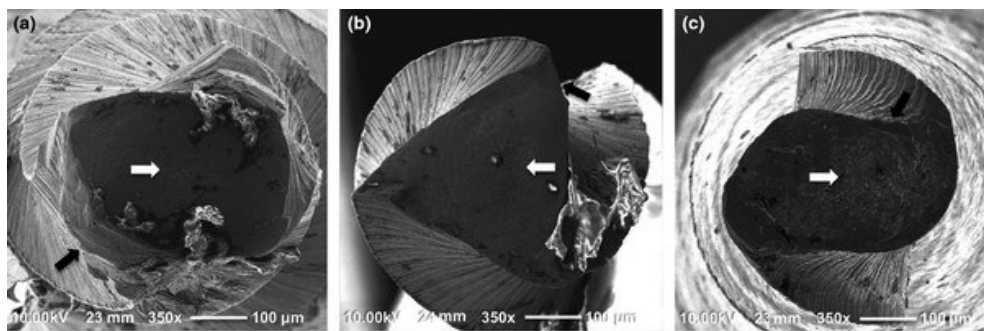
Research overview

- Worked in the area of die design (compound die), prediction of die life, wear analysis of sheet metal dies and recently started work in the area of high strain rate characterization of additively manufactured die material (tool steel) using split hopkinson pressure bar (SHPB) especially metal additive manufacturing and fatigue analysis
- High strain rate characterization of metal AM (Sponsored by **VEL TECH SEED FUND -Ongoing**)
- Topology optimization of automobile components,
- Plasma arc welding of tool steel and composite behavior of natural fibers for the application of automobile.

National/International collaboration

- NIT, Surat–Artificial Intelligence
- University of Aviero (Portugal) –Metal Printing
- University of Graz (Austria)–Metal AM for bio medical applications

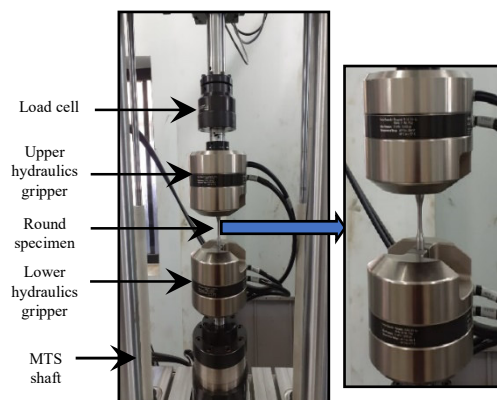
Research snippets



SEM Image of Fatigue Component

Research facilities

- Fatigue Testing
- Spin Coating



Novel Biomaterials & Environmental Biotechnology Lab

Dr.Tarangini Korumilli, Ph.D. (NIT Rourkela)

Assistant Professor/Biotechnology

ORCID ID: 0000-0003-0678-8903

SCOPUS ID: 57209803413

Email: drktarangini@veltech.edu.in

Mobile: +91 9439783304



Research areas: Food Science & Technology, Green Technologies, Applied Microbiology, Microbial Pigments, Biosorption

Research overview

- Edible coatings for foods (supported by **DBT Silk** grant, PI)
- Green pesticides with multifunctional activities (supported by **DST AgroTech project** grant, Co-PI)
- Microbial pigments from Agro-Industrial waste sources
- Green synthesis of novel nanomaterials
- Sustainable technologies and toxic contaminant remediation

National/International collaboration

- Technical University of Liberec, Czech Republic –Edible films and Composites
- Central Silk Board, Bangalore–Smart Silk Protein Based Coatings
- National Institute of Technology Rourkela, Odisha- Multifunctional Nanomaterials
- University of Rajasthan, Jaipur - Novel Biomaterials
- MS Swaminathan Research Foundation MSSRF, Chennai –Green Pesticides and Plant Growth Promoters

Research snippets



Research facilities



Facilities: Equipment available

- FTIR spectroscopy
- Fibre optic spectrophotometer
- Light/Color fastness tester
- Pad dryer, Moisture analyzer
- Humidity chamber
- Incubator shakers, etc.

Centre for Materials and Manufacturing

Dr. N. Yuvaraj, Ph.D. (Anna University, Chennai)

Associate Professor/Mechanical Engineering

ORCID ID: 0000-0001-6526-4523

SCOPUS ID: 57223678182

Email: drnyuvaraj@veltech.edu.in

Mobile: +91 9842079202



Research areas : Machining Processes, Abrasives, Water Jet Peening, Surface Integrity and Texturing

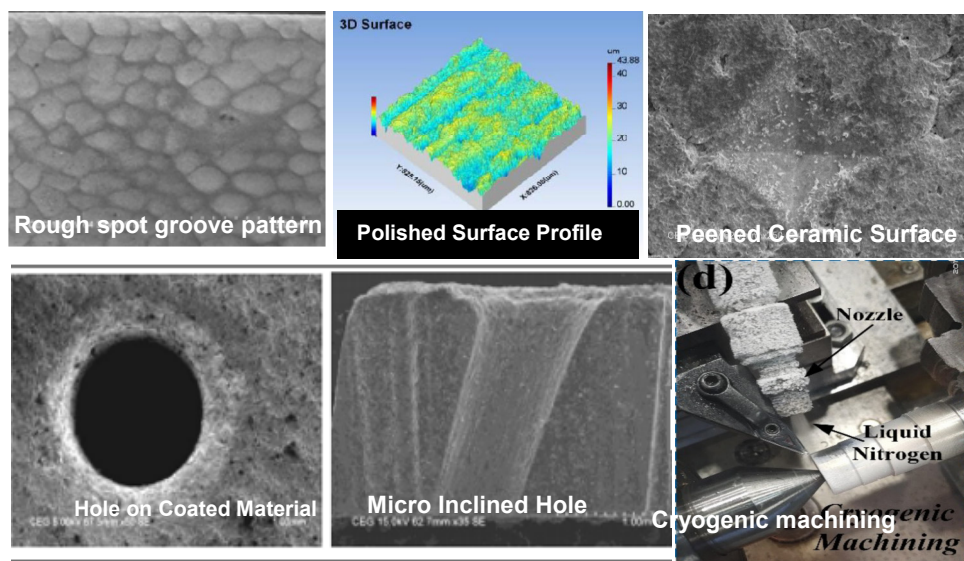
Research overview

- Scale effect approach to evaluate the erosion mechanism and performance features in micro abrasive water jet machining process based on process parameters and materials microstructures (Sponsored by **SERB TARE, GoI - Ongoing**)
- Characterization of abrasive water jet machined surfaces (Sponsored by **VEL TECH SEED FUND - Completed**)
- Abrasive water jet machining of inclined holes on ceramic coated superalloys.
- Drilling of Biomaterials for orthopaedic applications and characterization of water jet peened surfaces.
- Reuse of Industrial solid wastes for abrasives and composites

National/International collaboration

- IIITDM, Jabalpur - Micro abrasive water jet machining process
- Anna University, Chennai - Water jet peening of Biomaterials
- Shandong University, China - Cryogenic machining of high strength materials

Research snippets



Research facilities

- Digital microscope
- Abrasive sieve shaker
- Fabricated slurry jet setup





Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology,
No.42, Avadi-Vel Tech Road, Chennai, Tamil Nadu 600062.
www.veltech.edu.in

HIGH SPEED BEARING TEST FACILITY

Tele: 080-25242531/25040071

No. GATET/CS04/1012/006/10/001
Government of India
Ministry of Defence
GATET Programme Cell
Gas Turbine Research Establishment
C.V. Raman Nagar, Bangalore - 560093

To

Dr.K. Jayaraman,
Vel Tech technical University,
Avadi, Chennai, Tamilnadu. Fax No.

Date: 28 July 2010



SANCTION OF A PROJECT UNDER GATET

I am happy to inform you that your project proposed under the Gas Turbine Enabling Technology (GATET) Initiative has been sanctioned. Many congratulations to you and I highly appreciate your keenness in participating in this initiative.

2. Under the powers vested in the Gas Turbine Enabling Technology (GATET) Initiative vide Govt. of India, Ministry of Defence letter No. DARO/1102063/M/I/3078/D(R&D) dated 8th October 2009. I am happy to convey the sanction of the Executive Board-GATET for the following project for the year 2010-2011.

TITLE OF THE PROJECT : "Development of Design methodology for optimizing squeeze film damper for Aero Gas Turbine Engine and experimental verification studies "

AMOUNT : Rs 127 Lakhs (One Crore Twenty Seven Lakhs only)

3. Total estimated funds for the project is **Rs.188lakhs**. However, the same is subject to revision based on performance and review. The year-wise break-up is given below:

Sl. No.	Head	Year 1 (in lakhs)	Year 2 (in lakhs)
i)	Manpower		
ii)	Equipment/ Facilities / Fabrication	20	20
iii)	Consumables	95	30
iv)	Fabrication	4	4
v)	Testing	Included in (ii) above	
vi)	Consultancy / Training	Nil	Nil
vii)	Contingencies	Nil	Nil
viii)	TA/DA	4	4
ix)	Others (incl. overheads)	1	1
		3	3
	Total	127	61
Grand Total		Rs. 188 lakhs	

फैक्स किया गया / FAXED
दिनांक / DATE 28/7/10
क्रम सं / SL. No. 1528

154..2/-

4. The progress of the project will be periodically reviewed by the Project Review Committee (PRC) and documents relating to the project should be submitted to the Programme Director in advance for the review.
5. Funds for subsequent year(s) will be released on satisfactory progress and submission of annual progress report by PI to the Project Review Committee (PRC) and to the GATET Programme Cell and based on the PRC recommendation with due approval of competent authority. Statement of accounts and utilization certificate duly certified by the executive financial authority of the Institution is also required to be submitted along with the annual report. Excess expenditure, beyond the yearly sanction, unless authorized by GATET in writing, shall be the responsibility of the grantee institution.
6. The duration of the project is **two** years. The date of receipt of the grant would be reckoned as the commencement date of the project which has to be intimated to the Programme Cell without any ambiguity.
7. A separate account for the grant would be maintained by Veltech University and any interest earned thereon, if any would accrue to GATET. Unspent balance on completion of the project should be sent by the grantee institution through a cheque / Draft in the name of CDA (R&D), Bangalore to GATET Programme Cell for doing the needful. A list of inventory of equipment purchased out of GATET grant shall be intimated year-wise, along with its cost and source of procurement to GATET Programme Cell. On completion of the project, the grantee institution would forward the consolidated list with request if any, for retention of any equipment for another project or in-house R&D with due recommendations of their executive authority and the concerned PRC.
8. Instructions and Conditions of Ownership of intellectual properties generated by this project is available at www.drdo.res.in/boards/ardb/rules&grants_patents.htm.
9. Instructions and Conditions of Publication of Technical papers related to this project is available at www.drdo.res.in/boards/ardb/rules&grants_report1.htm
10. A closure report along with copies of technical report may be submitted within thirty days of completion of project along with the Statement of Expenditure and the Utilisation Certificate duly audited by the Audit Authority of Institution, signed in ink (in duplicate) by all concerned.
11. CDA (R&D), Bangalore will make disbursement of money as sanctioned.
12. The expenditure will be debited to the relevant Minor Heads under Major Head 2080 "Revenue" and Major Head 4076 "Capital", of the Defence Services Estimates, Research & Development.
13. Additional information about this initiative is available at www.drdo.res.in/boards/ardb/gatet.htm.

14. All the relevant invoices and bills (in triplicate) duly completed and stamped may please be forwarded to The Programme Director, GATET for countersignature, ratification by PRC and onward transmission to CDA for payment.

15. Please feel free to contact the undersigned for any techno-commercial clarifications.

With best regards.



(Dr. S. Kishore Kumar)
Programme Director, GATET

Copy to:

CDA(R&D), CV Raman Nagar
Bangalore-560093

Principal Director of Audit
Air Force & Navy, 'M'Block New Delhi-110001

DFA (GTRE)

FAD (GTRE)

Dr. K. Jayaraman, Principal Investigator
Asst Professor,
Department of Aeronautical engineering,
Vel Tech Rangrajan Dr. Sagunthala R&D Institute of Science and Technology,
#42,Avadi-Vel Tech Road, Avadi, Chennai.



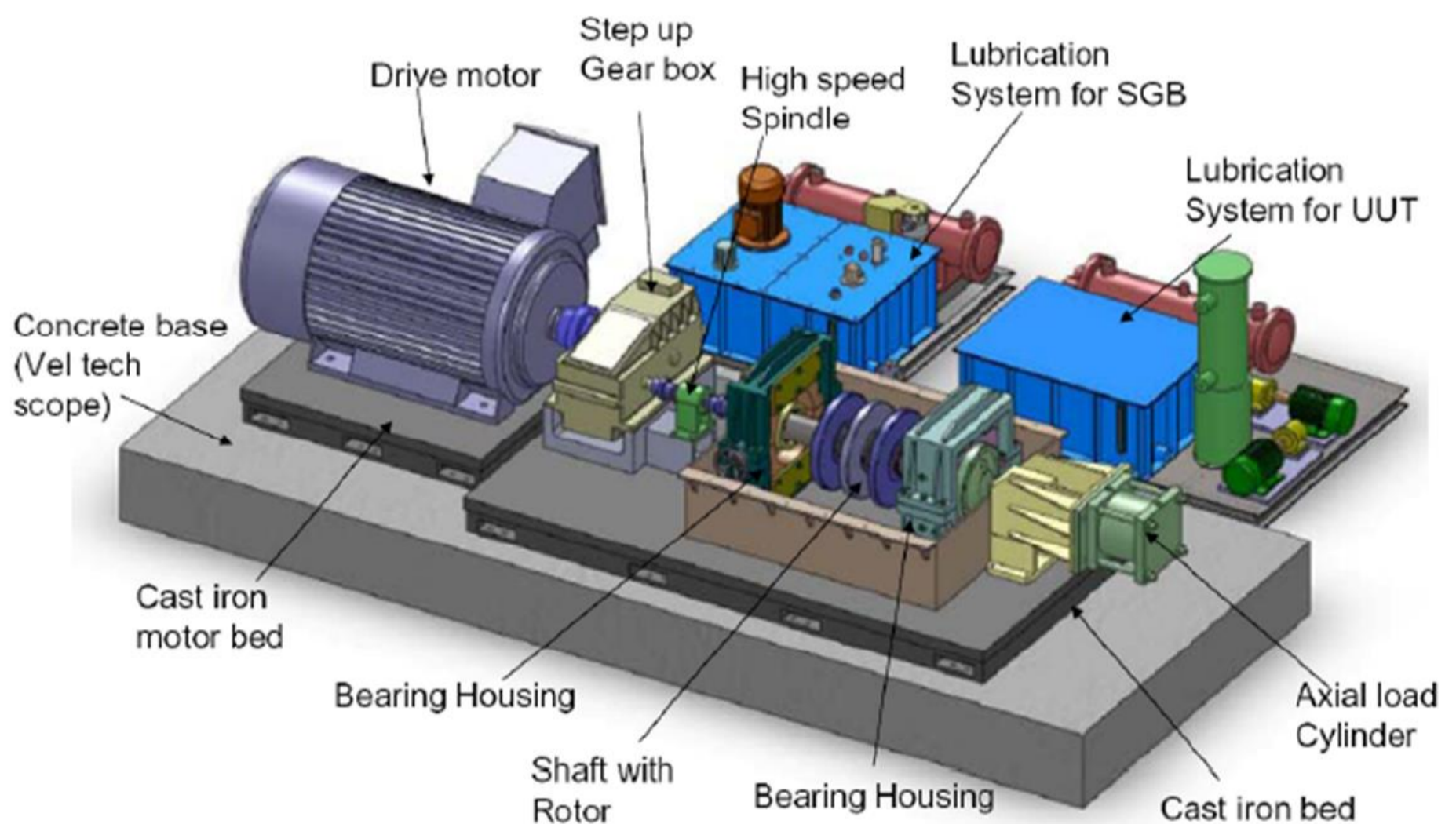
Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

High Speed Bearing Test Facility

Sponsored by
Gas Turbine Research Establishment (GTRE),
DRDO, Ministry of Defence, Govt. of India



Squeeze Film Damper (SFD) Test Rig

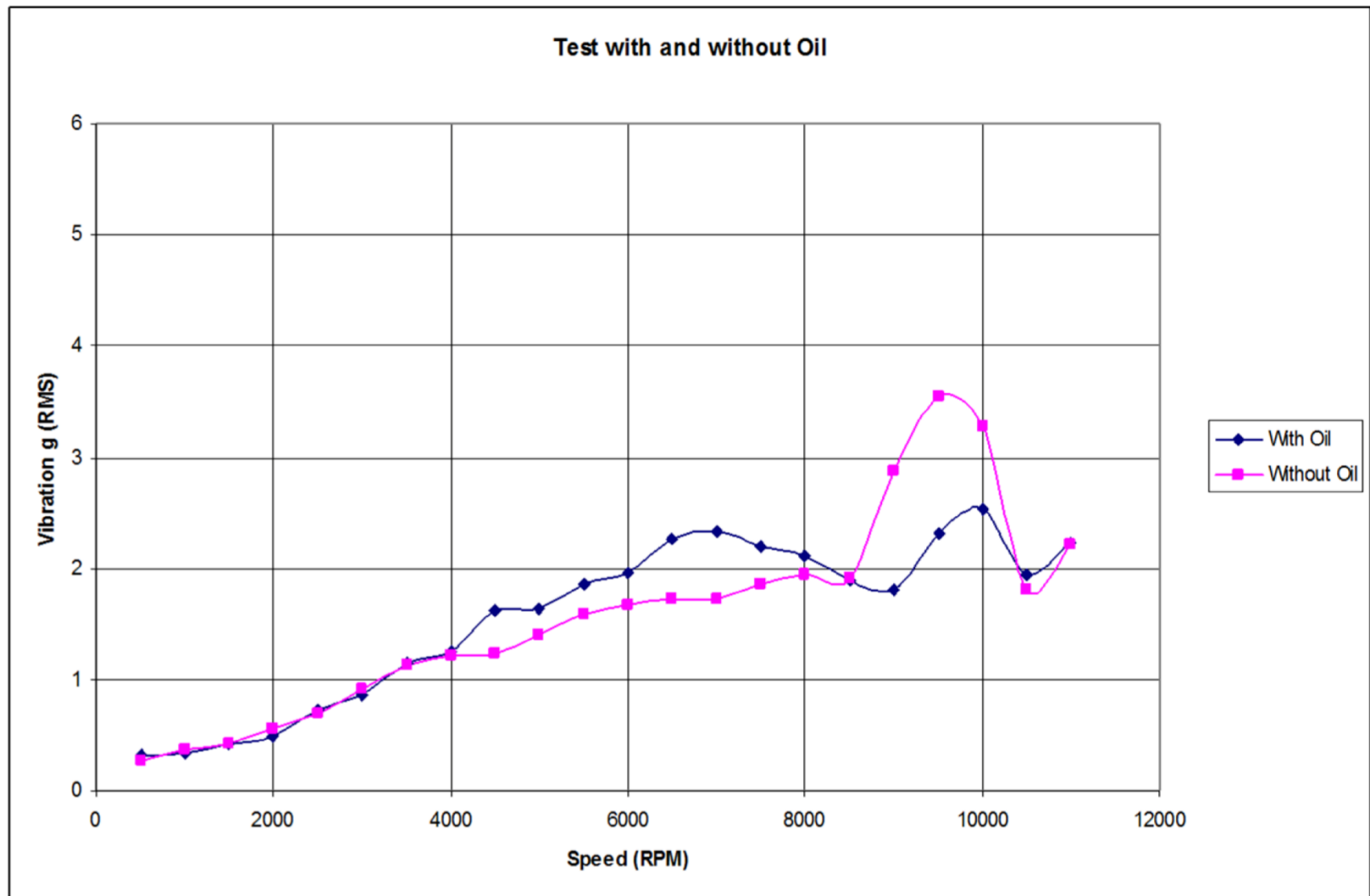


- **Test Rig Maximum Speed: 20,000 RPM**
- **Instrumented with Vibration pickups, Eddy probes & Strain Gauges**
- **Parametric studies on typical SFD bearings**
- **Cost of Project: Rs 186.65 Lakhs**

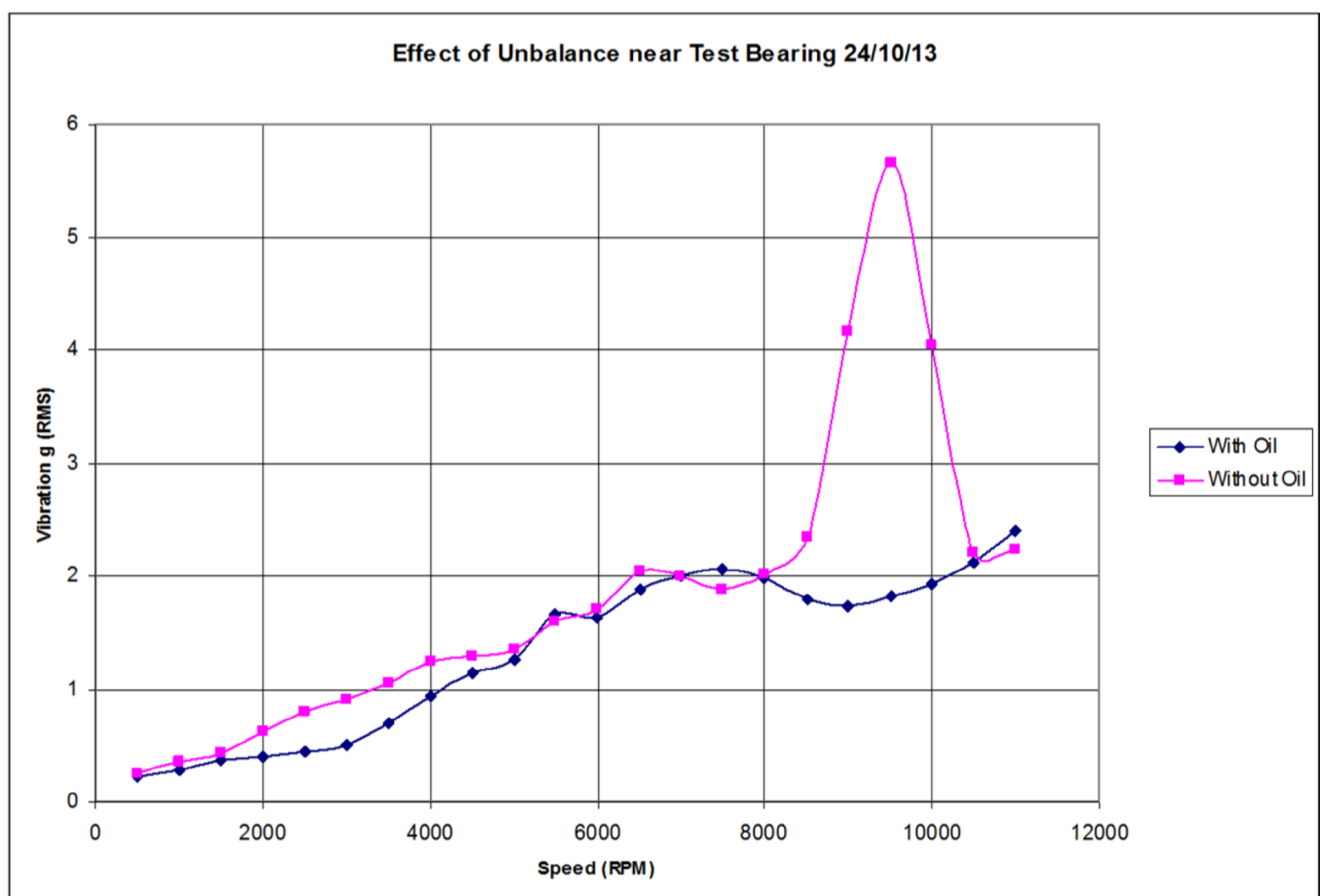


Squeeze Film Damper (SFD) Test Rig

Experimental investigation of squeeze film damper



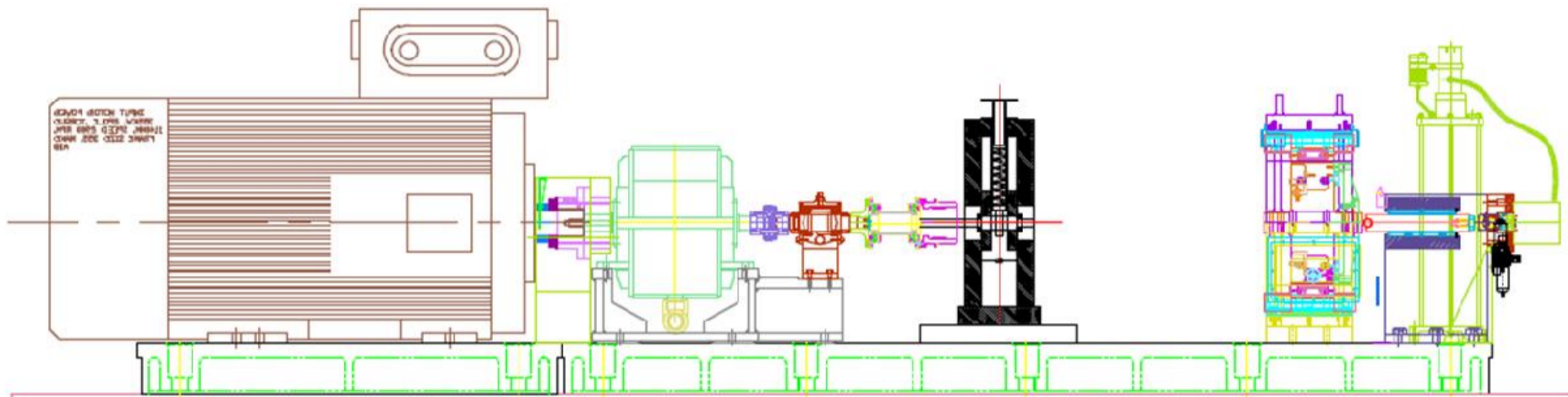
Vibration behavior of Test Bearing with and without SFD oil



Vibration behavior of Test Bearing Unbalance 990 gm-mm with and without SFD oil



RIG LAYOUT FOR CVRDE BEARING TESTS

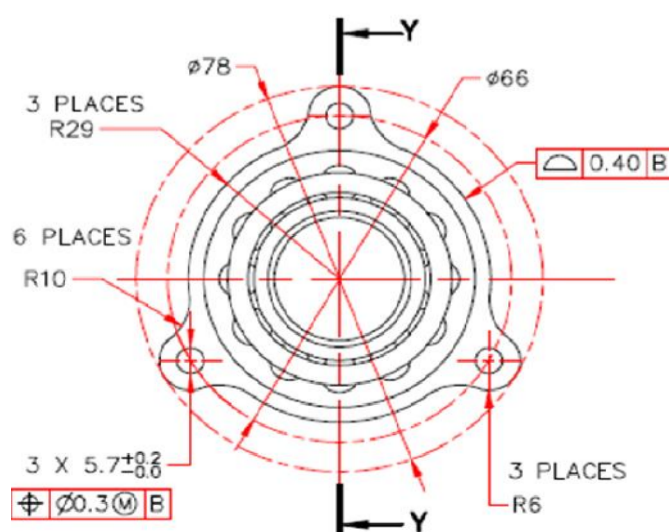
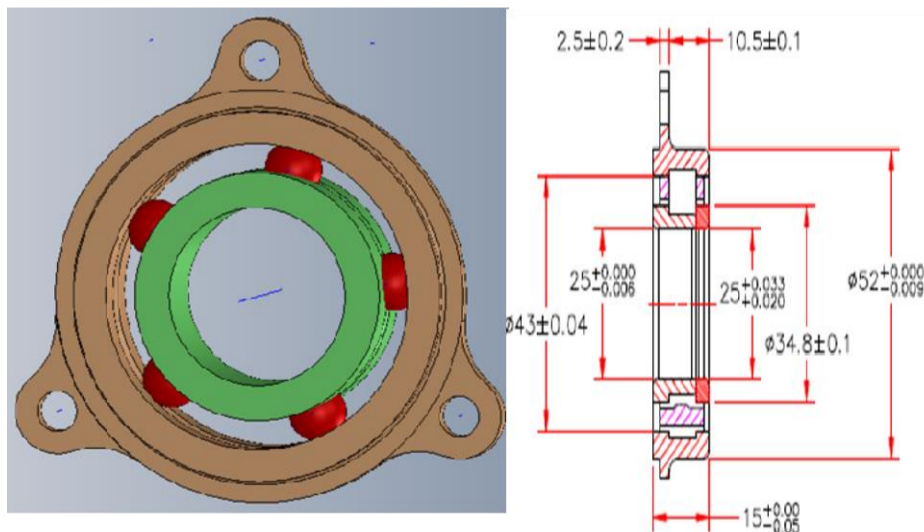


Scope of Project:

Project Cost: Rs. 15 lakh

- Unbalance response
- Shaft orbital movement
- Temperature Measurement
- Life of Bearings

BEARING TYPE: CI LH

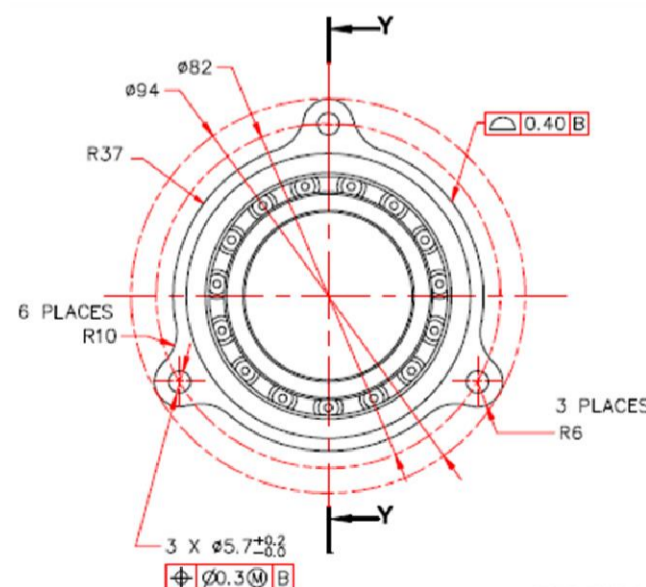
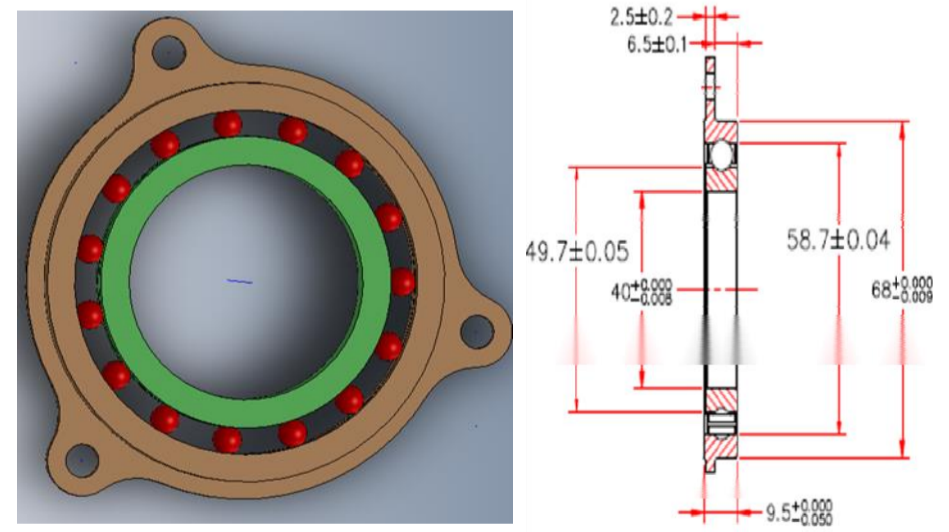


TEST LOAD:
7000 N

SPEED:
12100 RPM

DURATION:
50 HOURS

BEARING TYPE: STR RH



TEST LOAD:
2500 N

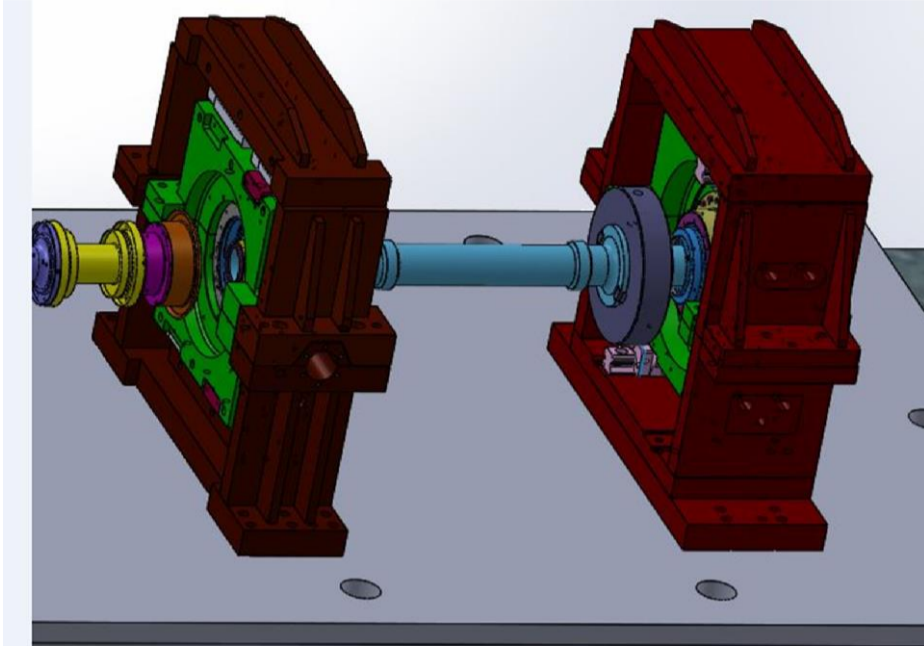
SPEED:
9700 RPM

DURATION:
50 HOURS

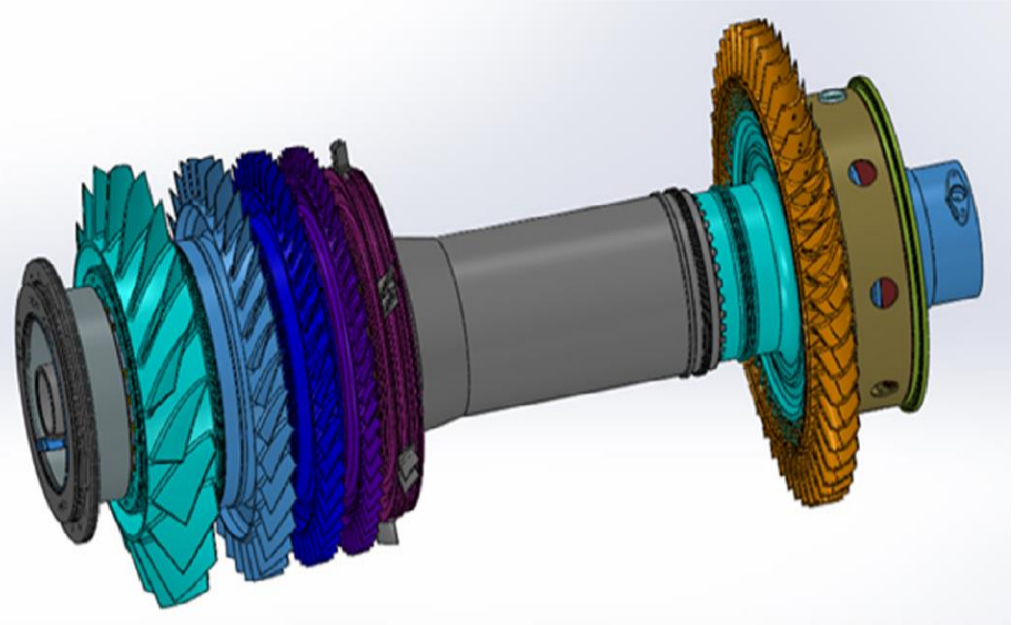


Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

RIG LAYOUT FOR HAL BEARING TESTS



**HAL Rotor on SFD Test Rig—
Test Section**

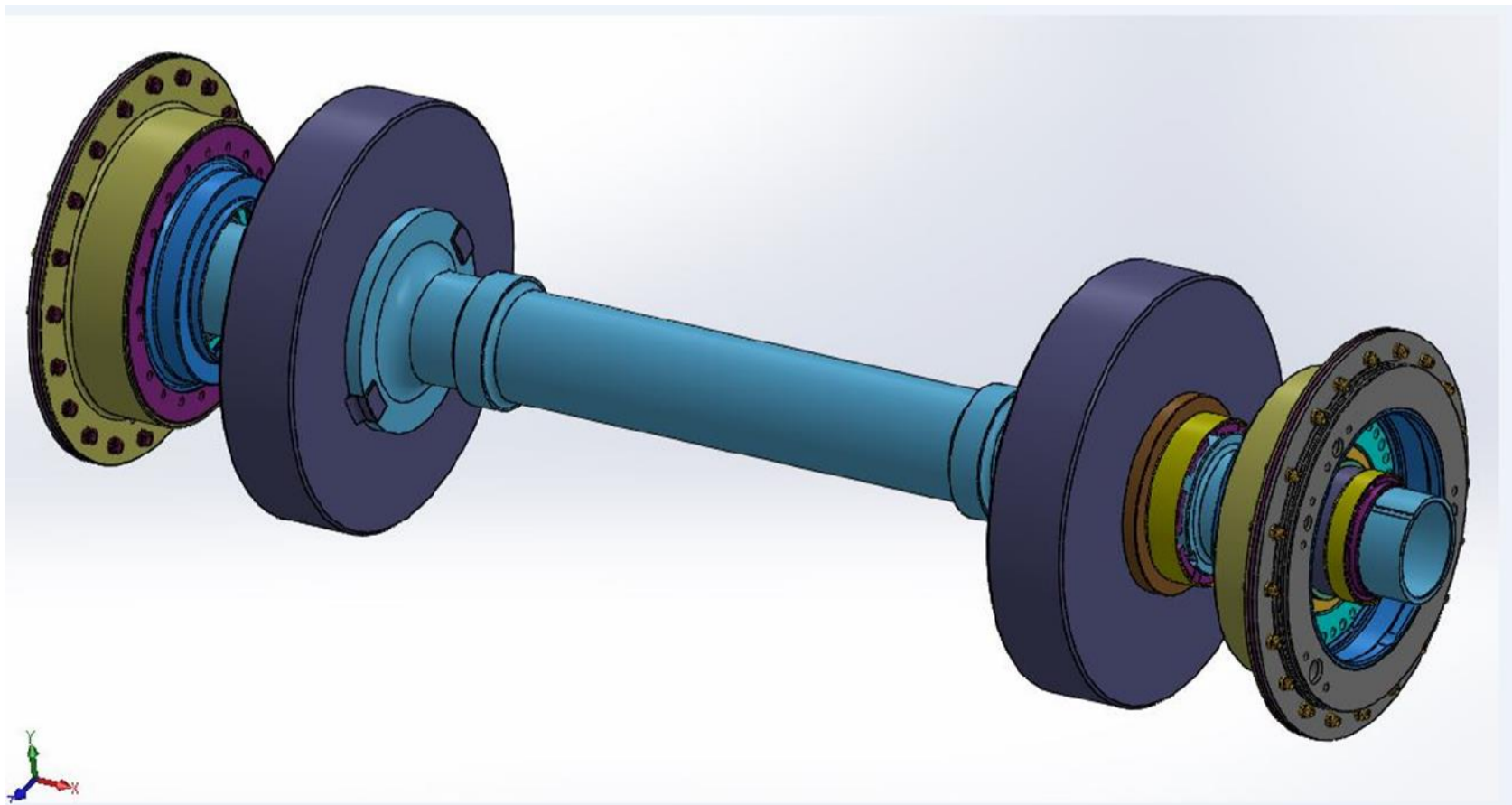


HAL Rotor, Blade, Bearing Assembly

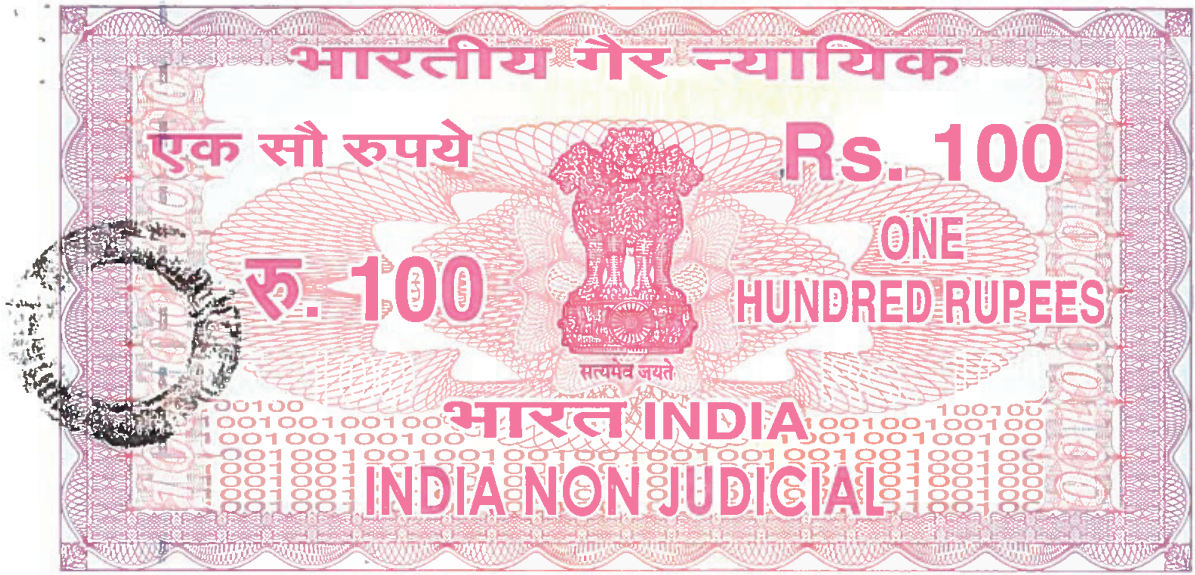
Project Cost: Rs. 15 lakh

Scope of Project:

- **Unbalance response - Vibration of bearing housing**
- **Shaft orbital movement**
- **Strain of squirrel cage webs**
- **Squeeze film thickness**
- **Squeeze film pressure distribution**
- **Squeeze film Damping**
- **Squeeze film Stiffness**
- **Damping of Elastic Ring**



HAL ROTOR, BEARING ASSEMBLY FOR TEST



தமிழ்நாடு தமில்நாடு TAMILNADU

10340
26.09.18.

