



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

**Research  
 at Vel Tech**

Excellence in research,  
 impact & partnership

**Research  
 Compendium  
 2022**



**Sponsoring  
 Agencies**



# NIRF INDIA RANKINGS

Consistently Vel Tech has been ranked in the 0-100 band by National Institutional Ranking Framework (NIRF) based on the parameters broadly covering “Teaching, Learning and Resources,” “Research and Professional Practices,” “Graduation Outcomes,” “Outreach and Inclusivity,” and “Perception”.

## NIRF India Rankings 2022

ENGINEERING  
CATEGORY

**84<sup>th</sup> Rank**  
out of 1249  
institutions  
participated

UNIVERSITY  
CATEGORY

**101 - 150**  
Band

OVERALL

**151 - 200**  
Band out of  
1875 institutions  
participated

## NIRF India Rankings 2021

ENGINEERING  
CATEGORY

**93<sup>rd</sup> Rank**  
out of 1143  
institutions  
participated

UNIVERSITY  
CATEGORY

**101 - 150**  
Band

OVERALL

**151 - 200**  
Band out of  
1667 institutions  
participated

## NIRF India Rankings 2020

ENGINEERING

**95<sup>th</sup> Rank**  
out of 1071  
institutions  
participated

UNIVERSITY  
CATEGORY

**101 - 150**  
Band

OVERALL

**151 - 200**  
Band out of  
1667 institutions  
participated

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### Fostering Multidisciplinary Research



*“He who can listen to the music in the midst of noise can achieve great”*  
*–Vikram Sarabhai*







## Research Highlights

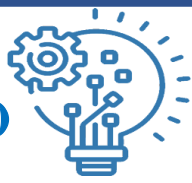
- More than **20** Cutting Edge Research Centers worth **10 crore**.
- **27** Ongoing Research Projects worth **Rs.700 lakh**.
- Granted patents - **18**
- Completed more than **50** funded projects.
- Established High-Speed Bearing Test facility-funded by GTRE worth 188 lakhs
- Knowledge Resource Centre (KRC) houses more than 200+ Innovation-Driven Proof of Concepts, that serves as pipeline - Vel Tech Technology Business Incubation.



**V**el Tech promotes state-of-the-art multidisciplinary research among students and faculty members. The Institute's Research Park hosts diversified Centre of Excellence and Research Centers to promote academic and multidisciplinary research activities in varied technology domains. It has received grants worth, more than 5000 lakhs from different funding agencies such as DST, DBT, DRDO, ISRO, CSIR, CPRI, BRNS, IET, MSME, TNSCST and through other International Collaborations.

### Vel Tech R&D – Glimpse of Successes (Last Five Years)

- Procurement of Rs. 50+ lakh worth equipment, sponsored by various funding agencies.
- h-index has increased from 98 to 114 in Scopus and from 44 to 62 in Web of Science
- Citations has increased from 24487 to 45652 in Scopus and from 5779 to 17012 in web of science
- Publication is increased from 1268 to 5244
- Accomplishment of various Rankings: ARIIA – Excellent Band, QS Asia: 601-650, THE Impact Ranking for SDG 9 (Industry, Innovation, and Infrastructure): 201 -300
- Three International Collaborations: Indo-Taiwan | Indo-Canada | Indo-Korea | Indo – France.



The RAB committee deals with reference to increasing the number of funded projects, strategic partnership with industries for getting consultancy projects, improving faculty publications and intellectual property rights. This committee provides guidance and viable suggestions to faculty and student members of this institutes in submitting various research proposals. The committee meets on quarterly basis, to review the ongoing R&D Projects and it's progress.



**Prof. S. Salivahanan**  
Vice Chancellor – Vel Tech  
(RAB - Chairman)



**Dr. B. Praveen Kumar**  
Scientist-'F' – ARDE-DRDO  
(RAB – Rep. from Gov. R&D)



**Dr. Ing. M. Duraiselvan**  
Professor-NIT Trichy  
(RAB – Rep. from Institute of  
Eminence)



**Mr. K. Chandra Kumar Gupta**  
CEO-LED Chip Indus Pvt Ltd  
(RAB – Rep. from Industry)



**Dr. E. Balasubramanian**  
Dean R&D – Vel Tech  
(RAB - Secretary and  
Coordinator)



**Dr. P. Chandra Kumar**  
Dean – Industry Relations &  
TBI  
(RAB - Member)



**Dr. S. Koteeswaran**  
Dean Research Studies – Vel  
Tech  
(RAB - Member)



The Office of Dean R&D offers resources to assist faculty members in coordination and submission of Publications / Grant proposal / IPR. Priority are given for activities that simultaneously benefit multiple departments, centers, and researchers at Vel Tech. Aspiring Research focused faculty members are identified and provided with SEED grant upto two lakh in pursuit of research.

**Dr. E. Balasubramanian**

**Dean R&D**



**Mr. S. Vishnu Kumar**

- Project Management
- E-Submissions  
(Bharat Kosh & PFMS Modules)



**Mr. M.A. Saleemnawaz**

- IPR-Cell
- Vel Tech SEED Fund



**Mr. T. Ravichandran**

- Funding Opportunities.
- Identifying value-added partners.



**Mr. T. Udhaya Kumar**

- Publication Metrics
- Proposal Submission



## Objectives

- To promote the visibility of the Institute by means of R & D activities.
- To protect innovations through IPR Cell and encourage researchers to participate in outreach activities.
- To serve as a facilitator for Interdisciplinary-Integrative research approaches with Industry/Academic and National/International research network set-up.
- To create awareness regarding Research Funding, Grant Writing, Ethics, Data Analysis and Management among researchers through training, E-learning & lectures
- To inspire faculty and staff with incentives towards research activities and providing SEED grants
- To warrant the quality and integrity of innovations in research accomplishments as per the Code of Practice for Research







Vel Tech Research Park houses well-established National facilities, Centers of Excellence, and Cutting – Edge Laboratories to promote research among students and faculty members. Sophisticated laboratories are established at Research Park in association with various organizations and industries. Over 20 research labs are fully functioning at Research Park with active Industry-Academia collaboration.

01

Centre for Antenna and Electronic Materials

02

Centre for Autonomous System Research

03

Centre for Advanced Scientific Computing

04

Centre for Biochemical Engineering

05

Centre for Bioenergy & Bioproduct Research

06

Centre for Biomaterials & Environmental Biotechnology

07

Centre for Biomedical Spectroscopy

08

Centre for Chemical Sciences

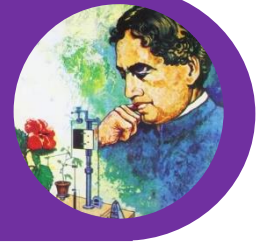
09

Centre for Composite Research

10

Centre for Computational Aerodynamics and Shock Waves

*“True laboratory is the mind,  
where behind illusions we  
uncover the laws of truth”*  
–J.C. Bose



11

Centre for FEM and  
CFD Simulations

12

Centre for High Speed  
Bearing Testing

13

Centre for Industrial  
Automation

14

Centre for Interfaces  
& Nanomaterials

15

Centre for IoT and  
Expert Systems

16

Centre for Materials  
and Manufacturing

17

Centre for Metal  
Forming

18

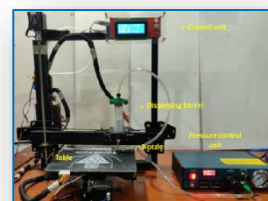
Centre For Molecular  
Photoscience


19

Centre for Structural  
Engineering

20

Centre for Thermal  
Management





## Centre for Antenna and Electronic Materials

Prasanna Ram, Assistant Professor – Department of ECE  
Email: rprasanna@veltech.edu.in | Mobile: 9791313515

**Research Focus: Graphene, Antenna, Nano Materials, Flexible Electronics, Printed Electronics**

**Funded Projects – Ongoing & Completed**


Title	Funding Agency	Amount (Rs)	Duration
Design and Development of optimized Miniature Antenna Modules with Duality Function for Inflatable Satellite Antenna Setup	ISRO RESPOND	33,30,000	2018-2022 (4 Years)
Development of 3D printed flexible patch antennas for enhancement of communication range in UAV	DRDO AR&DB UAS Panel	28,02,600	2021-2023 (2 Years)

**Patents Filed / Published / Granted**

1. Graphene based dome shaped phase array antenna for space communication Patent Number: 336136
2. Reconfigurable Antenna with Adaptive Function. Patent Number: 399931
3. Umbrella Based Duality Module for Future Space Technology. Patent Number: 383696
4. Amphibious Solar Antenna Module (Antso) For Next Generation Communication. Patent Number: 393763

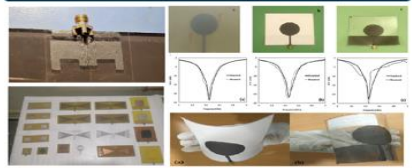
**Publications** SCI – 9, Scopus – 11 ; Total IF: 42; Highest IF: 4

**Major Equipment**





Antenna & Printed Materials Equipment


**Research snippets**



**National / International Collaborations**







## Centre for Autonomous System Research

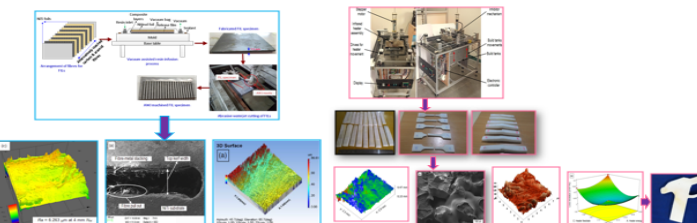
(Advanced Materials Processing)  
Dr D. Rajamani, Associate Professor (Research) – Mechanical Engineering  
Email: drajamani@veltech.edu.in | Mobile: +91-9159150299

**Research Focus: additive manufacturing, composite materials, optimization, non-traditional machining**

**Funded Projects – Ongoing & Completed**

Title	Funding Agency	Amount (Rs.)	Duration
High strain rate characterization of additive manufactured materials for ballistic loading applications.	DST-SERB	18,30,000	2021-2024 (3 Years)
Development and machinability studies of fibre intermetallic laminates	VEL TECH	1,90,000	2018-2019 (1 Year)

**Research Snippets**



**Publications** SCI - 17, Scopus - 23; Total IF: 56.143; Highest IF: 8.665

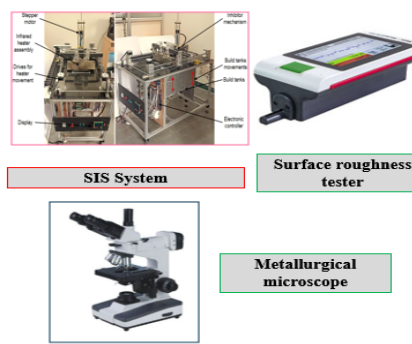
**Awards & Fellowships**

- Early Career Academic Grant - The Association of Commonwealth Universities, UK.
- International Travel Grant (Young Scientist) - DST, SERB.


**Research Links**

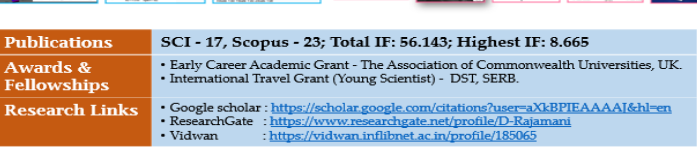
- Google scholar : <https://scholar.google.com/citations?user=aXkEPIEAAAAI&hl=en>
- ResearchGate : <https://www.researchgate.net/profile/D-Rajamani>
- Vidwan : <https://vidwan.inflibnet.ac.in/profile/185065>

**Major Equipment Available**

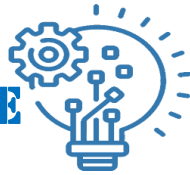


**National / International Collaborations**









## CENTER FOR BIOENERGY AND BIOPRODUCTS DEVELOPMENT

Dr. R. Ravikumar, Professor (Research) – Department of Biotechnology

Email: [dr.ravikumar@veltech.edu.in](mailto:dr.ravikumar@veltech.edu.in) Mobile: 9942247257

### Research Focus : WASTE INTO WEALTH AND BIOENERGY

#### Funded Projects – Ongoing & Completed

Title	Funding Agency	Amount (Rs)	Duration
Microbial recovery of biogenic methane from coal washery rejects with CO <sub>2</sub> sequestration using novel hybrid geo photo bioreactor and reclamation of the site	DST-CERI	1,02,03,600	2019 - 2023 Ongoing
Conversion of lignite coal to biomethane and value added bio products for domestic application	AU-NLC	65,00,000	2022 -2024 (Ongoing)

Completed 3 Research projects in the field of Bioenergy funded by DST-YSS, DST SERB and TNSCST during the year 2014 -2018 with a total fund of Rs75,00,000

#### Patents Filed / Published / Granted

- Nanoparticle impregnated photo bioreactor for better light scattering to improve light distribution for growth of microalgae 201941032648
- Biological pretreatment for ethanol using simultaneous chemical and biological 201941032789

#### Publications

SCI – 25, Scopus – 13; Total 35; Highest IF: 11.89

#### Awards & Fellowships

- Received Young Scientist Award from DST with a fund of Rs15.8Lakhs



#### Major Equipment



Anaerobic glove box

Anaerobic fermenter

#### Research snippets



Coal to biomethane and algal byproduct development process in PILOT PLANT

#### National / International Collaborations



राष्ट्रीय पौधेयिकी संस्थान कानिकट  
NATIONAL INSTITUTE OF TECHNOLOGY CALICUT

## Centre for Biomaterials & Environmental Biotechnology

Processes and Products through Sustainable Technologies

#### Our Focus

- Edible Coatings
- Microbial Pigments
- Bioplastic Materials
- Hydrophobic Coatings
- Bioremediation
- Waste Utilization & Value Addition

#### Facilities/Equipment available

- FTIR spectroscopy
- Fibre optic spectrophotometer
- Light/Color fastness tester
- Pad dryer, Moisture analyzer
- Humidity chamber
- Incubator shakers, etc.



#### Funded Projects

Ongoing: "Developing novel applications from silk fibers and silk proteins" - 2020-2023  
Department of Biotechnology (DBT) - 89.9 L

#### "Sericin Based Edible Coating Materials for Preservation of Foods"

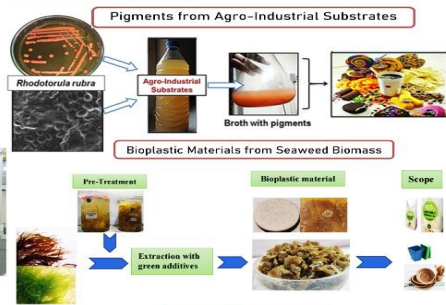


Dr. Tarangini Korumilli, Ph.D  
Assistant Professor, Biotechnology  
ORCID ID: 0000-0003-0678-8903  
Scopus Author ID: 57209803419  
Email: [drktarangini@veltech.edu.in](mailto:drktarangini@veltech.edu.in); Mob: 9439783304  
M. Tech (Biosorption) & Ph.D (Microbial Pigments) - NIT Rourkela, Odisha, India

#### Lab Facility



#### Research Snippets



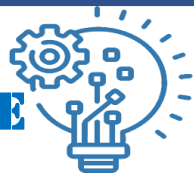
#### Publications

Funded Projects (PI, Co-PI): 2  
Refereed journal publications: 14  
h-index - 8  
Cum. impact factor: 30.294  
Highest impact factor: 6.617









## Centre for Computational Aerodynamics and Shock Waves

Dr. R. Naren Shankar, Associate Professor (Research) – Department of Aeronautical Engineering

Email: narensankar@veltech.edu.in | Mobile: +91 9940175934

### Research Focus: High Speed Jets

#### Funded Projects – Ongoing & Completed

Title	Funding Agency	Amount (Rs)	Duration
Optimizing Supersonic Co-Axial Nozzle Design for Mixing Enhancement	DST SERB-IARE	18,30,000/-	2022-2024 (3 Years)
Hypersonic Shock Tunnel	VEL TECH SEED FUND	1,99,214/-	2022-2023 (1 Year)
Optimization of High-Speed Vessel and Evaluation of the Hydrodynamic Performance	NSTL, DRDO CARS Scheme	8,40,000/-	2019-2020 (1 Year)
Thermal efficiency enhancement of domestic LPG stove	Preethi Kitchen Appliances Pvt. Ltd	2,17,129/-	2018-2020 (2 Year)

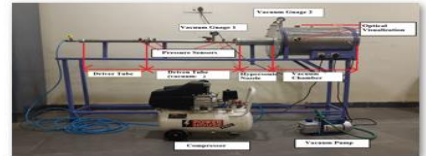
#### Patents Filed / Published / Granted

- \*Turbocharged LPG stove, Ref. no. 201941043839 (Reply Filed. Application in amended examination)
- \*A Method and Apparatus for Increasing the Efficiency of an Engine, Ref. no. 201941051958 (Awaiting Request for Examination)
- \*Parabolic Inverted Through Flatbed Evaporator with Heat Storage Compartment and Tower Condenser for Solar Desalination, Ref. no. 202041057447 (Reply Filed. Application in amended examination)

**Publications** SCI – 12, Scopus – 05; Total IF: 21.792; Highest IF: 8.067  
**Membership** Lifetime Member of Aeronautical Society of India (M.No: AM7400)

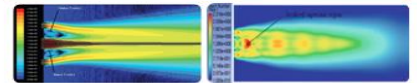


#### Major Equipment



Hypersonic Shock Tunnel

#### Research snippets



Subsonic Coaxial Jet Flow

Coaxial Jet Shock Train

#### National / International Collaborations



Preethi



## Centre for Industrial Automation

Dr. A. Selwin Mich Priyadharson, Professor, Department of Electronics and Communication Engineering.

Email: aselwinmich@veltech.edu.in Mobile: +91 9445785448/ 7338795448

ORCID ID: 0000-0002-7842-532X SCOPUS ID: 57201279196

### Research Focus: Image Processing, Machine Learning, Process Control and Automation

#### Funded Projects - On Going & Completed

Title	Funding Agency	Amount (Rs)	Duration
Design of Cascaded Adaptive Control with O2 and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant.	CPRI	29,88,000	2022 - 2024 (2 Years)
Programmable Logic Control – Human Machine Interface (PLC – HMI) and Zig Bee based Wireless Sensor Network (WSN) for Design and Development of Automatic Sprinkler for Multi Applications.	DST - SERB	29,89,000	2015 - 2018 (3 Years)

#### Patents Filed / Published / Granted

- Title:** Design of automatic sprinkler for multi applications based on Wireless Sensor Network (WSN)  
**Registration:** 201741015396 dated 02.05.2017  
**Status:** Complete Specification request for Examination filed (Form 18) Published
- Title:** Design and Development of device for Blind and Visually Impaired People on Indoor and Outdoor Environments.  
**Status:** Submitted

**Publications** SCI – 05, Scopus – 35; Book Chapters – 04, Total IF: 39.884; Highest IF: 3.772  
**Awards Received** . Received "Research Excellence Award 2020" by INSTITUTE OF SCHOLARS (InSc), Bangalore, India.  
 Awarded as "Young Scientist" by SERB, Department of Science and Technology, New Delhi, India. Dated 7th July 2015.