Vel Tech

BM 598412

N. SELVARAJ,
STAMP VENDOR
L NO. 1/287/E/91,
NO.9 KALLIYAN KOLLU S.
VILINGANIPAKKAM,
AVADI, CHENNAI - 600 071.

Professional Services Agreement

Between

GE India Industrial Private Limited
John F Welch Technology Centre Division

And

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology


Professional Services Agreement

This Professional Services Agreement, which includes the Attachments referenced herein and attached hereto, (this "Agreement") is effective 1st October 2018 (the "Effective Date"), and is by and between GE India Industrial Pvt Ltd (GEIPL), John F Welch Technology Centre Division, a company incorporated under the provisions of the Companies Act, 1956 with its registered office at Plot No. 122, Export Promotion Industrial Park, Phase 2, Hoodi Village, Whitefield Road, Bangalore - 560 066, India ("GEIPL", which expression shall, unless it is repugnant to the context, shall mean and include its affiliates, successors in interest and permitted assigns), and, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to be university) established under U/S 3 of UGC act 1956 in 2008 with its registered office at No.34, Gandhi Mandapam Road, Next To Sbi, Kotturpuram, Chitra Nagar, Chennai, Tamil Nadu 600017 ("Service Provider", which expression shall, unless it is repugnant to the context, shall mean and include its successors in interest and permitted assigns).

GEIPL enters into this Agreement on its own behalf and on behalf of and for the benefit of each of its Affiliates (as defined below). Save where provided otherwise, expressly or by implication, references to GEIPL, in this Agreement are to GEIPL and each of its Affiliates. Accordingly, each of GEIPL's Affiliates shall have direct rights under this Agreement as if it had executed this Agreement itself.

This Agreement sets forth the terms and conditions under which Service Provider agrees to provide GEIPL with professional services. Each individual professional services assignment under this Agreement shall be set forth in a schedule in the form attached hereto as Attachment A ("Schedule"). Each Schedule will be separately executed, and when so executed, is hereby incorporated by reference and becomes a part of this Agreement. Terms and conditions of this Agreement shall supersede any contrary terms and conditions of any Schedule. Each Schedule, together with the terms and conditions of this Agreement, shall constitute and be construed as a separate agreement.

1. Definitions

- 1.1 "Affiliate" means, in relation to a party, any entity, which controls, is controlled by or is under the common control of such party. The term 'control' shall mean the beneficial ownership directly or indirectly of more than twenty six percent (26%) of the voting securities of such entity or control over the majority of the composition of the Board of Directors or power to direct the management or policies of such entity either by contract or otherwise.
- 1.2 "Agreement" shall mean this Professional Services Agreement (including the Attachments hereto) by and between GEIPL and the Service Provider, dated as of _____ 1st October 2018 _____
- 1.3 "Authorized Personnel" shall have the meaning set forth in Section 11.1.
- 1.4 "Deliverable(s)" is as defined in Section 5.0 of this Agreement, and includes, but is not limited to, those items listed in a Schedule as deliverables to be provided by Service Provider to GEIPL.
- 1.5 "Dispute" shall have the meaning set forth in Section 12.11.
- 1.6 "Effective Date" shall have the meaning set forth at the beginning of this Agreement.
- 1.7 "Force Majeure" has the meaning set forth in Section 12.3.1.
- 1.8 "GEIPL Confidential Information" shall have the meaning set forth in Section 5.3.
- 1.9 "GEIPL Resources" shall have the meaning set forth in Section 11.1.
- 1.10 "Indemnified Parties" shall have the meaning set forth in Section 7.1.
- 1.11 "MSME Act" shall have the meaning set forth in Section 3.7.
- 1.12 "Password" shall have the meaning set forth in Section 11.1.
- 1.13 "Permitted Use" shall have the meaning set forth in Section 11.1.
- 1.14 "Project Manager" shall mean the individual assigned by each of the parties hereto to be the focal point for communications with the other party on a particular assignment.
- 1.15 "Revised Code" shall have the meaning set forth in Section 6.5.
- 1.16 "Service Levels" shall have the meaning set forth in Section 2.4.
- 1.17 "Service Level Credits" shall have the meaning set forth in Section 2.6.
- 1.18 "Service Provider" shall have the meaning set forth at the beginning of this Agreement.
- 1.19 "Schedule" shall have the meaning set forth in the recital.
- 1.20 "Specifications" shall have the meaning set forth in Section 2.1.
- 1.21 "Facilities" shall the meaning set forth in Section 2.8. 



2. Proposals, Change Control, Acceptance

- 2.1 Scope of Work.** The terms of a Schedule, together with any exhibits referenced herein or therein, shall define the scope of services for a particular assignment under this Agreement. Each Schedule shall specify the project objectives, GEIPL responsibilities (if any), Deliverables (if they have been specifically identified), Service Provider pre-existing material (if any), due dates, fees, the parties' respective Project Manager, and any other information relevant to the assignment and its successful completion. The Schedule, exhibits, detailed instructions, and task descriptions agreed to in writing by the parties' respective Project Managers collectively constitute the specifications ("Specifications") for the services to be performed by Service Provider under any Schedule.
- 2.2 Project Managers.** On each Schedule, the parties shall designate the name and telephone number of a Project Manager who shall be responsible for representing that party in all matters regarding the assignment governed by such Schedule. All transfer of Deliverables and communications regarding the scope of services under such Schedule shall be accomplished through the Project Managers. In addition, the Project Managers shall arrange and attend any progress review meetings, be responsible for ensuring that each party's responsibilities have been met on a timely basis and control all changes to the written Specifications. GEIPL may change the person designated to be its Project Manager for any Schedule at any time upon written notice to the other party's Project Manager. The Service Provider shall be required to take prior written approval from GEIPL in case the Service Provider needs to change the person designated to be its Project Manager for any Schedule. Such changed Project Manager should be capable of quickly aligning into the responsibilities mentioned in the Schedule.
- 2.3 Change Control.** During the course of an assignment hereunder, GEIPL may desire a change in the scope of the Specifications. Requests for changes are to be made in writing and delivered to the Service Provider Project Manager. Both parties' Project Managers shall review the proposed change and either approve it or refer it for further investigation. Any such investigation shall involve questions relating only to change in scope and resultant change in effort, timing and price and shall have to be raised by Service Provider Project Manager within seven (7) days of GEIPL expressing its desire to change the scope of the Specifications. The investigation shall determine the effect that the implementation of the change shall have on the Specifications and other terms and conditions of the Agreement. Upon completion of the review, any changes in Specifications or other terms shall be documented in writing and signed by the parties' respective Project Managers. If, despite diligent and good faith negotiations, the parties fail to agree on the character or effect of a change to the Specifications, then at GEIPL's option (a) Service Provider will continue performing the services without changes to the Specifications, or (b) Service Provider, immediately upon written notice from GEIPL, will cease performing the services and Service Provider will receive payment for services performed up to the time of such notice from GEIPL in accordance with the terms of this Agreement and the affected Schedule.
- 2.4 Service Levels.** Service Provider shall perform the services so as to meet or exceed the performance standards as set forth in the applicable Schedule or any other performance standards relating to the services as may be mutually agreed upon by the parties in writing ("Service Levels"). Service Provider shall be responsible for meeting or exceeding the applicable Service Levels even where doing so is dependent on the provision of services by its subcontractors. The parties shall, at an interval of six (6) months or as agreed mutually, review the then-current Service Levels and also determine whether modifications or adjustments to such Service Levels are necessary or desirable. The Service Levels may be adjusted on an optional basis, as mutually agreed by the parties in writing, with the objective of obtaining performance improvements.
- 2.5 Failure Rectification Mechanism.** Service Provider shall, as part of the services, (i) with respect to any failure by Service Provider or any subcontractor to provide the services at the Service Levels, promptly perform a root cause analysis to identify the cause of such failure, (ii) promptly provide GEIPL with a report detailing the cause of, and procedure for correcting, such failure, (iii) rework to make the necessary corrections to the services and make it compliant as per the Service Level, and (iv) if appropriate under the circumstances, take action to avoid such failure in the future. As part of the services, Service Provider shall implement the necessary measurement and monitoring tools and procedures required to measure and report Service Provider's, or any subcontractor's performance of the services against the Service Levels. Such measurement and monitoring shall permit reporting at a level of detail sufficient to verify compliance with the Service Levels and shall be subject to review by GEIPL. Service Provider shall provide GEIPL with information and access to such tools and procedures upon reasonable request, for purposes of verification.
- 2.6 Service Level Credits.** Service Provider recognizes that GEIPL is paying Service Provider to deliver the services at the specified Service Levels. If Service Provider fails to meet the Service Levels, then, in addition to other remedies available to GEIPL, Service Provider shall pay or credit to GEIPL the credits specified in the applicable Schedule ("Service Level Credits"). With respect to services, in addition to any Service Level Credits set forth in the applicable Schedule, Service Provider shall be responsible for the payment of any Service Level Credits, which GEIPL may incur under its contract with its customer to the extent caused by a failure of the Service Provider to

meet the applicable Service Levels. Under no circumstances shall the imposition of Service Level Credits be construed as GEIPL's sole or exclusive remedy for any failure to meet the Service Levels. In the event, Service Provider fails to meet the Service Levels for the two (2) consecutive time, GEIPL upon notice to Service Provider, may, at GEIPL's sole discretion, charge Service Level Credits from the Service Provider for all the subsequent failures to meet the Service Levels. GEIPL may, as per the provisions of Section 8.2 (b), also terminate the applicable Schedule and/or this Agreement and may further pursue any other remedies it may have under this Agreement, or the applicable Schedule, or otherwise as permitted under applicable law. For sake of clarity, the Service Level Credits shall be a percentage of the fees (to be specified in the applicable Schedule) payable to the Service Provider.

2.7 **Acceptance.** Notwithstanding anything to the contrary, wherever applicable and at GEIPL's discretion, all of Service Provider's services and Deliverables will be subject to review and written acceptance by the GEIPL Project Manager based on the requirements of this Agreement, as well as the applicable Schedule and Specifications, and no payment will be due before such acceptance, which will not be unreasonably withheld. Service Provider will correct all deficiencies found during such review at no charge to GEIPL. Any claims that GEIPL may have under this Agreement will survive such review, acceptance and payment.

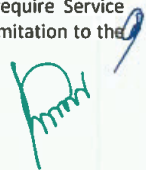
2.8 **Work Space and Materials.** Service Provider agrees to provide such mutually agreed upon space, infrastructure and amenities ("Facilities"), materials, machined parts, manpower and other tools and equipment to GEIPL, wherever applicable and to the extent set forth in the applicable Schedule. All materials and parts purchased on behalf of GEIPL by Service Provider and all machined parts provided by Service Provider to GEIPL, and all assembled products will be the sole property of GEIPL. Service Provider shall provide all materials needed by Service Provider's personnel in connection with the performance of services hereunder at no additional expense to GEIPL, unless otherwise expressly specified in the applicable Schedule.

2.9 **Work on Service Provider's Premises.** The Service Provider's premises shall include all Facilities and provided by Service Provider to GEIPL as defined in Section 2.8 and as set forth in the applicable Schedule. Service Provider shall ensure to comply with all applicable laws and statutory provisions and obtain necessary licenses for Facilities provided to GEIPL. Service Provider, and Service Provider's employees, agents, and representatives visiting or having access to the Facilities shall be obligated to comply with GEIPL's safety and security regulations. When Service Provider employees, agents, representatives, or subcontractors are accessing the Facilities in the Service Provider's premises, GEIPL shall have the right to designate that any such personnel be removed and replaced when such personnel violates GEIPL's rules and regulations, or any safety and security regulations. Except to the extent that a claim is due solely and directly to GEIPL's negligence, Service Provider shall indemnify, defend, and hold harmless GEIPL from any claim which may result in any way from any act or omission of Service Provider or Service Provider agents, representatives, subcontractors, or employees while accessing the Facilities in the Service Provider's premises.

3. Personnel

3.1 **Subcontracting and Service Provider's Employees.** Service Provider shall not assign, delegate, nor subcontract any portion of its rights, duties or obligations under this Agreement, including a Schedule (unless otherwise expressly agreed to in the applicable Schedule), without the express prior written consent of GEIPL. Notwithstanding Service Provider's retention of such third parties and said GEIPL consent (if provided by GEIPL), Service Provider shall remain responsible for the performance of services and compliance with all terms of this Agreement and the applicable Schedule. Service Provider is responsible for ensuring that it has a written and enforceable agreement in place with each of its subcontractors that will enable Service Provider to perform its obligations under this Agreement and every Schedule hereto. Personnel used or supplied by Service Provider in the performance of any services governed by a Schedule shall be employees of Service Provider, and under no circumstances are such personnel to be considered employees of GEIPL. Service Provider shall have the sole responsibility for the conduct of its personnel, and for payment of its personnel's entire compensation, including salary, applicable taxes, workers' compensation, employee and disability benefits and/or any other statutory or other payments and the like. Service Provider shall be responsible for all employer obligations toward all of its personnel under all applicable laws and all of GEIPL's policies. Service Provider will defend, indemnify and hold GEIPL harmless against any claims that in any way: (i) assert that any of Service Provider's personnel are employees or joint employees of GEIPL; (ii) relate to the conduct of Service Provider's personnel; and/or (iii) pertains to a breach of this Agreement, including, without limitation, Section 6.8. Unless required otherwise by any applicable law, under no circumstances shall GEIPL be liable for any payment or any claim or compensation (including but not limited to compensation on account of injury, death or termination) of any nature to such personnel, workers or consultants at any point of time during the term of this Agreement and/or any Schedule.

3.2 **Qualifications and Replacement.** GEIPL shall have the right to review and approve the qualifications of any personnel Service Provider assigns to perform services governed by a Schedule. GEIPL may require Service Provider to remove and/or replace any such personnel upon notice to Service Provider. Without limitation to the



foregoing and when Service Provider's personnel are on GEIPL's premises, Service Provider will immediately remove and replace any Service Provider personnel if GEIPL determines that such personnel violated or may have violated GEIPL's policies or work rules. Upon GEIPL's prior written consent, Service Provider will also replace personnel with other qualified personnel without any interruption of the services to GEIPL as and when necessary and appropriate in GEIPL's opinion. Service Provider agrees to maintain a consistently high skill level among all replacement personnel whether Service Provider or GEIPL instigated the replacement.

- 3.3 Substitutes and Replacements:** Service Provider shall also provide substitutes and replacements in the event of any of the personnel leaving the organization or being absent or not being able to attend to the work or participate in providing services due to any reason for a period of ten (10) working days. Service Provider shall further ensure that the substituted personnel shall understand and follow the regulations of GEIPL.
- 3.4 Service Provider Compliances:** Service Provider shall, wherever necessary, obtain all statutory licenses, approvals, and registrations for performing the services, including setting up the Facilities, as set forth in the Schedule, and furnish proof thereof to GEIPL. Service Provider will also be responsible and liable for due operation and implementation of statutory provisions applicable to the personnel engaged by it for performance of the services under various labour and establishment legislations including but not limited to, the requisite license/registration under the provision of the Contract Labour (Regulation & Abolition) Act, 1970 and other applicable laws and shall be solely responsible for discharge of all its obligations, statutory or otherwise, towards such personnel. Further, Service Provider confirms that all licenses, permissions, privileges, approvals and concessions for carrying on the business of the Service Provider under this Agreement are current, valid and fully operational and shall remain valid and fully operational during the term of this Agreement.
- 3.5 Records of Compliance:** Service Provider represents and warrants that it shall, wherever necessary, provide GEIPL with the most current certified copy of proofs of compliance with its statutory obligations including but not limited to each of the following:
- (a) License issued to Service Provider under the Contract Labour (Regulation and Abolition) Act, 1970;
 - (b) Certificate of registration with the Employees Provident Fund Commissioner;
 - (c) Insurance schemes required to be obtained in accordance with the Payment of Gratuity Act, 1936; and
 - (d) Certificate of registration under the Employees State Insurance Act, 1948.
- 3.5.1 Provide Written Records:** Further, on GEIPL's sole option, Service Provider shall, within fifteen (15) days of the receipt of a written request from GEIPL, provide GEIPL with written records that GEIPL may call upon, wherever necessary, the Service Provider to provide as proof of the Service Provider's compliance with applicable labour legislations including but not limited to the following:
- (a) payment of wages to personnel assigned to perform the services;
 - (b) payment of applicable provident fund, gratuity and employees' state insurance contributions in respect of the personnel assigned to perform the services;
 - (c) wage and attendance registers of the personnel assigned to perform the services.
- 3.5.2 Effect of Failure by Service Provider:** In the event the Service Provider fails to provide/produce the records of compliances including but not limited to the documents mentioned in this Agreement to GEIPL's satisfaction, GEIPL shall have the sole right to terminate this Agreement and/or any Schedule without notice to Service Provider. Further, in the event Service Provider fails to provide/produce the records of compliances and/or fails to make payment of any or all amounts mandated by the applicable labour legislations for the time being in force, GEIPL may at its sole discretion withhold all payments due to Service Provider under this Agreement and/or any Schedule. Further, in the event Service Provider fails to make payment of any or all amounts mandated by the applicable labour legislations for the time being in force with respect to the personnel assigned for performing the services, GEIPL shall be entitled, at its sole discretion, to remit such payments to the appropriate authority or the personnel on behalf of the Service Provider and deduct the same from the amounts withheld as aforesaid. In the event, the payments made by GEIPL on behalf of Service Provider is not recovered by GEIPL to the fullest extent pursuant to such deduction, GEIPL shall be entitled to exercise its rights under law to claim and recover the amount as may remain due. Provided however, that the making of such payments shall not be construed to create any privity of contract between the personnel of the Service Provider and GEIPL.
- 3.6 No Child Labor:** Service Provider expressly acknowledges that it shall not employ any child labor during the course of providing services to GEIPL.
- 3.7 Micro, Small and Medium Enterprises Development Act, 2006:** Service Provider hereby agrees to take the full responsibility of notifying GEIPL if Service Provider is qualified or gets qualified during the term of this Agreement

as a micro, small or medium enterprise as defined under the Micro, Small and Medium Enterprises Development Act, 2006 ("MSME Act"). To comply with the above requirement, Service Provider is required to notify GEIPL in writing within thirty (30) days of coming under the ambit of the MSME Act as mentioned above. Service Provider further acknowledges that in the event it fails to comply with the aforementioned requirement, GEIPL shall assume that the Service Provider does not fall under the ambit of the MSME Act to the extent provided above.

4. Fees, Pricing, Invoices, Payment

4.1 Fees/Payment. Service Provider's fee for services and Deliverables rendered are as set forth in the applicable Schedule. Invoices shall be submitted to GEIPL's Project Manager by no later than seven(7) days after completion of the services set forth in the invoice (unless otherwise specified in the applicable Schedule). Service Provider is responsible for all charges, costs and fees incurred as a result of performing its obligations, rendering its services, and providing Deliverables hereunder. If so stated in a Schedule, Service Provider shall invoice GEIPL for actual transportation and lodging expenses as they are incurred, subject to GEIPL's travel reimbursement terms set forth in Section 4.2 below. All invoices submitted by Service Provider shall set forth the following information: (i) the Effective Date of this Agreement and the number of the Schedule being billed; (ii) GEIPL's purchase order number, if applicable, (iii) Service Provider's Project Manager's name; and (iv) the amount being billed. Further, the following documents shall be enclosed with the monthly Invoices (in the event any Service Provider personnel perform Services at GEIPL premises. In all other cases invoices approved by GE as provided in this Agreement shall suffice): (i) certified copy of attendance/leave register. The certification shall read "None other than the above employees have attended at GEIPL site", (ii) certified copy of the salary/wage register indicating the wages paid, (iii) certified copy of ESI and PF challan for previous month regarding payments made with break up showing the employees name spread sheet, and (iv) certified copy of ESI – Form 7 Register – copy/extract for the previous month (of billing). Unless required otherwise by any applicable law GEIPL shall make payment within 30 working days after receipt of an accurate invoice from Service Provider and GEIPL's acceptance of the corresponding services and Deliverables that comply with the terms of this Agreement and/or the applicable Schedule. All payments made by GEIPL to Service Provider shall be subject to deduction of taxes as applicable. Other than the payment referred to herein, GEIPL shall not be liable to make any kind of payment to Service Provider or any third party or any government body/authority on behalf of the Service Provider. GEIPL shall not be required to pay for services that are: (a) not requested by GEIPL and documented in a Schedule, or (b) not meeting the requirements of this Agreement and/or any Schedule. Fees for additional services not listed on a Schedule shall be as mutually agreed in writing between GEIPL and Service Provider prior to performance. No fees for additional services shall be due unless such services and Fees are agreed to in writing by GEIPL prior to Service Provider's performance thereof. Upon reasonable request from GEIPL to Service Provider, GEIPL, or an authorized agent, shall have the right to audit, at the Service Provider's offices and during Service Provider's normal business hours, any and all charges in connection with services performed and/or Deliverables furnished under this Agreement. Upon overcharges being found, GEIPL shall raise a credit note, which shall be paid by the Service Provider within a period of fifteen (15) working days.

4.2 Pricing. All materials/parts to be procured by the Service Provider on behalf of GEIPL shall be procured only subject to prior approval from GEIPL. Service Provider must provide GEIPL with firm quote detailing all actual, to-be incurred costs of such materials/parts, and cost associated with the materials/parts shall be as mutually agreed in writing between GEIPL and Service Provider prior to procuring the materials/parts.

4.3 Taxes. Service Provider shall be responsible for all taxes, central, state or local, together with all governmental filing related thereto, which arise out of the performance of Service Provider hereunder, or which arise as a result of compensation paid hereunder. Service Provider shall also be responsible for the payment of all interest and penalties related to any taxes assessed or levied with respect to the provision of the services.

4.4 Billing Disputes. Billing disputes shall not be cause for non-performance by Service Provider under this Agreement, provided any billing issues for undisputed invoices are resolved within thirty (30) working days from the due date for the payment of invoice amount.

4.5 Monthly Proactive Compliance Audit: Service Provider undertakes to be regular and punctual for the monthly proactive compliance audit (if required by GEIPL). Dates of such audit will be communicated atleast seven (7) days in advance. GEIPL shall levy a penalty of Rs.10,000/- (Rupees ten thousand only) in the event of failure on the part of the Service Provider to attend the same or failure to produce the required records.



5. Ownership and Confidentiality

5.1 Deliverables: As used in this Agreement, the term "Deliverables" means all items in tangible and intangible form, including inventions, discoveries, works of authorship, programs, derivative works, source code, object code, ideas, techniques, methods, processes, documentation and materials, that Service Provider (including its employees, agents, or subcontractors) creates, prepares or delivers to GEIPL, or otherwise produces, conceives,

makes, proposes or develops, as a result of or to perform its obligations under this Agreement and one or more Schedules.

5.2 Release and Assignment: Service Provider on its behalf and on behalf of its employees, agents and subcontractors, grants, releases and assigns to GEIPL all right, title and interest, including ownership of all intellectual property rights therein including trade secrets, copyrights, moral rights, database rights and patents, in Deliverables. All Deliverables created by Service Provider, its employees, agents or subcontractors will be "works made for hire" and the sole and exclusive property of GEIPL. To the extent that any pre-existing materials (including third party or open source software) are contained in the Deliverables, said pre-existing materials must be described as such in the applicable Schedule and Service Provider hereby grants GEIPL an irrevocable, worldwide, non-exclusive, paid-up, royalty-free right and license to use, execute, reproduce, perform, display, distribute, and prepare derivative works of such pre-existing material and derivative works, and to make, have made, use, sell, offer for sale and import products and processes utilizing such pre-existing materials, as well as to authorize others to do any or all of the above, but in any case limited to the extent needed by GEIPL to exploit the Deliverables. Upon GEIPL's request and at Service Provider's expense, Service Provider will provide GEIPL with such assistance as GEIPL may require, including whatever documents, information or materials are in Service Provider's possession or available to Service Provider, in order to enable GEIPL to protect its ownership rights, including copyrights and patents, in any Deliverables. With respect to inventions for which GEIPL wishes to seek patent protection, Service Provider agrees to assign its interest in each such invention to GEIPL and to secure all necessary agreements with Service Provider's employees, agents and subcontractors to ensure assignment of their interests in each such invention to GEIPL as well. Service Provider at its expense will take all reasonable steps necessary to secure cooperation of its employees, agents and subcontractors with GEIPL in filing such patent applications, including obtaining the signatures of inventors on all necessary legal documents. To the extent a Deliverable includes or consists of software, Service Provider shall deliver to GEIPL the complete source code and object code.

5.3 Confidentiality. Service Provider agrees that the existence of this Agreement, including the nature of the services and the Deliverables provided under all Schedules issued hereunder, as well as all information and material proprietary to GEIPL, whether written or oral or visually presented, tangible or intangible relating, but not limited to, GEIPL's business and products disclosed by GEIPL or accessible to Service Provider in any manner, and all information and material that Service Provider develops under this Agreement in the context of performing any services and/or Deliverables hereunder, constitutes "GEIPL Confidential Information" whether furnished before or after the Effective Date and irrespective of the form of communication, that is considered competitive, confidential or proprietary in nature. GEIPL Confidential Information may include, but is not limited to, data (which includes all source and object code, if any), know-how, trade secrets, designs, plans, processes, drawings, specifications, algorithms, reports, customer and supplier lists, pricing information, and marketing techniques and materials, whether related, but not limited to, GEIPL's past, present or future business activities, research, manufacturing, design, development, or products acquired through the expenditure of time, effort and money, of a technical and business nature relating to GEIPL. GEIPL may, but is not obliged to, mark all information as "confidential" or "proprietary" in order to be treated as GEIPL Confidential Information. For the sake of clarity, all information, which is confidential or proprietary in nature, shall be considered as GEIPL Confidential Information even if the same has not been marked as "confidential" or "proprietary" by GEIPL. Service Provider will not disclose GEIPL Confidential Information to any third party or person or entity, except to the extent required by a court or government agency order or rule (provided that Service Provider first gives GEIPL written notice of such order or rule to enable GEIPL to have the opportunity to quash or limit the scope of the said order or rule). Service Provider may disclose GEIPL Confidential Information only to those of its employees, agents and subcontractors (only if previously approved by GEIPL in writing and only if they have previously signed a confidentiality agreement that is consistent with the terms of this Section 5.3), who possess a legitimate need to know for purposes of fulfilling obligations to GEIPL under this Agreement and the applicable Schedule(s), and may use GEIPL Confidential Information only for such purposes. GEIPL Confidential Information does not include information that is or becomes publicly available without restriction to Service Provider or any other person through no wrongful act. All GEIPL Confidential Information is and remains the property of GEIPL, and upon written request, the Service Provider will promptly return all Confidential Information, along with all copies and portions thereof, to GEIPL. Without waiving any other rights that GEIPL may have and notwithstanding anything to the contrary herein, GEIPL may immediately terminate with cause (with no right to cure) this Agreement upon written notice to Service Provider in the event that Service Provider uses or discloses GEIPL Confidential Information other than as expressly permitted in this Section 5.3. All GEIPL Confidential Information disclosed during the term or prior to the formation of this Agreement are deemed GEIPL Confidential Information to be protected for a period of five (5) years from the date of termination of this Agreement. For avoidance of doubt, it is clarified that the Service Provider shall be required to protect all GEIPL Confidential Information till the time as required by law, which could be more than the term of five (5) years mentioned above.



6. Representations and Warranties

- 6.1 Non-Infringement:** Service Provider represents and warrants that GEIPL's use or possession of any Deliverables (including any pre-existing materials provided by Service Provider) will not constitute an infringement or violation of any patent, copyright, trade secret or other proprietary rights of any third party. [Service Provider represents and warrants that no third party or open source software will be included in any Deliverables without first informing GEIPL of the particulars thereof and obtaining GEIPL's express written approval thereof. To the extent that Deliverables do contain any software code, Service Provider further represents and warrants that such software code is not distributed under, or subject to, the GNU Public License, the GNU Lesser General Public License, or any other license that requires in any instance that other software distributed with such software code be (a) disclosed or distributed in source code form; (b) licensed for purposes of making derivative works; and/or (c) redistributed at no charge.]
- 6.2 Reasonable Efforts:** Service Provider warrants that it shall use all efforts to perform the services as defined and described in the applicable Schedule and in accordance with the terms of this Agreement, including, without limitation Attachment B (Integrity Requirements) and Attachment E (Human Rights Initiative). All the conditions of the Integrity Requirements in Attachment B (as appropriately applicable) are non-compromise able, violation of which will amount to breach of this Agreement.
- 6.3 Performance of Services:** Service Provider warrants that the services and Deliverables provided under this Agreement shall be performed in a good and workmanlike manner in accordance with generally established professional standards and practices for such services and in accordance with the best practices in Service Provider's industry, and that such services and Deliverables will comply with all applicable laws, regulations, codes, and ordinances.
- 6.4 Compliance with this Agreement:** Service Provider represents and warrants that it has or will obtain appropriate agreements with its employees and others whose services it may require, sufficient to enable full compliance with all the provisions of this Agreement, including, without limitation, Section 5 above. In addition, Service Provider warrants that it will cause its employees, agents and subcontractors to sign any documentation required for access to GEIPL Confidential Information and other technology.
- 6.5 Revised Code:** Service Provider further warrants that the Deliverables: (a) do not and will not contain any restrictive devices such as any key, node lock, time-out, time bomb, or other function, whether implemented by electronic, mechanical, or other means, which may restrict or otherwise impair the operation or use of Deliverables or any material embodying or comprising Deliverables; and (b) shall be free of viruses and other harmful code (including, without limitation, time-out features) which may interfere with the use of the Deliverable(s) regardless of whether Service Provider or its personnel purposefully placed such code in the Deliverable(s). In addition to exercising any of GEIPL's other rights and remedies under this Agreement or otherwise at law or in equity, Service Provider shall provide GEIPL, free of charge, with any and all new versions, upgrades, updates, releases, maintenance releases, and error or bug fixes of the Deliverables (collectively, "Revised Code") which prevents a breach of any of the warranties provided under this Agreement or corrects a breach of any of the forgoing warranties. Revised Code constitutes Deliverables for purposes of this Agreement.
- 6.6 Failure to Comply:** In the event of any failure by Service Provider to comply with any of the provisions contained in Sections 6.1 through 6.5 and/or Section 7.2, in addition to GEIPL exercising any of its other rights and remedies under this Agreement or otherwise at law or in equity, and at no additional expense to GEIPL, GEIPL may require, as applicable, that Service Provider promptly:
- (i) procure for GEIPL the right to peaceably and quietly continue using the Deliverables; or
 - (ii) replace infringing items or components of the Deliverables with a non-infringing equivalent or a component or part thereof of equal performance and quality; or
 - (iii) modify the infringing items or components of the Deliverables so that they become non-infringing; or
 - (iv) perform all tasks and services necessary to timely provide Deliverables that satisfy the terms of this Agreement and the applicable Schedule(s), and that do not incorporate proprietary material, or otherwise infringe the rights, of any third party.
- 6.7 No Use of GEIPL Trade Marks:** Service Provider warrants that it shall not use any trademarks or trade names of GEIPL any time during or after the term of this Agreement. Notwithstanding the immediately preceding sentence, in the event Service Provider wishes to identify GEIPL as one of its customers, Service Provider may do so to the extent specifically pre-approved in writing by GEIPL.

- 6.8 **Compliance with Laws:** Service Provider warrants that it: (i) is in full compliance with all the relevant laws, ordinances, rules and regulations with respect to the performance of the services under this Agreement, and that it will only provide GEIPL with personnel whose employment eligibility has been verified; (ii) is in full compliance with all applicable laws relating to equal employment opportunity; and (iii) has implemented appropriate "revolving door" and conflict of interest screening mechanisms, and that it and its employees are in full compliance with all related regulations and laws.

7. Indemnities

- 7.1 **Indemnified Parties:** Service Provider hereby indemnifies and holds harmless GEIPL and its Affiliates, successors, assigns, shareholders, directors, officers, employees, attorneys and agents (collectively the "Indemnified Parties") from and against any and all losses, damages, costs and expenses (including, without limitation, the Indemnified Parties' reasonable attorneys' fees and other costs of legal defense, whether direct or indirect) associated with any and all claims, demands, suits, proceedings or judgments relating to or resulting from the unauthorized use or disclosure of GEIPL Confidential Information by Service Provider, its employees, or other parties to which Service Provider provided Confidential Information, whether in accordance with or in breach of this Agreement.

- 7.2 **Indemnification:** Service Provider shall defend, indemnify and hold harmless the Indemnified Parties from and against any and all losses, damages, costs and expenses (including, without limitation, the Indemnified Parties' reasonable attorneys' fees and other costs of legal defense, whether direct or indirect) associated with any and all claims, demands, suits, proceedings or judgments relating to or arising out of (i) any breach of any of Service Provider's representations and warranties hereunder; (ii) Service Provider's performance of the services; (iii) any alleged or actual infringement or misappropriation of third party intellectual property rights based on GEIPL's or its Affiliates' use or exploitation of the Deliverables; or (iv) any acts or omissions of Service Provider or any of its directors, officers, employees, subcontractors, or agents, including, but not limited to, (a) negligence or other tortious conduct, (b) representations or statements not specifically authorized by GEIPL in this Agreement nor otherwise authorized in writing, or (c) a violation by Service Provider (or any of its directors, officers, employees, subcontractors or agents) of any applicable law, regulation or order or (v) misuse or damage of any of the equipment of GEIPL which is in the Service Provider's premises for performance of its obligations under this Agreement.

- 7.3 **Intimation:** Regarding Section 7.2 above, GEIPL agrees that Service Provider shall be notified in writing within fifteen (15) business days by GEIPL of any notice of any such claim; and Service Provider shall be responsible for undertaking the defense of any action on such claim and for all negotiations for its settlement or compromise, but Service Provider shall allow GEIPL to provide input with respect to such defense and negotiations. If Service Provider does not provide a reasonable defense to any action, GEIPL may at its option assume and undertake the defense. Service Provider will reimburse GEIPL for all reasonable expenses from such claim within sixty (60) calendar days after being incurred.

8. Term and Termination

- 8.1 **Term:** The term of this Agreement shall commence on the Effective Date, and shall continue in full force and effect until three (3) years, unless terminated earlier in accordance with this Section 8, or as otherwise provided in the applicable Schedule. GEIPL may elect to extend the term of this Agreement upon written notice to Service Provider for one or more successive one (1) year terms.

- 8.2 **Termination:** This Agreement or any Schedule(s) may be terminated as follows:

- (a) without cause, by GEIPL giving thirty (30) calendar days prior written notice to Service Provider; or
- (b) by fifteen (15) calendar days prior written notice to the other party, in the event the other party breaches or is in default of any obligations hereunder, including but not limited to breach of the applicable local laws and regulations and failure to meet the Service Level as mentioned in Section 2.4 above, which default has not been cured within fifteen (15) calendar days after receipt of notice of such default or within such additional cure period as the non-defaulting party may authorize in writing; provided, however, that upon a second breach of the same obligation by the breaching party, the non-defaulting party may terminate this Agreement immediately upon notice to the breaching party; or
- (c) effective immediately, in the event the other party becomes insolvent or in the event of an assignment or other arrangements for the benefit of the other party's creditors or in the event of breach of the Integrity Requirements in Attachment B.

- (d) by fifteen (15) calendar days prior written notice to GEIPL, by the Service Provider, when GEIPL fails to pay any undisputed amounts due and such failure continues for a period of sixty (60) working days after the last date the payment was due.
- 8.3 Termination of Schedule:** GEIPL may terminate any portion(s) of a Schedule without cause upon thirty 30 calendar day's prior written notice to Service Provider.
- 8.4 Retain Rights:** GEIPL shall retain any and all fully vested rights that exist on the effective date of termination. In the event that GEIPL terminates this Agreement or a Schedule in accordance with Section 8.2(a) or 8.3, GEIPL's liability and Service Provider's exclusive remedy will be limited to GEIPL paying Service Provider for services and Deliverables completed in accordance with the terms of this Agreement and the applicable Schedule; provided, however, that such payment will not exceed the unpaid amounts due under the applicable Schedule(s) and shall also be subject to any amounts liable to be withheld in accordance with the terms of this Agreement. It is further clarified that the disputed amounts pending resolution on the effective date of termination, shall be paid, only upon resolution of the dispute in accordance with Section 12.11 hereof.
- 8.5 Return of Confidential Information:** Upon termination of this Agreement, (i) Service Provider will immediately cease all use of the GEIPL Confidential Information and shall deliver to GEIPL all items containing, embodying, relating to or comprising GEIPL Confidential Information, as well as any other documents, assets or things, belonging to GEIPL that constitute Deliverables regardless of completion (Service Provider shall not take or retain copies of any of the foregoing); (ii) any payments that may have been made by GEIPL to Service Provider in advance, which are in excess of amounts due Service Provider in accordance with this Section 8 (if any), will be refunded to GEIPL within thirty (30) days following the effective date of termination; (iii) any property, including hardware or software, that was provided by GEIPL to Service Provider without obligation of payment by Service Provider will be immediately returned to the GEIPL Project Manager in the same condition that such property was received (less normal wear and tear) by no later than the effective date of such termination; and (iv) this Section 8, as well as Sections 2.7, 3.1, 4, 5, 6, 7, 8, 10, 11, and 12 will survive the termination of this Agreement and/or a Schedule.
- 9. Insurance**
- 9.1** Service Provider agrees and undertakes to cover all of Service Provider's personnel under insurance (life & injury) and submit the relevant insurance cover photocopy to GEIPL. Service provider agrees to maintain adequate insurance to cover GEIPL personnel (life & injury) while working out of Service Provider's premises and damage to real property and tangible personal property during the term of this Agreement and shall provide a copy of such insurance to GEIPL.
- 9.2** GEIPL agrees and undertakes to cover all of GEIPL's personnel under insurance (life & injury)
- 9.3** In the event of any loss occasioned to GEIPL which is less than Rs.100000/- (Rupees one hundred thousand only) there shall be a joint enquiry conducted by GEIPL and Service Provider shall ascertain the cause and if the cause is on account of Service Provider then the Service Provider shall pay the amount. The joint enquiry and the payment of the amount shall be completed within a period of thirty (30) days from the date of occurrence of the loss. In the event for any reason Service Provider does not pay the amount or the joint enquiry is not completed before the expiry of thirty (30) days from the date of occurrence, then GEIPL shall be entitled to deduct an amount equal to such loss from the monthly bills payable to Service Provider, provided the delays are not attributable to any conduct/delay on the part of GEIPL.
- 9.4** In the event of any loss occasioned to GEIPL, which is above Rs.100000/- (Rupees one hundred thousand only), Service Provider shall undertake to assist GEIPL in its claims process. The decision of the insurance company is final unless a joint decision is taken between GEIPL and Service Provider to represent against the decision of insurance company.
- 9.5** In the event, during the pendency of the insurance claim or appeal, if either party terminates this Agreement then GEIPL shall have the right to withhold the amounts payable to other party until the insurance claim/ appeal is settled finally. The amounts withheld by GEIPL will be adjusted accordingly after the final decision of the insurance/apellate authorities.
- 10. Compliance With GEIPL's Policies**
- 10.1 Safety and Security Policies:** Service Provider agrees to use all commercially reasonable efforts to cause any of its employees who provide services under this Agreement on GEIPL's premises to comply with GEIPL's safety and



security policies that GEIPL communicates to the extent that such policies are applicable to the site where Service Provider's employees are providing services. Notwithstanding the above, such standard safety and security policies shall not include policies related to drug testing and background checks.

10.2 **Drug Use Policies:** Unless conflicting to any laws where the services are being provided, which in such case this section shall not be enforceable, Service Provider will advise any Service Provider employee who provides services under this Agreement on GEIPL's premises of GEIPL's right to require an initial drug screen prior to the commencement of the assignment and, further to require a drug screen at any time during the assignment either (i) if GEIPL believes in good faith that the Service Provider employee is under the influence of an illegal substance, or (ii) as a consequence of an accident caused by or involving the Service Provider employee on GEIPL's premises during the performance of this Agreement and likely to have been related to Service Provider's employee's use of an illegal substance. Service Provider shall perform all drug screening at Service Provider's expense and Service Provider will address any positive results and handle accordingly. Service Provider's employee will not be permitted to perform the services if a positive result of said drug screen is determined.

10.3 **Background Checking:** Service Provider shall ensure that all of its employees / personnel, who are engaged in rendering the Service Provider's services to GEIPL under this Agreement, should have undergone a background check, conducted by a verification agency specified by GEIPL. If any such Service Provider employee/personnel has not received a positive and clear background check, such personnel shall not be engaged by Service Provider to render Service Provider's services to GEIPL. The Service Provider shall maintain relevant records in this regard and such records shall be produced to GEIPL, as and when requested. Upon request by GEIPL, and to the extent permitted by local law in jurisdictions, the background screen shall include verification of the Service Provider employee's highest level of education. Service Provider shall maintain as records all such background checks for three (3) years after the termination or expiration (whichever is applicable) of this Agreement and such records shall be produced to GEIPL, as and when requested.

11. GEIPL Resources, GEIPL Personal Data, and Protected Health Information

11.1 **GEIPL Resources:** GEIPL, in its sole discretion, may permit Service Provider to have on-line access to GEIPL-designated networks and computer systems of GEIPL ("GEIPL Resources") in order to facilitate Service Provider's ability to perform its obligations to GEIPL under this Agreement. The term "GEIPL Resources" also includes all information obtained, stored, or accessible on such networks and systems. If such access is granted, Service Provider will promptly give GEIPL in writing the names of Service Provider's employees who have a legitimate business need for such access to GEIPL Resources ("Authorized Personnel"), and GEIPL will provide a separate user identification code for each person ("Password"). Only Authorized Personnel may access and use GEIPL Resources. Authorized Personnel will access and use GEIPL Resources solely for the purpose of fulfilling Service Provider's obligations to GEIPL under this Agreement ("Permitted Use"). Passwords and GEIPL Resources are provided on an "AS-IS" basis and constitute GEIPL's Confidential Information. Service Provider is responsible for all costs and expenses it incurs in accessing GEIPL Resources, including the cost of any hardware, telecommunications services, network connections, and software not furnished by GEIPL. GEIPL, in its sole discretion, may terminate with or without cause Service Provider's and/or any Authorized Personnel's access to GEIPL Resources at any time. Service Provider agrees that Service Provider (including the Authorized Personnel) have no expectation of privacy when using or accessing GEIPL Resources, and that GEIPL may access, review, copy or delete any messages and files for any purpose and disclose them to any party that GEIPL deems appropriate. Service Provider, including Authorized Personnel, will: (i) comply with all instructions GEIPL provides concerning access to GEIPL Resources; (ii) not access or attempt to access those GEIPL Resources that GEIPL has not authorized in writing Service Provider to access; (iii) not modify, copy, store, transfer, install, delete or obtain programs or data from GEIPL Resources, unless GEIPL has expressly authorized Service Provider to do so in advance and in writing; (iv) not cause GEIPL to incur fees or service charges; and (v) not change the configuration or topology of GEIPL Resources. Service Provider will immediately notify GEIPL verbally and in writing should Service Provider become aware of any prohibited use or unauthorized access involving GEIPL Resources. Service Provider, including Authorized Personnel, will immediately cease accessing all GEIPL Resources upon the earliest to occur: (a) when no longer required to perform work under this Agreement; (b) when notified by GEIPL; or (c) when this Agreement terminates or expires. Service Provider will promptly notify GEIPL if it becomes aware of any unauthorized access to or use of GEIPL Resources, and will instruct Authorized Personnel to do the same. Any document properly transmitted by computer access will be considered as "writing" delivered in connection with this Agreement. Electronic documents will be considered signed by a party if they contain an agreed upon electronic identification symbol or code as required by law. Electronic documents will be deemed received by a party when accessible by the recipient on the computer system.

11.2 **Compliance with Personal Data Protection, Protected Health Information and Human Rights Initiative:** To the extent appropriately applicable, Service Provider shall comply with Attachments C (Personal Data Protection), D (Protected Health Information) and Attachment E (Human Rights Initiative) as attached here

12. General Conditions and Provisions

- 12.1 Notices:** All notices required under this Agreement will be sent by a nationally recognized overnight courier. Notices will be deemed given on the date delivered to the recipient (it being agreed that the sender will retain proof of delivery). Notices will be sent to as follows:

If notice to GEIPL:

Vivek Kaul
Site Sourcing Leader
GE India Technology Centre
Whitefield Bangalore – 560 066

If notice to Service Provider:

Dr. E Kannan
Registrar
Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology
No.42, Avadi-Vel Tech Road,
Avadi, Chennai – 600 062,
Tamil Nadu, India.

- 12.2 Assignment:** Service Provider acknowledges that this Agreement is in the nature of a personal services contract. Accordingly, Service Provider shall not sell, assign, delegate, or otherwise transfer any of its rights or obligations hereunder without the prior written consent of GEIPL. Subject to these restrictions, this Agreement shall be binding upon and inure to the benefit of the parties, their successors and assigns.

12.3 Force Majeure:

- 12.3.1** Except as otherwise provided in Section 12.3.2 below, any delay or failure of a party hereto to perform its obligations hereunder will be excused if and to the extent that it was caused by an event or occurrence beyond such party's reasonable control and without its fault or negligence ("Force Majeure"). Force Majeure includes, but is not limited to, acts of God, actions by any government authority, fires, floods, windstorms, explosions, riots, natural disasters, wars, sabotage or acts of terrorism. A party claiming Force Majeure must provide the other party with written notice of such delay (including the anticipated duration of the delay) within ten (10) days of the occurrence of Force Majeure. During the period of such delay or failure to perform by Service Provider, GEIPL may acquire substitute or replacement services from one or more alternative sources, and in such event, there may be a proportionate reduction of services required from Service Provider and GEIPL will not be liable in any way for such reductions. If the delay lasts more than thirty (30) days, or if Service Provider does not provide adequate assurances that the delay will cease within thirty (30) days, GEIPL may terminate this Agreement and/or any or all incomplete Schedules, upon written notice and any funds pre-paid by GEIPL will be refunded by Service Provider within ten (10) business days of said termination.

- 12.3.2** Notwithstanding anything in this Agreement to the contrary, no delay or failure of Service Provider to perform its obligations hereunder will be excused if it is caused by: (i) labour problems of Service Provider, its subcontractors, and/or its suppliers such as, by way of example and not by way of limitation, lockouts, strikes, and slowdowns, or (ii) the inability of Service Provider, its subcontractors, and/or suppliers to obtain power, materials, labour, equipment, or transportation. Items (i) and (ii) above as stated in this Section 12.3.2 do not constitute Force Majeure for purposes of this Agreement.

- 12.4 Modification and Waiver:** This Agreement may not be modified and none of its terms may be waived, except in writing and signed by authorized representatives of both parties. To the extent that any term in any document, other than a writing signed by both parties that expressly purports to amend this Agreement, is contrary to, or conflicts with this Agreement, the terms of this Agreement shall control. A waiver by a party of any default shall not be deemed a waiver of a prior or subsequent default of the same or other provisions of this Agreement. The failure of a party to enforce, or the delay by a party in enforcing, any of its rights shall not be deemed a continuing waiver or a modification of this Agreement.

- 12.5 No Liability:** IN NO EVENT WILL GEIPL BE LIABLE TO SERVICE PROVIDER FOR ANY SPECIAL, EXEMPLARY, INCIDENTAL, INDIRECT, PUNITIVE, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST

PROFITS, REVENUE, AND BUSINESS), WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), STATUTE, EQUITY, PRODUCT LIABILITY, FUNDAMENTAL BREACH, OR OTHERWISE ARISING OUT OF OR RELATED TO THIS AGREEMENT, REGARDLESS OF WHETHER OR NOT GEIPL HAS BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH DAMAGES. GEIPL'S TOTAL LIABILITY TO SERVICE PROVIDER FOR ALL CLAIMS OR SUITS OF ANY KIND, WHETHER BASED UPON CONTRACT, TORT (INCLUDING NEGLIGENCE), WARRANTY, STRICT LIABILITY, OR OTHERWISE, FOR ANY LOSSES, DAMAGES, COSTS OR EXPENSES OF ANY KIND WHATSOEVER ARISING OUT OF, RESULTING FROM, OR RELATED TO THE PERFORMANCE OR BREACH OF THIS AGREEMENT SHALL NOT, UNDER ANY CIRCUMSTANCES, EXCEED THE TOTAL PAYMENT MADE TO SERVICE PROVIDER UNDER THIS AGREEMENT.

- 12.6 **Severability:** If any part of this Agreement is declared invalid or unenforceable by a court of competent jurisdiction, it shall not affect the validity or enforceability of the remainder of this Agreement, unless the Agreement so construed fails to meet the essential business purposes of the parties as manifested herein.
- 12.7 **Relationship:** It is expressly agreed that the parties intend by this Agreement to establish between themselves the relationship of independent contractors. It is further agreed that a party has no authority to create or assume in the other party's name or on behalf of the other party, any obligation, express or implied, or to act or purport to act as agent or representative on behalf of the other party for any purpose whatsoever. Neither GEIPL nor Service Provider is the employer, employee, agent, partner, or co-venture of or with the other, each being independent.
- 12.8 **Advertising/Publications:** Service Provider (including its agents, third party contractors, and suppliers) shall not use GEIPL's name, photographs, logos, trademarks, or other identifying characteristics (or that of any of its subsidiaries or Affiliates) in any marketing, public relations or similar publications (such as, but not limited to, Service Provider's marketing brochures or press releases) without GEIPL's prior written approval.
- 12.9 **Audit Rights:** At GEIPL's written request, Service Provider will allow GEIPL (directly or through third parties) to audit and inspect Service Provider's facilities, as well as copy any documents that Service Provider has relating to the performance of its obligations under this Agreement or other applicable legal requirements. Each of the parties will bear their own respective costs and expenses associated with any of the foregoing. The Service Provider also agrees to provide GEIPL the rights to inspect its equipment on a regular basis by providing a prior notice of 24 hours.
- 12.10 **Governing Law:** This Agreement shall be governed by and interpreted, construed, and enforced in accordance with the laws of India, without regard to conflict of law provisions thereof.
- 12.11 **Dispute Resolution:** GEIPL and the Service Provider agree to meet at least once in three (3) months, to discuss any issues that need to be resolved, and implement a "Clean Desk Policy" to ensure that the parties are working together to meet mutual commitments. Any dispute, controversy, or claim relating to this Agreement (a "Dispute") will be resolved first through good faith negotiations between the parties. If the Dispute cannot be resolved through good faith negotiation, then the parties agree to submit the Dispute to mediation. The requirement of mediation and negotiation may be waived upon mutual written consent of Service Provider and GEIPL. If the Dispute is not otherwise resolved through negotiation or mediation within a reasonable time period [such time period not to exceed seventy-five (75) days], either party may, but is not required to, submit the Dispute to binding arbitration in accordance with the Arbitration and Conciliation Act, 1996. Both parties shall appoint an arbitrator each and the arbitrators so appointed shall appoint the third arbitrator. The arbitration award shall be final and binding on the Parties. The venue of Arbitration shall be at Bangalore and shall be conducted in the English language. The arbitral tribunal shall have no authority to award punitive, consequential or other damages beyond the prevailing party's actual damages (other than reasonable attorney's fees and other costs of arbitration). Subject to the above, the parties submit to the exclusive jurisdiction of the Courts in Bangalore, India. If a party hereto submits a demand for arbitration, Service Provider and GEIPL agree that arbitration will be the exclusive forum for adjudication of the dispute, provided that such demand precedes the filing of a complaint in any court of competent jurisdiction. The cost of the arbitration [including the fees and expenses of the arbitrator(s)] will be shared equally by the parties; provided, however, that each party will pay its own attorney's fees. With regards to any action for breach of confidentiality or intellectual property obligations, nothing in this Section shall preclude either party from seeking interim equitable relief in the form of a temporary restraining order or preliminary injunction. Any such request by a party of a court for interim equitable relief shall not be deemed a waiver of the obligation to arbitrate hereunder.
- 12.11.1 **Effect of Non-Provision of Services During Dispute:** During the pendency of any Dispute under this Agreement (i) Service Provider shall not suspend the provision of the services, if required by GEIPL; and (ii) GEIPL shall continue paying the undisputed amount in accordance with the terms and conditions contained in this Agreement. Failure on the part of Service Provider in providing the services during the pendency of any Dispute shall make the Service Provider liable to compensate/reimburse GEIPL for any expense incurred by GEIPL resulting from non-

provision of the services during the notice period. GEIPL may at its sole discretion deduct such amount from the payments due to Service Provider under this Agreement and the Service Provider's liability to compensate GEIPL shall stand reduced pro-rata to the deduction. In the event GEIPL chooses not to exercise the option of deduction as aforesaid, or the amount payable as compensation is not recovered to the fullest extent pursuant to such deduction, GEIPL shall be entitled to exercise its rights under law to claim and recover the amount of compensation as may remain due.

12.12 **Entire Agreement:** This Agreement (including all Schedules hereto) is intended by the parties as a final and complete expression of their agreement on the subject hereof, and supersedes any and all prior and contemporaneous agreements and understandings. No other agreements, oral or otherwise, on the subject matter hereof shall be deemed to exist or to bind any of the parties.

12.13 **Attachments and Order of Precedence:** This Agreement includes the following Attachments. In the event of a conflict between the terms of this Agreement and any of the Attachments, the terms of this Agreement will prevail. Service Provider agrees to abide by all the contents of the Attachments and as such they form an integral part of this Agreement. The order of precedence of the Attachments shall be as follows:

- (i) Attachment A (Schedule),
- (ii) Attachment B (Integrity Requirements),
- (iii) Attachment C (EHS Requirements)

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized officers or representatives.

For GEIPL

For Service Provider

By: For GE India Industrial Private Limited
Authorized Signature

By: 
Authorized Signature

VIVEK KAUL 
Print Name Vivek Kaul
Senior Sourcing Staff Manager

Dr E Kannan
Print Name 

SITE SOURCING LEADER, GEIPL

Registrar, Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology

Title

Title

1st October 2018

1st October 2018

Date

Date

Attachment A

GEIPL Schedule

Schedule Effective Date: 1st Oct 2018
Schedule Closure Date: 31st Dec 2019

GEIPL Project Manager: S Balamurugan
Telephone: +919980089998

This Schedule is subject to and made a part of the Professional Services Agreement by and between GE INDIA INDUSTRIAL PRIVATE LIMITED, JOHN F WELCH TECHNOLOGY CENTRE DIVISION, ("GEIPL") and Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to be university) established under U/S 3 of UGC act 1956 in 2008 with its registered office at No.34, Gandhi Mandapam Road, Next To Sbi, Kotturpuram, Chitra Nagar, Chennai, Tamil Nadu 600017 ("Service Provider"), with an Effective Date of 1st Aug 2018 (the "Agreement"). All capitalized terms used in this Schedule are as defined in the Agreement, unless otherwise expressly defined herein.

Objective/Scope of Services to be performed:

Test Rig Equipment Specifications:

Description	Vel Tech
Drive Motor Capability	350KW, 20000 rpm
Readiness of rig	1 month
Interface Modification	Yes
Drive system modification	No
Instrumentation & DAQ	GE

Sl No.	GE SCOPE OF WORK	RESPONSIBILITY (GE/SUPPLIER)	SUPPLIER CONFIRMATION
1	Drive stand with 350 KW, 20000 rpm	SUPPLIER	ACCEPTED
2	Oil pump with heat exchanger	SUPPLIER	ACCEPTED
3	Cooling oil for the machine	SUPPLIER	ACCEPTED
4	Space for load bank	SUPPLIER	ACCEPTED
5	Available instruments and vibration data logger	SUPPLIER	ACCEPTED
6	Technical support and man power for performing test	SUPPLIER	ACCEPTED
7	Electrical supply 3-phase, 415 VAC, 50 Hz	SUPPLIER	ACCEPTED
8	Clean. Moisture free compressed air 5-6 bar	SUPPLIER	ACCEPTED
9	Civil constructions, cable trenching etc.	SUPPLIER	ACCEPTED
10	Separate electrical earthing as per manufacturer recommendation	SUPPLIER	ACCEPTED
11	Termination of electrical supply Up to electrical panel	SUPPLIER	ACCEPTED
12	Maintenance of supplier equipment(provided by GE, Dynaspade&Vel Tech) and space (Sl No. 1 - 11)	SUPPLIER	ACCEPTED
13	GE Aviation electrical machine	GE	ACCEPTED



14	Pre-test unit	GE	ACCEPTED
15	Mounting fixture and adaptor	GE	ACCEPTED
16	Additional Instrumentation	GE	ACCEPTED
17	Data Acquisition system	GE	ACCEPTED
18	Load bank with controls	GE	ACCEPTED
19	Inverter Power supply to exciter	GE	ACCEPTED
20	Oil channels and connectors for oil circulation	GE	ACCEPTED
21	Electrical installation with cables	GE	ACCEPTED

Services to be rendered by Service Provider:

Test facility with drive stand, Oil pump system, space for GE Equipment and technical support and manpower for performing testing.

1. Drive stand with 350 KW and 20000 rpm.
2. Oil pump system with heat exchanger.
3. Space for load bank.
4. Technical support and man power for performing testing.
5. Maintenance of GE equipment and space.
6. Civil constructions, cable trenching etc.
7. Available instruments

Price and Payment terms:

Total Price for this renting of infrastructure including manpower support for rig operations is Rs 55,38,000.

Payment Terms: Advance of Rs 200,000 against a proforma Invoice and balance 5,338,000 to be paid against RA bill for 15 months till Dec 2019 with each RA Bill amounting to Rs355855.67.

Deliverables to be provided by Service Provider Include: As set forth in the above TABLE Objective/Scope of Services to be performed to be paid for against actual services.

Due Dates: Contract will be effective from 1st Oct 2018 and will be valid for 15 months up to 31st Dec 2019

List of Facilities and Amenities to be provided to GEIPL:

1. Test Rig with the specification mentioned in the Objective/Scope of Services to be performed
2. Dedicated Security guard
3. CCTV Camera
4. Uninterrupted Power supply during testing
5. Almirah and a room with lock and key for keeping GE material in safe custody
6. Safe Space for Load bank

To be filled by Supplier

List of Service Provider's Employees having access to Facility and Amenities provided to GEIPL:

Service Provider Project Manager:

Telephone: 9940024007

Dr P Sarasu

Director Industry Relations, Professor, Dept. of Computer Science Engineering
Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology

Dr B L Jaiswal,

Professor, Dept. of Aeronautical Engineering,
Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology

Mr R Gopikaramanan
Assistant Professor, Dept. of Electrical & Electronics Engineering,
Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology

Mr G Dillibabu,
Project Associate, Dept. of Aeronautical Engineering,
Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology

Mr M A Saleem Nawaz,
Project Associate, Dept. of Electronics and Communication Engineering,
Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology

Address:
No.42, Avadi-Vel Tech Road,
Avadi, Chennai – 600 062,
Tamil Nadu, India.

E-mail: dindoffice@veltech.edu.in

GEIPL Project Manager: S Balamurugan
Address:GEIPL,122, EPIP, Phase 2,
Hoodi Village, Whitefield Road
EPIP Bangalore 560066
Karnataka

Telephone: +919980089998

E-mail:Balamurugan.shidharan@ge.com

IN WITNESS WHEREOF, the parties hereto have caused this Schedule to be executed by their duly authorized officers or representatives.

GE INDIA TECHNOLOGY CNETRE

VEL TECH UNIVERSITY

By: For GE India Industrial Private Lim
Authorized Signature

By: [Signature]
Authorized Signature

VIVEK KAUL
Print Name Vivek Kaul
Senior Sourcing Lead
SITE SOURCING LEADER, GEIPL

Dr E Kannan
Print Name [Signature]
Registrar, Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology

Title
01st Oct 2018

Date

Title
01st Oct 2018

Date

Attachment C

Environment Health and Safety Requirements

Purpose

The purpose of this document is to establish Environmental Health and Safety (EHS) requirements for GE Aviation employees working in sites, where the work environment is not controlled by GE. These requirements help to ensure employee safety and protection of the environment while performing work at customer, vendor and GE project/service sites, hereafter referred to as "field sites".

1. Requirements:

1.1 GE personnel shall ensure & verify that required training has been completed prior to mobilization to a field site.

1.2 GE personnel performing work activities that required additional training as defined by the site or GE policies, procedures, or safety risk assessments shall complete all required training prior to beginning those activities.

2. Minimum Personal Protective equipment requirements for Field Sites

GE EHS has established standard minimum Personal Protective Equipment (PPE) requirements for employees working and touring field sites. Additional PPE may be required as defined by the site owner and/or specific work activities to be performed, which shall be provided by the respective site owner before start of the job.

GE personnel working, and touring field sites shall wear safety glasses with side shields and safety shoes while in manufacturing, assembly, production, service, laboratory, construction & project areas (all locations other than offices). Closed-toed shoes may be substituted for safety shoes only in clearly delineated aisles where foot hazards have been evaluated and found to be adequately controlled without use of safety shoes.

GE personnel involved with activities that require additional PPE as defined by the field site, safety risk assessments, signage, etc. shall wear all required PPE for the duration of those activities, which shall be provided by the respective site owner.

3. Initial Contact with Field site (Does not apply to escorted tours)

Some field sites have specific EHS requirements for training, certification, equipment, medical clearance, orientation, etc... beyond those normally required by GE. Information obtained during initial contact with the field site is necessary to ensure the safety of GE personnel while on-site before pre-mobilization.

Requirements:

3.1 GE personnel shall contact a representative at the field site to identify any site-specific EHS requirements and/or highly hazardous activities at the site prior to mobilization to the site.

3.2 Prior to mobilization, GE personnel shall make arrangements to obtain any additional training, equipment, certification, medical clearance, etc. if provisions will not be available at the site.

4. Pre-Mobilization (Does not apply to escorted tours)

Some field sites present EHS conditions that require the proactive involvement of GE professionals to ensure that regulatory requirements are met, and risk is adequately controlled. Site owner shall communicate any such requirements well in advance to the GE personal.

5. Site-Specific Permit to Work System (Does not apply to escorted tours)

In order to control certain activities and ensure that work is performed safely, many field sites require to have a permit to work. In some cases, permits are required only for higher-risk activities such as hot work (welding, cutting, brazing), excavations, confined space entry, electrical work, Lockout/Tagout, crane operation, etc. Other sites may require a permit for all work regardless of risk or activity. GE recommends the field site owner to control all activities through a Permit to work system, as GE personal is not aware about various conditions of the



work environment and the protocols to be followed. This will educate and protect GE employees from any adverse safety aspects. The purpose of the permit system is to:

Ensure that activities and authorizations are reviewed in a coordinated manner prior to work,
Identify higher-risk activities and their respective hazards and controls,
Allow the issuer to verify the competency of the personnel, who will carry out the work and track their activities,
Enable the issuer to track and coordinate activities at the site, and
Establish conditions and requirements for certain work activities as agreed upon by the issuer and recipient.

Requirements:

5.1 GE personnel shall understand and comply with any site-specific Permit to work systems prior to initiating work activities at field sites.

5.2 Changes to the scope of work rendering the Permit to Work inaccurate shall be immediately identified and brought to the attention of the permit issuer so that the permit can be modified as necessary before continuation of the work activities.

6. EHS Event Reporting

Timely reporting of EHS events/concerns is critical to ensure an appropriate response. Certain types of events must be reported immediately so that risk to other personnel and compliance obligations can be managed.

Requirements:

GE personnel shall immediately contact their manager and GE EHS leader if any of the following occur under GE's scope of work. Immediately, in this context means as soon as a person has identified such an event has occurred or is occurring.

- EHS Event including injury, illness, fatality, regulatory inspection, chemical spill, permit exceedance, or significant property/equipment damage.
- Emergency such as fire, explosion, natural disaster, security threat, etc.
- Near Miss
- Field site owner concerns regarding GE's EHS performance
- GE personnel shall report any concerns about a vendor's compliance with local laws and/or GE standards governing labor, environment, health and safety
- GE personnel shall stop work and inform the site representative and their GE Manager if at any time they feel that work or tours at a field site cannot proceed safely.



**PHD AWARDED AND
JRF/SRF/RESEARCH
ASSOCIATES**

List of Ph.D Awarded:-

S.No	Name of the Ph.D. Scholar	Dept	Name of the guide-s	Title of the thesis	Year of registration of the scholar	Year of award of Ph. D.	Year of award of DD-MM-YYYY
1	Mr.N.Sudha kar Reddy	ECE	Dr. K.SiddappaNaidu	Artificial Bee Colony Based Smart Ultra Disc Antenna Clustering For Improving Signal To Noise Ratio	21-09-2009	2017	24.07.2017
2	Hemanth Chakravarti	CSE	Dr E Kannan	Hybrid Elliptical Curve Cryptography Based Secured Cloud Using Mobile Ant Agent	15/09/2009	2017	2.12.2016
3	Mahesh. C	CSE	Dr E Kannan	A Novel Approach For Diagnosing Hepatitis Viruses Using Generalized Regression Neural Network	21-09-2009	2017	18.11.2016
4	Sasikala G	ECE	Dr Siddappa Naidu	Implementation of Efficient Improved Median order Filter For Salt And Pepper Noise In Video Surveillance Applications	24-11-2009	2017	30.12.2016
5	Kavitha. M	CSE	Dr E Kannan	Improved Methodologies For 2d To 3d Stereoscopic Video Conversion	24-11-2009	2017	24.11.2016

6	Jeevanandam.J	CSE	Dr Koteeswaran S	An optimization of Polarity Classification For Sentiment Analysis Using Metaheuristic Fitness Function	10/12/2011	2017	5.12.2016
7	S Nagarajan	CHEMISTRY	Dr K Elango	Synthesis And Characterization of Reusable 1-Alkyl-1,2,4-Triazolium Salt Based Brønsted Acidic Ionic Liquids And Their Applications In organic Transformation As Catalyst	05.11.2012	2017	08.10.2016
8	Mr. Sukumaran	MATHS	Dr. S.Udhaya baskaran	Transient And Steady-State Analysis of Some Queuing Systems	15-09-2009	2017	10.07.2017
9	Mrs. Garimella Uma Papa	EEE	Dr. S.Baskar	Control Strategies of Load Frequency Control For Interconnected Power Systems	16-09-2009	2017	12.08.2017
10	S.C.Premila	MATHS	Dr.S.Srinivasa Raghavan	Contributions To The Study of Stochastic Models In Hiv Transmission	28-02-2010	2017	16.05.2017
11	Mrs. J Jospin Jeya	CSE	Dr. E.Kannan	on Demand Secure Transfer of outsourced File With Integrity Verification In Cloud Environment	24-11-2009	2017	04.10.2017
12	Mrs. P.Kavitha Rani	CSE	Dr. E.Kannan	Hybrid Routing Model For Multihop Heterogeneous	20-09-2010	2017	09.06.2017

				Wireless Sensor Networks			
13	M.J.Carmel Mary Belinda	CSE	Dr. E.Kannan	An Efficient Cloud Based Routing Models For Smart Device In Wireless Human Area Network	20-09-2010	2017	03.10.2017
14	Mr. N. Dilip Raja	MECH	Dr. R.Velu	Analysis on Mechanical, Metallurgical And Corrosion Properties of Friction Stir Welded Aa6061+Sicp Metal Matrix Composite	24-11-2009	2017	27.12.2017
15	Mr. Korolapate Bhaskar	EEE	Dr. K.SiddappaNaidu	Studies on Photovoltaic Power System For Charging The Power Sources	03-10-2011	2017	30.10.2017
16	Mrs. R. Kavitha	CSE	Dr. E.Kannan	Efficient And Effective Classification Methods For Predicting Heart Disease	15-07-2011	2017	07.12.2017
17	Mrs. R.Geetha	CSE	Dr. E.Kannan	A Secure Communication Scheme Using Hybrid Key Management Technique For Wireless Sensor Networks	07-05-2012	2017	13.04.2017
18	Mr.Tukaram A. Chavan	CSE	Dr. P.Sarasu	Provisioning of Quality of Service In Next Generation	05-11-2012	2017	27.05.2017

				Wireless Mobile Networks			
19	Mr.Vijaykumar S.Bidve	CSE	Dr. P.Sarasu	Coupling Measurement In object-oriented Systems And Its Impact on Software Quality	05-11-2012	2017	03.03.2017
20	Mr. S SivaPerumal	ECE	Dr. V.Sunderapandian	Global Synchronization Schemes For Chaotic And Hyper Chaotic Systems Via Novel Sliding Mode Control For Communication Engineering	24-12-2013	2017	18.05.2017
21	Mr. S. Muthu Kumar	MECH	Dr. R. Mariappan	Experimental Investigation on Dry Sliding Characterization of Aa6061 Hybrid Composites Sintered And Aged Conditions	24-11-2009	2018	26.05.2018
22	Mr. P.K. Mani	EEE	Dr. K.SiddappaNaidu	Development of Custom Power Devices For Power Quality Improvement Using Fuzzy Logic Controller	20-09-2010	2018	29.12.2018
23	Mr. M. Karthikeyan	EEE	Dr. Karunanidhi	Indoor And outdoor Navigation For Blind Person Through Raspberry Pi Camera And Novel Shift Algorithms In Fog Computing	03-10-2011	2018	17.12.2018

24	Mrs. Dora Pravina C.T.	MATHS	Dr. S.Udhaya Baskaran	Contributions To The Transient And Steady-State Studies of Some Queueing Systems	26-07-2011	2018	05.04.2018
25	Mr.P. Chandrakumar	MECH	Dr. A T Ravichandran	Investigations on Enhancing The Interfacial Strength of Glass - Epoxy Composites Using Zno Nanowires	10-12-2011	2018	26.05.2018
26	Mr. Kothandaraman. M	MATHS	Dr. S.Udhaya Baskaran	Contributions To The Study of Stochastic Inventory Systems	26-07-2011	2018	28.03.2018
27	Ms. Neeba E A	CSE	Dr.S.Koteswaran	An Effective optimization Technique For optimistic Classification And Clustering on Heterogeneous Medical Data Source	06-08-2012	2018	27.10.2018
28	Mr. J.M. Babu	MECH	Dr. R.Velu	Experimental Investigation on The Effect of Injection Pressure on Engine Performance And Emissions When operated With Hho Gas Along With Cotton Seed Biodiesel	06-08-2012	2018	10.03.2018
29	Mr. J. Naresh Kumar	MATHS	Dr. R. Suresh	Complexity And Stability Analysis of Anopheles Mosquito Life Cycle - A Study By Mathematical Modeling	06-05-2013	2018	14.05.2018

30	Mr. Mohan Koppola	ECE	Dr. P. ChandraSekar	An Improved object-Face Liveness Detection With Combined Local Feature Descriptors Using Hybrid Svm – Fuzzy Logic Classifier For Biometric Authentication System	24-12-2013	2018	02.11.2018
31	Mr.Colonel Shabbar Shadid	MBA	Mrs. B.JayaPrabha	Influence of The Risk Factors In Monetary Policy on Industrial Growth In India	24-12-2013	2018	24.02.2018
32	Ms. A Singara Rajiva Lochana	CSE	Dr. K Arthi	Congestion And Contention Management In over Looped 2d Mesh Topology For Network on Chip	15-07-2011	2019	10.08.2019
33	Mrs. V Keerthika	CSE	Dr. N Malarvizhi	Weighted Trust Route optimization Algorithms To Mitigate Black Hole Attack In Mobile Ad Hoc Network	03-11-2011	2019	30.05.2019
34	Mrs. P. Selvarani	CSE	Dr. N Malarvizhi	Secure And Privacy Enhanced Multimodal Biometric Based User Authentication In Cloud Paradigm	10-12-2011	2019	27.05.2019
35	Mrs. G Soniya Priyatharsini	CSE	Dr. N Malarvizhi	A Novel Framework For Cloud Environment With Enhanced Energy Efficiency And optimized	10-12-2011	2019	08.06.2019

				Resource Utilization			
36	Mr. A.N. Arularasan	CSE	Dr. S. Koteeswaran	Domain Specific Information Hub Classification For Viral Marketing In Social Networks	10-12-2011	2019	26.04.2019
37	Mr. Deore Brijesh Madhukar	MBA	Dr. B. Jeyaprabha	To Study The Role of Vocational Education And Skill Development Program In Creating Entrepreneurship Development In Western Maharashtra	05-11-2012	2019	02.08.2019
38	Mr. Karthikeyan k	EEE	Dr. P K Dhal	Investigation of Power System Stability Improvement Using optimization Techniques	07-05-2012	2019	13.07.2019
39	Mr. K Chokkanathan	CSE	Dr. S. Koteeswaran	An Efficient Network Traffic Data Analysis Using Enhanced Clustering And Classification Algorithms	06-08-2012	2019	13.07.2019
40	Mr. R Srinivasan	CSE	Dr. E.Kannan	Energy Efficient Routing Protocol For Resource Starving And Energy Harvesting In Wireless Sensor Network	06-08-2012	2019	05.07.2019
41	Mr. A K Sampath	CSE	Dr. N Gomathi	Probabilistic Model Based Hybrid Classifier For Handwritten	06-05-2013	2019	13.07.2019

				Character Recognition			
42	Mr. Vejendla Lakshman Narayana	CSE	Dr. C.R. Bharathi	Enhanced Identity Based Cryptography For Mobile Ad-Hoc Networks	03-01-2014	2019	15.07.2019
43	Mr. Nipanikar Sanjaykumar IndrajitRao	ECE	Dr. V Hima Deepthi	optimization-Based Pixel Selection For Effective Medical Image Steganography In Secure Data Communication	01-02-2014	2019	29.04.2019
44	Mr. Jagannath E Nalavade	CSE	Dr. T. Senthil Murugan	Stream Data Classification Using Holoentropy Based Soft Computing Techniques	05-04-2014	2019	23.01.2019
45	Mr. V. Vijayakumar	CHEMISTRY	Dr. C. Ramesh Kumar	Synthesis, Characterization And Evaluation of Polybenzimidazole (Pbi) Based Polymers And Diamide Based Extractants For Nuclear Materials Processing	24-05-2015	2019	25.05.2019
46	Mr. V P Senthil	PHY	Dr. J. Gajendiran	Synthesis And Characterization of Nanocrystalline Cobalt Ferrite And Cobalt Ferrite - Bismuth Ferrite	08-08-2015	2019	13.07.2019
47	Mr. D Rajamani	MECH	Dr. E Balasubramanian	Experimental Investigations And Parametric optimization of Selective	14-05-2016	2019	22.06.2019

				Inhibition Sintering Process			
48	Mr. C Balamurugan	CSE	Dr Koteeswaran S	Smart and Secure IoT based Health Care Monitoring Scheme in Medical Sector	03-10-2011	2020	22.02.2020
49	Mr. S Jayavelu	MECH	Dr J Udhayaprakash	Investigations on Micro-Structural and Mechanical Properties of Sintered Hybrid Metal Matrix Composites	07-05-2012	2020	30.07.2020
50	Mrs. B Saroja	ECE	Dr A.Selvin Mich Priyadharson	Detection of Colon Cancer for Biopsy Samples using Adaptive Pillar K-means Clustering	04-08-2013	2020	11.08.2020
51	Mr. G Rajesh	ECE	Dr A.Selvin Mich Priyadharson	Detection and Classification of Liver Cancer using Hierarchical Feature Fusion Mechanism	04-08-2013	2020	09.10.2020
52	Mrs.Swapna S	EEE	Dr P Chandrasekar	Characteristics of Bridgeless Boost Converter FED BLDCM and Improvement of PF using under Different Loads	24-12-2013	2020	19.10.2020
53	Mr. Rajeev Kumar	CSE	Dr K Arthi	Non-Cooperative Iris Recognition using Local Ternary Pattern and Hierarchical Collaborative Representation Based Classification	24-12-2013	2020	03.09.2020

54	Mr. Hemakumar V S	ECE	Dr P Suresh	Performance Analysis of Zinc Oxide Coated on Different Substrates for Energy Harvesting and Damage Detection in Fiber Composite	06-05-2013	2020	10.02.2020
55	Mr. C. Rajkumar	MECH	Dr J Udhayaprakash	Investigations on Duplex Stainless Steels Sintered and Forged under Partial Vacuum and Hydrogen Atmosphere	01-02-2014	2020	24.06.2020
56	Mrs. D Kanagajothi	MATHS	Dr S Srinivasa Ragavan	Stochastic Models for the Analysis of Inventory Systems	05-04-2014	2020	12.11.2019
57	Mr. Parthiban S	CSE	Dr S Srinivasa Ragavan	Efficient Content Based Image Classification and Retrieval Process with Integrated Denoising Block	26-07-2014	2020	28.12.2019
58	Mr. Samana Prakash	EEE	Dr K Karunanithi	Investigations on Transmission Expansion Planning in Deregulated Power System	26-07-2014	2020	22.07.2020
59	Ms. K S Deeparani	MBA	Dr B Jeyaprabha	Impact of Risk on Underpricing of IPO: An Empirical Study with Reference to Indian Stock Market	24-05-2015	2020	30.01.2020
60	Mr. Vijayaraj N	CSE	Dr G R Kanagachidambaresan	Dynamic Resource Allocation Schemes in Cloud Based on Bidding	08-08-2015	2020	15.10.2020

				and Control Strategies			
61	Mr. N. Shunmuga Karpagam	CSE	Dr S Srinivasa Ragavan	Optimized Feature Selection Based on Artificial Bee Colony for Automated Alzheimer Disease Diagnosis System	14-05-2016	2020	03.01.2020
62	Mr. John T Mesia Dhas	CSE	Dr Bharathi C R	Modern Metrics (MM): Function Point Based Size Estimation Technique for Modern Software	13-08-2016	2020	12.10.2019
63	Mr. Amit Sarkar	CSE	Dr T Senthilmugan	Firefly with Cyclic Randomization for Cluster Head Selection in Wireless Sensor Network	13-08-2016	2020	13.08.2019
64	Mr. Vivek Vishwanath Jog	CSE	Dr N R Rajalakshmi	Intelligent Multilevel Authentication and Authorization Protocol (IMA2P) with Modified Hashing Technique for IoT	11-12-2016	2020	21.08.2020
65	Mr. Battula Rajanna Sammaiah	ECE	Dr P Chandrasekar	Cooperative Relay Selection and Power Allocation Optimization in Emergency Communication System	12-11-2016	2020	19.10.2020
66	Mr. D Mahammad Rafi	CSE	Dr Bharathi C R	Medical Data Classification using Modified Group Search Optimizer Algorithm and	05-04-2014	2020	28.03.2020