#### Major Equipment



Solar Photo Voltaic (PV) (2500 watts) Power Plant

Zig Bee wireless transmitter in weather station with anemometer, atmospheric temperature and humidity sensors

Process control station for smart agriculture

PLC – HMI and Zig Bee receiver in control panel

#### Research Snippets




#### National / International Collaborations










**Vel Tech**  
Rangarajan Dr. Saguntlala  
VIT-VEIT Institute of Science and Technology  
(Awarded by University Enactment of U.G.A. Act, 1986)

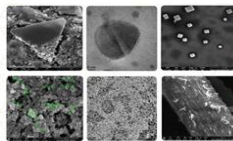
Centre for  
**Interfaces & Nanomaterials**  
Novel Nano/Biomaterials through Green Technologies

**Collaborations**



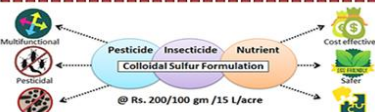
**Our Focus**

- Antimicrobial nanocides
- Novel sensing materials
- Catalytic agents
- Water disinfection
- Environmental cleanup
- Healthcare




**Funded Projects**


Ongoing:  
"Multifunctional Colloidal Sulfur Particles: A Promising Green Pesticide for Practical Agriculture Applications" (2019-2022) Project value 27.19 L  
Department of Science and Technology (DST), India



Supported by DST AgroTech Grant (2020-22)

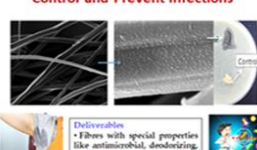


**Equipment Available**




Clean/sterile cabinets  
AAS, Tensile tester  
Spray dryer, Biosafety cabinets  
Adv. UV/Vis-NIR Spectroscopy  
Sonicators  
Multiparameter meters, etc.

**"Reinforcement of Natural Fibres to Control and Prevent Infections"**



Deliverable  
+ Fibres with special properties like antimicrobial, deodorizing, germ-free potential, etc.



**Green Synthesis**




With/without metal oxides  
Self-assembly  
Colloidal soils  
Nanocomposites

**Dr. K. Jagajjanaini Rao**  
Associate Professor (Res), Biotechnology  
Email: drjagajjanaini@veltech.edu.in  
Mobile: 09523398971  
ORCID ID: 0000-0002-8992-7655  
Scopus Author ID: 57209807799  
Google Scholar profile:  
<https://scholar.google.co.in/citations?user=7m0QmEUAAAAJ&h>

**Contributions/Publications**  
Funded Projects (PI, Co-PI): 3  
Refereed journal publications: 23  
h-index - 13  
Cum. impact factor: 100.951  
Highest impact factor: 13.281



## Centre for IoT and Expert Systems

Dr. G. R. Kanagachidambaresan, Associate Professor (Research) - Department of CSE  
Email: drgrkanagachidambaresan@veltech.edu.in | Mobile: +91 9994120988

**Research Focus: IoT, Machine Learning, Expert Systems, Edge Computing**

**Funded Projects – Ongoing & Completed**

Title	Funding Agency	Amount (Rs)	Duration
Drone Assisted Mapping of Seaweeds of Odisha Coast including Chulika especially for Gracilaria sp. and Enteromorpha sp. and Development of Value Added Seaweeds Product	DBT	68,22,000	2021-2024 (3 Years)
Precision Brackish Water Aquaculture Technology using Machine Intelligence	DBT	1,32,45,934	2021-2024 (3 Years)
Minimising the post harvesting loss in warehouses through examining rice kernel/ paddy quality using infrared measurements, image processing algorithms and IoTs platform	TNSCST	2,00,000	2021-2023 (2 Years)
Energy Efficient and Optimal Path Planning Strategies for SWARM of UAVs in Real Time Localization using Deep Learning based Stereo Vision System	ISRO - RESPOND	23,01,000	2020-2022 (2 Years 9 months)

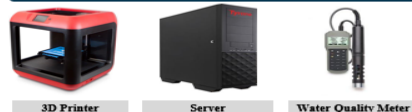
**Patents Filed / Published / Granted**

- Automated Medicine Box (2018)
- PLC Integrable IoT Device for Automated Testing Device (2019)
- Raspberry Pi Based Safety System for Industrial Workers using Deep Learning (2019)
- Automatic Robotic Mechanism for Industrial Water Quality Monitoring using Internet of Things (2019)
- An AI based Fruit Ripening System (2019)

**Publications** SCI – 28, Scopus – 77, Total IF: 62.285, Highest IF: 5.824

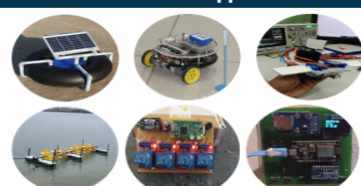
**Awards & Fellowships** ASEM Duo Fellowship, Visiting Professor in University Of Johannesburg

**Major Equipment**



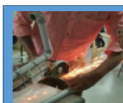




3D Printer      Server      Water Quality Meter

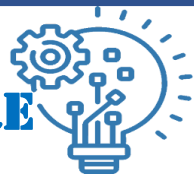
**Research snippets**



**National / International Collaborations**





## Centre for Materials and Manufacturing

Dr. N. Yuvaraj, Associate Professor (Research) – Mechanical Engineering

Email: drnyuvaraj@veltech.edu.in | Mobile: 9842079202

**Research Focus: Advanced Machining Processes, Abrasives, Water Jet Peening, Surface Integrity, Texturing and Solid Waste Management**

### Funded Projects – Ongoing & Completed

Title	Funding Agency	Amount (Rs)	Duration
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	SERB	18,30,000	2021-2023 (3 Years)
Characterization of the Surface Textures in Abrasive water jet Milling, Polishing, Peening and Drilling of High strength materials	VEL TECH	1,53,000	2018-2019 (1 Year)

### Patents Filed / Published / Granted

- Use of heat treatment salt wastes as potential abrasives in water jet machining process (file no. 202141052739)
- Recycling of alumina and garnet abrasive wastes for the development of sustainable materials (file no. 202141052737)

### Publications

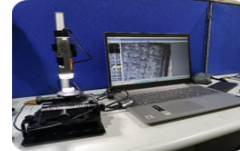
SCI – 25, Scopus – 13; Total IF: 91.894; Highest IF: 8.263

### Awards & Fellowships

- Received an International Research Fellowship from Slovak republic
- Received an International Travel Grant from DST SERB, Govt.
- Recipient of CSIR-Senior Research Fellowship from CSIR-FIRDG, Govt.
- Recipient of Anna Centenary Research Fellowship from Anna University, Chennai



### Major Equipment

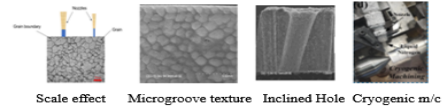


Digital Microscope



Sieve Shaker

### Research snippets



Scale effect Microgroove texture Inclined Hole Cryogenic m/c

### National / International Collaborations



## Centre For Metal Forming

Dr. Sachin Salunkhe Associate Professor (Research) – Mechanical Engineering

Email: drsalsalunkhesachin@veltech.edu.in | Mobile: 9822362643

**Research Focus: Metal 3D Printing, Artificial Intelligence, Sheet Metal Forming, High Strain Rate, Wear Analysis**

### Funded Projects – Ongoing & Completed

Title	Funding Agency	Amount (Rs)	Duration
High Strain Rate of Laser Melted Materials for the Application Tools and Dies	VEL TECH	1,39,000	2022-2023 (1 Year)

### Publications

SCI – 52, Scopus – 22; Total IF: 110.40; Highest IF: 4.623

### Awards & Fellowships

- Editor of Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications (IF-2.683)
- Editor of Lubricants, MDPI (IF - 3.854)
- Editor of Metals, MDPI (IF - 2.695)
- Editor of International Journal for Simulation and Multidisciplinary Design Optimization
- Received an International Travel Grant from DST SERB, Government of India.
- Recipient of MHRD Govt. of India on the basis of GATE



### Major Equipment

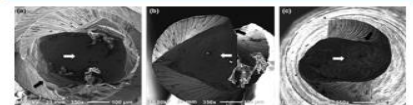


Hot Air Oven



Furnace

### Research snippets



SEM Image of Fatigue Component

### National / International Collaborations







## Centre for Molecular Photoscience

Dr. A. KATHIRAVAN, Associate Professor (Research) - Chemistry

Email: akathir23@gmail.com | Mobile: +91-8754219382

Research Focus: Photophysics/photochemistry of Solar energy and Sensory materials

### Funded Projects – Ongoing & Completed

Title	Funding Agency	Amount (Rs)	Duration
Porphyrine-sensitized solar cells: Rational Molecular Design, Photoinduced Processes, Panchromatic Sensitization and Devices	SERB	62,00,000	2019-2022 (3 Years)
Light induced processes of Porphyrin molecules, materials and devices for solar energy conversion	SERB	17,00,000	2014-2018 (3 Years)
Investigating Electron Injection Dynamics of Pyrene derivatives on TiO <sub>2</sub> surface towards Dye Sensitized Solar Cells	DST	85,00,000	2013-2018 (3 Years)

**Publications** SCI – 94, Scopus – 04; Total IF: 393; Highest IF: 14.22

### Awards & Fellowships

- Recipient of SERB Research scientist scheme, SERB, GoI
- Recipient of INSPIRE Faculty scheme, DST, GoI
- Recipient of Young Scientist Scheme, SERB, GoI
- Recognized as Highly cited corresponding author – RSC
- Post-doctoral research fellowship, Lund University, Sweden

### Laboratory photos



### Major Equipment

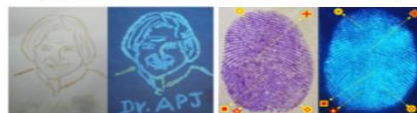
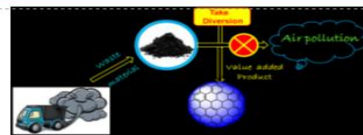


Spectrofluorimeter



Spectrophotometer

### Research snippets



### National/International Collaborations



## Centre for Metabolic Engineering and Synthetic Biology

Lab No: 3223

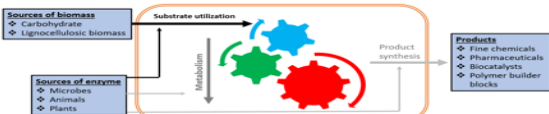
Dr. S. Mugesh, Associate Professor (Research), Department of Biotechnology

email: drmugeshs@veltech.edu.in, Ph: 6381958233

### Vision:

Implementation of synthetic biology, metabolic engineering and bioprocess strategies towards production of value added compounds and nutraceuticals

### Research Focus



### Mission:

- Sustainable production of value added chemicals
- Microbial production of nutraceuticals
- Strain and process development of bioactive compounds

### Products Focused

- 3-Hydroxypropionic acid
- 3-Hydroxybutyric acid
- Vitamin B<sub>12</sub>
- Sustainable sugars for microbial media
- Food colorants and pigments
- Probiotic food products

### Funded projects

- Development of improved process for the production of 3-hydroxypropionic acid from crude glycerol and lignocellulosic biomass derived glucose" funded by DBT (Rs.4,50,020) – Principal Investigator
- Development of a highly sensitive technique for specific detection of pesticidal residues and heavy metals in crude herbal drugs and herbal products" funded by DBT (Rs. 25,22,000) – Principal Investigator
- Drone Assisted Mapping of Seaweeds at Chilika Lake and Development of Value Added Products from Biomass" funded by DBT (Rs. 68,00,000) – Co-principal Investigator

### Publications

- SCI – 16, Scopus – 16, Total IF – 113.582, Highest IF – 9.783  
 Patents:  
 • Novel recombinant *Escherichia coli* strain and method for producing 3- hydroxypropionic acid from acetate. (Korean Patent No: 10-2017-0117097)  
 • Development of recombinant *Escherichia coli* W strain tolerant to 3-hydroxypropionic acid. (Korean Patent No: 10-177724)

### National Collaborations

- Indian Institute of Technology, New Delhi
- Indian Institute of Technology, Chennai
- Gujarat Biotechnology University, Gujarat
- Central Leather Research Institute, Chennai
- Innosynthetic Biosciences Pvt. Ltd., Chennai
- AlgalR Nutraceuticals Pvt, Thanjavur

### International Collaborations

- Ulsan National Institute of Science and Technology, Ulsan, Republic of Korea.
- Pusan National University, Busan, Republic of Korea
- Jiangsu Normal University, Jiangsu, China
- Lakehead University, Canada

Our research group consists of five PhD scholars (2 full-time and 3 part-time) along with few under graduate students as project interns.

### Research Facilities



Shaker Incubator



Thermal Cycler



Gel Doc



Minispin



Eporator



Hot air Oven



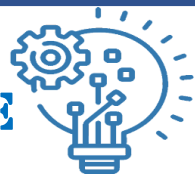
Gel Rocker




Ice Flaker



Refrigerated Centrifuge





## Centre for Solar Water Pumping System

Dr. S. Christopher, Professor, Department of Mechanical Engineering

Email: drschristopher@veltech.edu.in Mobile: +91-94448 02254

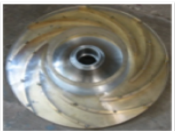
**Research Focus: Fluid Mechanics, Rotodynamic Pumps & Turbines, Computational Fluid Dynamics, Solar Pumping**

### Funded Projects - Ongoing

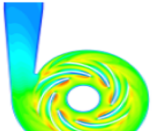
Title	Funding Agency	Amount (Rs)	Duration
Optimization of Solar Photovoltaic Based Water Pumping Performance with DC Motor	SERB	18,30,000	2021-2023 (3 Years)

**Publications** SCI - 09, Scopus - 11; Total IF: 16; Highest IF: 2.9

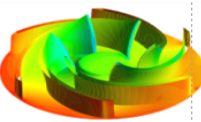
### Research Snippets




Radial Flow Impeller with Transparent Front Shroud



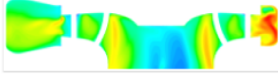
Velocity Contours



Dipole Source Strength

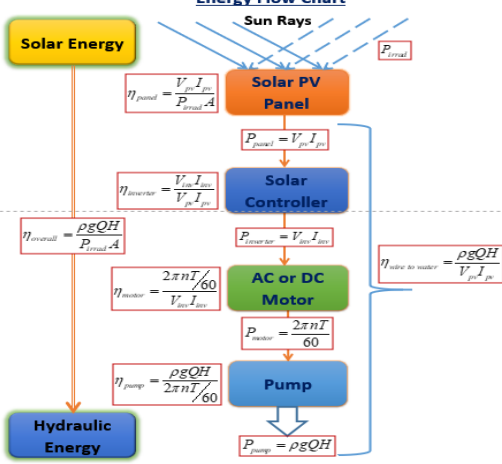


Vertical Inline Pump - Mesh









Pressure Contours in Meridional Plane of Impeller

### Energy Flow Chart



National/International Collaborations

## Research Collaborators





As per the institute's guidelines, the Publication Cell coordinates researchers from various Departments/Centre/Institutes to publish scholarly papers, articles, and books. The faculties and students are identified and encouraged for their outstanding contribution in publications, by providing financial assistance for analytical and characterization process. Technical guideship in using modern tools for manuscript preparation are also rendered time to time.

The Scopus and Web of Science indexes are used as Bench-mark metrics for ranking faculty and student publications.

**ELSEVIER**  
Scopus



Conference Proceedings


749

Articles  
4015

Books & Chapters  
527

 **Clarivate**  
Analytics

WEB OF SCIENCE™

  
Conference Proceedings

528

  
Articles

1615

  
Books & Chapters

15



### Top 3 Faculty with highest h-index

MATHEMATICS

105

**Dr. V. SUNDARA PANDIAN**  
(Professor)

AUTOMOBILE

24

**Dr. V. HARISH**  
(Assistant Professor)

MECHANICAL

20

**Dr. M. ARULPRAKASA JOTHI**  
(Professor)

### Top 3 High Impact Factor – Faculty Publication

20.83

**Dr. PRADEEP REDDY**  
Asst. Professor/Department of Physics

**Dr. K. JAGAJJANANI RAO**  
Asso. Professor/Department of Biotechnology

13.28

11.88

**Dr. R. Ravikumar**  
Professor/Department of Bio Technology



**Top 3 Faculty with highest number of citations**

23,675

**Mathematics**

**Dr. V. Sundarapandian**  
Professor

1,623

**Automobile**

**Dr. V. Harish**  
Assistant Professor

1,515

**Mechanical**

**Dr. M. Arulprakasa Jothi**  
Professor

**Top 3 Faculty with highest i10-index**

346



**Mathematics**

**Dr. V. Sundarapandian**  
(Professor)

31



**Automobile**

**Dr. V. Harish**  
(Assistant Professor)

26

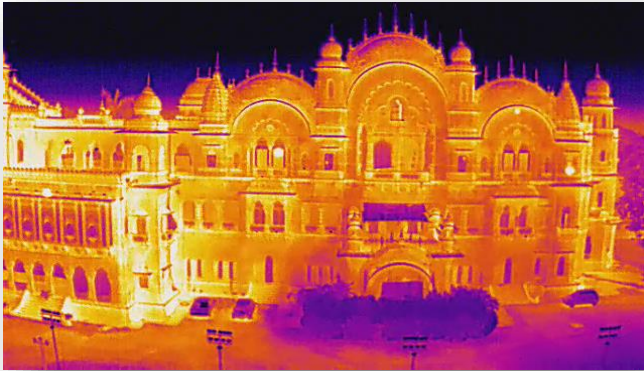


**Mechanical**

**Dr. Kanak Kalita**  
(Assistant Professor)



The Sponsored Research Cell coordinates, Research Projects at Vel Tech that are sponsored by National & International Institutions and Industries. Various Research Centre are established in Research Park to host these projects. So far more than 5000 lakh worth grants has been sanctioned to Vel Tech. Currently the institute has 25+ ongoing projects from various GoI agencies such as *DST, DBT, DRDO, ISRO, CSIR, CPRI, BRNS, IEI, MSME, TNSCST*. Also the institute had attracted international sponsored projects like *Indo – Taiwan, Indo – France, Indo – Canada and Indo – Korea*.