				Hybrid Adaboost KNN Classification			
67	Mr. Karlekar Nandkishor P	CSE	Dr Gomathi N	Optimization Driven Privacy Protection and Medical Data Classification in the Cloud Environment	05-04-2014	2020	08.07.2020
68	Mrs. R Kala	MATHS	Dr R Suresh	Mathematical Models for Analysis of Nitrogen Mass Cycle	05-04-2014	2020	07.03.2020
69	Mr. Waykar Sanjay Bajaba	CSE	Dr Bharathi C R	Probability Extended Nearest Neighbor Classifier with Adaptive Grey Wolf Optimizer for Content Based Lecture Video Retrieval	05-04-2014	2020	15.10.2020
70	Mr. G. Dharmalingam	MECH	Dr S Prabhukumar	Development of 17Cr Ferritic ODS Steel through Vacuum Hot Pressing for High Temperature Applications	28-08-2014	2020	29.07.2020
71	Mr. M Regan	MATHS	Dr R Suresh	Entanglement and Immutability Analysis of HIV Affected Population - A Study by Mathematical Modeling	26-07-2014	2020	30.07.2020
72	Mr. Jaganraj R	AERO	Dr A T Ravichandran	Robust Model Reference Fault Diagnosis for Fault	26-07-2014	2020	16.08.2019

				tolerant Flight Control System			
73	Ms. Saranya P	ENGLISH	Dr. R. Udhaya Kumar	Trauma and Triumph of Migrant Women in the Novels of Bharati Mukherjee	11-10-2014	2020	10.02.2020
74	Mrs. S H Kavya	CHEMISTRY	Dr C Hazarath aiah Yadav	Synthesis and Characterization of Metal and MetalOxide Nanoparticles using 1,2,4-Triazolium based Ionic Liquids and its Application in Organic Transformations	11-10-2014	2020	08.02.2020
75	Mr. K Sathish Kumar	MATHS	Dr R Suresh	Synchronization of Delay Chaotic Neural Networks using Adaptive Feedback Control	31-01-2015	2020	27.01.2020
76	Mr. K Karthik	MECH	Dr D Rajamani	Studies on Mechanical Vibration and Wear Behaviour of Hybrid Polymer Matrix Composites	13-05-2015	2020	16.10.2020
77	Mr. M Venkatasud hahar	MECH	Dr A T Ravichan dran	Experimental Investigation of Chemically Treated Natural Fiber and Synthetic Fiber Reinforced Hybrid composites	24-05-2015	2020	26.12.2019
78	Mr. B Siddeswara Rao	MECH	Dr M.Amalaj ustus Selvam	Performance and Emission Characteristics of a Four Stroke Di Diesel Engine	08-08-2015	2020	16.08.2019

				Fueled with Different Biodiesel Blends and Nano Fluids			
79	Mr. K Raja	MECH	Dr M.Amalajustus Selvam	Study on Performance and Emission Characteristics of Four Stroke Spark Ignition Engine Through Intake Manifold Modification	08-08-2015	2020	28.03.2020
80	Mr. K.V. Srinivasan	MECH	Dr M Arulprakasajothi	Development of Porous Regenerator for Stirling Cryocooler using Additive Manufacturing Techniques	20-09-2015	2020	10.08.2020
81	Mrs. S. Sreelakshmi	MATHEMATICS	Dr. S. Udayabaskaran	Studies on some Two-Stage Stochastic Models of Carcinogenesis	3-10-2011	2021	30.09.2021
82	Mr. P Suresh	CSE	Dr S Koteeswaran	IoT Enabled Smart Irrigation and Cultivation Recommendation System for Precision Agriculture	15-07-2011	2021	29.05.2021
83	Mrs. C. Sarala Rubi	PHYSICS	Dr. J. Udaya Prakash	Optimization of Process Parameters in Drilling of Hybrid Aluminium Matrix Composites	10-12-2011	2021	16.09.2021
84	Mr. Anil G L	ECE	Dr. Mazher Iqbal J L	Implementation of Secure and Energy Efficient Routing Protocol in WSN using Search and Distributed	15-07-2011	2021	09.10.2021

				Algorithms Hybridization			
85	Mrs. V Mala	CSE	Dr. K. Meena	Hybrid classification and Probabilistic Sparse Fuzzy C Means Clustering Models for Intrusion Detection	6-8-2012	2021	17.5.2021
86	Mrs. Veena K	CSE	Dr. K Meena	Detection of Cybercrime using Conventional Methods and Machine Learning Techniques	7-5-2012	2021	18.11.2020
87	Mr. M. Srinivasan	CSE	Dr. S. Koteeswaran	An Intelligent and Dynamic Ride-Sharing Service, Minimizing Economic and Environmental Impacts for Urban Transportation Scenario	6-8-2012	2021	10.04.2021
88	Mr. N. Rajkumar	CSE	Dr. E. Kannan	Security Enhancement for Collusion Resistance in Group based Cloud Data Sharing using Key Management Technique	4-8-2013	2021	06.09.2021
89	Mr. Senthil Kumar N.K.	CSE	Dr. N. Malarvizhi	Sentiment Classification using Convolutional Neural Networks and Bi-Directional Long Short Term	4-8-2013	2021	03.09.2021

				Memory with Part of Speech Tagging			
90	Mr. S. Sivakumar	EEE	Dr. S. Baskar	Design and Development of Smart Energy Management System using IoT with Cyber Security and GSM for Hybrid Power Generation	4-8-2013	2021	05.09.2021
91	Mrs. A Maheswary	ECE	Dr S. Baskar	Diagrammatic Cipher Encryption for Manets	24-12-2013	2021	04.08.2021
92	Mrs. Sreelakshmy R	ECE	Dr. L. Balaji	Design and Analysis of Low Profile Wearable Antennas using Flexible and Non-Flexible Substrates	24-12-2013	2021	24.03.2021
93	Mr. K. Praveen Kumar Rao	CSE	Dr R Kavitha	Performance Improvement in TCP Based on Smart Acknowledgement Distributed Channel Access and Congestion Control Techniques for MANET	3-1-2014	2021	28.11.2020
94	Mr.Arvind Madhukar Jagtap	CSE	Dr. N. Gomathi	Energy Efficient Movement for Target Coverage and Network Connectivity in Mobile Sensor Networks for Crop Weed Classification	1-2-2014	2021	15.07.2021

95	Mr. Amolkumar N Jadhav	CSE	Dr. Gomathi N	Design and Development of Kernel-Based Data Clustering Algorithms using Hybrid Optimization Methods	1-2-2014	2021	18.10.2021
96	Mr. Wagh Mukund Baburao	CSE	Dr. Gomathi N	Design and Development of Optimization based Route Discovery Phase for Effective Routing in VANET	1-2-2014	2021	23.09.2021
97	Mr. Yogesh Raghunath Kulkarni	CSE	Dr M J Carmel Mary Belinda	Collaborative Data Publishing Based on C-Mixture and Optimization Algorithm	5-4-2014	2021	02.12.2020
98	Mr. D Venkata Ramana	EEE	Dr. P. Chandrasekar	Development of an Early Diagnosis System for External Faults on Three Phase Inverter Fed Induction Motor Drive	5-4-2014	2021	27.08.2021
99	Mrs. Aswathy Rh	CSE	Dr. N. Malarvizhi	An IoT Based Multiphase Identity Authentication Model for E-Health Monitoring System	5-4-2014	2021	07.10.2021
100	Mr. Sathyaseelan	MECH	Dr. S. Prabhukumar	Mechanical and Thermal Characterization of ARECA-KENAF Fiber Reinforced Hybrid Epoxy Composite	24-5-2015	2021	09.02.2021

101	Mrs.N. Nagadevi Bala	MATHS	Dr. R. Suresh	A Novel Study on Mathematical Models of Plasmodium Life Cycle in Human Hepatocyte and Mosquito Midgut	8-8-2015	2021	31.03.2021
102	Mr.Surendar G	AERO	Dr. E. Balasubramanian	Conceptualization and Evaluation of Unmanned Amphibious Aerial Vehicle for Water Quality Assessment	14-11-2015	2021	30.04.2021
103	Mr. N.V.S.S. Sagar	MECH	Dr. E. Balasubramanian	Design of Monocoque Quadcopter Structure through Integration of Topology Optimization and Additive Manufacturing	14-11-2015	2021	22.04.2021
104	Mr.Arun Prasad	MECH	Dr. E. Pavithra	Development and Investigation of Oxide Dispersion Strengthened 21-4N ASS for High Temperature Applications	13-2-2016	2021	09.11.2020
105	Mr.Madhusudhana Reddy B	MECH	Dr. Anand P	Development of AL 5056 - CNT Nano Composite and Process Parameter Optimization in the Wire Electrical Discharge Machining	13-2-2016	2021	17.09.2021
106	Mr. T.Raja	MECH	Dr. P. Anand	Experimental Investigations on Neem-Banyan Fiber Reinforced Saw Dust Particulated Hybrid	14-5-2016	2021	18.12.2020

				Polymer Composite			
107	Mr. R. Sanmuga Sundaram	ECE	Dr. S. Natarajan	Design and Development of Electromagnetic Bandgap Structure based Antennas for UWB-ISM Band Applications	13-8-2016	2021	21.07.2021
108	Mr. Shailendra Kumar Mishra	ECE	Dr. Hiran Kumar Singh	Brain Tumor Classification by the combination of Different Wavelet Transforms and Support Vector Machine	13-8-2016	2021	05.08.2021
109	Mr. Madhu B	MECH	Dr. E. Balasubramanian	Experimental Approach on Improving the Yield of Fresh Water in Solar Stills	13-8-2016	2021	28.04.2021
110	Mr. Syed Riyaz Ahammed	MECH	Dr. A S Praveen	3D Printing of Multiwalled Carbon Nanotube-Polyvinyl Alcohol Composites for Electronic Circuit Applications	4-6-2017	2021	08.10.2021
111	Mr. Ajaj Rashid Attar	MECH	Dr. M. Arulprakasajothi	Design and Development of Steam Community Cooking System, Integrating Reliable and Low-Cost Solar System	4-6-2017	2021	28.10.2021
112	Mr. R Ramesh Kumar	MECH	Dr. J.M. Babu	Investigation on Mechanical Strength and Joint Behaviour of Friction Welding Process by using	4-6-2017	2021	01.10.2021

				Ti-6Al-4V and SS304L			
113	Mr. Murali Kalipindi	ECE	Dr. Sivaperumal S	Parametric Analysis of Power domain NOMA in Wireless 5G Communications	20-9-2017	2021	18.09.2021
114	Mr. Wondwossen Astatike Haile	EEE	Dr. Chandrasekar P	Evaluation and Mitigation of Power Quality Problems in the Ethiopian Electric Power Supply System	10-11-2017	2021	07.06.2021
115	Mr. Jemal Aliy Gobena	CIVIL	Dr. G. Kumar	Evaluation of Strength Characteristics of Tropical Expansive Soil using Different Additives	10-11-2017	2021	25.08.2021
116	Mr. Tesfaye Kebede Ali	MECH	Dr. E. Balasubramanian	Experimental Investigations and Optimization Studies for Enhancing Compressive and Impact Strengths of SIS Parts	10-11-2017	2021	22.07.2021
117	Mr. Mesfin Sisay Mengesha	MECH	Dr. E. Balasubramanian	Experimental Investigations on Surface Roughness and Fatigue Strength Characteristics of Inhibition Sintered Polyamide 12 Parts	10-11-2017	2021	23.04.2021
118	Mr. Rupesh P L	MECH	Dr. M. Arulprakasajothi	Isotherm Identification on the Surface of Gas Turbine Engine	12-11-2016	2021	29.04.2021

				Hot Components using Temperature Indicating Paint through Image Processing Algorithm			
119	Mrs. Prema S	ENGLISH	Dr. Aruna Arputham alar	Enunciating the Quest of the Indian Society: An Analysis of Sudha Murthy's Novels	25-6- 2018	202 1	29.09.2 021

List of JRF/SRF/ Research Associates:-

Sl.No	Name of the Research fellow	Year of enrolment	Duration of fellowship	Type of the fellowship	Granting agency
1	G.Dilibabu	2016-17	1 year	Junior Research Fellow (JRF)	Combat Vehicles Research and Development Establishment (CVRDE)
2	C. Ashok Kumar	2016-17	1 year	Junior Research Fellow (JRF)	Combat Vehicles Research and Development Establishment (CVRDE)
3	A.Sasitharan	2016-17	1 year	Junior Research Fellow (JRF)	Defence Research and Development Organisation (DRDO) SIGMA
4	K.Anantha kumar	2016-17	1 year	Junior Research Fellow (JRF)	Department of Science and Technology (DST) TSD
5	R.Guru	2016-17	1 year	Junior Research Fellow (JRF)	Department of Science and Technology (DST) SERB
6	M.Gowtham	2016-17	1 year	Junior Research Fellow (JRF)	Department of Science and Technology (DST) SERB
7	G.Bhuvaneshwaran	2016-17	2 years	Junior Research Fellow (JRF)	Department of Science and Technology (DST) GITA
8	S Sankarasrinivasan	2016-17	1 Year	Junior Research Fellow (JRF)	Department of Sceince and Technology(DST)GITA
9	D Rajamani	2016-17	1 Year	Junior Research Fellow (JRF)	Defence Research Development Organaisation (DRDO) ARMREB
10	V.Vijayakumar	2016-17	1 year	Junior Research Fellow (JRF)	Department of Automic Engery UGC DAE

11	A.Stalin	2016-17	1 year	Junior Research Fellow (JRF)	Department of Science and Technology(DST)TSD
12	C.Gowri shankar	2016-17	1 year	Junior Research Fellow (JRF)	Science Engineering Research Board (SERB)
13	Bhaskar Mukherjee	2016-17	2 years	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Avancee (CEFIPRA)
14	G.Madhana gopal	2016-17	1 year	Junior Research Fellow (JRF)	Defence Research Development Organisation (DRDO) ARMREB
15	R.Sundarmahesh	2016-17	1 year	Junior Research Fellow (JRF)	Science Engineering Research Board (SERB)
16	P.Ssheshan	2016-17	1 year	Junior Research Fellow (JRF)	Science Engineering Research Board (SERB)
17	Haran Pragalath	2016-17	3 Years	Post Doctrate Fellow	Department of Science and Technology (DST) IC IMPACT
18	P.Arun Kumar	2016-17	3 Years	Junior Research Fellow (JRF)	Department of Science and Technology(DST) EQUITY
19	R.Manivannan	2017-18	1 year	Junior Research Fellow (JRF)	Defence Research and Development Organisation (DRDO) ARMREB
20	G.Rajesh	2017-18	1year	Junior Research Fellow (JRF)	Department of Science and Technology (DST) SERB
21	P.D.Saravanan	2017-18	1 year	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Avancee (CEFIPRA)
22	P.Vikram	2017-18	3 years	Junior Research Fellow (JRF)	Department of Science and Technology(DST)

23	Rachel Jeeva Light	2017-18	3 years	Junior Research Fellow (JRF)	Indian Space Research Organisation (ISRO)
24	Mrs.Divya	2017-18	1 year	Junior Research Fellow (JRF)	Indian Council of Social Science Research (ICSSR)
25	Akshaya Ramesh	2017-18	3 years	Research Scholar	Vel Tech
26	S.H.Kavya	2017-18	3 years	Research Scholar	Vel Tech
27	V.Vijaya Kumar	2017-18	3 years	Research Scholar	Vel Tech
28	Pavan.M.Chandankan	2017-18	3 years	Research Scholar	Vel Tech
29	Akshya Ramesh	2017-18	3 years	Research Scholar	Vel Tech
30	Pavan Marotrao Chandankar	2017-18	3 years	Research Associate	Vel Tech
31	Wondwossen Astatike	2017-18	3 years	Research Associate	Vel Tech
32	Jemal Aliy Gobena	2017-18	3 years	Research Associate	Vel Tech
33	Solomon Abreham Tsega	2017-18	3 years	Research Associate	Vel Tech
34	Merry Hailu Gebretsadik	2017-18	3 years	Research Associate	Vel Tech
35	Tesfaye Kebede Ali	2017-18	3 years	Research Associate	Vel Tech
36	Mesfin Sisay Mengesha	2017-18	3 years	Research Associate	Vel Tech
37	Ajitha.A	2017-18	2 year	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Advancee (CEFIPRA)
38	Robin Samson	2017-18	2 year	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Advancee (CEFIPRA)
39	Sarath Babu	2017-18	2 year	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Advancee (CEFIPRA)
40	Dinesh	2017-18	2 year	Junior Research	Centre Franco-Indien Pour LA Promotion DE

				Fellow (JRF)	LA Recherche Advancee (CEFIPRA)
41	Jenil	2017-18	2 year	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Advancee (CEFIPRA)
42	Kumar	2017-18	2 year	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Advancee (CEFIPRA)
43	Suraj	2017-18	2 year	Junior Research Fellow (JRF)	Centre Franco-Indien Pour LA Promotion DE LA Recherche Advancee (CEFIPRA)
44	S Silambarasan	2017-18	3 Years	Senior Research Fellow (SRF)	Centre for Autonomous System Research (CASR)
45	Kirubakaran.V	2018-19	3 years	Research Associate	Vel Tech
46	Kalaiyarasi.P	2018-19	3 years	Research Associate	Vel Tech
47	Thamarai Selvi.M.d	2018-19	3 years	Research Scholar	Vel Tech
48	Shankar Kumar.S	2018-19	3 years	Research Scholar	Vel Tech
49	G.Dilibabu	2018-19	1.9 Years	Junior Research Fellow (JRF)	General Electrical India Pvt Ltd(GE)
50	M A Saleem Nawaz	2018-19	1.9 Years	Junior Research Fellow (JRF)	General Electrical India Pvt Ltd(GE)
51	Kirubakaran V	2018-19	3 years	Research Associate	Vel Tech
52	Lakshmi Anusha Kothamasu	2018-19	3 years	Research Associate	Vel Tech
53	Kalaierasi P	2018-19	3 years	Research Associate	Vel Tech
54	M.D.Thamarai Selvi	2018-19	3 years	Research Associate	Vel Tech
55	M.Lakshmi Priya	2018-19	3 years	Research Scholar	Vel Tech
56	Shankar Kumar S	2018-19	3 years	Research Associate	Vel Tech

57	V Anish	2018-19	3 years	Research Associate	Vel Tech
58	A.V.Anandhalekshmi	2018-19	3 years	Research Associate	Vel Tech
59	Vijaya Bhaskar K	2018-19	3 years	Research Associate	Vel Tech
60	Anand Kumar Kusuma	2018-19	3 years	Research Associate	Vel Tech
61	Sri Jamiya S	2018-19	3 years	Research Associate	Vel Tech
62	M. Pradeep	2018-19	3 years	Research Scholar	Vel Tech
63	D Mary Jiny	2018-19	3 years	Research Scholar	Vel Tech
64	L M Manova	2018-19	2 Years	Junior Research Fellow (JRF)	Department of Sceince and Technology(DST)IK GITA
65	V.Tamilselavan	2019-20	6 months	Junior Research Fellow (JRF)	Navel Science and Techology Lab (NSTL)
66	E. Elangovan	2019-20	3 years	Junior Research Fellow (JRF)	Indian Space Research Organaisation(ISRO)
67	P. Tamilarasan	2019-20	3 years	Senior Research Fellow (SRF)	Centre for Autonomous System Research (CASR)
68	Vaishak Raveendran	2019-20	2 Years	Junior Research Fellow (JRF)	Department of Sceince and Technology(DST)Agro Tech
69	P. Kavi	2019-20	3 Years	Junior Research Fellow (JRF)	Department of Bio-Technology(DBT) 2
70	Muthu Meenakshi	2019-20	2 Years	Junior Research Fellow (JRF)	Department of Bio-Technology(DBT) 3
71	Niranjan Kumar K A	2019-20	3 years	Research Scholar	Vel Tech
72	G.Muthumari	2019-20	3 years	Research Scholar	Vel Tech

73	Cici Jennifer Raj J	2019-20	3 years	Research Associate	Vel Tech
74	Nithyanandhan K	2019-20	3 years	Research Scholar	Vel Tech
75	Elavarasan K	2019-20	3 years	Research Scholar	Vel Tech
76	Ganesan V G	2019-20	3 years	Research Associate	Vel Tech
77	M Rajalakshmi	2019-20	3 years	Research Associate	Vel Tech
78	Thota Chaithanya	2019-20	3 years	Research Associate	Vel Tech
79	Parthiban Aravamudhan	2019-20	3 years	Research Associate	Vel Tech
80	Revathy M	2019-20	3 years	Research Scholar	Vel Tech
81	A Archana	2019-20	3 years	Research Scholar	Vel Tech
82	Divya .B	2019-20	3 years	Research Scholar	Vel Tech
83	Gayathri Devi M	2019-20	3 years	Research Scholar	Vel Tech
84	M. Jehosheba Margaret	2019-20	3 years	Research Associate	Vel Tech
85	Ebisa Asfaw Gemechu	2019-20	3 years	Research Associate	Vel Tech
86	Gemeda	2019-20	3 years	Research Associate	Vel Tech
87	J M Nazeer	2019-20	3 years	Research Associate	Vel Tech
88	Mwalimu Raphael Jilani	2019-20	3 years	Research Associate	Vel Tech
89	Collins Ndenga Shikali	2019-20	3 years	Research Associate	Vel Tech
90	G.Dilibabu	2020-21	1 year	Junior Research Fellow (JRF)	Hindustan Aeronautical Limited (HAL)
91	C. Ashok Kumar	2020-21	1 year	Junior Research Fellow (JRF)	Hindustan Aeronautical Limited (HAL)
92	Ashokram.S	2020-21	3 years	Research Associate	Vel Tech
93	Naresh Raj K L	2020-21	3 years	Research Associate	Vel Tech

94	Sowmiya	2020-21	3 years	Research Associate	Vel Tech
95	Divya R	2020-21	3 years	Research Associate	Vel Tech
96	P.Raja	2020-21	3 years	Research Associate	Vel Tech
97	N Revanth	2020-21	3 years	Research Associate	Vel Tech
98	R.Shruthi	2020-21	3 years	Research Scholar	Vel Tech
99	Madhusudhan R M	2020-21	3 years	Research Scholar	Vel Tech
100	N.Thenmozhi	2020-21	3 years	Research Scholar	Vel Tech
101	Preeta Brahma	2020-21	3 years	Research Scholar	Vel Tech
102	Tarek Al Musalli	2020-21	3 years	Research Associate	Vel Tech
103	Razan Alzein	2020-21	3 years	Research Associate	Vel Tech
104	Ali Younes	2020-21	3 years	Research Associate	Vel Tech
105	Qusay Sellat	2020-21	3 years	Research Associate	Vel Tech
106	Amer Tabbakh	2020-21	3 years	Research Associate	Vel Tech
107	Hazar Issa Wanous	2020-21	3 years	Research Associate	Vel Tech
108	Mahmoud Youness Murej	2020-21	3 years	Research Associate	Vel Tech
109	Batoul Aljaddouh	2020-21	3 years	Research Associate	Vel Tech
110	Karam Hammadeh	2020-21	3 years	Research Associate	Vel Tech
111	Shaher Dwik	2020-21	3 years	Research Associate	Vel Tech
112	Tarek Abyad	2020-21	3 years	Research Associate	Vel Tech
113	Wael Sawan	2020-21	3 years	Research Associate	Vel Tech
114	Eman Mohammed Said Almasry	2020-21	3 years	Research Associate	Vel Tech
115	Lamessa Oli	2020-21	3 years	Research Scholar	Vel Tech
116	Ashraf Omar Tajmeeh	2020-21	3 years	Research Scholar	Vel Tech

117	Sani Shuaibu Sagagi	2020-21	3 years	Research Associate	Vel Tech
118	Raid Alhamad	2020-21	3 years	Research Scholar	Vel Tech
119	Muhammad Aljaddou	2020-21	3 years	Research Scholar	Vel Tech
120	Demelash Misgana	2020-21	3 years	Research Scholar	Vel Tech
121	Azmach Desalegne	2020-21	3 years	Research Associate	Vel Tech
122	Dagneb Gebrehiwot	2020-21	3 years	Research Scholar	Vel Tech
123	Solomon Woldeamanuel Birru	2020-21	3 years	Research Associate	Vel Tech
124	Biniyam Aweke	2020-21	3 years	Research Scholar	Vel Tech
125	Aregawi Zeferu	2020-21	3 years	Research Scholar	Vel Tech
126	Abraham Teklehaimanot	2020-21	3 years	Research Associate	Vel Tech
127	Lidya Tesfaye Haile	2020-21	3 years	Research Associate	Vel Tech
128	Petros Melaku Yoseph	2020-21	3 years	Research Scholar	Vel Tech
129	Fikadu Asrat Argaw	2020-21	3 years	Research Associate	Vel Tech
130	Dereje Daksa Kenno	2020-21	3 years	Research Associate	Vel Tech
131	Ahmad Mohammad Aldarwish	2020-21	3 years	Research Scholar	Vel Tech
132	Yousef Ali Hasan	2020-21	3 years	Research Scholar	Vel Tech
133	Godfrey Anyembe	2020-21	3 years	Research Associate	Vel Tech
134	Bimerew Kerrie Tesfaw	2020-21	3 years	Research Associate	Vel Tech
135	Vinodh Kumar G	2020-21	3 years	Research Associate	Vel Tech
136	Arunraj R	2020-21	3 years	Research Associate	Vel Tech
137	Maheswari Vinodkumar	2020-21	3 years	Research Associate	Vel Tech
138	Vimala Rani	2020-21	3 years	Research Associate	Vel Tech
139	S.Shabarish	2020-21	3 years	Research Associate	Vel Tech

140	Manimaran M	2020-21	3 years	Research Associate	Vel Tech
141	Jenifer S	2020-21	3 years	Research Associate	Vel Tech
142	Ch Nirmal Prabhath	2020-21	3 years	Research Associate	Vel Tech
143	G Indumathi	2020-21	3 years	Research Associate	Vel Tech
144	Satish S	2020-21	3 years	Research Associate	Vel Tech
145	Priyadarshini S	2020-21	3 years	Research Scholar	Vel Tech
146	Shaziya Fathima	2020-21	3 years	Research Scholar	Vel Tech
147	Caleb Theodar	2020-21	3 years	Research Scholar	Vel Tech
148	Vasuki M	2020-21	3 years	Research Scholar	Vel Tech
149	Mythreyi.O	2020-21	3 years	Research Scholar	Vel Tech
150	R.Thilagavathi	2020-21	3 years	Research Scholar	Vel Tech
151	Venkatesh.M	2020-21	3 years	Research Associate	Vel Tech
152	Dylan Muhammad	2020-21	3 years	Research Associate	Vel Tech
153	Adel Adnan Tatish	2020-21	3 years	Research Associate	Vel Tech
154	Nadim Ibrahim	2020-21	3 years	Research Associate	Vel Tech
155	Ghnwah Adel Fatoum	2020-21	3 years	Research Associate	Vel Tech
156	Waseem Ismaeel	2020-21	3 years	Research Associate	Vel Tech
157	Yara Ezal Deen Sultan	2020-21	3 years	Research Associate	Vel Tech
158	Twagirayezu Patrick	2020-21	3 years	Research Associate	Vel Tech
159	P. Tamilarasan	2020-21	2 year	Junior Research Fellow (JRF)	Tamilnadu State Council For Science And Technology (TNSCST)

FUNDS FROM GOVT. & NON- GOVT. AGENCIES

List of Funds received from Govt & Non- Govt Agencies:-

S. No	Name of the Scheme/Project/ Endowments/ Chairs	Name of the Principal Investigator/ Co Investigator (if applicable)	Name of the Funding agency	Type (Government/Non-Government)	Department	Year of Award	Funds provided (INR in lakhs)
1	Designing and Prototyping of Medium Size Long Endurance Quad Plane Uav	Dr.T.Veeramakali / Rahul Mongia / Balkrishna Tripathi	CIAR Software Solutions Private Limited	Non Government	CSE	2020-21	0.6
2	Customer Support Automation Via Artificial Intelligence	Ms.M Vinodhini / Kunal Prasad	WTA-Hyderabad	Non Government	CSE	2020-21	0.15
3	Analysis of Customer Pattern and Predicting the Flight Sales	Dr.S.Jagadesan / Kolla Mohan Chaitanya	Clear Tax-Bangalore	Non Government	CSE	2020-21	0.45
4	Vaccine Traceability Mobile Application	Dr.C.Yogesh / Rakesh Reddy	Thynk Blynk-Hyderabad	Non Government	CSE	2020-21	0.6
5	Aviation generator Prototype testing in High speed test facility	Dr. B. L. Jaiswal	GE India Industrial Pvt. Ltd.	Non Government	Common	2020-21	12
6	safety audit HARA and OSEP for M/S Rane Die Casting Sadasivpet, Telangana	Dr. Harisivasri Phanindra K	G&G Consultancy	Non Government	Common	2020-21	0.2
7	Safety Audit Uniparts India Limited, Visag, AP	Dr. Harisivasri Phanindra K	G&G Consultancy	Non Government	Common	2020-21	0.1
8	Safety Audit and OSEP (On-Site Emergency Plan) for Kellogg's India Private Limited, Sri City, Andhra Pradesh	Dr. Harisivasri Phanindra K	Varaanga Engineers Pvt. Ltd.	Non Government	Common	2020-21	0.4

9	Safety Audit, OSEP and HARA for M/S Heptachem & Pharma (India) Private Limited, Adoni, Andhra Pradesh	Dr. Harisivasri Phanindra K	Varaanga Engineers Pvt. Ltd.	Non Government	Common	2020-21	0.4
10	Safety Audit and OSEP for M/S Hatsun Agro Limited, Madanapalle, Andhra Pradesh	Dr. Harisivasri Phanindra K	Varaanga Engineers Pvt. Ltd.	Non Government	Common	2020-21	0.15
11	Safety Audit for M/S Kikuwa India Pvt. Ltd, Sricity, Andhra Pradesh	Dr. Harisivasri Phanindra K	Varaanga Engineers Pvt. Ltd.	Non Government	Common	2020-21	0.2
12	Safety Audit for M/S Hero MotoCorp, Sricity, Andhra Pradesh	Dr. Harisivasri Phanindra K	Varaanga Engineers Pvt. Ltd.	Non Government	Common	2020-21	0.4
13	Safety Audit and review of existing OSEP (On-Site Emergency Plan) for various divisions in M/S Srikalahasthi Pipes Limited, Srikalahasthi, Andhra Pradesh	Dr. Harisivasri Phanindra K	Varaanga Engineers Pvt. Ltd.	Non Government	Common	2020-21	1.5
14	Comprehenisve analysis of thermal efficiency enhancement of deomestic LPG stove of preethi kitchen appliances & to provide an optimized burner Configuration.	Dr. Naren Shankar	M/s. Preethi Home Appliances Pvt. Ltd.	Non Government	Common	2020-21	1
15	Smart Inspection of PCB using MatLAB	Mr. B. Senthil Kumaran / Bawanolla Hariswar Reddy / K Dinakaran / M. Trinadha Sai Narendra	TESCOM - Bangalore	Non Government	ECE	2020-21	0.9

16	Position Sensitive Detector	Dr.S Natarajan	Prisms India Pvt, Ltd, Pondicherry	Non Government	ECE	2020-21	0.5
17	Slide and swivel joint for aircraft applications.	Dr E Pavithra	Metalic Bellows India Pvt Ltd	Non Government	Mech	2020-21	16.4
18	Fuel system components for aircraft applications.	Dr E Pavithra	Metalic Bellows India Pvt Ltd	Non Government	Mech	2020-21	8.6
19	Excavation slope stability Report	Dr. J. Logeshwari	Sekar Constructions	Non Government	Civil	2020-21	0.1
20	Task Monitoring System for the ASR Batch Processing System & User and File Management on the Transcriptor Platform	Mr. Tanmay Surana / Dr. T. Kamaleshwar	Nanyang Technological University, Singapore	Non Government	CSE	2020-21	2.46
21	Transcriptor Server Backend	Mr. Tanmay Surana / Dr. T. Kamaleshwar	Nanyang Technological University, Singapore	Non Government	CSE	2020-21	2.46
22	Full Stack Developer	Mr. Prakhar Katyayan / Dr. V. Kalpana	European Organization for Nuclear Research (CERN)	Non Government	CSE	2020-21	28.93
23	Nerve dependent therapeutics for breast cancer progression and metastasis	Ms. Vaishnavi. M. Nair / Dr. K. Jaggajanani Rao	MITACS, The Globalink Research Internship Team	Non Government	BioTech	2020-21	0.71
24	Computational identification of therapeutic targets for multigenic disorders	Ms. Megha Gupta / Dr. K. Tarangani	MITACS, The Globalink Research Internship Team	Non Government	BioTech	2020-21	0.71

25	Enhancing Biodegradation of plastic wastes	Ms. Pooja Sree. R / Dr. S. Mugesh	MITACS, The Globalink Research Internship Team	Non Government	BioTech	2020-21	0.71
26	Autonomous variable rate technology to precisely spray agrochemicals	Mr. Chitluri Phaneendra Kumar / Dr. E. D. Kanmani Ruby	MITACS, The Globalink Research Internship Team	Non Government	ECE	2020-21	0.71
27	Design of insole haptic sensor and actuator for the blind and person with disability	Ms. Amruthavalli Archakam / Dr. Rahul S G	MITACS, The Globalink Research Internship Team	Non Government	Bio medical	2020-21	0.71
28	Cognitive load and upper limb prosthesis use	Ms. G. S. Shrinidhi / Dr. N. M. Masoodhu Bhanu	MITACS, The Globalink Research Internship Team	Non Government	Bio medical	2020-21	0.71
29	Signal Processing and Machine Learning Applications for Wearable and Mobile Technologies	Ms. Kavya Nikhita / Dr. P. Esther Rani	MITACS, The Globalink Research Internship Team	Non Government	ECE	2020-21	0.71
30	Gleaning Insights into the Temporal Aspects of Chess using Behavioural and Computational Analyses	Mr. Arun Kumar Dash / Dr. R. Kavitha	MITACS, The Globalink Research Internship Team	Non Government	CSE	2020-21	0.71
31	Environmental Sensors	Mr. Satwat Kumar Ambashta / Dr. N. Karthik	MITACS, The Globalink Research Internship Team	Non Government	CSE	2020-21	0.71
32	Obstacle Avoidance Algorithms for UAVs	Mr. Aditya Chhetri / Dr. E. Balasubramanian	MITACS, The Globalink Research Internship Team	Non Government	Aero	2020-21	0.71
33	Small unmanned aerial vehicles (UAVs) for high-resolution environmental remote sensing: a soil moisture case study	Mr. Sameer Guru / Mr. G. Kannan	MITACS, The Globalink Research Internship Team	Non Government	Aero	2020-21	0.71

34	Student's Engagement Detection in Online Learning	Mr. Vibek Jyoti Roy / Mr. Joe Dhanith	MITACS, The Globalink Research Internship Team	Non Government	IT	2020-21	0.71
35	Battery thermal management system for electric vehicles	Mr. Atharva Milind Kulkarni / Dr. Mohamed Iqbal	MITACS, The Globalink Research Internship Team	Non Government	Mech	2020-21	0.71
36	Artificial intelligence enabled powertrain control and fast charging in electrified vehicles	Mr. Muneer Baba Ganganapalli / Dr. K. Karunanithi	MITACS, The Globalink Research Internship Team	Non Government	EEE	2020-21	0.71
37	A recommender system for customer experience management	Ms. Shruti Chowdhury / Dr. R. Logesh	MITACS, The Globalink Research Internship Team	Non Government	CSE	2020-21	0.71
38	UAV Auto Pilot System for water sampling with Folding arm	Dr. E. Balasubramanian	Sun Moon University	Non Government	Mechanical	2020-21	6.4
39	Design and prototype making and testing of PCB boards	Mr. S. Vinson Joshua	AUCKAM Turnkey Solutions	Non Government	ECE	2020-21	8
40	Development of Utility Tool to Use Machine Codes between EDM Wire Cut Machines	Mr. S. Vishnu Kumar	Apex EDM Tools	Non Government	ECE	2019-20	2.5
41	Snkmdr Touch for Help System	Mrs.K.Prema / K. Subhash / Piraisoodan. J / Kallam Ramakrishna Reddy	SNKMDR India Pvt Ltd	Non Government	CSE	2019-20	0.9
42	Snkmdr Touch for Help System	Mrs.K.Prema / Hemant Kumar Gupta / Anurag Chauhan	SNKMDR India Pvt Ltd	Non Government	CSE	2019-20	0.6

43	Design of Circuits for Tether Drone	Mr.V. Vinoth Kumar / Grandhi Leela Venkata Saikiran / Sailesh Kumar Dulam	Magnum Wings	Non Government	ECE	2019-20	0.8
44	Design of Circuits for Tether Drone	Mr. B. Senthil Kumaran / Ankana Guru Mohan Reddy / Sunil Varam Chinthalapati	Magnum Wings	Non Government	ECE	2019-20	0.8
45	Designing and Prototyping of Medium Size Long Endurance Quad Plane Uav	Dr. Venkatasudhahar M / Rohith Reddy / Satyanarayana Reddy	Magnum Wings	Non Government	Aero	2019-20	0.4
46	Optimum Design of a Small Wind Turbine Blade for a Maximum Power Production	Dr. R. Narens Shankar / Bisoyi Tarun / Ch. Jagannadha Rao	Wish Energy Solution Pvt Ltd	Non Government	Aero	2019-20	1.44
47	Analysis and Design of Residential Building(G+5)	Dr. S.Kandasamy / Hastavaram Mahanth Kumar Reddy / Chukkala Jaya Sri / Injeti Masthan	EIPL Group	Non Government	Civil	2019-20	1.62
48	Design and Analysis of Residential Building G+9 by using Staad Pro	Dr. S.Kandasamy / A.Bhargav / Koukuntala Sethu Madhav Reddy	EIPL Group	Non Government	Civil	2019-20	1.08
49	Business Management Software Application	Mr.Ganesan / Sriteja Yanamala / Shalini M / Kassa Achyuth Kumar	Merck Group	Non Government	CSE	2019-20	2.7
50	Mymilliq - An Iot Enabled Water Purifier	Mr.S. Aarif Ahamed / Chintha Vaishnava Chandra / Ravi Kumar Sharma	Merck Group	Non Government	CSE	2019-20	1.8
51	Content Management System Using Vasont	Mr.Sri Raman K / Betha Venkata Manish / Meka Rakesh	Magnum Wings	Non Government	CSE	2019-20	0.4

52	Object Detection Algorithms(Unmanned Aerial Vehicles)	Mr.S.Durai / Pallavi Kumari / Apoorva Juturu	Binoc Technology	Non Government	CSE	2019-20	0.6
53	Happystay - Accommodation System	Mrs. Almas Begum / Binni Kumar / Devender Reddy	CIAR Software Solutions Private Limited	Non Government	CSE	2019-20	0.6
54	Vtoba Social Networking Mobile Application	Mrs. Almas Begum / Hemanth Krishna Malli / D.Akash Kumar	CIAR Software Solutions Private Limited	Non Government	CSE	2019-20	0.6
55	Aviation generator Prototype testing in High speed test facility	Dr. B.L Jaiswal	GE India Industrial Pvt. Ltd.	Non Government	Common	2019-20	15
56	To develop design analysis for gimbal bellows	Dr. E. Pavithra	Metallics Bellows India Pvt Ltd	Non Government	Common	2019-20	0.75
57	3D printing charges for Air filter RD3082, RD3083, RD3084	Mr. Sahaju Nesan	Greaves Cotton limited	Non Government	Common	2019-20	0.1
58	Comprehensive analysis of thermal efficiency enhancement of domestic LPG stove of preethi kitchen appliances & to provide an optimized burner Configuration.	Dr. David Bhat	Preethi Home Appliances Pvt. Ltd.	Non Government	Common	2019-20	2.17
59	Renting charges of Studio for product shoot of Solstrom energy solutions pvt lts	Dr. L. Rama lakshmi	Solstrom Energy Appliance Pvt Ltd	Non Government	Common	2019-20	0.03