## 25<sup>+</sup> On-going Projects

भारत सरकार  
GOVERNMENT OF INDIA
विज्ञान और प्रौद्योगिकी मंत्रालय  
MINISTRY OF SCIENCE AND TECHNOLOGY

**जैवप्रौद्योगिकी विभाग**  
**DEPARTMENT OF BIOTECHNOLOGY**

सत्यमेव जयते

शान्ति की सेवा में परमाणु  
प.ऊ.वि  
DAE  
ATOMS IN THE SERVICE OF THE NATION

iNSERB  
DIA

सत्यमेव जयते

Department of Science & Technology  
Government of India

**Indian Council of Social Science Research**

DRDO  
DEFENCE RESEARCH ORGANIZATION  
भारत सरकार  
MINISTRY OF DEFENCE

GLOBAL INNOVATION & TECHNOLOGY ALLIANCE

DRDO  
DEFENCE RESEARCH ORGANIZATION  
भारत सरकार  
MINISTRY OF DEFENCE

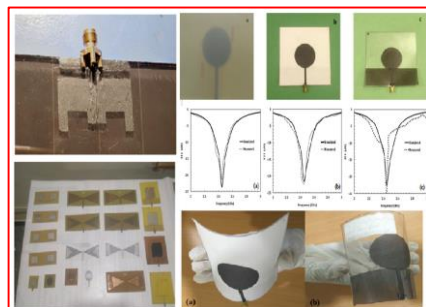
All India Council for Technical Education  
**AICTE**  
केन्द्रीय तकनीकी शिक्षण परिषद

इसरो  
isro



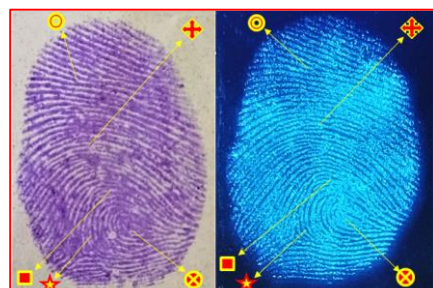
**Rs. 33,30,000**

Design and Development of Optimized Miniature Antenna Modules with Duality Function for Inflatable Satellite Antenna Setup



**Rs. 62,25,000**

SERB Research Scientist Scheme



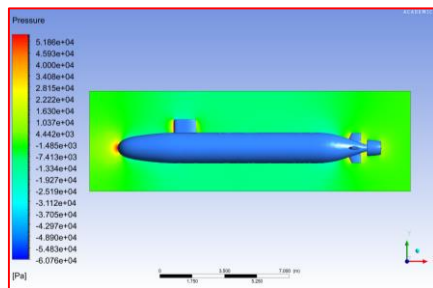
**Rs. 24,51,000**

Energy efficient and optimal path planning strategies for SWARM of UAVs in real time localization using deep learning based stereo vision system



**Rs. 8,40,000**

Optimization of high speed vessel and evaluation of hydrodynamic performance



**Rs. 6,00,000**

Expansion of activities of BioTech - KISAN Hub in Three Aspirational Districts (Kadapa, Vizainagaram and Vishakapatnam) of Andhra Pradesh







**Rs. 12,21,000**

**AICTE MODROB**



**Rs. 27,19,114**

**Multifunctional Colloidal Sulfur Particles A Promising Green Pesticide for Practical Agriculture Applications**



**Rs. 12,83,400**

**AICTE SPDC-Skill and Personality Development Centre**



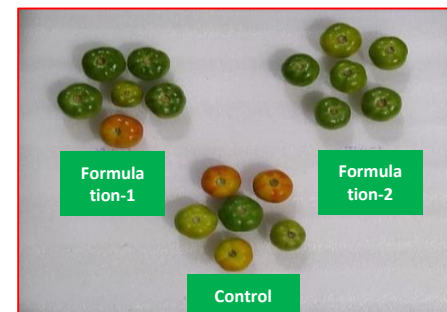
**Rs. 25,22,000**

**Development of a highly sensitive technique for specific detection of pesticidal residues and heavy metals in crude herbal drugs and herbal products**



**Rs. 52,44,000**

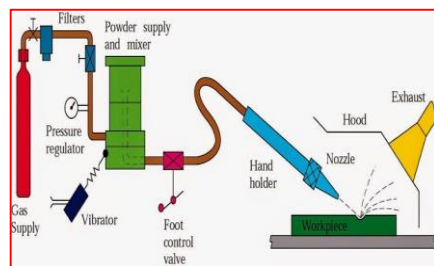
**Developing Novel Applications from Silk Fibers and Silk Proteins**





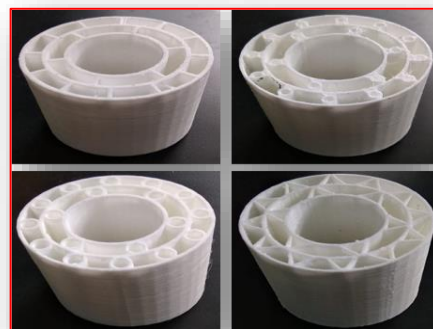
**Rs.8,25,000**

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



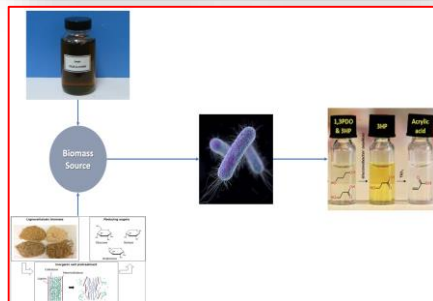
**Rs. 8,25,000**

Additive Manufacturing of Next Generation Alloys



**Rs.50,86,660**

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



**Rs. 16,00,000**

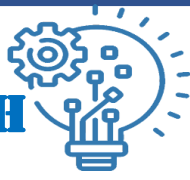
Slide and swivel joint for aircraft applications.



**Rs. 9,00,000**

Fuel system components for aircraft applications.





**Rs.7,00,000**

Pressure Measuring Instrument.



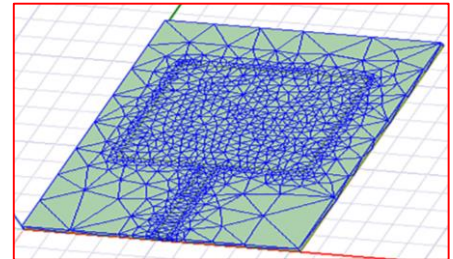
**Rs. 68,22,000**

Seaweeds Cultivation and Utilization in Odisha coast including Chilika Lake for Ecological Restoration and Livelihood Generation



**Rs.28,02,600**

Development of 3D printed flexible patch antennas for enhancement of communications range in UAV



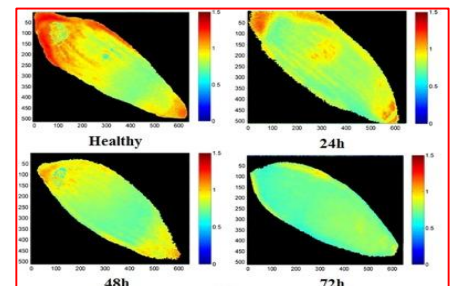
**Rs. 68,65,854**

Precision brackish water aquaculture technology using Machine Intelligence



**Rs. 2,00,000**

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







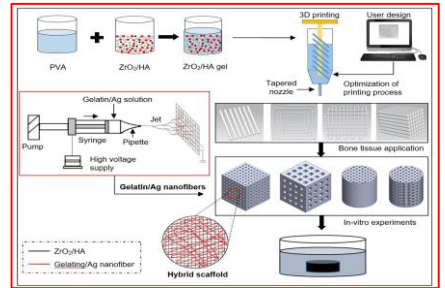
Rs.8,25,000

Optimizing Supersonic Co-Axial Nozzle design for Mixing Enhancement



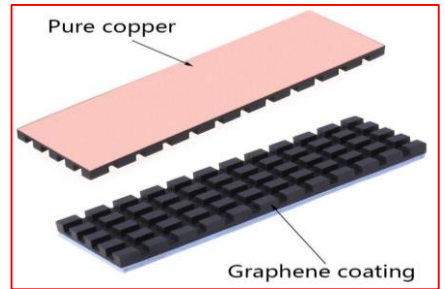
Rs. 8,25,000

Additive manufacturing of Osteogenic and infection resistant bone tissue engineering scaffolds



Rs. 8,25,000

Fabrication of Graphene coated Cu heat sink for electric vehicle battery thermal management



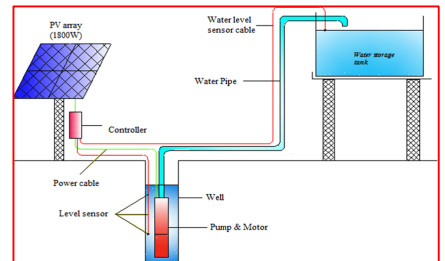
Rs. 8,25,000

High strain rate characterization of additive manufactured materials for ballistic loading applications



Rs. 8,25,000

Optimization of Solar photovoltaic based water pumping performance with DC Motor





**Rs. 42,54,035**

UAV Based In-situ Measurements and Hyper spectral Analysis for Water Quality Mapping and Developing Remediation Strategies



**Rs. 3,72,567**

Microbial Recovery of Biogenic Methane from Coal Rejects with CO2 Sequestration using Novel Hybrid Geo-photo Bio Reactor and Reclamation of the Site



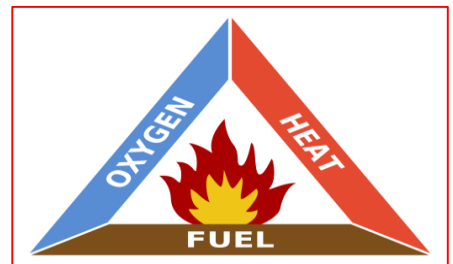
**Rs. 29,98,560**

Development of sensing systems for rapid and in situ quality assessment of black rice, ginger (*Zingiber Officinale*), *Elsholtzia griffithii* and *Cinnamomum zelanicum* of north East India using Spectroscopic (NIR and Raman) technologies



**Rs. 29,88,000**

Design of Cascaded Adaptive Control with O2 and Temperature data of Combustion Images for Optimization of Boiler Combustion Processes in a Thermal Power Plant.