60	Vibration analysis of powertiller chasses with GC650 engine	Dr. B. L. Jaiswal	Greaves Cotton limited	Non Government	Common	2019-20	0.1
61	Design and Development of firefly lens based solar cell	Dr. P. K. Dhal	Apzem India Engineering	Non Government	Common	2019-20	0.2
62	Hospitality Management Solutions for Hostel and Pg's	Dr. Venkatasudhahar M / Kumar Manglam / Tarachand Chaurasiya / Kanneganti. Bhargav	Magnum Wings	Non Government	Mech	2019-20	0.6
63	Position Sensitive Detector	Dr.S Natarajan	Prisms India Pvt, Ltd, Pondicherry	Non Government	ECE	2019-20	0.425
64	Mining useful information from social networks	Mr. Vishnusai Bhadramraju	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58
65	Mobile Application Security	Ms. Vidya Sri Matta	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58
66	Control of a life size humanoid robot via joysticks	Mr. Rishab Mahato	MITACS, The Globalink Research Internship Team	Non Government	EEE	2019-20	4.58
67	Artificial Intelligence for Companion Robots	Mr. Ajit Sharma	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58
68	Smart Crowd Sensing	Mr. Gaddipati Lohit Chowdary	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58

69	Designing music learning games for a "Living Lab"	Ms. Roosa Mozoomdar	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58
70	Automated Intelligence-driven malware detection system	Mr. Shivam Dwivedi	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58
71	Creating an online social game for learning	Mr. Yuvraj Tilotia	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58
72	Supporting Rich Interactions with Digital Content in Everyday Life	Mr. Kunal Prasad	MITACS, The Globalink Research Internship Team	Non Government	CSE	2019-20	4.58
73	Innovation in long-term performance of concrete structures	Mr. Rahul Kasaudhan	MITACS, The Globalink Research Internship Team	Non Government	Civil	2019-20	4.58
74	Molecular communications	Ms. Muskan Gupta	MITACS, The Globalink Research Internship Team	Non Government	EEE	2019-20	4.58
75	Design of Human-Robot Interaction using activities classification in the feedback loop	Ms. Arshiya Pathan	MITACS, The Globalink Research Internship Team	Non Government	ECE	2019-20	4.58
76	Using RGB-D camera and 3D point cloud processing to detect workable region for Mobile Robot	Mr. Vishal Chauhan / Dr. C. Mahesh	Ministry of Education, Taiwan under TEEP Programme	Non Government	IT	2019-20	0.55
77	Building Information Modelling for 2+10 Floor Building	Mr. Bibek Gupta / Mr.R. Veerakumar	Ministry of Education, Taiwan under TEEP Programme	Non Government	Civil	2019-20	2.03

78	Implementation of Advanced Driver Assistance Systems (ADAS) using Machine Learning	Mr. Santhosh Krishnarao / Dr. Mazher Iqbal	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	1.3
79	Implementation of Binary Code Control System in Electrodehesion Pad for Vertical Locomotion in Soft Robotic	Mr. Vishal Chauhan / Dr. C. Mahesh	Nanyang Technological University, Singapore	Non Government	IT	2019-20	0.67
80	Identification of Melanoma Cancerous Skin Lesions	Ms. Nikhitha Divi / Dr. V. Srinivasa Rao	Nanyang Technological University, Singapore	Non Government	CSE	2019-20	0.88
81	Feasibility Study of Using Hydrogen and Natural Gas Mixture as an Alternate Fuel for Motor Cycle Engine	Mr. Anil Kumar Palagiri / Mr. Raja.K	National Chung Hsing University, Taiwan	Non Government	Mech	2019-20	0.45
82	Enzyme Immobilization Glucose Oxide Biofuel Cells	Mr. Sai Kumar Reddy Bodaddala / Mr. Rupesh.P.L	National Chung Hsing University, Taiwan	Non Government	Mech	2019-20	0.45
83	Development of Anti – Aflatoxin Pharmaceutical Agent and delivery method	Mr. Solomon Abreham Tsega / Dr. V.R. Manoj	National Chung Hsing University, Taiwan	Non Government	BioTech	2019-20	0.45
84	Formulation of Nutraceutical agents from natural products for aflatoxin in poultry	Ms. Merry Hailu Gebretsadik / Dr. V.R. Manoj	National Chung Hsing University, Taiwan	Non Government	BioTech	2019-20	0.45
85	Experimental Study on Heat Transfer Enhancement in Heat Pipe using Copper Porous Microstructure	Mr. Reetesh Tiwari / Mr. Saran Raj. I	Kumamoto University, Japan	Non Government	Mech	2019-20	0.76
86	Numerical Study of the Interaction of Space Debris during Atmospheric Re-Entry	Mr. Yogesh Kumar / Mr. G. Kannan	Région Centre-Val de Loire	Non Government	Aero	2019-20	1.22

87	Developing a New Car Body Prototype of an Urban Concept	Mr. Srichandan Yerragudi / Mr. G. Boopathy	Région Centre-Val de Loire	Non Government	Aero	2019-20	1.22
88	Powertrain Test Bench Design For Electric vehicle	Mr. Omer Ahmed Khan / Mr. P.B. Senthil Kumar	Charpak Exchange Scholarship,	Non Government	Auto	2019-20	3.43
89	A System for Visually Impaired using Image Processing Techniques	Mr. Manideep Reddy Nanabolu / Dr.Mehfooza	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2019-20	2.1
90	A System for Visually Impaired using Image Processing Techniques	Mr. Prem Ajith varma Penumatcha / Dr.Mehfooza	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2019-20	2.1
91	Smart Glasses for Visually Impaired using Image Processing Techniques	Ms. Shalini Tomar / Dr. C. Mahesh	Ministry of Education, Taiwan under TEEP Programme	Non Government	IT	2019-20	2.1
92	Smart Glasses for Visually Impaired using Image Processing Techniques	Ms. Nikita / Dr. C. Mahesh	Ministry of Education, Taiwan under TEEP Programme	Non Government	IT	2019-20	2.1
93	Field Programmable Gate Array Based Linear Shaft motor Drive System in terms of Trapezoidal Velocity Profile Consideration	Mr. Anirudh kopparapu / Mr.N.K.Rayaguru	Ministry of Education, Taiwan under TEEP Programme	Non Government	EEE	2019-20	0.75
94	Solar monitoring System	Mr. Narasimha Rao Chepuri / Mr.N.K.Rayaguru	Ministry of Education, Taiwan under TEEP Programme	Non Government	EEE	2019-20	0.75

95	Novel Optimization Approach in Ultrasonic Machining: Unilateral Compensation for Resonant Vibration in Primary Side	Mr. Venkata Sunil Kumar Vegilisetty / Mr.N.K.Rayaguru	Ministry of Education, Taiwan under TEEP Programme	Non Government	EEE	2019-20	0.75
96	Development of Bicycle Front Fork Intelligent Suspension System	Mr. Elangovan Chelliah / Dr. P Suresh	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	0.75
97	Multiple D1 Mini Configuration of Smart Home Automation	Mr. Hemanth kumar Burramsetty / Dr.S.Natarajan	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	0.75
98	Design of Synchronized Large Scale Chaotic Random Number Generators and Its Applications to Secure Communication	Mr. Raveendra Muddineni / Dr. K. Thiagarajan	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	0.75
99	Implementation of Agriculture Technology on Wireless Sensor Network	Mr. Gowtham Reddy Bonala / Dr. E. D. kanmani Ruby	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	0.75
100	Real Time Logo Detection via YOLO	Mr. Ashok Kumar Gurram / Dr.Kanimozhi	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	0.75
101	Optimization of Moment of DOBOT using Python	Mr. Mahendra Reddy Bogireddy / Dr.Lordwin Ceil Prabhakar	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	0.75
102	Study of Mini Self-Driving Car Deep Image Analysis Based on Architecture of AIoT	Mr. Venkata Manish Chatakondur / Ms.A.Vishnupriya	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2019-20	0.75

103	Downwash Measurement of Flapping Wing using Soap Film Experiment	Mr. Balaji Vasanthavada / Mr. A. Adaikalai Raj	Ministry of Education, Taiwan under TEEP Programme	Non Government	Aero	2019-20	1.625
104	Structural Design and Analysis of 5mw Wind Turbine Blades under Critical Aerodynamic Loads by Using COMSOL	Ms. Alekya Potnuru / Mr. A. Adaikalai Raj	Ministry of Education, Taiwan under TEEP Programme	Non Government	Aero	2019-20	1.625
105	Development of Utility-Tools for CAD Design	Mr. S. Vishnu Kumar	Apex EDM Tools	Non Government	ECE	2018-19	3.5
106	Korea Car Competition	Dr. P. Sarasu	Korea Transportation Safety Authority	Non Government	Auto	2018-19	6.7
107	Development of instrumental based system for road safety inside of the factory premises or construction work site	Mr. A. Mutharasan	Varaanga Engineers Pvt. Ltd.	Non Government	ECE	2018-19	3
108	CNC Coiler & Quench tank Safety	Mr. K Siva kumar / Ayyappa Sathwik B.V.V / Sudhakaran R	SSS Auto Suspension	Non Government	Auto	2018-19	2.52
109	Apila construction Project	Dr. Yuvaraj / Jagadeeswarreddy Kopparthi / Kottidi Vijaya Kumar / Narapareddy Reddaiah	EIPL Group	Non Government	Civil	2018-19	1.62
110	Rivera Construction Projects	Dr. Yuvaraj / Police Harikrishna Reddy / Thanamala Jeevan / Vaddi Naveen Kumar Reddy	EIPL Group	Non Government	Civil	2018-19	1.62
111	Data Framework for Small Scale Provincial Farmers	Mrs. K. Rajathi / Poojari Jyothi Manjunath / Raj Gupta / Shashi Shekhar Pathak	CIAR Software Solutions Private Limited	Non Government	CSE	2018-19	0.3

112	Data Framework for Small Scale Provincial Farmers	Mrs. K. Rajathi / Raghav Chawla / Hemanth Kumar Gupta / Gopisetty Sai Kumar	CIAR Software Solutions Private Limited	Non Government	CSE	2018-19	0.3
113	Data Framework for Small Scale Provincial Farmers	Mrs. K. Rajathi / Sonam Raghuwanshi / G V Sowmya / Sai Krishna Kande	CIAR Software Solutions Private Limited	Non Government	CSE	2018-19	0.9
114	Identification of Brain Tumor using Image Processing Techniques	Mrs. Almas Begum / K. Subhash / Piraisoodan. J / Kallam Ramakrishnareddy	SNK Market Data Research	Non Government	CSE	2018-19	0.6
115	Identification of Brain Tumor using Image Processing Techniques	Mrs. Almas Begum / Hemanth Kumar Gupta / Anurag Chauhan	SNK Market Data Research	Non Government	CSE	2018-19	0.4
116	Integrated Starter Generator (ISG) for Two-Wheeler Vehicle	Dr.N.Vinodh Kumar / Chiruvella Pardha Krishna / K. Ashok Kumar	Lucas Tvs	Non Government	ECE	2018-19	1.08
117	Comprehenisve analysis of thermal efficiency enhancement of deomestic LPG stove of preethi kitchen appliances & to provide an optimized burner Configuration.	Dr. David Bhat	Preethi Home Appliances Pvt. Ltd	Non Government	Common	2018-19	4.07
118	Tower crane foundation design at WIMCO nagar Tiruvottryur	Dr. Perumal Pillai	Gannon Dunkerley & CO Ltd	Non Government	Common	2018-19	0.4
119	Aviation generator Prototype testing in High speed test facility	Dr. B.L Jaiswal	GE India Industrial Pvt. Ltd.	Non Government	Common	2018-19	55.38

120	Aviation generator Prototype testing in High speed test facility	Dr. E. Balasubramanian	Magnus Wings	Non Government	Common	2018-19	4.45
121	Reduction of Surface and Edge cracking in cold forge AL 502 alloy	Dr. S. Prabhukumar	General wire Industries Pvt. Ltd.	Non Government	Common	2018-19	0.5
122	Design & Development of Virtual Reality Headset for Smartphones	Dr. G. Sasikala	Square Comp MSME Proprietorship	Non Government	ECE	2018-19	4.2
123	Smart Office using Raspberrypi 3b+ and Alexa	Raparathi Rajkumar / Bata Uma Durga Ram Prasad / Dr.R. Ambika	Amara Raja Batteries	Non Government	ECE	2018-19	0.4
124	Design and manufacturing of 3 Plate Mould for 65 AH Battery Cover	Mr. N. Balaji / Sanampalli Harish / S.Venkatesh / Bandi Saikiran	Amara Raja Batteries	Non Government	Mech	2018-19	0.6
125	Design a MIMO Communication System for Wireless Ingestible Capsule Applications	Ms. Sree Sravya Tumuluri / Dr. G. Vairavel	Nanyang Technological University, Singapore	Non Government	ECE	2018-19	0.88
126	Precision Agriculture using FOG Computing	Ms. Nagaharshitha Chinta / Dr. R. Srinivasan	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2018-19	2.05
127	Precision Agriculture using FOG Computing	Mr. Shashank Reddy Danda / Dr. R. Srinivasan	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2018-19	2.05
128	Precision Agriculture using FOG Computing	Ms. Naga Vijaya Gogineni / Dr. Hima Deepthi	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2018-19	2.05

129	Study on Failures of Structures due to earthquake	Ms. Pavithra / Mr. R. Veerakumar	Ministry of Education, Taiwan under TEEP Programme	Non Government	Civil	2018-19	1.36
130	ROS based human detection and monitoring robot using Kinect	Mr. Sankar Sidagam / Dr. G. Vairavel	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2018-19	1.18
131	The Quantification of Soap Film Flow Comparitive Visulization	Mr. Chandrashekhar Tasupalli / Dr. E. Balasubramanian	Ministry of Education, Taiwan under TEEP Programme	Non Government	Aero	2018-19	1.18
132	Design of a Multi resuable particle captured micro-channel with dragonfly wings	Mr. Vivek Jabaraj Joseph / Dr. E. Balasubramanian	Ministry of Education, Taiwan under TEEP Programme	Non Government	Aero	2018-19	1.18
133	Prediction of movie box office Revenue using convolutional neural networks	Ms. Roja Lakshmi Perla / Mr. K. S. Guruprakash	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2018-19	1.18
134	Frequency measurement for ambient vibrations of simply supported reinforced concrete beam	Ms. Manshika Vicario Dibra Sangma / Mr. T. Nelson Ponnu Durai	National Chung Hsing University, Taiwan	Non Government	Civil	2018-19	0.45
135	Agriculture products quality inspection using hypersoectral techniques	Ms. Poojitha Gaddipati / Dr. J. Mohanraj	National Chung Hsing University, Taiwan	Non Government	ECE	2018-19	0.45
136	Prediction of PM2.5 with Long Short Term Memory based Recurrent Neural Network	Mr. Sunil Patel / Dr. K. Meena	National Chung Hsing University, Taiwan	Non Government	CSE	2018-19	0.45
137	Experimental Investigation on Lift Improvement of Flapping wing Micro Aerial Vehicle	Mr. Hitesh Kumar Rana / Mr. Rupesh.P.L	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2018-19	1.18

138	Experimental Investigation on Lift Improvement of Flapping wing Micro Aerial Vehicle	Mr. Arindam Dutta / Mr. Rupesh.P.L	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2018-19	1.18
139	Modelling and Fabrication of Fixed Wing UAV	Mr. Pavan Kumar Kuttum / Dr. S. Christopher	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2018-19	0.88
140	Spray Combustion Characteristics of Diesel blended with water	Mr. Siva Manikanta Ganji / Mr. P. Sathyaseelan	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2018-19	0.76
141	Spray Combustion Characteristics of Diesel blended with water	Mr. Venkata Surya Sairam Kadali / Mr. P. Sathyaseelan	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2018-19	0.76
142	Indoor Positioning System in Hospital Instrument Management	Mr. Kalyan Ashok Kumar Reddy Pyreddy / Mr. R. Ramasamy	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2018-19	0.76
143	Indoor Positioning System in Hospital Instrument Management	Mr. Nagendra Reddy Mallu / Mr. R. Ramasamy	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2018-19	0.76
144	Mechanical properties and impact Fatigue resistance of AlTiN and TiSiN Coatings	Mr. Amit Singh / Mr. Mathew Alphonse	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2018-19	0.76
145	Machine Learning of Binary Neural Network Accelerator on PYNQ FPGA	Mr. Afaroj Ahamad / Dr. K. Dhananjaya	Ministry of Education, Taiwan under TEEP Programme	Non Government	EEE	2018-19	0.76
146	Korea Car Competition	Dr. P. Sarasu	Korea Transportation Safety Authority	Non Government	Auto	2017-18	5.5

147	Theoretical Quantitative Risk Assessment of Ammonia Receiver	Mr. R. Rajesh	Varaanga Engineers Pvt. Ltd.	Non Government	EEE	2017-18	2.75
148	Unified User Interface for Multiple Database	Mr. S. Raghavendran / Mr. M. Venkatesh	Spritle	Non Government	CSE	2017-18	0.2
149	Easy Ride Prototype and Design project Competition	Mr. S. Vinson Joshua	Science & Technology Services, French Embassy in India	Non Government	Common	2017-18	1.5
150	Easy Ride Prototype and Design project Competition	Mr. B. Senthil Kumaran	MBDA, France	Non Government	Common	2017-18	0.74
151	Easy Ride Prototype and Design project Competition	Mr. S. Vinson Joshua	Faurecia, Chennai	Non Government	Common	2017-18	0.09
152	Tyre Claim Replacement by online digital technology on the spot service	Mr. R. Jayaraj Pandian	MPover India Tyre eservice and AMC Pvt Ltd	Non Government	Mechanical	2017-18	5
153	Major Role of IoT in Disaster Management	Ms. Susmitha Allumallu Veera Venkata / Dr. G. Vairavel	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2017-18	1.95
154	The Integration & Application of Quadcopter and NDVI sensor for Precision Agriculture	Mr. Sravan Kumar Kanisetty / Mr. Farith Khan	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2017-18	0.48
155	Fixed Wing Solar MALE (Medium Altitude Long Endurance) Unmanned Aerial Vehicle	Mr. Sai Kumar Reddicherla / Dr. S. Balaguru	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48

156	Flow and Spray visualisation of Bio-Oil / Kerosene Mixture using PIV	Mr. Shaik Chand Basha / Dr. Yuvarajan D	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48
157	Flow and Spray visualisation of Bio-Oil / Kerosene Mixture using PIV	Mr. Mahaboob Basha Shaik / Dr. Yuvarajan D	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48
158	Flow and Spray visualisation of Bio-Oil / Kerosene Mixture using PIV	Mr. Karthik Lakka Mohan Lakka / Dr. Yuvarajan D	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48
159	Fixed Wing Solar MALE (Medium Altitude Long Endurance) Unmanned Aerial Vehicle	Ms. Aishwarya Gowda Ashok Girija / Dr. Shiyamala	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2017-18	0.48
160	Fixed Wing Solar MALE (Medium Altitude Long Endurance) Unmanned Aerial Vehicle	Mr. Naga Sathwik Parnam / Dr. S. Balaguru	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48
161	The Integration & Application of Quadcopter and NDVI sensor for Precision Agriculture	Mr. Harshit Pandey / Dr. A. T. Ravichandran	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48
162	Assembly and coding to built an Intelligent Self-Propelled Vehicle	Mr. Pavan Vellore Sreeramulu / Dr. N. Lenin	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48
163	Fixed Wing Solar MALE (Medium Altitude Long Endurance) Unmanned Aerial Vehicle	Mr. Naga Veera Manikanta Sane / Mr. S. Subramanian	Ministry of Education, Taiwan under TEEP Programme	Non Government	Aero	2017-18	0.48
164	The Integration & Application of Quadcopter and NDVI sensor for Precision Agriculture	Mr. Atul Kumar / Mr. S. Subramanian	Ministry of Education, Taiwan under TEEP Programme	Non Government	Aero	2017-18	0.48

165	The Integration & Application of Quadcopter and NDVI sensor for Precision Agriculture	Mr. Devendra Reddy Bandi / Dr. A. T. Ravichandran	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.48
166	Performance Analysis of Narrow-band internet of things (NB-IoT)	Ms. Poorna Pravallika Sriram / Dr. G. Vairavel	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2017-18	1.3
167	Heart-like flow slab design on harvesting the power performance of PEMFC	Mr. Chiranjeevi Karnam / Mr. V. Karthikeyan	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2017-18	0.97
168	Performance Analysis of Narrow-band internet of things (NB-IoT)	Mr. Hema Ganesh Jami / Dr. G. Vairavel	Ministry of Education, Taiwan under TEEP Programme	Non Government	ECE	2017-18	1.3
169	Design modification of three blade, horizontal axis Wind turbine for enhancement of power Charactersitics	Mr. Ram Vineeth Kasireddy / Dr. G. Deenadayalan	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.07
170	Design modification of three – blade horizontal axis wind turbine for enhancement of power characteristics	Mr. Venkatesh Chitikena / Dr. G. Deenadayalan	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.07
171	Design modification of three-blade horizontal axis wind turbine for noise reduction	Mr. Anirudh Satya Duvvuri / Dr. P. Anand	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.07
172	Design modification of three-blade horizontal axis wind turbine for noise reduction	Mr. Sai Chaithanya Kaipa / Dr. P. Anand	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.07

173	Design modification of three-blade horizontal axis wind turbine for enhancement of power characteristics	Ms. Jayalakshmi Boyapati / Dr. G. Deenadayalan	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.07
174	Zinc-Air flow battery for next generation energy storage	Mr. Hanesht Kumar Yamalam / Dr. A. S. Praveen	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.62
175	Cathode Materials for Fuel Cells	Mr. Narasimha Rao Korrapolu / Mr. P. Sivaraj	Ministry of Education, Taiwan under TEEP Programme	Non Government	EEE	2017-18	1.62
176	Cathode Materials for Fuel Cells	Mr. Viswanath Gujjula / Mr. P. Sivaraj	Ministry of Education, Taiwan under TEEP Programme	Non Government	EEE	2017-18	1.62
177	Vanadium Redox Flow Battery for Grid-scale Energy storage	Mr. Bharath Kumar Reddy Guda / Dr. M. Arul Prakasajothi	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.62
178	Zinc-Air flow battery for next generation energy storage	Mr. Sai Venkata Akhil Kumar Challuri / Dr. A. S. Praveen	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.62
179	Structural Design and Analysis of Fixed Wing UAV	Mr. Alla Bharat Chandra / Dr. E. Balasubramaniam	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.84
180	Structural Design and Analysis of Fixed Wing UAV	Mr. Ram Prasad Gudela / Dr. E. Balasubramaniam	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.84
181	Design of fixed wing UAV for heavier air drops with superior Manoeuvrability	Mr. Hari Krishna Kondam / Dr. E. Balasubramaniam	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.84

182	Design of fixed wing UAV for heavier air drops with superior Manoeuvrability	Mr. Shahul Vali Dudekula / Dr. E. Balasubramaniam	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	0.84
183	Development of Ornithopter	Mr. Ashutosh Tiwari / Mr. R. Gopikaramanan	Ministry of Education, Taiwan under TEEP Programme	Non Government	EEE	2017-18	1.12
184	Enhancing the Mechanical Properties of 3D Printing Parts for Ornithopter	Mr. Bhanu Sai Pasupulati / Dr. E. Balasubramaniam	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.12
185	3D Printing, Assembly and Testing of Evans Mechanism for Flapping Wing Vehicle	Mr. Saravana Kompala / Dr. E. Balasubramaniam	Ministry of Education, Taiwan under TEEP Programme	Non Government	Mech	2017-18	1.12
186	Webcam based Gaze Estimation	Mr. Surya Govind / Dr. R. Rajkumar	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2017-18	1.12
187	Analysis of Tweets to Define the Atmosphere of Universe	Mr. Bandaru DharmaTeja / Dr. K. Meena	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2017-18	1.12
188	Sentiment Analysis on Facebook Video Post Comment	Mr. Subhanshu Ranjan Maurya / Mr. L. Gururathay	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2017-18	1.12
189	Facial Expression based Music Player	Mr. Mohd Bilal Ansari / Mrs. D. Femi	Ministry of Education, Taiwan under TEEP Programme	Non Government	CSE	2017-18	1.12
190	Research consultancy in Design and 3D printing	Dr. U. Chandraskear	Ark Info Solution Pvt ltd	Non Government	Common	2017-18	1.5

191	Fuzzy Logic Based Subject Health check Prototype	Dr. Kanaga Chidambaresen	Aeroship Creators	Non Government	Common	2017-18	0.12
192	Smart Home Surveillance Prototype Design	Dr. R. Rajkumar	Bright World Innovation	Non Government	Common	2017-18	0.2
193	M30 - Mix Design and Corresponding Test Report for the same	Dr. SuppaihaMr.T. Uthaya Kumar	K.V. Engineers & Contractors	Non Government	Common	2017-18	0.04
194	To resolve the issue aroused in the bending of materials IS2062	Dr. E. Pavithra	Hightech Engineering	Non Government	Common	2017-18	0.25
195	Research consultancy in Design tinkering & 3D printing	Dr. U. Chandraskear	Wipro Enterprises Limited	Non Government	Common	2017-18	0.49
196	Thermal Characterisation, Heat transfer and pressure drop on system Component	Dr. Arulprakas Jothi	Galvano Casting Pvt. Ltd	Non Government	Common	2017-18	0.75
197	Research Consultancy in Design tinkering and 3D printing conducted on 18th aug 2017	Dr. U. Chandraskear	Ark Info Solution Pvt ltd	Non Government	Common	2017-18	0.5
198	Research consultancy project on design tinkering for ATAL tinkering labs NITI Ayog	Dr. U. Chandraskear	Stratasys, Ltd	Non Government	Common	2017-18	3.84
199	Fuzzy Logic Based Subject Health check Prototype	Dr. Kanaga Chidambaresen	Aeroship Creators	Non Government	Common	2017-18	0.12

200	Development of sensor based system for warehouse safety	Mr. B. Senthil Kumaran	Varaanga Engineers Pvt. Ltd.	Non Government	Common	2016-17	3.2
201	Design and Development of Autonomous Amphibious Unmanned Aerial Vehicle and UAV Mountable Water Sampling Devices for Water Based Applications	Dr.E.Balasubramanian / Dr. C. Ramesh Kumar	Global Innovation & Technology Alliance	Non Government	Common	2016-17	39.63
202	Performance testing and tuning of bearing supports for possible axial and radial load spectra encountered during engine operation	Dr. B. L. Jaiswal	Hindustan Aeronautical Limited	Non Government	Common	2016-17	15
203	Study and Development of LED drivers for use with Lighting fixtures	Mr. A. Mutharasan / Mr. G. Dinesh	Turn point Technologies	Non Government	ECE	2016-17	0.24
204	Study and Development of LED drivers for use with Lighting fixtures	Mr. A. Mutharasan / Mr. Padi Vedaasree	Turn point Technologies	Non Government	ECE	2016-17	0.24
205	Doctordb	Mr.N.Rajkumar / Mr. M. Venkatesh	Spritle	Non Government	CSE	2016-17	0.2
206	Project Competition (VISAI)	Prof. C. S. Sivakumar	Quest Global Services Pvt Ltd, Bangalore	Non Government	Common	2016-17	0.245
207	Establishing the WABCO Training Center	Prof. C. S. Sivakumar	WABCO India Limited	Non Government	Common	2016-17	7.5

208	Design for Additive Manufacturing	Dr.U.Chandrasekar	Wipro Enterprises Limited	Non Government	Common	2016-17	6.3
209	Design Optimisation and Design Tinkering(involve ingenious application of 3DP out of ABS / PLA / PC / ULTEM and also design for AM of designated components)	Dr.U.Chandrasekar	Ark Info Solution Pvt ltd	Non Government	Common	2016-17	2
210	DICOM – STL file data processing for additive manufacturing	Dr.U.Chandrasekar	ALTEM Technologies, Altem Technologies (P) Ltd.	Non Government	Common	2016-17	0.4
211	Selective Laser Sintering / AM – Medical / Auto	Dr.P.Sarasu	EOS GmbH India	Non Government	Common	2016-17	0.45
212	Expertise sharing in designing modelling and fabrication of engine	Dr.P.Sarasu	ISCC, Korea	Non Government	Common	2016-17	6.05
213	Designing of Magnetless motor V2.6	Dr.S.Baskar	FranceCol Technology	Non Government	Common	2016-17	17.01
214	Performance characteristic evaluation of thermic fluids for regenerative heat transfer systems	Mr.Subramani	The Institution of Engineers(India)	Government	Aeronautical	2016-17	0.5
215	Innovative Wheel Drive to Enable Widespread Electric Bicycle Transportation (IWDEB)	Dr P Sarasu	Centre Franco-Indien Pour LA Promotion DE LA Recherche Advancee (CEFIPRA)	Government	CSE	2016-17	76.29

216	Design and Development of Autonomous Amphibious Unmanned Aerial Vehicle and UAV Mountable Water Sampling Devices of Water Based Applications	Dr.E Balasubramanian Dr C Ramesh	DST - Global Innovation & Technology Alliance (GITA)	Government	Mechanical and Chemistry	2016-17	39.63
217	Experimental Studies of Deep Groove Ball and Cylindrical Roller Bearings by accelerated rolling test (DRDO-CVRDE)	Dr.B. L Jaiswal Mr. S.Sivaperumal	DRDO-CVRDE	Government	Aeronautical ECE	2016-17	12.52
218	Innovation in Science Pursuit for Inspired Research (INSPIRE)" Programme	Dr. Chandra Kumar. Mrs.Lavanya Mr.Jeyaraj Mr. Saaju Mr. Thileep Kumar	DST-Inspire	Government	Mechanical ECE EEE	2016-17	9.75
219	Design and Development of Optimized Miniature Antenna Modules with Duality Function for Inflatable Satellite Antenna Setup	Mr.Prasanna Ram	Indian Space Research Organisation (ISRO)	Government	ECE	2017-18	33
220	Impact of Digital Media and E-Learning Solutions on Contemporary Management Education	Dr.K.Ravishankar	Indian Council of Social Science Research (ICSSR)	Government	MBA	2017-18	7.5
221	Porphyrizine-Sensitized Solar Cells: Rational Molecular Design, Photoducer Process, Panchromatic Sensitization and Devices	Dr.A.Kathiravan	Science and Engineering Research Board (SERB) under the Department of Science and Technology, Government of India	Government	Chemistry	2018-19	62.25
222	Innovation in Science Pursuit for Inspired Research (INSPIRE)" Programme	Dr. Chandra Kumar. Mrs.Lavanya Mr.Jeyaraj Mr. Saaju Mr. Thileep Kumar	DST-Inspire	Government	Mechanical ECE EEE	2018-19	9.75

223	Energy efficient and optimal path planning strategies for SWARM of UAVs in real time localisation using deep learning based stereo vision system	Dr.E Balasubramanian Dr Kanagachidambaresan	Indian Space Research Organisation (ISRO)	Government	Mechanical and CSE	2019-20	24.51
224	Optimization of high speed vessel and evaluation of hydrdynamic performance	Dr. M. Elangovan Dr. R Naren Shankar	DRDO-Naval Science & Technological Laboratory(NS TL)	Government	Mechanical and Aeronautical	2019-20	8.4
225	Expansion of activities of BioTech - KISAN Hub in Three Aspirational Districts (Kadapa, Vizainagaram and Vishakapatnam) of Andhra Pradesh	Dr.E Balasubramanian Dr. K Deepthi	Department of Bio-Technology (DBT-KISHAN)	Government	Mechanical and ECE	2019-20	6
226	Grants in Aid for NIDHI COE	Dr. Chandra Kumar.	NIDHI-CoE	Government	Mechanical	2019-20	647.77
227	Innovation in Science Pursuit for Inspired Research (INSPIRE)" Programme	Dr. Chandra Kumar. Mrs.Lavanya Mr.Jeyaraj Mr. Saaju Mr. Thileep Kumar	DST-Inspire	Government	Mechanical ECE EEE	2019-20	8.71
228	Smart India Hacthon-Hardware Competition	Dr. Chandra Kumar Mr. Vinson Joushwa Mr. Ragavendra Mr. Mutharasan Mr. Rajesh Mr.Senthilkumaran	AICTE-SIH	Government	Mechanical CSE ECE EEE	2019-20	20.71
229	Multifunctional Colloidal Sulfur Particles A Promising Green Pesticide for Practical Agriculture Applications	Dr. K Jagajjanani RaoDr K Tarangini	Department of Science and Technology, Government of India (DST) - AGRO TECH	Government	Bio-Technology	2020-21	27.19114

230	Development of a highly sensitive technique for specific detection of pesticidal residues and heavy metals in crude herbal drugs and herbal products	Dr A Gowri Dr S Mugesh	Department of Bio-Technology(D BT)	Government	Bio-Medical and Bio Technology	2020-21	25.22
231	Developing Novel Applications from Silk Fibres and Silk Proteins	Dr K Tarangini Dr. K Jagajjanani Rao	Department of Bio-Technology(D BT)	Government	Bio-Technology	2020-21	52.44
232	Scale effect approach to evaluate the erosion mechanism and performance features in micro abrasive water jet machining process: A study of new approach based on process parameters and materials microstructures	Dr N Yuvaraj	Science and Engineering Research Board (SERB)-TEACHERS ASSOCIATES HIP FOR RESEARCH EXCELLENCE (TARE)	Government	Mechanical	2020-21	18.3
233	Additive Manufacturing of Next Generation Alloys	Dr S Prabhu kumar	Science and Engineering Research Board (SERB)-TEACHERS ASSOCIATES HIP FOR RESEARCH EXCELLENCE (TARE)	Government	Mechanical	2020-21	18.3
234	Development of improved process for production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose	Dr S Mugesh Mrs Sainandhini	Department of Bio-Technology(D BT)	Government	Bio-Technology	2020-21	50.8666

235	Seaweeds Cultivation and Utilization in Odisha coast including Chilika Lake for Ecological Restoration and Livelihood Generation	Dr Kanagachidambaresan Dr A Gowri Dr S Mugesh Dr. K Jagajjanani Rao Dr. E. Balasubramanian	Department of Bio-Technology(D BT)	Government	CSE, Biomedical , BioTechnology, Mechanical	2020-21	68.22
236	Minimizing the post harvesting loss in ware houses through examining rice kernel/paddy quality using infrared measurements, image processing algorithms and IoT platform	Dr.E Balasubramanian Dr Kanagachidambaresan	Tamilnadu State Council For Science And Technology (TNSCST)	Government	Mechanical and CSE	2020-21	2
237	Development of 3D printed flexible patch antennas for enhancement of communication range in UAV	Dr.E Balasubramanian Mr.Prasanna Ram	DRDO	Government	Mechanical ECE	2020-21	28.026
238	Precision brackishwater aquaculture technology using Machine Intelligence	Dr Kanagachidambaresan	DST	Government	CSE	2020-21	68.65

SEED FUND



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R&D Institute of Science and Technology

(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

Date: 05/03/2022

SEED MONEY BUDGET AND UTILIZATION

Ref: The Total expenditure incurred towards institutional R & D activities, procurement of research equipment and other research expenses for the financial year 2016-17.

S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
1	Dr.A.ABUDHAHIR, EEE	0.70	2016-17
2	Dr.ARULPRAKASAJOTHI, MECH	0.53	2016-17
3	Dr.C.RAMESH KUMAR, S&H	0.97	2016-17
4	Dr.CHANDRA KUMAR, MECH	0.40	2016-17
5	Dr.DEENADAYALAN, MECH	0.52	2016-17
6	Dr.E.BALASUBRAMANIAN, MECH	0.90	2016-17
7	Dr.G.VAIRAVEL, ECE	0.83	2016-17
8	Dr.HIMA DEEPTHI.V, ECE	0.46	2016-17
9	Dr.J M BABU, MECH	0.45	2016-17
10	Dr.JAYARAMAN.K, AERO	0.49	2016-17
11	Dr.K.ARTHI, CSE	0.75	2016-17
12	Dr.KAVITHA.R, CSE	0.46	2016-17
13	Dr.M.AMALA JUSTUS SELVAM, AUTO	0.48	2016-17
14	Dr.M.KAVITHA, CSE	0.53	2016-17
15	Dr.MANIMARAN.A,MECH	0.47	2016-17
16	Dr.N.M.MASOODHU BANU, BIOMED	0.84	2016-17
17	Dr.N.MALARVIZHI, CSE	0.73	2016-17
18	Dr.P.SARASU, CSE	1.50	2016-17
19	Dr.R.MARIAPPAN, MECH	0.59	2016-17
20	Dr.RAVI SHANKAR.K, MBA	0.37	2016-17
21	Dr.REJINAPARVIN.J, ECE	0.57	2016-17
22	Dr.S.ASHOK KUMAR, ECE	0.87	2016-17
23	Dr.S.BASKAR, EEE	0.74	2016-17
24	DR.S.GOWTHAMAN, MECH	1.72	2016-17
25	Dr.S.KOTEESWARAN, CSE	0.77	2016-17



Dr.E. Balasubramanian
Dean-Research and Development

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Prof. Dr. E. Kannan
Registrar

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No.42, Avadi-Vel Tech Road, Vel Nagar,
Avadi, Chennai - 600 062, Tamil Nadu, India.
Landline : +91 44 2684 0262 / 2684 0605
Toll Free : 1800 212 7669
Email : registrar@veltech.edu.in
Website : www.veltech.edu.in



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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
26	Dr.S.SIVAPERUMAL, ECE	1.73	2016-17
27	Dr.SANGMUGA SUNDARAM .R, ECE	0.46	2016-17
28	Dr.SASI KALA.G, ECE	0.95	2016-17
29	Dr.SELWINMICHPRIYADHARSON, ECE	0.57	2016-17
30	Dr.SENTHIL KUMAR.S, AERO	0.33	2016-17
31	Dr.SIVAKUMAR.G, MECH	0.75	2016-17
32	Mr.A.FARITHKHAN, ECE	0.43	2016-17
33	Mr.A.PRABHU, MECH	0.46	2016-17
34	Mr.ARUN NEMA, AERO	0.41	2016-17
35	Mr.B. SENTHIL KUMARAN, EEE	0.45	2016-17
36	Mr.D.SATHISH KUMAR	0.59	2016-17
37	Mr.DARWIN, CSE	0.45	2016-17
38	Mr.DILIP RAJA, MECH	0.77	2016-17
39	Mr.G.BOOPATHY, AERO	0.60	2016-17
40	Mr.G.KANNAN, AERO	0.40	2016-17
41	Mr.G.SARAVANAN, S&H	0.71	2016-17
42	Mr.HUSHEIN .R, MECH	0.32	2016-17
43	Mr.J.GNANA ARUN JOHNSON, ECE	0.33	2016-17
44	Mr.JAYAVELU.S, MECH	0.35	2016-17
45	Mr.JEE JOE MICHAEL, MECH	0.89	2016-17
46	Mr.K.BASKAR, EEE	0.61	2016-17
47	Mr.KALAIARASAN. K, ECE	0.33	2016-17
48	Mr.KARTHIK.K, MECH	0.76	2016-17
49	Mr.KARTHIKEYAN S, AERO	1.12	2016-17
50	Mr.KISHORE KUMAR.K, MECH	0.45	2016-17
51	Mr.K.ARUN KUMAR, MECH	0.57	2016-17
52	Mr.M.KARTHICK, MECH	0.78	2016-17
53	Mr.M.NITHYAVELAM, ECE	0.36	2016-17
54	Mr.M.PRABAKARAN, MBA	0.40	2016-17
55	Mr.M.PRABAKARAN, MECH	0.63	2016-17
56	Mr.M.SUNDARRAJ, MECH	0.48	2016-17
57	Mr.MANIKANDAN.N.K ,CSE	0.35	2016-17
58	Mr.MATHEW ALPHONSE, MECH	0.43	2016-17
59	Mr.N.PUGAZHENTHI, MECH	0.59	2016-17
60	Mr.P.SANKARGANESH	0.33	2016-17
61	Mr.P.SATHYA SEELAN, MECH	0.41	2016-17
62	Mr.PRABHAKARAN.A, MECH	0.40	2016-17
63	Mr.PRABHU.S, MECH	0.33	2016-17
64	Mr.PRABHU KUMAR SURARAPU, ECE	0.62	2016-17
65	Mr.PRASANNA.R, ECE	0.87	2016-17

Dr.E. Balasubramanian
Dean-Research and Development

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Prof. Dr. E. Kannan
Registrar

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
66	Mr.R.GOPIKARAMANAN, EEE	0.56	2016-17
67	Mr.R.RAMESH KUMAR, MECH	1.10	2016-17
68	Mr.RAJAGURUNATHAN, AERO	0.47	2016-17
69	Mr.RAJESH.R, EEE	0.36	2016-17
70	Mr.RAJKUMAR.C, MECH	0.37	2016-17
71	Mr.RAYAGURU.N.K, EEE	0.62	2016-17
72	Mr.RUPESH.P.L, MECH	0.37	2016-17
73	Mr.S.RAGHAVENDRAN, CSE	0.43	2016-17
74	Mr.S.RAMKUMAR, AUTO	0.44	2016-17
75	Mr.S.VINOTH JOHN PRAKASH, EEE	0.54	2016-17
76	Mr.SEKAR.S, MECH	0.42	2016-17
77	Mr.SENTHIL KUMAR.M, MECH	0.37	2016-17
78	Mr.SHAIENDRA KUMAR MISHRA, ECE	0.43	2016-17
79	Mr.SHEIK MOHAMMED ALI, ECE	0.32	2016-17
80	Mr.SILAMBARASAN.K, CSE	0.34	2016-17
81	Mr.SIVAKUMAR.C.S, MECH	0.58	2016-17
82	Mr.SIVAKUMAR.K, AUTO	0.42	2016-17
83	Mr.SOMA PAL, ECE	0.36	2016-17
84	Mr.SURESH.V, MECH	0.80	2016-17
85	Mr.SYED RIYAZ AHAMMED, AERO	0.35	2016-17
86	Mr.T.RAJA, MECH	0.43	2016-17
87	Mr.T.RAMESH, MECH	0.41	2016-17
88	Mr.TAMILAZHAGAN.G.A, ECE	0.30	2016-17
89	Mr.VENGADESHWARIN, ECE	0.40	2016-17
90	Mr.VIGNESH PRASANNA, ECE	0.36	2016-17
91	Mr.VINOTH KUMAR.R, CSE	0.35	2016-17
92	Mr.VINOTH KUMAR.V, EIE	0.41	2016-17
93	Mr.VINSON JOSHUA.S, ECE	0.41	2016-17
94	Mr.VISHNU.V, AERO	0.31	2016-17
95	Ms.A.BAKIYA, ECE	0.36	2016-17
96	Ms.C.MALATHI, ECE	0.58	2016-17
97	Ms.L.JIBANPRIYA DEVI, ECE	0.40	2016-17
TOTAL		54.78	

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Date: 05/03/2022

SEED MONEY BUDGET AND UTILIZATION

Ref: The Total expenditure incurred towards institutional R & D activities, procurement of research equipment and other research expenses for the financial year 2017-18.