**Research  
is creating  
new  
knowledge**

-Neil Armstrong-

## Indo - Taiwan

Design, Development and Formation Control of Micro Ornithopters



DST - GITA - CII



### Objectives

- Flapping wing mechanism design and finite element analysis of Micro Ornithopter.
- Wind tunnel setup measurement of aerodynamic forces and moments.
- Development of altitude control algorithm to control the orientation of Ornithopter.
- Design of pattern formation algorithms to formulate the Ornithopters into different patterns like circle, triangle, square and line will be developed.



A 10 gram Ornithopter

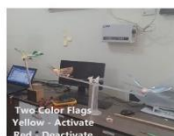
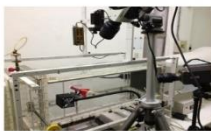


Image based control of group of Ornithopters



Measurement of flapping angle using high speed camera



### Outcome

- One patent filed, published 4 international journals and 8 international conferences.
- 12 students exchanged to Taiwan for internship and 5 students from Tamkang University, Taiwan visited Vel Tech University.
- Dr E Balasubramanian delivered a short term course at Tamkang University through faculty exchange MoU.

## Indo - Canada

Full Field Non-Contact SHM Protocols for Long Span Railway Bridges and Heritage Structures



DST / IC - IMPACTS



### Objectives

- Development of innovative remote sensing equipment using UAV for infrastructure condition assessment.
- Mock-implementation of developed techniques on a reinforced concrete test bench at the University of Victoria.
- Condition assessment of an Indian railways bridge using developed techniques and comparison to data collected using mounted sensors.
- Development of algorithms correlating bridge condition to gathered data.
- Field application of developed technology to remote bridges in India and Canada.



Railway bridge inspection using UAV



Thermal image of bridge pier



UAV based 3D mapping of Laxmi Vilas Palace, Vadodra, Gujarat

### Outcome

- One patent filed, published 1 international journal, 6 international conferences and 2 international journals are in pipeline.
- 10 UG students are trained in image processing and 3D mapping.
- Industrial consultancy projects on bridge inspection and 3D mapping of heritage structure are carried out.

## Indo - French

Innovative Wheel Drive to Enable Widespread Electric Bicycle Transportation



IFCPAR/CEPIRA



### Objectives

- Development of innovative wheel drive (magnetic and magnet less motor) capacity of 250W, maximum speed of 25 kmph and 110 kg payload for electric bicycle and wheel chair.
- Development of 50kW power converter for the control of induction and synchronous motors pertaining to solar, wind and hybrid energy systems.



E-Bicycle



Wheel chair



Wheel drive

### Outcome

- 15 UG students, 15 PG students and 2 PhD students of multidisciplinary mechanical, electrical, electronics and communication are involved in design of communication networks and embedded control systems for electrical motors.
- 13 students from Polytech Tours and Polytech Orleans, France worked at Veltech for a period of 3 months.

## Indo - Korea

Design and Development of Autonomous Amphibious Unmanned Aerial Vehicle and UAV Mountable Water Sampling Devices for Water Based Applications



DST - GITA - CII

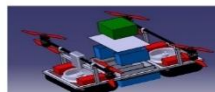


### Objectives

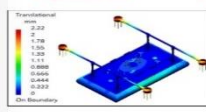
- Design and development of autonomous amphibious UAV to access remote areas where human access is practically not feasible.
- To analyze the water condition using the onboard hyper spectral imaging sensors with inbuilt image processing software to post process the spectral image for the identification of chemicals present in the water with the particle size present in the water body.
- Water sampling and quality analysis is also carried out through laboratory experiments and compared with real time values to validate the consistency and performance of the proposed system.



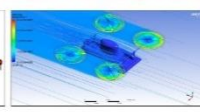
Amphibious UAV



Conceptual model of amphibious UAV



Finite element analysis of amphibious vehicle

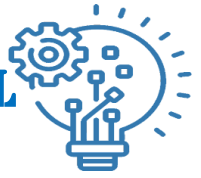


Computational fluid dynamic analysis of amphibious vehicle

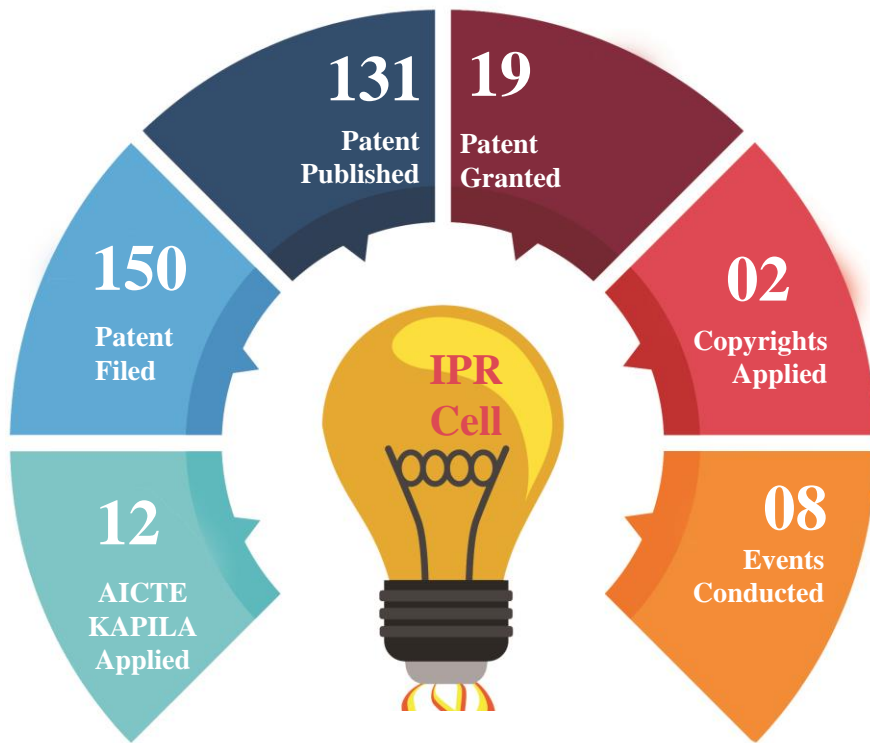
### Outcome

- One patent filed, 3 International conferences are published, 2 SCI journals are under review and 2 more SCI journals are in pipeline.
- 16 UG students, 2 PG students and 1 PhD student of aeronautical and mechanical are involved in conceptual design, finite element analysis, computational fluid dynamic analysis, integration of sensors and fabrication of amphibious vehicle.





The IPR-Cell proactively works to foster an atmosphere of knowledge creation through research and innovations along with the Institute's educational goal. It provides opportunities; by facilitating the protection of intellectual properties created by the faculties/students through their research pursuit at the institute during the tenure. The cell actively works on activities related to evaluation and filling of patents, copyrights and design.





# CONGRATULATIONS For RECEIVING THE PATENTS

## Graphene Based Dome Shaped Phase Array Antenna for Space Communication

Inventors  
1. Mr.R.Prasanna  
2. Dr.R.Gowrishankar Rao  
3. Dr.N.G.Renganathan

Patent No: 336136  
Application No: 3866/CHE/2014  
Dept: ECE, Physics & Chemistry  
Filed year: 2014  
Granted on: 01.05.2020

01

## Grass cutter using wire

Inventors  
1. Mr.Narayanan.P  
2. Mr.A.Thiyagu  
3. Mr.S.Boopathi

Patent No: 359196  
Application No: 1669/CHE/2010  
Dept: MECH  
Filed year: 2010  
Granted on: 23.02.2021

09

## Wind Turbine for home appliances

Inventors  
1. Mr.G.Kamalanath  
2. Mr.M.Ramesh  
3. Mr.E.Jayaselan

Patent No: 340588  
Application No: 1653/CHE/2010  
Dept: MECH  
Filed year: 2010  
Granted on: 06.07.2020

02

## Introduction of Hydrogen Oxygen Mixture at Different Injection Pressure of Diesel Engines

Inventors  
Dr.J.M.Babu

Patent No: 380952  
Application No: 2688/CHE/2014  
Dept: MECH  
Filed year: 2014  
Granted on: 29.10.2021

10

## A Method for Defluoridation of Groundwater using Corn Cob and Leca Balls

Inventors  
1. Mr.Saravanan.J  
2. Mr.Sridhar.M  
3. Ms.Sona Tahseen.C.K

Patent No: 350032  
Application No: 201841038456  
Dept: CIVIL  
Filed year: 2018  
Granted on: 06.07.2020

03

## A modern electronic based fire extinguisher

Inventors  
1. Dr.P.Chandra Sekar  
2. Mr.K.Barathi  
3. Mr.S.Vinoth John Prakash

Patent No: 381296  
Application No: 201741004211  
Dept: EEE  
Filed year: 2017  
Granted on: 05.11.2021

11

## Power generation device using spiral torsion spring during opening and closing of doors.

Inventors  
1. Mr.C.Rajkumar  
2. Mr.B.Harikrishnan  
3. Mr.M.Bala Murugan

Patent No: 350123  
Application No: 1666/CHE/2010  
Dept: MECH  
Filed year: 2010  
Granted on: 30.10.2020