S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
1	Dr.BALASUBRAMANIAN E,MECH	1.49	2017-18
2	Dr.M.ARULPRAKASAJOTHI,MECH	1.43	2017-18
3	Dr.BALAGURU,MECH	1.40	2017-18
4	Dr.U.CHANDRA SHEKHAR, AERO	1.29	2017-18
5	Dr.D RAJAMANI, MECH	1.23	2017-18
6	Dr.PERUMAL PILLAI E B,CIVIL	1.23	2017-18
7	Dr.NATARAJAN, ECE	1.20	2017-18
8	Dr.SALUNKHE SACHIN, MECH	1.20	2017-18
9	Dr.MAZHER IQBAL, ECE	1.19	2017-18
10	Dr.P.ESTHER RANI, ECE	1.18	2017-18
11	Dr.MALARVIZHI, CSE	1.16	2017-18
12	Dr.P.SARASU,CSE	1.15	2017-18
13	Dr.E.PAVITHRA,MECH	1.12	2017-18
14	Dr.S GOWTHAMAN, MECH	1.12	2017-18
15	Dr.MEENA K,CSE	1.09	2017-18
16	Dr.SUGUNA, CSE	1.08	2017-18
17	Dr.RAMESH KUMAR C, S&H	1.08	2017-18
18	Dr.S SHIYAMALA, ECE	1.08	2017-18
19	Dr.T KAVITHA, ECE	1.04	2017-18
20	Dr.P.CHANDRASEKAR, EEE	1.00	2017-18
21	Mr.S.ALEX DAVID, CSE	1.00	2017-18
22	Dr.BHARATHI C R,ECE	0.95	2017-18
23	Mr.R GANESH, MECH	0.92	2017-18
24	Mr.ARUN PRASAD,MECH	0.90	2017-18
25	Ms.SRIDEVI,CSE	0.90	2017-18


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No.42, Avadi-Vel Tech Road, Vel Nagar,
Avadi, Chennai - 600 062, Tamil Nadu, India.
Landline : +91 44 2684 0262 / 2684 0605
Toll Free : 1800 212 7669
Email : registrar@veltech.edu.in
Website : www.veltech.edu.in



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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
26	Mr.RAKESH KUMAR, AERO	0.90	2017-18
27	Mr.V BALAJI, MECH	0.90	2017-18
28	Dr.J.UDAYAPRAKASH, MECH	0.90	2017-18
29	Ms.A MEENA,ECE	0.89	2017-18
30	Mr.PRASANNA R, ECE	0.78	2017-18
31	Dr.J M BABU, MECH	0.68	2017-18
32	Mr.K ARUN KUMAR, MECH	0.67	2017-18
33	Dr.M KAVITHA, CSE	0.65	2017-18
34	Mr.G BOOPATHI, AERO	0.58	2017-18
35	Ms.R.SHAMILI, ECE	0.56	2017-18
36	Mr.K BHASKAR, EEE	0.55	2017-18
37	Mr.ARUN NEMA, AERO	0.49	2017-18
38	Ms.C.SARALA RUBI, CSE	0.46	2017-18
39	Mr.C.RAMESH KUMAR, S&H	0.41	2017-18
40	Mr.G.KUMAR, CIVIL	0.34	2017-18
41	Ms.SHEEBA SANTHOSH, ECE	0.32	2017-18
42	Mr.MAHESH, IT	0.31	2017-18
43	Mr.HARIHARAN, IT	0.30	2017-18
44	Ms.K RAJATHI, ECE	0.30	2017-18
45	Mr.GOWTHAMA RAJAN, AUTO	0.29	2017-18
46	Mr.D SAMUELRAJ, AUTO	0.27	2017-18
47	Mr.S SEKAR, MECH	0.26	2017-18
48	Mr.T UDHAYA KUMAR, CIVIL	0.26	2017-18
49	Mr.S.SENTHIL KUMAR, AERO	0.25	2017-18
50	Mr.M PARTHASARATHY, AUTO	0.24	2017-18
51	Mr.N PUGAZHENTHI, MECH	0.23	2017-18
52	Dr.R.JAGANRAJ, AERO	0.23	2017-18
53	Mr.M KARTHICK, MECH	0.23	2017-18
54	Mr.P R JOE DHANITH, IT	0.22	2017-18
55	Ms.V USHA, CSE	0.21	2017-18
56	Mr.K RAJA, MECH	0.21	2017-18
57	Mr.GOWTHAMAN, MECH	0.20	2017-18
58	Mr.K KARTHIK, MECH	0.20	2017-18
59	Mr.M RAJEEV KUMAR, CSE	0.19	2017-18
60	Mr.P CHANDRAKUMAR, MECH	0.19	2017-18
61	Mr.VINSON JOSHUA, ECE	0.19	2017-18
62	Mr.GANDHI, MECH	0.19	2017-18
63	Ms.L JIBANPRIYA DEVI, ECE	0.19	2017-18
64	Ms.R.ARUNADEVI, EEE	0.19	2017-18
65	Mr.S ALEX DAVID, CSE	0.19	2017-18
66	Mr.D L BELGIN PAUL, MECH	0.19	2017-18

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
67	Mr.HIMANSHU KUMAR, MECH	0.19	2017-18
68	Mr.DHARMALINGAM, MECH	0.18	2017-18
69	Mr.K.VINOTH, EEE	0.18	2017-18
70	Mr.P.VENKATESAN, CSE	0.18	2017-18
71	Mr.R ROHITH RENISH, MECH	0.18	2017-18
72	Mr.S ULAGANATHAN, ECE	0.18	2017-18
73	Mr.A.FARITHKHAN, ECE	0.18	2017-18
74	Ms.S.SIVAKUMAR, EEE	0.18	2017-18
75	Mr.MUTHUKRISHNAN, CSE	0.18	2017-18
76	Mr.T RAMESH, MECH	0.18	2017-18
77	Mr.GANESH, MECH	0.18	2017-18
78	Mr.D.RAJESH, MECH	0.17	2017-18
79	Mr.RADHAKRISHNAN, CSE	0.16	2017-18
80	Mr.P.B.SENTHIL KUMAR, AUTO	0.15	2017-18
81	Mr.M THAMARAIKANNAN, MECH	0.14	2017-18
82	Mr.T.GUNASEKAR, S&H	0.13	2017-18
83	Ms.SOMA PAL, ECE	0.13	2017-18
84	Mr.M.SUNDARARAJ, MECH	0.13	2017-18
85	Ms.M MUTHU MARI, ECE	0.13	2017-18
86	Ms.M NITHYAVELAM, ECE	0.13	2017-18
87	Ms.N VENGADESHWARI, ECE	0.13	2017-18
88	Ms.P.DEVI SOWJANYA, ECE	0.13	2017-18
89	Ms.PALLAVI PATURU, MECH	0.13	2017-18
90	Mr.KRISHNA DAS PATEL, AERO	0.13	2017-18
91	Mr.M CHINNASAMY, CIVIL	0.13	2017-18
92	Mr.N K MANIKANDAN, CSE	0.13	2017-18
93	Mr.V.BALAJI, MECH	0.13	2017-18
94	Ms.AASHA NANDHINI, CSE	0.12	2017-18
95	Mr.N TAMIL SELVAM, MECH	0.12	2017-18
96	Mr.KAMALESH, MECH	0.12	2017-18
97	Mr.R.GOPIKARAMANAN, EEE	0.12	2017-18
98	Ms.RADHA, CSE	0.12	2017-18
99	Mr.S.SARANRAJ, CSE	0.12	2017-18
100	Mr.A PRABHU, MECH	0.12	2017-18
101	Mr.P.RUPESH, MECH	0.12	2017-18
102	Mr.G.TAMIL MANI, MECH	0.12	2017-18
103	Mr.VINOTH KUMAR.V, ECE	0.12	2017-18
104	Ms.S JEBAROSE JULIYANA, MECH	0.11	2017-18
105	Mr.M RAJESH KUMAR, AUTO	0.11	2017-18
106	Mr.M SENTHIL KUMAR, MECH	0.11	2017-18
107	Mr.T RAJA, MECH	0.11	2017-18
108	Mr.S.ULAGANATHAN, ECE	0.11	2017-18

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
109	Mr.SURESH M.L, S&H	0.11	2017-18
110	Mr.B.ALLWYN, AERO	0.11	2017-18
111	Mr.SANGEETHA, CIVIL	0.11	2017-18
112	Ms.D ISWARYA, CIVIL	0.11	2017-18
113	Ms.M ANNAPURANI, CIVIL	0.11	2017-18
114	Ms.S NALINI, CIVIL	0.11	2017-18
115	Mr.R MARIAPPAN, MECH	0.11	2017-18
116	Ms.C SARANYA JOTHI, CSE	0.11	2017-18
117	Ms.S SIVARANJANI, CIVIL	0.11	2017-18
118	Ms..B.LOHINI PRIYANKA, ECE	0.11	2017-18
119	Mr.R VELU, MECH	0.11	2017-18
120	Ms.M JAYADURGA LAKSHMI, CIVIL	0.11	2017-18
121	Mr.K.RAJA, MECH	0.11	2017-18
122	Ms.M.BRENDA, ECE	0.11	2017-18
123	Mr.SILAMBARASAN K,CSE	0.10	2017-18
TOTAL		51.66	

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Date: 05/03/2022

SEED MONEY BUDGET AND UTILIZATION

Ref: Ref: The Total expenditure incurred towards institutional R&D activities, procurement of research equipment and other research expenses for the financial year 2018-19.

S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
1	Dr.A.ABUDHAHIR, EEE	0.53	2018-19
2	Dr.A.DEVARAJ, MECH	0.07	2018-19
3	Dr.A.PRABAKARAN, S&H	0.12	2018-19
4	Dr.A.S.PRAVEEN, MECH	0.82	2018-19
5	Dr.A.SELWIN MICH PRIYADHARSON, ECE	0.27	2018-19
6	Dr.A.SURRYA PRAKASH, MECH	0.85	2018-19
7	Dr.A.T.RAVICHANDRAN, MECH	0.10	2018-19
8	Dr.AMALA JUSTUS SELVAM,AUTO	0.12	2018-19
9	Dr.ARULPRAKASAJOTHI, MECH	0.44	2018-19
10	Dr.B.GOWTHAMA RAJAN, AUTO	0.09	2018-19
11	Dr.B.R.ARAVINDH RAJ, MECH	1.05	2018-19
12	Dr.C.AMUTHADEVI, CSE	0.15	2018-19
13	Dr.C.RAJKUMAR, MECH	1.02	2018-19
14	Dr.C.RAMESH KUMAR,S&H	0.61	2018-19
15	Dr.C.SARALA RUBI, S&H	0.03	2018-19
16	Dr.C.SHIYAMALA KUMARI, CSE	0.07	2018-19
17	Dr.D.FEMI, CSE	0.13	2018-19
18	Dr.D.MANIVANNAN, CSE	0.03	2018-19
19	Dr.D.RAJAMANI, MECH	1.00	2018-19
20	Dr.D.RAMYA, IT	0.04	2018-19
21	Mr.D.SAMUELRAJ,AUTO	0.12	2018-19
22	Dr.D.SURYA PRAKASH, MECH	0.26	2018-19
23	Dr.E.B.PERUMAL PILLAI, CIVIL	0.56	2018-19

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No.42,Avadi-Vel Tech Road,Vel Nagar,
Avadi, Chennai - 600 062,Tamil Nadu, India.
Landline : +91 44 2684 0262 / 2684 0605
Toll Free : 1800 212 7669
Email : registrar@veltech.edu.in
Website : www.veltech.edu.in



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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
24	Dr.E.BALASUBRAMANIAN,MECH	1.18	2018-19
25	Dr.E.PAVITHRA,MECH	0.17	2018-19
26	Dr.G.ALOY ANUJA MARY,ECE	0.31	2018-19
27	Dr.N.SRINIVASAN, CSE	0.23	2018-19
28	Dr.G.DHARMALINGAM, MECH	0.73	2018-19
29	Dr.G.SASIKALA, ECE	0.55	2018-19
30	Dr.G.SUGASH, AUTO	0.67	2018-19
31	Dr.G.Surendar, AERO	0.79	2018-19
32	Dr.G.VAIRAVEL, ECE	1.23	2018-19
33	Dr.G.YUVARAJ, CSE	0.63	2018-19
34	Dr.GEETHA SELVARANI,CIVIL	1.02	2018-19
35	Dr.I.SRI DEVI, MBA	0.45	2018-19
36	Dr.J.ANNE MARY, CIVIL	1.02	2018-19
37	Dr.J.GAJENDIRAN, S&H	0.05	2018-19
38	Dr.J.LOGESHWARI, CIVIL	0.72	2018-19
39	Dr.J.M.BABU, MECH	0.35	2018-19
40	Dr.J.NARESH KUMAR, S&H	0.06	2018-19
41	Dr.J.PAUL PRAVEEN, S&H	0.27	2018-19
42	Dr.J.PRAVEEN CHANDAR, CSE	0.32	2018-19
43	Dr.J.SARANRAJ, MECH	0.05	2018-19
44	Dr.J.SARAVANAN, CIVIL	0.94	2018-19
45	Dr.J.UDHAYA PRAKASH, MECH	0.20	2018-19
46	Dr.K.ANTONY KUMAR, CSE	0.04	2018-19
47	Dr.K.BALAJI, MECH	0.55	2018-19
48	Dr.K.KISHORE KUMAR, CSE	0.24	2018-19
49	Dr.K.RAVI SHANKAR,MBA	0.33	2018-19
50	Dr.K.VENKATESH, CSE	0.04	2018-19
51	Dr.L.LEEMA PRIYADHARSHINI, CSE	0.13	2018-19
52	Dr.N.R.Rajalakshmi, CSE	0.07	2018-19
53	Dr.M.Arun Prasad, Mech	0.61	2018-19
54	Dr.M.BRENDA, ECE	0.04	2018-19
55	Dr.M.J.CARMEL MARY BELINDA, CSE	1.03	2018-19
56	Dr.M.JAYADURGALAKSHMI, CIVIL	0.84	2018-19
57	Dr.M.KAVITHA, CSE	0.07	2018-19
58	Dr.M.SEVAMUTHU KUMAR, AUTO	0.63	2018-19
59	Dr.M.SHYAMALA DEVI, CSE	1.03	2018-19
60	Mr.D.SUGUMARAN, IT	0.03	2018-19
61	Dr.M.VENKATA SUDHAKAR, MECH	0.41	2018-19
62	Dr.M.VINOD KUMAR,CIVIL	1.02	2018-19
63	Dr.N.GOMATHI, CSE	0.20	2018-19
64	Dr.N.LENIN, MECH	0.18	2018-19
65	Dr.N.MALARVIZHI, CSE	1.21	2018-19

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66	Dr.MANOJ, BIO TECH	0.04	2018-19
67	Dr.N.PARTHEEBAN, CSE	0.20	2018-19
68	Dr.N.PUGAZHENTHI, MECH	0.06	2018-19
69	Dr.N.YUVARAJ, MECH	0.54	2018-19
70	Dr.P.ARIVUBRAKAN, CSE	0.05	2018-19
71	Dr.P.CHANDRASEKAR, EEE	0.19	2018-19
72	Dr.P.ESTHER RANI, ECE	0.54	2018-19
73	Dr.P.JEYARAMAN, MECH	1.10	2018-19
74	Dr.P.K.DHAL, EEE	0.55	2018-19
75	Dr.P.KISHORE KUMAR, CSE	0.10	2018-19
76	Dr.P.SANKARGANESH, MECH	0.24	2018-19
77	Dr.P.Sarasu, CSE	1.27	2018-19
78	Dr.P.CHANDRA KUMAR, MECH	0.40	2018-19
79	Mr.S.SIVA KUMAR, EEE	0.35	2018-19
80	DR.P.SIVA MURUGAN, MECH	0.41	2018-19
81	Mr.P.Sivaraj, EEE	0.62	2018-19
82	Dr.P.SURESH, ECE	0.56	2018-19
83	Dr.PRADEEP REDDY VANGA, S&H	0.10	2018-19
84	Dr.R.AMBIKA, ECE	0.05	2018-19
85	Dr.R.DURGA DEVI, S&H	0.11	2018-19
86	Dr.R.GOWRISHANKAR RAO, S&H	0.47	2018-19
87	DR.R.JAGAN RAJ AERO	1.20	2018-19
88	Dr.R.M.SARAVANA KUMAR, CIVIL	0.62	2018-19
89	Dr.R.MARIAPPAN, MECH	0.57	2018-19
90	Dr.JEYAPRABHA B, MBA	0.80	2018-19
91	Dr.R.RAJKUMAR, ECE	1.10	2018-19
92	Mr.R.RAMASAMY, ECE	0.05	2018-19
93	Dr.R.SAI NANDHINI, BIOTECH	0.03	2018-19
94	Dr.R.SANMUGA SUNDARAM, ECE	0.55	2018-19
95	Mr.AANANDHA SARAVANAN, ECE	0.04	2018-19
96	Dr.R.SUGUNA, CSE	0.53	2018-19
97	Dr.R.VARATHARAJAN, MECH	0.08	2018-19
98	Dr.R.VELU, MECH	0.60	2018-19
99	Dr.R.VIGNESH, CIVIL	0.10	2018-19
100	Mr.RAGHAVENDRAN, CSE	0.22	2018-19
101	Mr.RAJEEV KUMAR, CSE	0.05	2018-19
102	Mr.RAMESH KUMAR, MECH	0.62	2018-19
103	Dr.S.BALAGURU, MECH	0.61	2018-19
104	Dr.S.BASKAR, EEE	0.38	2018-19
105	Mr.S.DURAI, CSE	0.14	2018-19
106	Mr.THANJAI VADIVEL.M, CSE	0.05	2018-19
107	Dr.S.JAICHANDAR, AUTO	0.72	2018-19

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
108	Dr.S.KOTEESWARAN, CSE	0.45	2018-19
109	Dr.S.MOHAMED IQBAL, MECH	0.55	2018-19
110	Dr.S.MUGESH, BIOTECH	0.17	2018-19
111	Dr.JAISWAL B.L, AERO	0.20	2018-19
112	Dr.S.PADMANABHAN, AUTO	0.12	2018-19
113	Dr.R.RAJKUMAR, CSE	0.31	2018-19
114	Dr.S.SEKAR, MECH	0.53	2018-19
115	Dr.S.SENTHIL KUMAR, S&H	0.35	2018-19
116	Mr.S.SIVA RANJANI, CIVIL	0.10	2018-19
117	Mr.S.SIVAKUMAR, EEE	0.36	2018-19
118	Dr.S.SUPPIAH, CIVIL	1.05	2018-19
119	Mr.S.VISHNU KUMAR, ECE	0.03	2018-19
120	Dr.SACHIN SALUNKHE, MECH	1.39	2018-19
121	Dr.SHAILENDRA KUMAR MISHRA, ECE	0.53	2018-19
122	Dr.T.BALAJI, MECH	0.24	2018-19
123	Dr.T.NELSON PONNU DURAI, CIVIL	0.13	2018-19
124	Dr.T.RAMESH KUMAR, MECH	0.04	2018-19
125	Dr.U.CHANDRA SEKHAR, AERO	0.20	2018-19
126	Dr.S.Ganesan, Mech	0.83	2018-19
127	Dr.V.HIMA DEEPTHI, ECE	0.64	2018-19
128	Dr.V.SUNDARAPANDIAN, S&H	0.35	2018-19
129	Dr.V.VANITHA, CSE	0.08	2018-19
130	Dr.VAIRAVEL, ECE	0.50	2018-19
131	Dr.Varatharajan, MECH	1.77	2018-19
132	Dr.VINOTH JOHN PRAKASH	0.08	2018-19
133	Mr. I.VINOTH KANNA, MECH	0.11	2018-19
134	Mr. M SHRI HARISH, MECH	0.35	2018-19
135	Mr.A.DEVARAJ, MECH	0.62	2018-19
136	Mr.A.PRABHU, MECH	0.04	2018-19
137	Mr.A.S.SYED FIAZ, CSE	0.07	2018-19
138	Ms.LEEMA PRIYADHARSINI, CSE	0.24	2018-19
139	Dr.A.SIVANESH KUMAR, CSE	0.04	2018-19
140	Mr.AARIF AHAMED, CSE	0.09	2018-19
141	Mr.ALEX DAVID, CSE	0.05	2018-19
142	Mr.ARUN PRASAD, MECH	0.13	2018-19
143	Mr.C.MAHESH, IT	0.63	2018-19
144	Dr.C.SHANJEEVI, MECH	0.12	2018-19
145	Mr.D.DILEEPAN, ECE	0.04	2018-19
146	Dr.D.IYAPPAN, S&H	0.12	2018-19
147	Mr.D.JEYA MARVA SANTHIYA, CIVIL	0.11	2018-19
148	Mr.D.MANIVANNAN, CSE	0.05	2018-19
149	Mr.D.RAJESH, MECH	0.12	2018-19

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
150	Mr.D.SAMUEL RAJ, AUTO	0.05	2018-19
151	Mr.DHARMARAJ,ECE	0.15	2018-19
152	Mr.E.GOPI, AERO	0.07	2018-19
153	Dr.E.SHANJEEVI, MECH	0.04	2018-19
154	Dr.G.ARUL KUMARAN, CSE	0.04	2018-19
155	Mr.G.BOPPRATHY, AERO	0.06	2018-19
156	Mr.JAGANATHAN.D, CSE	0.06	2018-19
157	Ms.G.STEPHANIE VIANNA, IT	0.05	2018-19
158	Mr.G.TAMILMANI, CSE	0.09	2018-19
159	Mr.I.IFRAN AHMED, MECH	0.12	2018-19
160	Dr.J.SANTHOSH, CSE	0.04	2018-19
161	Mr.SRI RAMAN KOTHURI, CSE	0.07	2018-19
162	Mr.HARIKRISHNAN.M.S, CIVIL	0.11	2018-19
163	Mr.JAFAR SATHICK ALI, CSE	0.07	2018-19
164	Mr.JIBAN PRIYA DEVI, ECE	0.35	2018-19
165	Mr.K.ARUN KUMAR, MECH	0.06	2018-19
166	Mr.M.BHARATH, CIVIL	0.08	2018-19
167	Mr.K.KARTHIK, MECH	0.09	2018-19
168	Mr.K.KARUNANITTHI, EEE	0.53	2018-19
169	Mr.K.MOHAN BABU, MECH	0.24	2018-19
170	Mr.K.Raja, Mech	0.44	2018-19
171	Mr.K.S.GURUPRAKASH, CSE	0.12	2018-19
172	Mr.K.SUBRAMANI, MECH	0.41	2018-19
173	Mr.K.THANIGAIVEL, EEE	0.09	2018-19
174	Mr.K.VINOTH, EEE	0.41	2018-19
175	Mr.KISHORE KUMAR, CSE	0.03	2018-19
176	Mr.KRISHN DAS PATEL, AERO	0.08	2018-19
177	Mr.M Bharath, Civil	0.10	2018-19
178	Ms.S.BHARATHI, CSE	0.75	2018-19
179	Mr.M.CHINNASAMY, CIVIL	0.90	2018-19
180	Mr.M.KARTHIK, MECH	0.17	2018-19
181	Mr.M.NAGAPPAN, MECH	0.86	2018-19
182	Mr.M.R.EZILARASAN, ECE	0.29	2018-19
183	Mr.M.RAJAGURUNATHAN, AERO	0.05	2018-19
184	Mr.M.SENTHIL KUMAR, MECH	0.03	2018-19
185	Mr.M.SIVARATHINARAJA, ECE	0.10	2018-19
186	Mr.M.SUNDARRAJ, MECH	0.03	2018-19
187	Mr.I.VINOTH KHANNA, MECH	0.26	2018-19
188	Mr.MATHEW ALPHONSE, MECH	0.09	2018-19
189	Mr.N.DILIP RAJA, MECH	0.04	2018-19
190	Mr.N.K.RAYAGURU, EEE	0.08	2018-19
191	Mr.N.Pugazhenth, MECH	0.08	2018-19


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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
192	Mr.N.SIVARAMA LINGHAM, CSE	0.91	2018-19
193	Mr.N.VIJAYARAJ, CSE	0.90	2018-19
194	Mr.R.VINOTH KUMAR, CSE	0.04	2018-19
195	Mr.NATARAJAN,ECE	0.05	2018-19
196	Mr.AMAR PRAKASH, MECH	0.11	2018-19
197	Mr.P.ARUNKUMAR, MECH	0.07	2018-19
198	Mr.P.B.SENTHIL KUMAR, AUTO	0.62	2018-19
199	Mr.P.ELAVARASAN, ECE	0.05	2018-19
200	Mr.P.L.RUPESH,MECH	0.05	2018-19
201	Mr.P.N.KARTHIKAYAN, IT	0.03	2018-19
202	Mr.R.HUSHEIN, ECE	0.09	2018-19
203	Mr.A.KARTHICKRAM, CSE	0.24	2018-19
204	Mr.R.M.BALAJEE, CSE	0.06	2018-19
205	Mr.R.PRASANNA,ECE	0.57	2018-19
206	Mr.R.RAJESH, EEE	0.24	2018-19
207	Mr.R.ROHITH RENISH, MECH	0.09	2018-19
208	Mr.R.SARAVANAKUMAR, CIVIL	0.04	2018-19
209	Mr.R.SELVAMUTHUKUMAR, AUTO	0.12	2018-19
210	Mr.R.SREEDHAR, EEE	0.03	2018-19
211	Mr.A.VIJAY VASANTH, CSE	0.31	2018-19
212	Mr.R.VEERAKUMAR, CIVIL	0.65	2018-19
213	Ms.POORNIMA, CSE	0.04	2018-19
214	Mr.RAMESH, MECH	0.07	2018-19
215	Mr.S.AARIF AHAMED, CSE	0.04	2018-19
216	Mr.S.FLORENCE, CSE	0.07	2018-19
217	Mr.S.JANA, ECE	0.04	2018-19
218	Mr.S.JEYAVELU, MECH	0.05	2018-19
219	Mr.S.LAKSHMANAN, MECH	0.37	2018-19
220	Mr.PUSHPAKUMAR, IT	0.10	2018-19
221	Mr.S.RAVIKUMAR, CSE	0.16	2018-19
222	Mr.S.SANKARA SRINIVASAN, EEE	0.53	2018-19
223	Mr.P.SANTHOSH KUMAR, CSE	0.07	2018-19
224	Mr.S.SIVAKUMAR, EEE	0.07	2018-19
225	Mr.SAMUELRAJ, AUTO	1.00	2018-19
226	Dr.SASI KUMAR.M, S&H	0.05	2018-19
227	Mr.SENTHIL KUMARAN,ECE	0.09	2018-19
228	Mr.Silambarasan, ECE	0.04	2018-19
229	Mr.Sridhar, Civil	0.10	2018-19
230	Mr.T.BHARATHI, EEE	0.17	2018-19
231	Mr.T.Chithras,EEE	0.71	2018-19
232	Mr.T.RAJA, MECH	0.04	2018-19
233	Mr.T.RAMESH, MECH	0.24	2018-19


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234	Dr.T.SENTHIL MURUGAN, CSE	0.78	2018-19
235	Mr.T.UDAYA KUMAR,CIVIL	0.52	2018-19
236	Mr.TAMILMANI.G,CSE	0.10	2018-19
237	Mr.U.VADIVELAN, S&H	0.06	2018-19
238	Mr.UDHAYA KUMAR R, S&H	0.41	2018-19
239	Mr.BALAJI D, ECE	0.06	2018-19
240	Dr.V.DHILIP KUMAR, CSE	0.03	2018-19
241	Mr.V.JAYASANKAR, MECH	1.17	2018-19
242	Mr.V.KARTHIKEYAN, ECE	0.04	2018-19
243	Mr.V.RAMESH, MECH	0.16	2018-19
244	Mr.VENKATA SUBBA REDDY, MECH	0.25	2018-19
245	Ms.A.MEENA,ECE	0.44	2018-19
246	Ms.A.SANGEETHA, CIVIL	0.08	2018-19
247	Ms.ALMAS BEGUM, CSE	0.62	2018-19
248	Ms.B.JANANI, S&H	0.07	2018-19
249	Ms.B.KOMALA DURGA, S&H	0.69	2018-19
250	Ms.IYAPPAN.D, S&H	0.08	2018-19
251	Ms.B.UMAMAHESWARI, CSE	0.05	2018-19
252	Ms.C.BHUVANESHWARI, CSE	0.07	2018-19
253	Ms.REVATHI.P, S&H	0.07	2018-19
254	Ms.C.S.SHAMILI, ECE	0.04	2018-19
255	Ms.D.JEYA MARIA SANTHIYA, CIVIL	0.03	2018-19
256	Ms.D.RAMYA, IT	0.03	2018-19
257	Ms.G.DIVYA, CIVIL	0.05	2018-19
258	Ms.G.NIVEDHITHA, CSE	0.09	2018-19
259	Ms.J.ANNE MARY, CIVIL	0.05	2018-19
260	Ms.J.DEEPA, IT	0.07	2018-19
261	Mr.K.LOGESH, MECH	0.41	2018-19
262	Dr.K.Arthi, CSE	0.05	2018-19
263	Ms.K.PREMA, CSE	0.13	2018-19
264	Ms.K.RAJATHI, CSE	0.05	2018-19
265	Ms.L.LOGESHWARI, CIVIL	0.05	2018-19
266	Ms.N.RUPAVATHY, CSE	0.06	2018-19
267	Ms.R.ABINAYA, CSE	0.03	2018-19
268	Ms.R.BHUVANYA, CSE	0.08	2018-19
269	Ms.R.GAYATHRI, CSE	0.07	2018-19
270	Mr.KESAVAN G.D, CSE	0.42	2018-19
271	Ms.R.MANJU PRIYA, CSE	0.04	2018-19
272	Ms.R.NIRMALA NITHYA, BIOTECH	0.03	2018-19
273	Ms.R.RENUGA, CSE	0.04	2018-19
274	Ms.R.SATHYA, ECE	0.66	2018-19
275	Dr.R.SHANMUGA PRIYA, S&H	0.69	2018-19

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
276	Ms.SHEEBA SANTHOSH, ECE	0.04	2018-19
277	Ms.T.VISHNU PRIYA, ECE	0.05	2018-19
278	Ms.V.USHA, CSE	0.66	2018-19
279	Ms.ANITHA JOSEPHINE.A, IT	0.10	2018-19
280	Ms.C.AMUTHA DEVI, CSE	0.10	2018-19
281	Ms.DEEPA, IT	0.04	2018-19
282	Ms.M.ANNAPURANI, CIVIL	0.76	2018-19
283	Ms.M.PRADEEPA, ECE	0.11	2018-19
284	Ms.M.RIGANA BEGAM, S&H	0.16	2018-19
285	Ms.R.PRIYADHARSHINI, ECE	0.08	2018-19
286	Ms.RAMALAKSHMI, MEDIA	0.05	2018-19
287	Ms.S.SIVARANJANI, CIVIL	0.78	2018-19
TOTAL		88.93	

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Date: 05/03/2022

SEED MONEY BUDGET AND UTILIZATION

Ref: The Total expenditure incurred towards institutional R & D activities, procurement of research equipment and other research expenses for the financial year 2016-17.

S.no	Name of the teacher provided with seed money	Amount Spent	Year of receiving
1	Dr.ABUDHAHIR.A,EEE	0.75	2019-20
2	Dr.ANAND.P, MECH	0.54	2019-20
3	Dr.ANANDAN.P, ECE	0.78	2019-20
4	Dr.ANKUR BANSOD, MECH	0.30	2019-20
5	Dr.ARTHI.K,CSE	0.21	2019-20
6	Dr.ARUL PRAKASAJOTHI, Mech	0.85	2019-20
7	Dr.ARUN PRASAD, MECH	0.75	2019-20
8	Dr.ASWIN SIDHAARTH.K.R, CIVIL	0.30	2019-20
9	Dr.BALAGURU.S, MECH	0.86	2019-20
10	Dr.BALASUBRAMANIAN.E, Mech	0.51	2019-20
11	Dr.Boomadevi Janaki G, S&H	0.28	2019-20
12	Dr.CARMEL MARY BELINDA, CSE	0.86	2019-20
13	Dr.CHANDRA SEKAR.P, EEE	0.49	2019-20
14	Dr.CHRISTOPHER.S,MECH	0.50	2019-20
15	Dr.DAVID BHATT,AERO	0.69	2019-20
16	Dr.ESTHER RANI.P, ECE	0.72	2019-20
17	Dr.GEETHA SELVARANI.A,CIVIL	0.74	2019-20
18	Dr.GOWRI.A,BIO MED	0.90	2019-20
19	Dr.H.K.SINGH,ECE	0.76	2019-20
20	Dr.HARIDHARAN.N, S&H	0.73	2019-20
21	Dr.HEMAKUMAR.V.S,ECE	0.16	2019-20
22	Dr.HIMA DEEPTHI.V,ECE	0.75	2019-20
23	Dr.J.M.BABU,MECH	0.26	2019-20
24	Dr.J.MOHANRAJ, ECE	0.75	2019-20
25	Dr.JAYAVELU.S, MECH	0.38	2019-20



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No.42, Avadi-Vel Tech Road, Vel Nagar,
Avadi, Chennai - 600 062, Tamil Nadu, India.
Landline : +91 44 2684 0262 / 2684 0605
Toll Free : 1800 212 7669
Email : registrar@veltech.edu.in
Website : www.veltech.edu.in



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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
26	Dr.JOSEPH RAJ X, S&H	0.87	2019-20
27	Dr.K R Aswin Sidhaarth, Civil	0.33	2019-20
28	Dr.K.Jagajjanani Rao, Biotech	1.87	2019-20
29	Dr.K.LOGASAKTHI, MBA	0.25	2019-20
30	Dr.K.MEENA,CSE	1.03	2019-20
31	Dr.K.TAMILARASAN, CIVIL	0.42	2019-20
32	Dr.Kanagachidambaresan G.R, CSE	0.68	2019-20
33	Dr.KAVITHA.T, ECE	0.25	2019-20
34	Dr.KOTESWARA RAO.A,CSE	0.67	2019-20
35	Dr.LAKSHMANAN.S, MECH	0.37	2019-20
36	Dr.Logeshwari.J, CIVIL	0.33	2019-20
37	Dr.M.Arun Prasad, Mech	0.41	2019-20
38	Dr.M.KAVITHA,CSE	0.41	2019-20
39	Dr.M.Parthasarathy, Auto	0.38	2019-20
40	Dr.M.SHYAMALA DEVI, CSE	0.58	2019-20
41	Dr.M.Valliammai,ECE	0.75	2019-20
42	Dr.M.VINOD KUMAR, CIVIL	0.31	2019-20
43	Dr.MAHESH.C, IT	0.43	2019-20
44	Dr.MASOODHU BANU, Biomed	0.27	2019-20
45	Dr.Mugesh,Biotech	1.56	2019-20
46	Dr.MURUGESAN .G, S&H	0.30	2019-20
47	Dr.N.GOMATHI, CSE	0.60	2019-20
48	Dr.N.Kalaivani, S&H	0.10	2019-20
49	Dr.N.Malarvizhi, CSE	0.36	2019-20
50	Dr.N.R.Rajalakshmi, CSE	0.19	2019-20
51	Dr.N.SRINIVASAN, S&H	0.06	2019-20
52	Dr.N.Yuvaraj, Mech	1.03	2019-20
53	Dr.Naren Shankar,AERO	0.89	2019-20
54	Dr.P.K.Dhal	0.36	2019-20
55	Dr.P.Sarasu, CSE	0.71	2019-20
56	Dr.PARTHASARTHY.M, AUTO	0.22	2019-20
57	Dr.PAVITHRA.E,MECH	0.40	2019-20
58	Dr.PERUMALPILLAI, CIVIL	0.41	2019-20
59	Dr.Praveen.A.S, Mech	0.44	2019-20
60	Dr.R Kavitha, CSE	0.74	2019-20
61	Dr.R.GANESH KUMAR, MBA	0.25	2019-20
62	Dr.R.JAGANRAJ, AERO	0.41	2019-20
63	Dr.R.Jaganraj, AERO	0.53	2019-20
64	Dr.R.KAVITHA, CSE	0.41	2019-20
65	Dr.R.SUGUNA	0.87	2019-20

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S.No	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
66	Dr.R.SURESH, S&H	0.25	2019-20
67	Dr.Rajamani.D, Mech	0.59	2019-20
68	Dr.RAJKUMAR.R, ECE	0.43	2019-20
69	Dr.RAVICHANDRAN A.T, MECH	0.23	2019-20
70	Dr.S.Mohamed Iqbal, Mech	0.44	2019-20
71	Dr.S.ARCHANA, S&H	0.10	2019-20
72	Dr.S.Baskar,EEE	0.31	2019-20
73	Dr.S.Ganesan, Mech	0.36	2019-20
74	Dr.S.JANA, ECE	0.75	2019-20
75	Dr.S.P.Vinodhini, S&H	0.33	2019-20
76	Dr.S.PADMANABHAN, AUTO	0.44	2019-20
77	Dr.S.PRABHU KUMAR, MECH	0.82	2019-20
78	Dr.S.Ramkumar, Auto	0.88	2019-20
79	Dr.S.Samson,CIVIL	0.89	2019-20
80	Dr.S.SHIYAMALA, ECE	0.25	2019-20
81	Dr.S.Velu, Mech	0.33	2019-20
82	Dr.S.YUVARAJ, CIVIL	0.41	2019-20
83	Dr.Sachin Salunkhe, Mech	1.25	2019-20
84	Dr.Santhosh.J, CSE	0.17	2019-20
85	Dr.SARANYA.G, BIOMED	0.26	2019-20
86	Dr.Sasikala.G, ECE	0.40	2019-20
87	Dr.Selwin mich priyadharson	0.34	2019-20
88	Dr.Shankar Raman Dhanushkodi, MECH	0.56	2019-20
89	Dr.SHYAMALA DEVI.M, CSE	0.36	2019-20
90	Dr.Sivamurugan.P, MECH	0.37	2019-20
91	Dr.Sivaraman, CSE	0.77	2019-20
92	Dr.Srimanickam.B, MECH	0.52	2019-20
93	Dr.Suppiah, Civil	0.50	2019-20
94	Dr.Surendar.G, Aero	0.74	2019-20
95	Dr.Tarangini,Biotech	1.13	2019-20
96	Dr.V.HIMA DEEPTHI, ECE	0.35	2019-20
97	Dr.V.JAYASANKAR, EEE	0.36	2019-20
98	Dr.YUVARAJ, MECH	0.73	2019-20
99	Mr.A.BACKIAYARAJ,AUTO	0.10	2019-20
100	Mr.A.Devaraj, MECH	0.28	2019-20
101	Mr.A.Farithkhan, ECE	0.08	2019-20
102	Mr.A.P.VENKATESH,AUTO	0.27	2019-20
103	Mr.A.Vasudevan, MECH	0.05	2019-20
104	Mr.Arun Kumar.P, MECH	0.05	2019-20
105	Mr.ARUNKUMAR N.N, MEDIA	0.10	2019-20
106	Mr.D.Jaganathan,CSE	0.06	2019-20

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107	Mr.D.L.Belgin Paul,MECH	0.06	2019-20
108	Mr.D.RAJESH, MECH	0.07	2019-20
109	Mr.D.SAMUELRAJ,AUTO	0.07	2019-20
110	Mr.D.Surrya Prakash, Mech	0.43	2019-20
111	Mr.D.Yogaraj, MECH	0.06	2019-20
112	Mr.G.Arul Kumaran, CSE	0.06	2019-20
113	Mr.G.BOOPATHY, AERO	0.16	2019-20
114	Mr.G.GNANAGURU, ECE	0.08	2019-20
115	Mr.G.KANNAN, AERO	0.19	2019-20
116	Mr.G.KUMAR, CIVIL	0.24	2019-20
117	Mr.G.RAJESH, CSE	0.10	2019-20
118	Mr.Gandhi, MECH	0.08	2019-20
119	Mr.Hariharan, IT	0.07	2019-20
120	Mr.I.SARAN RAJ, MECH	0.11	2019-20
121	Mr.J.Saravanan, Civil	0.65	2019-20
122	Mr.Jeyaraman, MECH	0.07	2019-20
123	Mr.K.Antony Kumar, CSE	0.11	2019-20
124	Mr.K.Durai raj, IT	0.08	2019-20
125	Mr.K.THANIGAIVEL, EEE	0.07	2019-20
126	Mr.M.DHILSATH FATHIMA, IT	0.05	2019-20
127	Mr.M.KARTHICK, MECH	0.11	2019-20
128	Mr.M.Rajesh Kumar,AUTO	0.07	2019-20
129	Mr.M.SATHISH KUMAR	0.11	2019-20
130	Mr.N.K.Manikandan,ECE	0.05	2019-20
131	Mr.N.K.SENTHIL KUMAR, CSE	0.08	2019-20
132	Mr.N.Manjunathan,CSE	0.05	2019-20
133	Mr.N.Pugazhenthii, MECH	0.05	2019-20
134	Mr.NELSON PONNU DURAI, CIVIL	0.11	2019-20
135	Mr.P.B.SENTHIL KUMAR, AUTO	0.16	2019-20
136	Mr.P.Elavarasan, Auto	0.68	2019-20
137	Mr.P.Kishore Kumar, MECH	0.11	2019-20
138	Mr.P.R.Joe Dhanith, IT	0.15	2019-20
139	Mr.P.Sivaraj, EEE	0.08	2019-20
140	Mr.Prabhu Kumar Surapu,ECE	0.11	2019-20
141	Mr.PRASANNA RAM, ECE	0.75	2019-20
142	Mr.R.GANESH, MECH	0.11	2019-20
143	Mr.R.HARIHARAN, IT	0.05	2019-20
144	Mr.R.Saravana Kumar, Civil	0.41	2019-20
145	Mr.R.SREEDHAR, EEE	0.10	2019-20
146	Mr.Ravikumar S, CSE	0.10	2019-20
147	Mr.Robert Singh, Civil	0.10	2019-20

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
148	Mr.S.AARIF AHAMED, CSE	0.05	2019-20
149	Mr.S.Kolappan, MECH	0.05	2019-20
150	Mr.S.P.Saravanan, CIVIL	0.05	2019-20
151	Mr.S.PARTHIBAN, MECH	0.08	2019-20
152	Mr.S.Sivaranjani,CIVIL	0.43	2019-20
153	Mr.S.VINSON JOSHUA, ECE	0.18	2019-20
154	Mr.SAMBATH KUMAR.K, ECE	0.08	2019-20
155	Mr.SARAVANA KUMAR,R.M, CIVIL	0.11	2019-20
156	Mr.SARAVANA RAGAVAN.V, MEDIA	0.10	2019-20
157	Mr.Saravanan J,CIVIL	0.46	2019-20
158	Mr.SENTHIL KUMAR.P.B, AUTO	0.17	2019-20
159	Mr.Senthil Kumaran, ECE	0.25	2019-20
160	Mr.SHAIENDRA KUMAR MISHRA,ECE	0.24	2019-20
161	Mr.SHELISHIYAH.R, BIOMED	0.07	2019-20
162	Mr.SRIDHAR.M, CIVIL	0.11	2019-20
163	Mr.Syed Riyaz Ahammed, AERO	0.30	2019-20
164	Mr.T Ravichandran, AUTO	0.06	2019-20
165	Mr.T.Balaji,MECH	0.45	2019-20
166	Mr.T.Chithras,EEE	0.08	2019-20
167	Mr.T.Nelson Ponnu durai, Civil	0.10	2019-20
168	Mr.T.Subesh, MECH	0.08	2019-20
169	Mr.T.Udhaya Kumar,CIVIL	0.26	2019-20
170	Mr.Thamizhazhagan,ECE	0.30	2019-20
171	Mr.V.Prabhu, CSE	0.06	2019-20
172	Mr.V.RAMESH, MECH	0.07	2019-20
173	Mr.VEERAKUMAR.R, CIVIL	0.08	2019-20
174	Mr.VENKATARAMANAIAH.B, ECE	0.08	2019-20
175	Mr.VIGNESH PRASANNA.N, ECE	0.75	2019-20
176	Mr.VIJAY ALBERT, ECE	0.11	2019-20
177	Mr.Vishnukumar.S, ECE	0.06	2019-20
178	Ms.A.DIVYA SADHANA,MECH	0.08	2019-20
179	Ms.A.SANGEETHA,civil	0.49	2019-20
180	Ms.Almas Begum,CSE	0.08	2019-20
181	Ms.ASHA ABRAHAM, CSE	0.08	2019-20
182	Ms.BRENDA.M, ECE	0.11	2019-20
183	Ms.C.Ambika Bhuvaneshwari, ECE	0.04	2019-20
184	Ms.Dhilsath Fathima,IT	0.07	2019-20
185	Ms.Diana Earshia.V, ECE	0.04	2019-20
186	Ms.DURGA DEVI.R, EEE	0.06	2019-20
187	Ms.E.PREETHI, ECE	0.05	2019-20
188	Ms.Femi D, CSE	0.08	2019-20

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S.No	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
189	Ms.G.Divya,CIVIL	0.50	2019-20
190	Ms.J.Anne Mary, CIVIL	0.30	2019-20
191	Mr.K.Lokesh, Mech	0.30	2019-20
192	Ms.Jebarose Juliyana, MECH	0.11	2019-20
193	Ms.JEYA MARIA SANTHIYA, CIVIL	0.07	2019-20
194	Ms.K.JAYANTHI, IT	0.08	2019-20
195	Ms.K.S.SAKUNTHALA PRABHA, IT	0.05	2019-20
196	Ms.KASTHURI.D, ECE	0.08	2019-20
197	Ms.L.RAMALAKSHMI, MEDIA	0.10	2019-20
198	Ms.M.ANNAPURANI, CIVIL	0.05	2019-20
199	Ms.M.MUTHUMARI	0.05	2019-20
200	Ms.M.Sumithra, CSE	0.08	2019-20
201	Ms.Prema,CSE	0.42	2019-20
202	Ms.Priscilla Whitin, EEE	0.15	2019-20
203	Ms.R.NIRMALA NITHYA, BIOTECH	0.10	2019-20
204	Ms.R.SAI NANDHINI, BIOTECH	0.10	2019-20
205	Ms.Ramalakshmi, Media	0.06	2019-20
206	Ms.S.HANNAH, CSE	0.04	2019-20
207	Ms.S.Kuzhaloli, EEE	0.05	2019-20
208	Ms.S.Sivaranjani, Civil	0.49	2019-20
209	Ms.SHELISHIYAH.R, BIOMED	0.05	2019-20
210	Ms.SUNAINA MARIAM CHERIAN, BIOMED	0.27	2019-20
211	Ms.V Deepa, CSE	0.05	2019-20
212	Ms.Vinulakshmi, ECE	0.10	2019-20
Total		70.20	

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Date: 05/03/2022

SEED MONEY BUDGET AND UTILIZATION

Ref: The Total expenditure incurred towards institutional R & D activities, procurement of research equipment and other research expenses for the financial year 2020-21.

S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
1	Dr.J.Mohanraj, ECE	1.96	2020-21
2	Dr.R.Naren Shankar, Aero	1.99	2020-21
3	Dr.Kanimozhi, ECE	1.97	2020-21
4	Dr.T.Kavitha,ECE	1.96	2020-21
5	Dr.Chandra Kumar,Mech	1.95	2020-21
6	Dr.S.Ramesh, EEE	1.94	2020-21
7	Dr.S.Sridevi, ECE	1.92	2020-21
8	Dr.Thiyam Deepa Beeta, Biomed	1.91	2020-21
9	Dr.M.Valliammai, ECE	1.86	2020-21
10	Dr.G.Vairavel, ECE	1.48	2020-21
11	Dr.Tarangini Korumilli, Biotech	1.47	2020-21
12	Dr.D.Uma Nandhini, CSE	1.42	2020-21
13	Dr.Sachin Salunkhe, Mech	1.39	2020-21
14	Dr.E.Balasubramanian, Mech	1.39	2020-21
15	Dr.S.Mugesh, Bio Tech	1.34	2020-21
16	Dr.A.Gowri, Bio Med	1.32	2020-21
17	Dr.P.Anandan, ECE	1.29	2020-21
18	Dr.Kanagachidambaresan, CSE	1.24	2020-21
19	Dr.S.Sivaperumal, ECE	1.14	2020-21
20	Dr.Jagajjanani Rao, Biotech	1.12	2020-21
21	Dr.P.Suresh, ECE	1.00	2020-21
22	Dr.P.Esther Rani, ECE	0.96	2020-21
23	Mr.R.Prasanna, ECE	0.96	2020-21
24	Dr.Elangovan, Mech	0.90	2020-21
25	Mr.V.Ashok kumar, CSE	0.83	2020-21


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No.42, Avadi-Vel Tech Road, Vel Nagar,
Avadi, Chennai - 600 062, Tamil Nadu, India.
Landline : +91 44 2684 0262 / 2684 0605
Toll Free : 1800 212 7669
Email : registrar@veltech.edu.in
Website : www.veltech.edu.in



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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
26	Dr.P.Chandrasekar, EEE	0.81	2020-21
27	Dr.Meikandan.M, Mech	0.78	2020-21
28	Dr.Amala Justus Selvam, Auto	0.76	2020-21
29	Dr.M.Vinod Kumar, Civil	0.74	2020-21
30	Dr.PRABHU KUMAR.S, Mech	0.72	2020-21
31	Dr.N.Yuvaraj, Mech	0.64	2020-21
32	Dr.E.B.Perumalpillai, Civil	0.64	2020-21
33	Dr.MALARVIZHI.N, CSE	0.64	2020-21
34	Dr.M.PARTHASARATHY,Auto	0.61	2020-21
35	Dr.V Harish Venu, Auto	0.57	2020-21
36	Dr.UDAYA PRAKASH.J, Mech	0.56	2020-21
37	Dr.E.Kannan, CSE	0.55	2020-21
38	Dr.M.ARULPRAKASAJOTHI, Mech	0.55	2020-21
39	Dr.DILIP RAJA.N, Mech	0.55	2020-21
40	Dr.P.Esther Rani, ECE	0.54	2020-21
41	Dr.K.KARUNANITHI, EEE	0.53	2020-21
42	Dr.G.Sasikala, ECE	0.53	2020-21
43	Dr.J L Mazher Iqbal, ECE	0.53	2020-21
44	Dr.Masoodhu Banu, Biomed	0.52	2020-21
45	DR.K.MEENA, CSE	0.52	2020-21
46	Dr.Geetha Selvarani, Civil	0.52	2020-21
47	Dr.SHIYAMALA.S, ECE	0.51	2020-21
48	Dr.C.SHYAMALA KUMARI,CSE	0.50	2020-21
49	Dr.Selwin Mich Priyardarson, ECE	0.46	2020-21
50	Mr.KANNAN.G, Aero	0.30	2020-21
51	Dr.Mahesh, IT	0.35	2020-21
52	Dr.A.Praveen, Mech	0.62	2020-21
53	Dr.K.Tamilarasan, CIVIL	0.38	2020-21
54	Dr.S.Jana, ECE	0.29	2020-21
55	Dr.H K Singh, ECE	0.28	2020-21
56	Dr.Saranya G.,Biomed	0.26	2020-21
57	Mr.Shaju, Mech	0.26	2020-21
58	Dr.P.Anand, Mech	0.26	2020-21
59	Mr.T.Balaji, Mech	0.25	2020-21
60	Mr.Vinson Joshua,ECE	0.39	2020-21
61	Dr.R.Seranmadevi, MBA	0.22	2020-21
62	Dr.A.T.Ravichandran, Mech	0.19	2020-21
63	Mr.P.Arivubakan, CSE	0.18	2020-21
64	Ms.Sai Nandhini, Biotech	0.15	2020-21
65	Ms.Divya Sadhana,MECH	0.15	2020-21

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66	Mr.Ganesh R,MECH	0.14	2020-21
67	Dr.N.Haridharan,S&H	0.12	2020-21
68	Dr.Aloy Anuja Mary G,ECE	0.11	2020-21
69	Dr.Kalpana Devi P,ECE	0.11	2020-21
70	Dr.Valarmathi.R.S, ECE	0.11	2020-21
71	Mr.C.Thilip Kumar ,EEE	0.11	2020-21
72	Mr.Gowtham.G,Auto	0.11	2020-21
73	Mr.V.Balaji, Mech	0.11	2020-21
74	Dr.S.Baskar,EEE	0.11	2020-21
75	Mr.Karthik, CSE	0.11	2020-21
76	Dr.R.Kavitha,CSE	0.11	2020-21
77	Mr.A.Vasudevan, MECH	0.11	2020-21
78	Mr.K.Subramani,MECH	0.11	2020-21
79	Mr.Dharmaraj,ECE	0.10	2020-21
80	Mr.Murugunachippan, Auto	0.10	2020-21
81	Mr.Saravanan.J, CIVIL	0.10	2020-21
82	Ms.Annapurani, Civil	0.10	2020-21
83	Mr.Jayaraj, Mech	0.10	2020-21
84	Mr.Mutharasan,ECE	0.09	2020-21
85	Dr.S.P.Vindhini,S&H	0.09	2020-21
86	Dr.Harikrishan Paik, ECE	0.09	2020-21
87	Mr.T.Raja, Mech	0.09	2020-21
88	Mr.Ramesh V, MECH	0.09	2020-21
89	Ms.Vaitheeshwari R,ECE	0.07	2020-21
90	Mr.Elantheraiyan,MBA	0.07	2020-21
91	Mr.Venkataramanaiah, ECE	0.07	2020-21
92	Dr.N.Vijayaraj,CSE	0.07	2020-21
93	Ms.K.PREMA,CSE	0.07	2020-21
94	Mr.T.RAVICHANDRAN, Auto	0.07	2020-21
95	Mr.G.Kumar, Civil	0.07	2020-21
96	Mr.Kujani T, CSE	0.07	2020-21
97	Dr.T.Kanimozhi, ECE	0.07	2020-21
98	Ms.Brenda M, ECE	0.07	2020-21
99	Mr.R.SREEDHAR, EEE	0.07	2020-21
100	Mr.Fayaz ur Rahman S&H	0.07	2020-21
101	Mr.R Hushein, ECE	0.15	2020-21
102	Ms.Hemalatha P K,S&H	0.15	2020-21
103	Ms.R Narmada Devi, S&H	0.15	2020-21
104	Dr.Komala Durga,S&H	0.15	2020-21
105	Mr.Saravana Kumar R M, Civil	0.14	2020-21
106	Ms.C.Saranya Jothi,CSE	0.14	2020-21

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S.no	Name of the teacher provided with seed money	Amount Spent (INR in Lakhs)	Year of receiving
107	Dr.Joseph J Kakkaserry, Auto	0.14	2020-21
108	Mr.JEYARAMAN.P, Mech	0.14	2020-21
109	Dr.S.Ganesan, Mech	0.14	2020-21
110	Mr.L.BALAJI, ECE	0.14	2020-21
111	Mr.Sathyaseelan, Mech	0.14	2020-21
112	Ms.C.Sarala Rubi, S&H	0.14	2020-21
113	Mr.Narayanasamy, S&H	0.14	2020-21
114	Ms.Jeyanthi Palanivel, Biotech	0.14	2020-21
115	Mr.Manickam, Mech	0.14	2020-21
116	Ms.Sivaranjani.S, CIVIL	0.14	2020-21
117	Mr.SAMBATH KUMAR.K, ECE	0.14	2020-21
118	Dr.S G Rahul, ECE	0.06	2020-21
119	Mr.Ezilarasan, ECE	0.06	2020-21
120	Mr.K Kishore Kumar, CSE	0.06	2020-21
121	Mr.N K Rayaguru, EEE	0.06	2020-21
122	Mr.S.DURAI,CSE	0.06	2020-21
123	Mr. Vishnu, ECE	0.11	2020-21
124	Ms.Boomidevi, S&H	0.06	2020-21
125	Ms.Florence, CSE	0.06	2020-21
126	Mr.Nizar Ahamed.M, CSE	0.05	2020-21
127	Ms.R.Lavanya, ECE	0.05	2020-21
128	Mr.S Karthick, Mech	0.05	2020-21
129	Mr.Saleem.M, Aero	0.05	2020-21
130	Mr.T.Kumaran, Aero	0.05	2020-21
131	Ms.Ramalakshmi, Media	0.05	2020-21
132	D.Surra Prakash, Mech	0.05	2020-21
133	Dr.R Srinivasan,CSE	0.05	2020-21
134	Mr.KAMALAKAR, S&H	0.05	2020-21
135	Mr.SARAN RAJ.I, Mech	0.05	2020-21
136	Ms.RAJALAKSHMI.N.R, CSE	0.05	2020-21
137	Ms.Shelshiyah, Bio Tech	0.05	2020-21
138	Ms.Thylashri S, CSE	0.10	2020-21
139	Mr.Rohith Renish R, Mech	0.10	2020-21
140	Dr.Dharmalingam.G, Mech	0.09	2020-21
141	Mr.R.Rajesh,EEE	0.04	2020-21
142	Mr.Sundarraaj.M, Mech	0.04	2020-21
143	Ms.Chitra R, ECE	0.09	2020-21
144	Ms.R.SRIVIDHYA, ECE	0.08	2020-21
145	Ms.Sreelakshmy R,ECE	0.09	2020-21
Total		62.83	

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**INTERNATIONAL
RESEARCH
COLLABORATIONS**

DST/INT/Canada/IC-IMPACTS/P-3/2015 (G)
Government of India
Ministry of Science & Technology
International Division

21.09.2015

ORDER

Sanction of the President is hereby accorded for incurring an expenditure not exceeding Rs.41,15,947/- (Rs. Forty one lakh fifteen thousand nine hundred forty seven only) in connection with implementation of the Indo-Canadian joint research project entitled "Full Field Non-Contact SHM Protocols for Long Span Railway Bridges and Heritage Structures" by Dr. Balasubramanian Esakki, Dept of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R &D Institute of Science and Technology, Avadi, Chennai in collaboration with Dr Rishi Gupta, Dept of Mechanical Engineering University of Victoria, Victoria, British Columbia, Canada, for a total duration of three years from the date of receipt of the DD of initial grant which has to be intimated by the grantee institution.

2. The composition of the project team is as below:

Indian Side	Canadian Side
(i) Dr Balasubramanian Esakki Dept of Mechanical Engineering Vel Tech Rangarajan Dr. Sagunthala R &D Institute of Science and Technology, (Vel Tech Dr.RR& Dr.SR Technical University), Avadi, Chennai	(i) Dr Rishi Gupta Dept of Mechanical Engineering University of Victoria, Victoria British Columbia, Canada
(ii) Dr. Subramaniam Suppiah Dept of Civil Engineering Vel Tech Rangarajan Dr. Sagunthala R &D Institute of Science and Technology, (Vel Tech Dr.RR& Dr.SR Technical University), Avadi, Chennai	
(iii) Dr. R P Bajpai Chancellor Vel Tech University	
(iv) Dr. U Chandrasekhar Research Advisor Vel Tech University & Director – ESCI	
(v) Dr. P Sarasu Director R&D Vel Tech University	

3. No change/replacement of project participants at any stage shall be allowed. The participating scientists working on the project shall have to be affiliated with the Institute/University and shall have to hold the indicated position at the time of start of the project, as well as, at the time of exchange visits under the project. The expenditure related to approve visits of participating scientists, as mentioned above shall incur from the project grant only.

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4. The breakup of estimated expenditure is indicated below. No re-appropriation of funds from one budget head to the other is permissible under this project:

Items of Expenditure	1 st Year Amount (in Rupee)	2 nd Year Amount (in Rupee)	3 rd Year Amount (in Rupee)	Total (Rs.)
A. Manpower 1 JRF @ Rs. 25,000/- p.m. + HRA (30%) 3,600/- = Rs. 39,600/-	3,90,000/-	3,90,000/-	3,90,000/-	11,70,000/-
B. Equipments	12,82,447/-	--	--	12,82,447/-
C. Consumables	50,000/-	40,000/-	40,000/-	1,30,000/-
D. Cost for visits by Indian scientists to Australia - including related local travel and airport transfers and taxes	3 visits 2,00,000/-	3 visits 2,00,000/-	3 visits 2,00,000/-	9 visits 6,00,000/-
Medical Insurance @ Rs.11000/-	33,000/-	33,000/-	33,000/-	99,000/-
Visa fee @ Rs.5500/-	16,500/-	16,500/-	16,500/-	49,500/-
D. Costs for visits by Australian scientists to India - Accommodation @ Rs.5000/- per person - Per Diem @ Rs.1000/- per day subject to a maximum of Rs.25,000/- per month)	1 visits (20 days) 1,00,000/- 20,000/-	1 visits (20 days) 1,00,000/- 20,000/-	1 visits (20 days) 1,00,000/- 20,000/-	3 visits 3,00,000/- 60,000/-
E – Other Charges (ref.p.180-182/c) - Field works	25,000/-	1,00,000/-	1,50,000/-	2,75,000/-
Total	21,16,947/-	8,99,500/-	9,49,500	39,65,947/-
Overhead	50,000/-	50,000/-	50,000/-	1,50,000/-
Grand total	21,66,947/-	9,49,500/-	9,99,500/-	41,15,947/-

5. As per the financial terms agreed by both sides, the sending side will pay the international transportation cost and the receiving side would provide the local hospitality of the visiting Scientists under the project.

6. All project related Visits to be undertaken by the scientists from either side in connection with the implementation of the project should be as per this order and approval is to be obtained from DST prior to undertaking of any/each visit. The scientists listed in project are eligible for the exchange visits.

7. As per MOF instructions dated 13.07.2009 all cases of air travel both domestic and international, the officials may travel only by Air India. For travel to stations not connected by Air India the officials may travel by Air India to the Hub/Point closest to their eventual destination, beyond which they may utilize the services of another airline which should also preferably be an alliance partner of Air India.

Signature

8. Sanction of the President is also accorded for the release of Rs.8,17,553/- (Rs. Eight lakh seventeen thousand five hundred fifty three only) as initial installment and the payment of this amount may be made to DDO, DST for electronic transfer (E-transfer) to the account of Vel Tech Rangaraan Dr. Sagunthala R&D Institute of Science & Technology as indicated below:

1	Name of A/C holder (as per Bank A/C)	Vel Tech Rangaraan Dr. Sagunthala R&D Institute of Science & Technology
2	Bank Account No.	380200301000191
3	Bank Branch Name & Address	Vijaya Bank, Vel Tech Branch, Vel Tech Engineering College, lamathi Road, Vellanur, Chennai-600062
4	IFSC Code	VIJB0003802

9. This sanction is subject to submission of Utilization Certificate (UC) and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year for the grants already received under the project and seeking specific approval of this Department for carry forward of unspent funds to the next financial year for utilization of project and list of exchange visits of scientists under the project. **It may please be noted that the agencies will have to enter and upload the U.Cs in PFMS portal besides sending it in physical form as per instructions attached.**

10. The grantee Institute/University shall maintain separate accounts for the project and the amount of grant will be kept in a bank account earning interest. The interest earned is to be mentioned in the furnished SE/UC. The interest thus earned will be treated as a credit to the institute to be adjusted towards further installment of grant.

11. As per rule 211 (i) of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

12. Grants-in-aid will be utilized for scientific research only.

13. Assets acquired wholly or substantially out of government grants except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFRs, shall not be disposed of without obtaining the prior approval of DST.

14. Grant released are proprietary in nature and DST reserves proprietary rights on the assets created out of grants.

15. The expenditure involved will be debitale to Demand No. 86:

3425	- Other Scientific Research (Major Head)
60.798	- International Cooperation (Minor Head)
12	- Cooperation with Other Countries
12.00.31	- Grants-in-aid general during the current financial year 2015-2016 (Plan Expenditure)

Amogh

16. No prior SE/UC is pending against the Indian PI Dr Balasubramanian Esakki, Dept of Mechanical Engineering, Vel Tech Rangarajan, Dr. Sagunthala R &D Institute of Science and Technology (Vel Tech Dr.RR& Dr.SR Technical University), Avadi, Chennai – 600062, Tamil Nadu for this project, it being the sanction order for release of 1st installment of the project.

17. This issues under the delegated powers to the Ministries/Departments and with the financial concurrence of Dir (IFD) vide Dy. No.3054/2015-2016 dated 21.09.2015.

18. This Sanction Order has been entered in Grant-in-aid Register at S. No. 335


(Pulok Sen Gupta)
21.9.15

Under Secretary to the Govt. of India

To

The Pay & Accounts Officer,
Dept. of Science and Technology, New Delhi

Copy to:

1. Office of the Principal Director & Audit Illrd Floor, AGCR Bldg., IP Estate, New Delhi-2
2. Cash Section (3 copies), DST
3. I.F. Division/Accounts Section, DST
4. Dr Balasubramanian Esakki, Dept of Mechanical Engineering
Vel Tech Rangarajan, Dr. Sagunthala R &D Institute of Science and Technology
(Vel Tech Dr.RR& Dr.SR Technical University), Avadi, Chennai – 600062,
Tamil Nadu)
5. Sanction folder.


(Pulok Sen Gupta)

Under Secretary to the Govt. of India

DST/INT/Canada/IC-IMPACTS/P-3/2015 (C)
Government of India
Ministry of Science & Technology
International Division

21.09.2015

ORDER

Subject: Final assistance for the project "Full Field Non-Contact SHM Protocols for Long Span Railway Bridges and Heritage Structures."

In continuation to this Department's sanction order of even number dated 21.09.2015 Sanction of the President is also accorded for release of an amount of Rs. 12,82,447/- (Rupees Twelve lakhs eighty two thousand four hundred forty seven only) to Vel Tech Rangaraan Dr. Sagunthala R&D Institute of Science & Technology for purchase of equipments Propulsion System, Navigation & Communication Systems, Payload Sensors, Ground Control Station, Other devices & equipment, UAV structural components. The organization should utilize the released funds for procurement of equipments during the first year for implementation of the said project during 2015-16.

2. The expenditure involved is debitable to:-

- (i) Demand No. 86-Department of Science and Technology
- (ii) Major Head-3425 B-Other Scientific Research
- (iii) 60 others Minor Head 60.798 International Co-operation S&T Co-operation with other Countries
- (iv) 12.00.35 Grants for Creation of Capital Assets during the current financial year 2015-16 (PLAN).

3. An amount of Rs.12,82,447/- (Rupees Twelve lakhs eighty two thousand four hundred forty seven only), will be disbursed by means of electronic transfer (E-transfer) in favour of Vel Tech Rangaraan Dr. Sagunthala R&D Institute of Science & Technology as indicated below:

1	Name of A/C holder (as per Bank A/C)	Vel Tech Rangaraan Dr. Sagunthala R&D Institute of Science & Technology
2	Bank Account No.	380 200 301 000 191
3	Bank Branch Name & Address	Vijaya Bank, Vel Tech Branch, Vel Tech Engineering College, lamathi Road, Vellanur, Chennai-600062
4	IFSC Code	VIJB 000 38 02

4. As per rule 211 (i) of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.

5. Grants-in-aid will be utilized for scientific research only.

6. Assets acquired wholly or substantially out of government grants except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFRs, shall not be disposed of without obtaining the prior approval of DST.

7. Grant released are proprietary in nature and DST reserves proprietary rights on the assets created out of grants.

Amogh

8. This sanction is subject to submission of Utilization Certificate (UC) and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year for the grants already received under the project and seeking specific approval of this Department for carry forward of unspent funds to the next financial year for utilization of project equipment. **It may please be noted that the agencies will have to enter and upload the U.Cs in PFMS portal besides sending it in physical form as per instructions attached.**

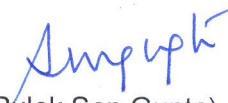
9. The grantee Institute/University shall maintain separate accounts for the project and the amount of grant will be kept in a bank account earning interest. The interest earned is to be mentioned in the furnished SE/UC. The interest thus earned will be treated as a credit to the institute to be adjusted towards further installment of grant.

10. The release of the grant is subject to proper implementation of the project and monitoring as per GFR guidelines.

11. **No prior SE/UC is pending against the Indian PI Dr Balasubramanian Esakki, Dept of Mechanical Engineering, Vel Tech Rangarajan, Dr. Sagunthala R &D Institute of Science and Technology (Vel Tech Dr.RR& Dr.SR Technical University), Avadi, Chennai – 600062, Tamil Nadu for this project, it being the sanction order for release of installment for purchase of equipments required in the project.**

15. This issues under the delegated powers to the Ministries/Departments and with the financial concurrence of Dir (IFD) vide Dy. No.3054/2015-2016 dated 21.09.2015.

16. This Sanction Order has been entered in Grant-in-aid Register at S. No. 6



(Pulok Sen Gupta)
Under Secretary to the Govt. of India

To

The Pay & Accounts Officer,
Dept. of Science and Technology, New Delhi

Copy to:

1. Office of the Principal Director & Audit IIIrd Floor, AGCR Bldg., IP Estate, New Delhi-2
2. Cash Section (3 copies), DST
3. I.F. Division/Accounts Section, DST
4. Dr Balasubramanian Esakki, Dept of Mechanical Engineering, Vel Tech Rangarajan, Dr. Sagunthala R &D Institute of Science and Technology (Vel Tech Dr.RR& Dr.SR Technical University), Avadi, Chennai – 600062, Tamil Nadu.
5. Sanction folder.


(Pulok Sen Gupta)
Under Secretary to the Govt. of India



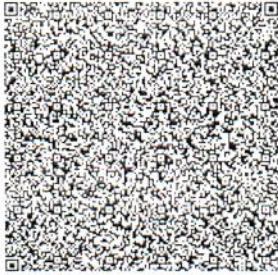
सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No.	: IN-DL273955528176740
Certificate Issued Date	: 08-Dec-2016 04:14 PM
Account Reference	: IMPACC (IV)/ dl946503/ DELHI/ DL-DLH
Unique Doc. Reference	: SUBIN-DL946503551093548866190
Purchased by	: GLOBAL INNOVATION AND TECHNOLOGY ALLIANCE
Description of Document	: Article 5 General Agreement
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: GLOBAL INNOVATION AND TECHNOLOGY ALLIANCE
Second Party	: UCAL FUEL SYSTEMS LIMITED AND VELTECH
Stamp Duty Paid By	: GLOBAL INNOVATION AND TECHNOLOGY ALLIANCE
Stamp Duty Amount(Rs.)	: 100 (One Hundred only)



.....Please write or type below this line.....

Conditional Grant Agreement

This agreement is made on 22nd day of December 2016 at New Delhi by and between Global Innovation & Technology Alliance, a company jointly promoted by Technology Development Board and Confederation of Indian Industry (CII) and incorporated under Section 25 of the Companies Act, 1956 to technically and administratively manage Industrial Research and



Ram Ramani H

Dr. E. KANNAN
Registrar

Statutory Alert:

1. The authenticity of this Stamp Certificate should be verified at "www.shcilestamp.com". Any discrepancy in the details on this Certificate and as available on the website renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai - 600 062

Development Programmes of India with other Countries, Technology innovation and acquisition to bring about a change in the economic competitiveness in Indian industry, having its registered office at Mantosh Sondhi Centre, 23, Institutional Area, Lodhi Road, New Delhi-110003, duly represented by its representative Dr Suprotim Ganguly (Chief Executive Officer) herein referred to as the "GITA", which expression shall mean and include its successors in interest, liquidators, administrators and permitted assigns of the FIRST PART.

AND

UCAL Fuel Systems Limited, having its Registered Office at Raheja Towers, 177, Anna Salai, Chennai-600002, a Company incorporated under Companies Act, 1956, (CIN L31900TN1985PLC012343), herein referred to as the "Indian Project Lead (IPL)", which expression shall mean and include its successors in interest, liquidators, administrators and permitted assigns of the SECOND PART. UCAL JAP Systems is a group company of Indian Project Lead and may be considered to execute part of the project depending upon its capability and capacity.

AND

Vel Tech Dr RR & Dr SR Technical University, an academic institution based out in Chennai, India, duly represented by its representative Dr E. Kannan herein referred to as the "Indian Project Partner (IPP)", which expression shall mean and include its successors in interest, liquidators, and administrators and permitted assigns of the THIRD PART.

The Indian Project Lead, Indian Project Partner(s) and Global Innovation & Technology Alliance (GITA) are hereinafter individually referred to as "party" and collectively referred to as "parties". The Indian Project Lead and Indian Project Partner(s) shall collectively be referred to as "Indian Consortium".

WHEREAS the Indian Consortium, as the case may be, had submitted to GITA a Project Proposal (No. 2015RK0201103) for reimbursable grant funding of a collaborative industrial R&D project titled as "**Design and Development of Autonomous Amphibious Unmanned Aerial Vehicle and UAV Mountable Water Sampling Devices of Water Based Applications**" under India-Korea Request for Proposal (RFP) 2015 with International Partners Rovitek, Korea and Wellness Convergence Research Center, Korea. Project details are described in Project Proposal submitted by the applicant, and Executive Summary annexed as Schedule-I to this agreement and furnish various supporting documents and information relating thereto (Hereinafter referred to as "project").

This Project had been evaluated and approved by the independent Expert Evaluation Committee (PEC) appointed by GITA and also jointly being reviewed and agreed by both the Country representative.

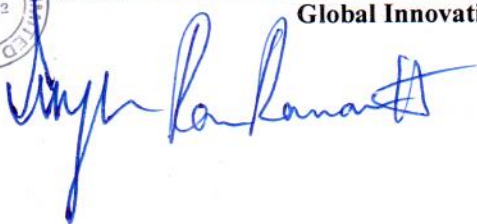
Based on the Proposal, Evaluation and Due-diligence, GITA has agreed to provide a Conditional reimbursement Grant upto INR 1,49,59,000/- (INR One Crore forty nine lakhs fifty nine thousand only) for supporting this project.

Whereas out of total sanctioned amount of grant, GITA has allocated an amount aggregating to upto INR 1,09,96,000/- (INR One Crore nine lakhs ninety six thousand only) to Indian Project Lead and upto INR 39,63,000/- (INR Thirty nine lakhs sixty three thousand only) to Indian Project Partner, if any, as per the payment terms mentioned in this agreement. This Grant amount will be allocated during the project period



Global Innovation & Technology Alliance (GITA)

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Dr. E. KANNAN
Registrar

Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.

of Twenty Four (24) months from the start date of project i.e 1st January 2017, subject to completion of milestones as mentioned in Schedule III.

AND WHEREAS such grant has been sanctioned by Department of Science & Technology (DST) on the recommendations of Project Evaluation Committee meeting (PEC) held on 19 April 2016, after taking into account the funding from other public sector sources received by the IPL or Indian Consortium, as the case may be, as declared in their application for funding by way of reimbursable grant.

NOW THEREFORE, in consideration of the promises and mutual covenants hereinafter contained, the parties, hereto, agree as follows:

1. PURPOSE OF THE AGREEMENT

The purpose of this agreement is to spell out unequivocally the detailed terms and conditions of the reimbursable grant as sanctioned by GITA, on recommendations of PEC, terms relating to its disbursement, Project Mentoring, successful completion and commercialization of the project as detailed in the clauses hereinafter.

2. TERMS OF REIMBURSABLE GRANT

GITA hereby agrees to provide an amount mentioned hereinabove, in the form of reimbursable grant to Indian Consortium to carry out activities as proposed in the Executive presentation (Schedule I: Project proposal & Executive Summary" as approved by Project Evaluation Committee (PEC) meeting dated 19 April 2016.

This funding shall be limited to 50% of the total Indian Project cost upto INR 1,49,59,000/- (INR One Crore forty nine lakhs fifty nine thousand only), subject to contributions made by Indian Consortium. Reimbursement will be made as stipulated in the grant Sanction letter. (Schedule IV: Grant Sanction letter).

Funds granted shall be disbursed on the reimbursement basis for the cost already incurred on proportionate basis to the Indian Consortium, at periodic intervals, subject to the review of the project activities as contained hereinafter and achievement of project milestones as per "Schedule-III Milestones, Deliverables & Disbursement".

3. ELIGIBLE COST

Eligible cost include manpower cost, consumables and material purchased, capital cost and miscellaneous expenses. The cost breakup will form part of Executive presentation as attached in Schedule-I and no modification in the same will be accepted at a later stage.

GITA shall reimburse the actual eligible cost incurred between the project start and end dates, based on the audited project accounts approved by the independent Chartered Accountant.

Any revenue generation activities cannot be included as part of project cost. Only research & development related activities can be included as part of the project cost. Such costs must meet the eligibility criteria in the categories listed below for the purpose of grant

3.1 Skilled Manpower Cost

The manpower cost of all the technical professionals working directly on the project may be claimed. For this purpose, total man days worked by all personnel working directly on the project must be listed with the brief description of their roles and brief description of their contribution on this project. Cost incurred on Project Management can be included in manpower cost.



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Registrar

Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.



The eligible manpower cost will be on the basis of gross salary actually incurred and paid. Any form of in-king/goodwill contribution, or profit related pay like, dividend, bonus, royalties or similar remuneration cannot be included.

3.2 Overhead

Board and senior management salaries and fees which are strictly related to the executive function of the organization for this Project should be considered as Overhead cost. Only senior staff salary that are purely strategic and Technical is included in Overhead cost. Expenses incurred on administrative function eg. Human Resource, Finance etc., and expenses incurred on directly income generating eg. Marketing, promotion etc. and expenses incurred in distribution/supply chain must not be included in Overhead Cost.

3.3 Consumables and Material purchased

The costs of materials to be consumed directly on the project are eligible costs, provided they are not already included in any other cost-head and are purchased from third parties. If materials has a residual/resale value at the end of the project, costs should be reduced accordingly. The residual/resale value shall be ascertained as per the prevailing accounting standards.

If material supplied by associated companies or sub-contracted from other consortium members, are being used, then the profit element of the value placed on that material must be excluded. Materials should not be charged higher than the market value.