04

## Umbrella based duality module for future space technology

Inventors  
1. R.Prasanna  
2. S.Manoj Aravind  
3. Chaman Shishodia  
4. Adarsh Kumar Gupta

Patent No: 383696  
Application No: 6848/CHE/2015  
Dept: ECE  
Filed year: 2015  
Granted on: 03.12.2021

12

## Partial replacement of coarse aggregated by using E - Waste in high strength concrete

Inventors  
1. Ms.M.Annapurani  
2. Mr.S.Gowtham  
3. Mr.R.Mahesh  
4. Mr.R.Suriya

Patent No: 353021  
Application No: 201741035453  
Dept: CIVIL  
Filed year: 2017  
Granted on: 04.12.2020

05

## Mobile to mobile device controller

Inventors  
1. P.Deepika  
2. R.Poornima  
3. N.S.Ramya krishanan  
4. PSrija  
5. A.Varagi

Patent No: 386106  
Application No: 1917/CHE/2010  
Dept: EIE  
Filed year: 2010  
Granted on: 06.01.2022

13

## Automatic flowrate measurement and control of water flow using telemetry

Inventors  
1. Mr.Agnel Mathews.S  
2. Mr.Ailwyn John Kumar

Patent No: 356422  
Application No: 201641041444  
Dept: MECH  
Filed year: 2016  
Granted on: 22.01.2021

06

## A Fabricated detachable emission filter for exhaust outlets

Inventors  
1. Saravanan.J  
2. Nelson Ponnudurai

Patent No: 388080  
Application No: 201941013857  
Dept: CIVIL  
Filed year: 2019  
Granted on: 30.01.2022

14

## A Composition of Geopolymer Clinker Aggregate and a Process Thereof

Inventors  
Mr.T.Udhaya Kumar

Patent No: 356751  
Application No: 201941051177  
Dept: CIVIL  
Filed year: 2019  
Granted on: 27.01.2021

07

## Amphibious Solar Antenna Module (ANTSOL) for next generation communication

Inventors  
1. R.Prasanna  
2. C.Malathi  
3. S.Manoj Aravind  
4. Chaman Shishodia  
5. Adarsh Kumar Gupta

Patent No: 393763  
Application No: 4834/CHE/2015  
Dept: ECE  
Filed year: 2015  
Granted on: 30.03.2022

15

## Pedal Powered washing machine

Inventors  
1. Mr.Manoj G  
2. Mr.Neeraj P R  
3. Mr.Vimal Venu

Patent No: 358619  
Application No: 1918/CHE/2010  
Dept: MECH  
Filed year: 2010  
Granted on: 15.02.2021

08

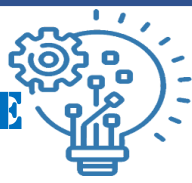
## Small Metamaterial Inspired Antenna for WIMAX and WLAN applications

Inventors  
1. S.Ashok Kumar  
2. R.Sanmuga Sundaram  
3. Aditya Sharma

Patent No: 395997  
Application No: 201641012415  
Dept: ECE  
Filed year: 2016  
Granted on: 30.04.2022

16





## KAPILA

### Kalam Program for IP Literacy and Awareness

Inviting Nominations from HEI's Across India Submit Your Entries by **22<sup>nd</sup> September 2022 (Phase - III)**

The IPR-Cell has registered under the Ministry of Education-Innovation Cell-KAPILA Scheme (**Kalam Program for IP Literacy and Awareness**). The scheme provides financial assistance to the faculty members of this institute for filing patent. So far twelve patents have been applied under this scheme. The scheme implementation is overseen by a committee of five members as below.



## कपिला - KAPILA

कलाम बौद्धिक संपदा साक्षरता और जागरूकता अभियान

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[TEAM](#)
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[FUNDING & ASSISTANCE](#)
[TERMS AND CONDITIONS](#)

Type	Name	Designation	Email
Faculty Member	Prof. S. Salivahanan	Chair Person	vicechancellor@veltech.edu.in
Institute Alumni	Mr K S Saicharan Tej	Senior Patent Associate	saicharantej31@gmail.com
Industrial Expert	Dr P Chandra Kumar	Dean Industry Relations & Head - TBI	veltechbi@veltech.edu.in
IPR Expert/Legal Advisor	Mr A B Rajasekaran	Principal - Rajasekeran Associates	raj@rsaip.com
Faculty Member	Prof. E Balasubramanian	Dean R & D	drd@veltech.edu.in





# KAPILA SCHEME (PATENT APPLIED)

29

Dr. MUNIYANDY  
ELANGOVAN

IOT BASED  
SAFETY  
SYSTEM FOR  
MANUFACTURING  
INDUSTRY

KAPILA-  
IN343

KAPILA-  
IN345

A METHOD OF  
RECYCLING HEAT  
TREATMENT SALT  
WASTES AS POTENTIAL  
ABRASIVES IN WATER  
JET MACHINING  
PROCESS

Dr. N YUVARAJ

Mr. P B SENTHILKUMAR

DESIGN AND  
FABRICATION  
OF UNI-PEDAL  
FOR BRAKE AND  
ACCELERATION

KAPILA-  
IN1424

KAPILA-  
IN1425

RECYCLING OF  
GARNET ABRASIVE  
WASTES FOR THE  
DEVELOPMENT OF  
SUSTAINABLE  
MATERIALS

Dr. N YUVARAJ

Ms. D G S NIVEDHA

POLLUTANT  
ABSORBENTS  
FOR PAINTS

KAPILA-  
IN1426

KAPILA-  
IN1427

A NOVEL LIGHT WEIGHT  
CONCRETE BUBBLE  
DECK COMPOSITE SLAB  
INTEGRATED WITH  
VARIOUS PROFILED  
STEEL SHEETS FOR  
FLOORING SYSTEM OF  
TALL BUILDINGS

Dr. M VINOD KUMAR

Dr. HARIKRISHNA PAIK

BALANCED  
ANTIPODAL  
VIVALDI ANTENNA  
FOR DF AND ECM  
SYSTEMS

KAPILA-  
IN1428

KAPILA-  
IN1429

PRINTING NON  
METALLIC ANTENNA ON  
CERAMIC AND GLASS  
STRUCTURE FOR SPACE  
AND TERRESTRIAL  
ANTENNA APPLICATION

Mr. R PRASANNA

Mr. R PRASANNA

GRAPHENE BASED  
SCREEN PRINTED  
ANTENNA ON FLEXIBLE  
SUBSTRATES FOR  
WIRELESS ENERGY  
HARVESTING  
APPLICATIONS

KAPILA-  
IN1430

KAPILA-  
IN1431

MULTILAYER  
SCREEN PRINTED  
FLEXIBLE GRAPHENE  
ANTENNA FOR ISM  
BAND APPLICATIONS  
AND ENERGY  
HARVESTING

Mr. R PRASANNA

Dr. S P SARAVANAN

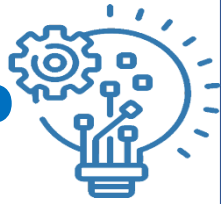
ASSESSMENT OF  
URBAN FLOOD  
RISK REDUCTION  
USING THE DPSIR  
FRAMEWORK

KAPILA-  
IN1432

KAPILA-  
IN1433

METHOD OF  
CONSTRUCTING  
LIGHTWEIGHT  
CONCRETE SLAB

Dr. M VINOD KUMAR



The institute's IPR Cell hosted a webinar on IPR-Awareness under the sponsorship of AICTE on 22<sup>nd</sup> June 2022. The webinar was conducted by Mr. Devendra Kumar Deshmukh, Examiner of Patents & Designs Intellectual Property Office - Chennai. The aim of the webinar was to sensitize and strengthen the IP ecosystem in educational institutes, thus creating a culture of systematically protecting new ideas, research, and innovation having national and global relevance.

**Vel Tech**  
Rangarajan Dr. Sagunthala  
R&D Institute of Science and Technology  
Chennai-600 092

**AICTE**  
All India Council of Technical Education

**MOE's INNOVATION CELL**  
GOVERNMENT OF INDIA

**INSTITUTION'S INNOVATION COUNCIL**  
(Mentors of IPR Institute)

**AICTE Sponsored Webinar**  
on  
**IPR AWARENESS**  
Under the Flagship of  
**KALAM PROGRAM FOR INTELLECTUAL PROPERTY LITERACY AND AWARENESS CAMPAIGN (KAPILA)**