Software purchased specifically for use during the project can be included in material cost. However if the Consortium already own software which will be used in the project, or it is provided for usage within the consortium by a consortium members, only additional cost incurred between the start and end date of the project will be eligible. Costs eligible under this head includes preparation of the disks, manuals, installation, training related to this project. Cost should split between their component parts and allocated to appropriate cost category.

3.4 Capital Usage

Capital usage refers to an asset utilized by the planned project, which has a useful life of more than one year, is stand-alone, distinct and moveable in nature.

The details of the capital equipment and tools to be bought or consumed on the project must be provided in Schedule-I Executive Summary. The usage value has to be calculated by taking the Net purchase cost (or net present value at the start of the project, if the equipment is already owned) less its expected residual value at the end of the project. This value shall then be multiplied by the percentage that the project will be utilized the equipment. This final value represents the eligible cost.

3.5 Other costs

Other cost includes sub contracts, consultancy fee (including fee for trail and testing), travel and other miscellaneous costs.

3.6 Sub-Contract

Sub-contract cost relate to work carried out by third party organizations, that are not part of the project or the collaborative group. The Indian Consortium may sub-contract work, after the written approval of Project Mentoring Review Committee (PMRC) appointed by GITA, that is essential to the success of the project where the expertise does not exist in the collaborative group or where it would be cost effective to develop in-houses skills for the project. Sub-contract services if supplied by associated companies should exclude



Global Innovation & Technology Alliance (GITA)

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Avadi, Chennai-600 062.

any profit element and be charged at cost. Consultancy fees (including fees for trial and testing) will also be eligible for reimbursement under this head.

The details of the sub-contracted work and the vendor selected for the same shall be mentioned in Schedule-I Executive Summary. GITA will look at the size of this contribution when assessing eligibility and level of support.

3.7 Travel Cost

Only reasonable cost that are justified and will be incurred exclusively for the progression of the research of the Project must be included. Details and purpose for the expenditure, including number of staff attending, must be given. In case of air-travel, economy class air-fare only will be supported under the programmes. As per MOF instruction dated 13.07.2009 all cases of air travel both domestic and international, the official may travel preferable by Air India. For travel to country not connected by Air India the official may travel by Air India to the hub/point closest to their eventual destination, beyond which they may utilize the service of another airline which should also preferably be an alliance partner of Air India.

International travel, strictly between India and Korea, shall only be supported under this project.

3.8 Miscellaneous

Expenses like preparation of technical report(s), market assessment cost, licensing in new technologies, patent filing cost, if already mentioned in project application form, can be included in the costs of the Project.

4. NON-ELIGIBLE COSTS:

- Input VAT, Excise duty
- Internet charges, bad debts, profits, advertising, entertaining
- Hire purchase interest and any associated service charges
- Production, quality control/assurance, distribution, supply chain or selling costs or activities
- Advertising and marketing costs or activities
- Entertainment and hospitality costs
- Profit earned by a subsidiary or by an associate undertaking work sub-contracted out under your project.
- Inflation and contingency allowances
- The value of existing assets such as IPR (not developed as part of this project), data, software programme and other exploitable assets that any of the collaborators contribute towards your project
- Project audit or Legal costs: legal cost of setting up your project or the collaboration and costs associated in conducting audits, accountant's reports or making grant claim
- Sick days, waiting time and non-productive time
- Bonuses, award, profit related pay, company car expenses and any discretionary benefits to staff
- Project audit fees
- Insurance Cost

5. DISBURSEMENT OF REIMBURSABLE GRANT

Grant shall be disbursed in periodic interval in form of 3 (three) tranches, subject to the completion of milestones as mentioned in Schedule-III, in the entire project span of 24 months. These disbursement are based on the certification of PMRC and submission of utilization certificate and audited statement by

Independent Chartered Accountant. Such disbursement shall be based on the submission of eligible cost incurred during the relevant quarter duly authenticated by competent authority.

The decision of GITA shall be final and binding on the IPL or Indian Consortium as the case may be with respect to any eligible or ineligible cost and GITA shall take such decision keeping in view the head/items as mentioned in Project Application submitted by the IPL or Indian Consortium.

5.1 Inability to Commercialize the Project

In the event of legitimate inability to commercialize the product/process developed by the Indian Consortium, as the case may be, within a period of 6 months after the release of the final payment or 03(three) years from the date of signing of this agreement, whichever is later, the project shall be deemed to have been suspended. For this purpose commercialization means sale of the product/process in India & abroad. If the above mentioned eventuality (default in commercialization) occurs, the authorized signatory of IPL has to issue an undertaking in hard copy on the organizational letter head, addressing to CEO-GITA that IPL in association with the consortium partner has failed to commercialize the product within stipulated time, stating the reason of such failure.

Nevertheless considering the challenges and difficulties faced by the Indian Consortium in the real time situation, GITA may allow with consultation of Department of Science and Technology (DST), an extension of time not exceeding 6(six)month for such commercialization. GITA will issue a written extension letter in the above mentioned case.

5.2 Maintenance of Record

The IPL and/or Indian Partner, shall maintain proper book of accounts in relation to project, apart from dairies, charts, discs, logbook, etc. relating to the progress of the experiments/trails undertaken by it as well as efforts in securing market acceptance of the product. GITA shall have full access to all such documents maintained by the IPL and/or Indian Partner. In the event of misappropriation of information provided in the maintained records or forgery in figures, GITA may stop the disbursement of grant till the time default continues.

6. PROJECT MENTORING AND REVIEW

On completion of each agreed milestone as stated in Schedule III, IPL or the Indian Consortium, if any, will submit a brief technical & financial report to GITA. On receipt of this report, GITA will appoint a Project Mentoring & Review Committee (PMRC), comprising of technical experts and representative of GITA, to evaluate the status as per the report submitted.

The Project Mentoring Review Committee (PMRC) shall continuously monitor the Project and for this purpose shall have free access to the IPL's and/or Indian Consortium's premises, to inspect the records, book of accounts, dairies, chart, discs, logbooks etc. relating to the progress of the experiments/ trails undertaken by it as well as efforts in securing market acceptance of the products.

The IPL or Indian Consortium, as the case may be, shall make available to the member (s) of the PMRC all information and records related to this project.

IPL or Indian Consortium shall submit a detailed technical & financial report to GITA at completion of each milestone as per Schedule III.

The decision of PMRC regarding the successful completion or failure of the project shall be made not later than 9 (nine) months after the submission of the detailed technical & financial report. This decision shall be final and binding on the IPL or Indian Consortium, as the case may be.

7. REPRESENTATION AND WARRANTIES

7.1 Corporate Setup

Except the extent already disclosed in writing by the IPL and the Indian Partner, if any, to GITA, the IPL and the Indian Partner, if any, shall be deemed to have assured, confirmed, undertaken as follows:

The IPL Company applying for the project is incorporated in India under the Indian Companies Act 1956 or Indian Companies Act 2013.

The Company shall be presently owned by Indian Citizen holding at least 51% of its equity capital and shall continue to be owned as such over the total duration of the project.

The IPL, or Indian Consortium as the case may be has the required expertise and team capacity to manage the proposed project.

7.2 Conflict with Memorandum and Article of Association

None of the conditions stipulated by GITA conflicts with the Memorandum and Article of Association of the IPL or Indian Consortium as the case may be. MOA of IPL or Indian Consortium shall allow it to accept grant for the research and development activities. If the same are not in compliance, IPL or Indian Consortium shall amend its Memorandum and Article of Association for safeguarding the rights of GITA arising out of this agreement, if so required.

7.3 Due payment of Public and other demands

Any due or default which is being notified by competent authority (Eg. Court/Income Tax office) and has passed a final and non-appealable order leading to some legal action against the Indian Consortium, in this context this agreement shall stand revoked.

7.4 Use of Reimbursable Grant

The amount of the reimbursable grant support will be used strictly for the project as mentioned in this agreement only. In case it is established that the disbursed grant amount has been misappropriated by the IPL or Indian Consortium, if any, directly or indirectly, the further disbursement of the grant will be closed by GITA. Moreover, IPL and Indian Partner, shall be liable to refund the total grant disbursed received from GITA till date, along with an interest of 12% P.A. Indian Consortium may also be liable to be prosecuted for appropriate civil/criminal action which might be taken by GITA against the IPL or Indian Consortium as the case may be, its directors and guarantors and/or official/agent of the IPL or Indian Consortium.

7.5 Patents

The IPL or Indian Consortium, as the case may be, declares that to the best of their knowledge and belief, use of manufacturing process does not infringe any third party's valid patent right/intellectual Property rights. The verification in context of the project, is to be carried out with much precaution by IPL and Indian Partner to avoid all kinds of infringements rights and issues. Any kind of legal implications emanating from infringement by IPL and Indian Partner, IPL and his associated Partners will be solely responsible for the same.



Global Innovation & Technology Alliance (GITA)

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Dr. E. KANNAN
Registrar

Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.

The IPL and the Indian Partner, agree to indemnify GITA for any loss occasioned due to the infringement as mentioned above in this regard.

It is agreed and declared that all the cost towards such legal action shall be borne by the IPL and the Indian Partner.

7.6 Imposts, Costs and Charges

The IPL and the Indian Partner, shall, during the currency of the Reimbursable Grant support bear all such imposts, duties and taxes (including interest and other taxes, if any) as may be levied from time to time by the Government or other authority with the sanction of law pertaining to or in respect of the Reimbursable Grant.

The IPL and the Indian Partner, shall pay all other costs, charges and expenses in any way incurred by GITA and such additional stamp duty, other duties, taxes, charges and other penalties, if and when the IPL and the Indian Partner, is required to pay, according to all the laws for the time being in force in the State in which its properties are situated or otherwise.

8. UTILIZATION OF CAPITAL ASSET

The assets acquired / created wholly or substantially by the IPL or Indian Consortium, as the case may be, out of grant disbursed by GITA, except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in the General Financial Rules (G.F.R) shall not be disposed-off encumbered or utilized for the another purpose/project, without obtaining the prior written approval of GITA. In case of winding up or dissolution of the organization all the assets acquired to that effect out of the reimbursable grants should be bring about as per written approval of GITA.

9. CONDITIONS APPLICABLE DURING THE CURRENCY OF REIMBURSABLE GRANT SUPPORT

The IPL and the Indian Partner, shall furnish to GITA a certificate from the Central and State Pollution Control Board/ appropriate authorities approving the arrangements for treatment and discharge of effluents, if applicable, and get the same renewed from time to time. This certificate should be part of the Schedule II.

The IPL and the Indian Partner, shall obtain all the necessary permissions and licenses from the Government/ local authorities for research & development and manufacture of the product and shall get the same renewed from time to time.

The IPL and the Indian Partner, undertakes to obtain patents in its own name of the process developed with the Reimbursable Grant support. The technical documentation and patent rights will form part of the capital assets which are created out of the Reimbursable Grant support which may be considered as part of the "other cost" as mentioned in clause "Eligible cost" of this agreement.

If the Project suffers a time and/or cost over-run exceeding the estimates furnished to GITA, the Indian Consortium, if GITA so advises, shall make their own arrangements to meet the additional cost without any liability of GITA.

Promoter's and Partner's contribution: The Reimbursable Grant support shall be subject upto [Promoters and Partner's Contribution, i.e. INR 2,50,33,000/- (INR Two crore fifty lakhs thirty three thousand only)] contribution of the project cost by the IPL, as the case may be, as stipulated in the Reimbursable Grant



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Avadi, Chennai-600 062.

Letter set out in Schedule IV and further a Proof of Promoter's and Partner's Contribution must be provided on completion of each milestone.

Changes in the project: The Indian Consortium shall avoid any kind of changes in the Project definition e.g. Objective, Mechanism, Milestones and Financial Allocations. Such change may be effected only under extreme situation. These changes have to be promptly notified to GITA. Any proposed change in the nature or scope of the Project and any event or condition which might materially and adversely affect or delay completion of the Project or result in substantial overrun in the original estimate of costs shall have to be promptly notified to GITA. Any proposed change in the nature or scope of the Project shall not be implemented or funds committed therefor without the prior approval of GITA. This would be subjected to the approval of Board of GITA. Such approval or denial shall be made by GITA within reasonable time of such request for change by the Indian Consortium.

Contract changes: The Indian Consortium, shall obtain prior concurrence of GITA to any material modification or cancellation by the IPL or the Indian Consortium, as the case may be, of its agreement with its machinery suppliers, collaborators, technical consultants and suppliers of raw materials required for the execution of projects. Such approval or denial shall be made by GITA within reasonable time of such request for change by the Indian Consortium.

Delay in completing the project: Any kind of delay beyond the stated time from mentioned as per the milestones annexed in Schedule III will not be acceptable and it has to be communicated two months prior to the delivery date of the milestone. In case of delay in achieving the milestone GITA will appoint PMRC to evaluate and find the fact of situation and can accordingly take the decision for further continuation of the project. In case of any abnormalities reported by PMRC, may lead to the abandonment of this project.

10. OBLIGATIONS OF IPL AND INDIAN PARTNER

10.1 Notice of winding up or other legal process:

The IPL shall promptly inform GITA if it has notice of any application for winding up having been made or any statutory notice of winding up under the provisions of the Companies Act, 1956/ 2013 or any other notice under any other Act or otherwise of any suit or other legal process intended to be filed or initiated against the IPL and/or the Indian Partner and affecting the title to the properties of the IPL and/or the Indian Partner or if a receiver is appointed of any of its properties or business or undertaking. The IPL or the Indian Partner, as the case may be, will take such corrective steps on its own or as may be advised by GITA to rectify the wrong if any committed which lead to issuance of any notice/suit/proceedings etc. in order to safeguard the interest of GITA and to save the project from any sabotage/disruption.

10.2 Insurance

The Indian Consortium, is liable to keep adequate level of insurance to safeguard/protect all assets/property related /created under this project against fire, theft, lightning, explosion, earthquake, riot, strike, civil commotion, storm, tempest, flood, marine risks, erection risks, war risks and such other risks as may be required and the requisite level of documented proof should be submitted on the time to time basis as annexed with the milestone report.

10.3 Force Majeure

The Indian Consortium, shall promptly inform GITA of any loss or damage which the Indian Consortium may suffer due to any event(s) of force majeure circumstances which are beyond the reasonable control of the IPL or the Indian Consortium or Act of God, such as earthquake, flood, tempest or typhoon, etc. against which the Indian Consortium may not have insured its properties. If any extra-ordinary situation makes it



Global Innovation & Technology Alliance (GITA)

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Registrar

Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.

improbable that the Indian Consortium, would be unable to perform its obligations under the conditions laid down herein.

10.4 Key personnel's/ professionals

The Indian Consortium, will submit the list of key personnel's/ professionals who shall be engaged by the Indian Consortium specifically for this project for successful implementation of the project supported by GITA. This shall be provided in the Annexure with Milestone report.

10.5 Financial reporting requirements

The Indian Consortium, will submit detailed report on completion of each milestone as Annexed in Schedule III in the specified format.

The Financial Reports will include project related line item budget and reporting of expenditures against the budget items.

The Financial reports will also include amounts provided by GITA in the cost of the project. A Complete Financial report shall be submitted by the Indian Consortium, at the end of the project as well. In absence of the financial report duly certified as mentioned in annexure III, without which fund will not be released, Irrespective of submission of financial report. Such financial reports shall form part of the PMRC Report, furnished under clause 6 of this Agreement.

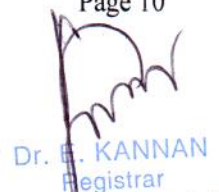
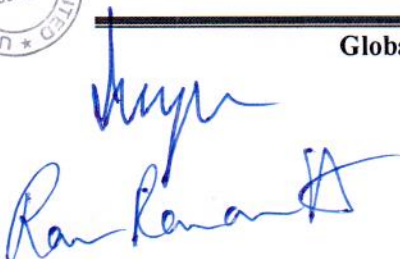
11. TECHNICAL AND FINANCIAL INSPECTIONS

The Indian Consortium, shall permit GITA and its authorized representatives to carry out technical and financial inspections during the construction and operation periods of the project and to inspect all records, documents, registers and accounts related to this project of the IPL and the Indian Partner. GITA shall provide reasonable notice of 7 days before conducting such inspection. Any such representative of GITA shall have free access at all reasonable times to any part of the IPL's and/ or the Indian Partner's factory/office/all other premises and to its records, registers and accounts and to all schedules, costs, estimates, plans and specifications relating to the plant and shall receive full co-operation and assistance from the employees of the IPL and/ or the Indian Partner. GITA reserves the right to carry out an independent project audit at any time up to two years after the date of submission of the final Financial Report.

GITA must inform the Indian Consortium in writing 15 days prior to the commencement of the audit. The cost of the inspection, including travelling and all other expenses shall be payable by GITA.

12. ROYALTY

Upon Successful completion of the Project, after Gestation period of 06 months, IPL shall be liable to pay Royalty which shall be not more than the Principle Reimbursable Grant amount i.e INR 1,09,96,000/- (INR One Crore nine lakhs ninety six thousand only), payable in Five (5 Years) from the date decided by Project Mentoring & Review Committee of GITA and mentioned in Last Evaluation Report at agreed percentage. The Committee in mutual consent with IPL's senior authority will discuss & decide date of Commercialization. Based on successful completion of the Project and on recommendation of PMRC a separate meeting will be conducted between senior officials of DST and GITA Committee consisting of senior personnel from GITA, DST and Indian Project Lead together shall decide the royalty repayment terms and conditions. However Percentage of Royalty payable should not be less than 2% of the sales in India and abroad.



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Registrar

In case of inability to commercialize the product/project as per the decision of the PMRC, the liability of IPL to pay royalty shall stand waived off. In case of default then the IPL has to pay grant amount with 12%.

Sales for the purpose of Royalty is Net Sales which shall not include Sales Return, value added Tax and Central State tax etc.

13. CANCELLATION, SUSPENSION AND TERMINATION

13.1 Cancellation by notice to GITA:

The Indian Consortium, may by notice in writing to GITA cancel the Reimbursable Grant support or any part thereof which the Indian Consortium, has not availed prior to the giving of such notices. On such cancellation, whether in full or in part, the entire Reimbursable Grant support disbursed by GITA, notwithstanding the Schedule III, shall become repayable to GITA, without any liability on account of loss/damage which may be caused to the Indian Consortium, as the case may be, on account of any such cancellation. Such disbursed amount shall be repaid to GITA by the Indian Consortium within 30 days from the receipt/communication of such notice, failing which an interest @ 12% per annum shall be levied from the date of disbursement till the date of payment.

13.2 Suspension

GITA may suspend or terminate the further right to use of Reimbursable Grant support by the Indian Consortium, in the following events.

13.2.1 Non-compliance of terms and conditions

Upon by the Indian Consortium, to carry out all or any of the conditions of Reimbursable Grant support or on the happening of any event of default referred in this Agreement, GITA may suspend or terminate the agreement and Indian Consortium will be liable to Repayment of the disbursed amount on the terms of GITA.

13.2.2 Change in the Indian consortium's set up

In case of any change in the set-up of the Indian Consortium, which, in the opinion of GITA, would adversely affect the conduct of the Indian Consortium's business or the financial position or the efficiency of the Indian Consortium's management or personnel or the execution of the Project.

13.3 Suspension to continue till default remedied

The right of the Indian Consortium, to avail of the Reimbursable Grant support shall continue to be suspended until GITA has notified the Indian Consortium that the right to avail has been restored.

14. TERMINATION OF REIMBURSABLE GRANT:

Subject to the clause of Force Majeure, if any of the events described above has occurred or has been continuing or if the Indian Consortium, has not availed the Reimbursable Grant support by the date referred to in this Agreement or such later date as may be agreed to by GITA and/or has failed to comply with the provisions of this agreement, then in such event, GITA may, by notice in writing to the Indian Consortium, terminate this Agreement. On such termination, the IPL or Indian Partner shall, notwithstanding the Schedule-III hereto, immediately refund to GITA the money disbursed by GITA as the Reimbursable Grant support. Additionally, upon such notice the IPL or Indian Partner will become disentitled to receive further disbursement of the Reimbursable Grant support.



Global Innovation & Technology Alliance (GITA)

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Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.

Notwithstanding any cancellation, suspension or termination provided in this clause, conditions incorporated in this Agreement related to making disbursements in future, confidentiality & consequences due to infringement of the Patent Rights, shall continue to be in full force and effect.

15. WAIVER NOT TO IMPAIR THE RIGHTS OF GITA

No delay in exercising or omission to exercise any right, power or remedy accruing to GITA upon any default under security documents or any other document shall impair any such right, power or remedy nor shall be construed to be a waiver thereof nor any acquiescence in such default, nor shall the action or inaction of GITA in respect of any default, or any acquiescence by it in any default affect or impair any right, power or remedy of GITA in respect of any other default.

16. ARBITRATION AND JURISDICTION

If any dispute or difference arises between the Parties hereto as to the rights or liabilities or any claim or demand of any Party against other or to the construction, interpretation, effect and implication of any provision of this Agreement or in regard to any matter under these presents but excluding any matters, decisions or determination of which is expressly provided for in this Agreement, such disputes or differences shall be resolved mutually, in the event of non-resolution the matter may be referred to an Panel of Arbitrators consisting of 3 members judges appointed with mutual concurrence of the Parties. The decision of such Arbitral Panel shall be conclusive and binding on the Parties hereto. This Clause is applicable to the Director(s) of the company and corporate guarantors and guarantors also and therefore the Director(s) would also be party/parties to such Arbitration. A reference to the arbitration under this Clause shall be deemed to be submission within the meaning of the Arbitration and Conciliation Act, 1996 and the rules framed thereunder and any statutory modifications thereof for the time being in force, which shall be deemed to apply to the arbitration proceedings under this Clause.

The venue of the Arbitration shall be at Delhi.

Each Party shall bear and pay its own cost of the arbitration proceedings unless the arbitrator otherwise decides in the award.

The provision of this clause shall not be frustrated, abrogated or become in-operative, notwithstanding this Agreement expires or ceases to exist or is terminated or revoked or declared unlawful.

The Courts at Delhi shall have exclusive jurisdiction in all matters concerning this Agreement, including any matter arising out of the arbitration proceedings or any award made therein. The Indian Laws including Indian Laws on Contract shall be applicable.

17. MISCELLANEOUS

17.1 Service of notice

All notices, demands or other communications to or upon the respective parties hereto shall be in writing and shall either be delivered personally or sent by Registered Post to the respective address below or such other address as the recipient may have notified to the sender in writing

If to GITA:

Chief Executive Officer,
Global Innovation & Technology Alliance
Mantosh Sondhi Centre,
23, Institutional Area, Lodi Road,

Global Innovation & Technology Alliance (GITA)

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Dr. E. KANNAN
Registrar

Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.



[Handwritten signature]
[Handwritten signature]

New Delhi – 110003.
E-mail: suprotim.ganguly@gita.org.in

If to IPL:

Mr. Jayakar Krishnamurthy

Chairman

UCAL Fuel Systems Limited

Raheja Towers, 177, Anna Salai, Chennai – 600002

Email: jayakar.krishnamurthy@gmail.com



If to Indian Party:

Dr. E. Kannan

Registrar

Vel Tech University

No 42, Avadi Alamathi Road,

Vellanur, Avadi,

Chennai – 600062

Email: registrar@veltechuniv.edu.in

Dr. E. KANNAN
Registrar
Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.

17.2 The notice shall be deemed to have been given to the addressee five days after the despatch of the same by Registered post to the last known address

17.3 Entire agreement: This Agreement constitutes the entire understanding of the Parties relating to the Project. All prior written or oral agreements, understandings, communications or practices between the Parties are hereby superseded insofar as they relate to the Project hereunder. The terms of this Agreement may be amended only in writing and when signed by the Parties.

17.4 Severability: In the event of any provision of this Agreement being held or becoming invalid, unenforceable or illegal for any reason, this Agreement shall remain otherwise in full force apart from the said provision which will be deemed deleted. The Parties shall however attempt to replace the deleted provision with a legally valid provision that reflects the same purpose of the deleted provision to the greatest extent possible.

17.5 Headings: The headings of various clauses herein are inserted for convenience of reference and are not deemed to affect the construction of the relative provisions.

17.6 Schedules: The schedules annexed to this Agreement shall form part of this agreement

THE Company Seal of UCAL Fuel Systems Limited has been affixed in the presence of **Mr. Jayakar Krishnamurthy and Mr. V. Ram Ramamurthy** who have signed these presents in token thereof.

THE Company Seal of Indian Partner **Vel Tech Dr RR & Dr SR Technical University** has been affixed in the presence of **Dr. E. Kannan** who have signed these presents in token thereof.

THE Company Seal of Global Innovation & Technology Alliance has been affixed in the presence of **Dr Suprotim Ganguly** who have signed these presents in token thereof.



Global Innovation & Technology Alliance (GITA)

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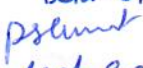


Dr. E. KANNAN
Registrar
Vel Tech Dr. RR & Dr. SR Technical University
Avadi, Chennai-600 062.

Parties:

For & on behalf of Global Innovation & Technology Alliance, New Delhi	For & on behalf of UCAL Fuel Systems Limited, Chennai	For & on behalf of Vel Tech Dr. RR& Dr. SR Technical University, Chennai
Signature: 	1.Signature: 	Signature: 
Name: Dr. Suprotim Ganguly	Name: Mr. Jayakar Krishnamurthy	Name: Dr E. Kannan
Designation: Chief Executive Officer	Designation: Chairman	Designation: Registrar
—	2.Signature: 	—
—	Name: Mr V.Ram Ramamurthy	—
—	Designation: Director	—
SEAL 	SEAL 	SEAL 

Witness: (Name and Address)

1. 
RAJIV KUMAR
Dept. of S&T; N. DELHI
2. 
Preetdeep Sehrawal Adv.

Date: 22 December 2016 (Thursday)

422 Dwarka Courts Dwarka N Delhi



CEFIPRA

Dr. Mukesh Kumar
Director

FP-72.

INDO FRENCH CENTRE FOR THE PROMOTION OF ADVANCED RESEARCH
(IFCPAR)
CENTRE FRANCO-INDIEN POUR LA PROMOTION DE LA RECHERCHE AVANCÉE
(CEFIPRA)

No. IFC/7125 -IWDEB/ 1002
21st October, 2016

Dear Prof. Kannan,

Sub: Proposal No. IFC/7125 -IWDEB "Innovative Wheel Drive to Enable Widespread Electric Bicycle Transportation (IWDEB)"

Please give reference no.
as 'PROJECT No. IFC/7125 -IWDEB in all
correspondences

It is my pleasure to inform you that the project proposal **"Innovative Wheel Drive to Enable Widespread Electric Bicycle Transportation (IWDEB)"** submitted jointly by **Dr. P.Sarasu** of your institute, Dr. Jean Claude VANNIER, département électrotechnique Centrale Supélec, Gif-sur-Yvette, France, Mr. Chandan Bhattacharjee, Turnpoint Technologies Pvt. Ltd, Gurgaon, Mr. Makarand Joshi, Joshi Electronics & Electricals, Pvt. Ltd and Dr. François Bernot, FranceCol Technology Luynes, France has been recommended by Industrial Research Committee and cleared by the Governments of India and France. While clearing the proposal, the Indian Government has stipulated the following conditions:

- a) **In case of the visit of foreign scientists to any restricted areas prior approval of concerned Government authorities such as Ministry of Home Affairs may be taken prior to such visit.**
- b) **In case of any exchange of biological material is required, the Indian PI should take prior approval of the concerned Government Agency, such as National Bio Diversity Authority, ICMR, DBT as the case may be.**

Please find enclosed copy of the budget as approved. The funds including salaries, recurring expenses approved under 1st year budget will be released after receiving of Intellectual Property Management Plan. Travel will be managed by CEFIPRA on the basis of approved budget.

The official date of commencement of the project will be within one month from the date of release of funds to both the Indian and French sides. The PIs of the project can propose a mutually agreed starting date to CEFIPRA within one month of receipt of the fund.

Please note that the equipment approved under the project should be purchased preferably at the beginning of the project (within 1st Year) or at the beginning of the project year, in order to ensure that the equipment will be available to be used on the project. For this, you are requested to send competitive quotations (at least three) for equipment and software approved under the project for release of funds under equipment head.

After purchase of equipment, you are requested to send the following details for showing the equipment purchased under the project in the books of CEFIPRA as an asset and also to calculate the depreciation and maintenance of the asset register of these equipment:

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1. Name of the project with its no.
2. Name of the equipment
3. Cost of equipment in Indian Rs. (if the same is imported, cost of foreign exchange and expenses in connection with import with details)
4. Date of purchase
5. Date of start of operation/use and
6. Treatment of these asset in the books of your institute/organisation
7. Location of the Asset.
8. Please also give a certificate in the statement about the status of the equipment as follows: "It is certified that the assets are maintained in working condition".

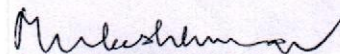
Later, the value of asset will be transferred to Institute on completion of the project.

Kindly note that no expenditure, nor any financial commitments, appointments under the project should be made until you receive funds from CEFIPRA

You are requested to intimate this Centre at least two months in advance prior to the visit under the project for enabling us to issue a recommendation letter to the concerned French Consulate for issuing Gratis Visa for the visits and also take necessary action for your visit.

With kind regards,

Yours sincerely,


(MUKESH KUMAR)

Encl: Copy of the approved budget.

To

Dr. E.Kannan

The Registrar, Vel Tech University, No 42, Avadi-VelTech Road,
Chennai.600062.Tamilnadu, India.

Copy to

1. **Dr. P.Sarasu**

✓ Director R& D, Vel Tech University, No 42, Avadi-VelTech Road,
Chennai.600062.Tamilnadu, India.

2. **Mr. Chandan Bhattacharjee,**

512,5th floor, Eros apartment, 56, Nehru place,
New Delhi-110019

3. Copy to

Mr. Makarand Joshi

Plot no 46A, Sector 10, PCNTDA Industrial area
Bhosari, Pune 411026

APPROVED BUDGET FOR THE INDIAN COLLABORATORS**A. SALARIES/WAGES****A1. Salaries / Wages of Manpower to be hired by Veltech Dr.RR & Dr.SR University**

Designation	No.		1st Year (Rs.)	2nd year (Rs.)	3rd Year (Rs.)
JRF for 24 months (two years)	1	Monthly Emoluments (Rupees)	3,90,000	3,90,000	---
Year wise total			3,90,000	3,90,000	---

A1	Approved budget on salaries/ wages for the project duration	Rs. 7,80,000/-
----	---	----------------

The rate will be applicable as stipulated by DST.

B. RECURRING EXPENSES**B1. Recurring Expenses of the Veltech Dr.RR & Dr.SR University**

	Details	1st Year (Rs.)	2nd year (Rs.)	3rd Year (Rs.)
1.	Cost of consumable materials (metal parts and electronic components)	13,11,100	9,11,090	---
2.	Cost of project related local travel (within India only)	---	---	---
3.	Any other miscellaneous expenses (Contingencies)	---	---	---
4.	Year-wise total	13,11,100	9,11,090	---
B1	Approved budget on recurring expenses for the project duration	Rs. 22,22,190/-		

EQUIPMENT**C1. Approved budget for Equipment for Veltech Dr.RR & Dr.SR University**

SN	Equipment	Total cost
1	CNC Milling Machine (Domestic)	35,00,000
Total		Rs. 35,00,000/-

- Equipment approved should be purchased preferably at the beginning of the project and in any case not later than one year after the start of the project, in order to ensure that the equipment will be used on the project.
- Copy of the quotations signed by competent authority / purchase committee of the institute should be provided to CEFIPRA for release of funds under the equipment.

PROJECT NO. 7125-IWDEB

D. EXCHANGE VISITS

D1. Exchange Visits for Veltech Dr.RR & Dr.SR University (in Rs.)

Duration of Visit	1 st Year	2 nd Year	3 rd Year
Two visits of 15 days for collaborator	3,13,666	3,13,666	---
Total			Rs. 6,27,332/-

D2. Exchange Visits for Joshi Electronics & Electricals Pvt. Ltd. (in Rs.)

Duration of Visit	1 st Year	2 nd Year	3 rd Year
Two visits of 15 days for collaborator	3,13,666	3,13,666	---
Total			Rs. 6,27,332/-

D3. Exchange Visits for Turnpoint Technologies pvt. Ltd. (in Rs.)

Duration of Visit	1 st Year	2 nd Year	3 rd Year
Two visits of 15 days for collaborator	3,13,666	3,13,666	---
Total			Rs. 6,27,332/-

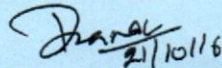
E. OVERHEADS

E1. Overhead Charges for Veltech Dr.RR & Dr.SR University

(in Rs.)				
E1	Overheads charges @10% on the approved budget, or actual expenditure incurred during each year, or maximum of Rs. 5,00,000/- for the entire project duration, whichever is less	5,00,000	...	----
Total				Rs. 5,00,000/-

Yearwise Total Budget for Veltech Dr.RR & Dr.SR University

(in Rs.)				
Budget Head	1 st Year	2 nd Year	3 rd Year	Total
Manpower	3,90,000	3,90,000	----	7,80,000
Recurring Expenses	13,11,100	9,11,090	----	22,22,190
Equipment	35,00,000	0	----	35,00,000
International Travel	3,13,666	3,13,666	----	6,27,332
<i>Subtotal</i>	<i>55,14,766</i>	<i>16,14,756</i>	<i>----</i>	<i>71,29,522</i>
Overhead	5,00,000	0	----	5,00,000
Yearwise Total	60,14,766	16,14,756	----	76,29,522


(PRANAV SHARMA)
 Assistant Accounts Officer
 Indo-French Centre for the
 Promotion of Advanced Research
 New Delhi

Yearwise Total Budget for Joshi Electronics & Electricals Pvt. Ltd.

(in Rs.)

Budget Head	1 st Year	2 nd Year	3 rd Year	Total
International Travel	3,13,666	3,13,666	---	6,27,332
Yearwise Total	3,13,666	3,13,666	---	6,27,332

Yearwise Total Budget for Turnpoint Technologies pvt. Ltd.

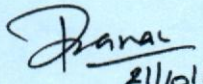
(in Rs.)

Budget Head	1 st Year	2 nd Year	3 rd Year	Total
International Travel	3,13,666	3,13,666	---	6,27,332
Yearwise Total	3,13,666	3,13,666	---	6,27,332

Yearwise Total Budget for Indian Collaborators

(in Rs.)

Budget Head	1 st Year	2 nd Year	3 rd Year	Total
Manpower	3,90,000	3,90,000	----	7,80,000
Recurring Expenses	13,11,100	9,11,090	----	22,22,190
Equipment	35,00,000	0	----	35,00,000
International Travel	9,40,998	9,40,998	----	18,81,996
<i>Subtotal</i>	<i>61,42,098</i>	<i>22,42,088</i>	<i>----</i>	<i>83,84,186</i>
Overhead	5,00,000	0	----	5,00,000
Yearwise Total	66,42,098	22,42,088	----	88,84,186


21/10/16
(PRANAV SHARMA)
Assistant Accounts Officer
Indo-French Centre for the
Promotion of Advanced Research
New Delhi

PROJECT NO. 7125-IWDEB

APPROVED BUDGET FOR THE FRENCH COLLABORATORS

A. SALARIES/WAGES

A1. Fellowship to the Manpower hired by the French Joint collaborator (CentraleSupalec) specifically for the project

Designation	No.	Monthly Emoluments (Euro)	1st Year (Euro)	2nd year (Euro)	3rd Year (Euro)
One PhD / Post Doc student	1	Euro 1.500 per month (net) for PhD Student Or Euro 2.000 per month for Post-Doc student	Maximum of Euros 40.000 for one PhD/ Post -Doc student including social security for entire duration of the project which includes all expenses such as emoluments, travel, university fee and charges for carte de séjour. For Indian student, the scholarship will be paid through CAMPUS FRANCE. For French PhD/Post-doc, and other nationals payment will be transferred to the French institution.		
Year-wise total			Euro 40.000		

Note: Copies of the following documents should be sent to CEFIPRA for processing the visa & fellowship of the Indian candidate, if it is processed through Campus France:

- a) Convention d'Accueil (Original to be sent to post-doc)
- b) Programme de stage (Original to be sent to post-doc)
- c) Latest CV of the candidate selected
- d) Photograph
- e) Copy of PhD degree

B1. Recurring Expenses of the French Joint collaborator (CentraleSupalec)

Details		1st Year (Euro)	2nd year (Euro)	3rd Year (Euro)
1.	Cost of consumable materials (metal parts and electronic components)	1.388	1.388	---
2.	Cost of project related local travel (within France only)	----	----	---
3.	Any other miscellaneous expenses (Contingencies)	----	----	---
4.	Year-wise total	1.388	1.388	---
B1	Approved budget on recurring expenses for the project duration	Euro 2.776		

Pranav
21/6/16

(PRANAV SHARMA)
Assistant Accounts Officer
Indo-French Centre for the
Promotion of Advanced Research
New Delhi

C. EQUIPMENT

C1	Approved budget on Equipment	No Funds
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D. EXCHANGE VISITS**D1. Exchange Visits for French Principal Collaborator, FranceCol Technology (in Euro)**

Duration of Visit	1 st Year	2 nd Year	3 rd Year
Two visits of 15 days each for collaborator	3.312	3.312	---
Total	6.624		

D2. Exchange Visits for French Joint Collaborator CentraleSupalec (in Euro)

Duration of Visit	1 st Year	2 nd Year	3 rd Year
Two visits of 15 days each for student	1.875	1.875	---
Total	3.750		

Total Approved Budget on exchange visits for the project duration for French side	Euro 10.374
--	--------------------

E1. Overhead Charges for CentraleSupalec**(in Euro)**

E1	Overheads charges @8% on the approved budget of recurring expenses	111	111	---
Total				222

Yearwise Total Budget for FranceCol Technology**(in Euro)**

Budget Head	1 st Year	2 nd Year	3 rd Year	Total
International Travel	3.312	3.312	----	6.624
Yearwise Total	3.312	3.312	----	6.624

Yearwise Total Budget for CentraleSupalec**(in Euro)**

Budget Head	1 st Year	2 nd Year	3 rd Year	Total
Manpower	---	---	---	40.000
Recurring Expenses	1.388	1.388	----	2.776
Equipment	---	---	----	----
International Travel	1.875	1.875	----	3.750
<i>Subtotal</i>	<i>3.263</i>	<i>3.263</i>	<i>----</i>	<i>46.526</i>
Overhead	111	111	----	222
Yearwise Total	3.374	3.374	----	46.748

Pranav
21/10/16

(PRANAV SHARMA)

Assistant Accounts Officer

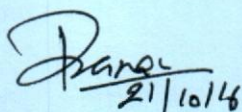
Indo-French Centre for the

Promotion of Advanced Research

New Delhi

Yearwise Total Budget for French Collaborators**(in Euro)**

Budget Head	1st Year	2nd Year	3rd Year	Total
Manpower	---	---	---	40.000
Recurring Expenses	1.388	1.388	----	2.776
Equipment	---	---	----	----
International Travel	5.187	5.187	----	10.374
<i>Subtotal</i>	6.575	6.575	----	53.150
Overhead	111	111	----	222
Yearwise Total	6.686	6.686	----	53.372



(PRANAV SHARMA)
Assistant Accounts Officer
Indo-French Centre for the
Promotion of Advanced Research
New Delhi

ACCOMPLISHMENTS OF VARIOUS RANKINGS

Ranked in the band "EXCELLENT" under the category "University & Deemed to be University (Private/Self Financed) (Technical)" in Atal Ranking of Institutions on Innovation Achievement(ARIIA) 2021



The institution has been ranked in THE Impact Rankings 2021 as follows:

- **Band 201-300 in SDG 6: Clean Water and Sanitization**
- **Band 201-300 in SDG 9: Industry, Innovation and Infrastructure**
- **Band 401-600 in SDG 10: Reduced Inequalities**
- **Band 801-1000 in SDG 17: Partnership for the Goals**
- **Band 801-1000 in Overall Category in the World**

Veltech University RANKED 801–1000



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Ranked in the Band 601-650 in QS Asia University Rankings



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Vel Tech University

#601-650

in QS Asia University Rankings 2022

November 2021

Ben Sowter, Senior Vice-President,
QS Quacquarelli Symonds