**कपिला - KAPILA**  
कामा श्रीदुःखं संसत् संसत्तं श्री संसत्तं  
अधिष्ठते

**22<sup>nd</sup> June, 2022**

**11.00 AM - 01.00 PM**  
Mode : Online

**RESOURCE PERSON**

**Mr. DEVENDRA KUMAR DESHMUKH**  
Examiner of Patents & Designs Intellectual Property Office  
Chennai

**IN THE PRESENCE OF**

**Col. Prof. Vel. Dr. R. Rangarajan**  
Founder President & Chancellor

**Dr. Sagunthala Rangarajan**  
Foundress President

**Prof. S. Salivahanan**  
Vice Chancellor

**CONTACT PERSONS**

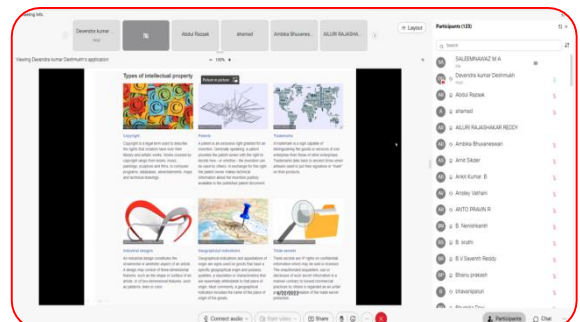
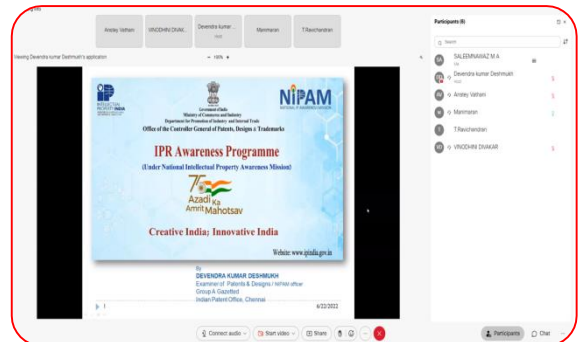
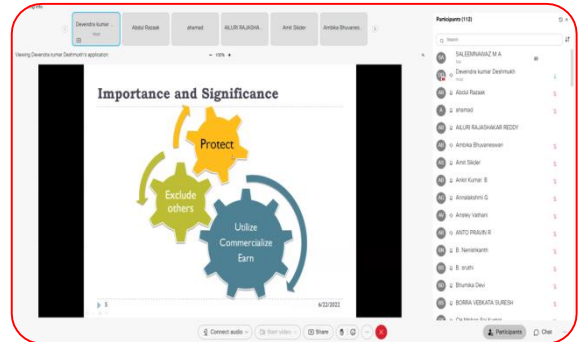
**Dr. E. Balasubramanian**  
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9940024007  
drd@veltech.edu.in

**Mr. M. A. Saleem Nawaz**  
IPR Co-ordinator  
Office of R & D  
8754416297  
ipr@veltech.edu.in

No.42, Avadi - Vel Tech Road, Vel Nagar, Avadi, Chennai - 600 062

www.veltech.edu.in

1800 212 7669





Ministry of Commerce  
and Industry  
Government of India

## CERTIFICATE OF APPRECIATION

*Presented to*

**VEL TECH RANGARAJAN DR. SAGUNTHALA R&D  
INSTITUTE OF SCIENCE AND TECHNOLOGY,  
CHENNAI, TAMIL NADU**

*In recognition of active participation in the **National Intellectual Property Awareness Mission (NIPAM)** launched by the Government of India on the occasion of the 75th anniversary of independence under the banner "Azadi Ka Amrit Mahotsav" to create widespread awareness on Intellectual Property Rights (IPR). The exceptional contribution in successfully organizing the awareness programme on **June 22, 2022** in association with **Intellectual Property Office, Chennai** by providing your valuable time and support is highly appreciated.*

*Solicit your continued support for outreach of IPR far and wide.*

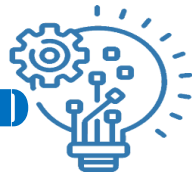
(Dr. Abhay Jere)

CHIEF INNOVATION OFFICER  
MINISTRY OF EDUCATION'S INNOVATION CELL (MIC)  
GOVERNMENT OF INDIA



(Prof. (Dr) Unnat P. Pandit)  
CONTROLLER GENERAL OF  
PATENTS, DESIGNS & TRADE MARKS





## How to Write a Research Proposal

Presented by

**Dr. E. Balasubramanian**

*Professor, Dept. of Mechanical Engineering*

**Dr. Gowri A**

*Assoc. Professor, Biomedical Engineering*

**Dr. K Jagajjanani Rao**

*Assoc. Professor, Biotechnology*

**Dr. Tarangini K**

*Asst. Professor, Biotechnology*



## Vel Tech

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





**Vel Tech**  
Rangarajan Dr. Sagunthala  
R&D Institute of Science and Technology  
(Affiliated to the University of Calicut, UGC, AICTE, ISO)

On the occasion of  
**Our Beloved Founder President & Chancellor's**  
**82<sup>nd</sup> Birthday**

**REWARDS**  
for  
**Publications / Funded & Consultancy Projects / Patents**



Presided over by

**Col. Prof. Vel. Dr. R. Rangarajan**  
Chancellor & Founder President

**Dr. Sagunthala Rangarajan**  
Foundress President

In the presence of

**Prof. Dr. S. Salivahanan**  
Vice Chancellor

**Prof. Dr. E. Kannan**  
Registrar

**Dr. E. Balasubramanian**  
Dean R & D

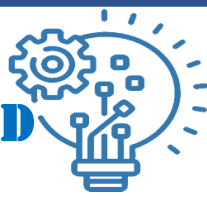
**Dr. P. Chandrakumar**  
Dean Industry Relations / TBI

Date: 24/02/2022 2:30 pm      Venue: Vel Murugan Auditorium

No.42, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai - 600062  
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**Vel Tech**  
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R&D Institute of Science and Technology  
(Chartered to the University of Madras, Act 5 of 1980 Act, 1988)

*Jointly Organizing*



## One Day Workshop on Hyperspectral Imaging and Analysis

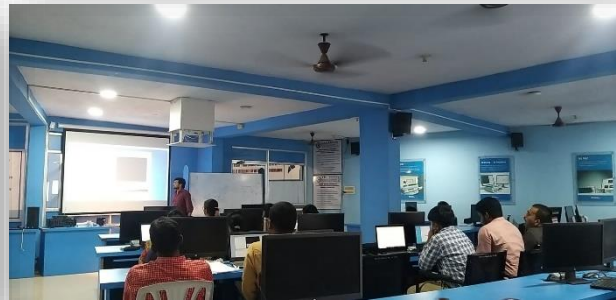
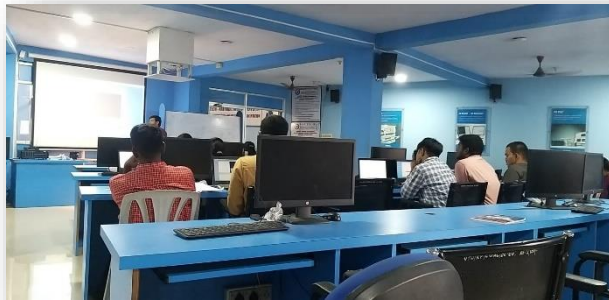
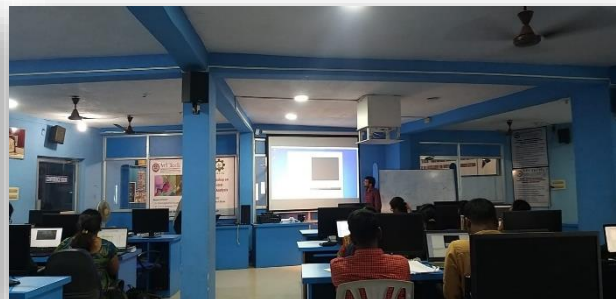
### Resource Person:

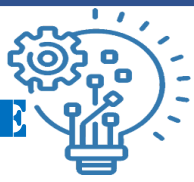
1. Dr. Shanmugakumar Murugesan, Founder & CEO
2. Mr. D N S S Ravikanth, CTO

Date : 30.05.2022

Timing : 10 am to 4.30 pm

Venue : Research Park, 1st Floor, National Instruments Lab





**Bearing Test Facility**



**Velodyne-LIDAR**



**Infrared camera (IR)**



**Hyper spectral imaging sensor**



**Hexacopter UAV**



**Floating UAV**



**Spectrofluorometer**



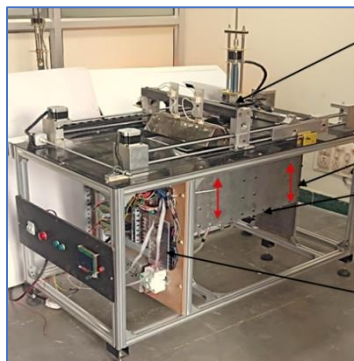
**Spectrophotometer**



**Tensile Testing Machine**



**Tyrone Server**



**SIS System**



**Polarizing Microscope**



**Spray dryer**



**Pad dryer**



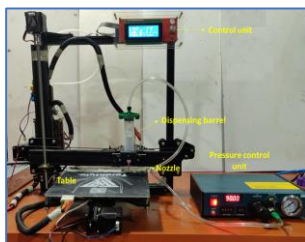
**Wash Fastness Tester**



**Humidity Chamber**



**Spectrometer**



**3D-Printer**



**Metallurgical Microscope**



**Table Top Grinder**



**Abrasive Sieve Shaker**



**Vacuum Pump**



**Vacuum Oven**



**UV-Visible Spectrometer**



**Box Furnace**



**Spin Coating**



**Hot Air Oven**





**BLOCK-29 : RESEARCH PARK**



**BLOCK-32: CMESB & HSBT**



**BLOCK-29: GREEN HOUSE**



**BLOCK-26 : CBBR**



# BLOCK: 23 KNOWLEDGE RESEARCH CENTRE



**Knowledge Resource Center Inaugurated by  
Dr. BALDEV RAJ**







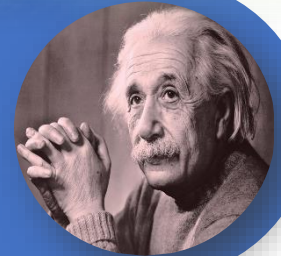
# Vel Tech

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



*“The real goal of my research has always been the simplification and unification of the system of theoretical physics”*

*–Albert Einstein*



**Research Park**

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology  
# 42, Avadi-Vel Tech Road, Vel Nagar, Avadi, Chennai – 600 062

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