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A half-yearly newsletter



Department of Aeronautical & Automobile Engineering
Manipal Institute of Technology
Manipal Academy of Higher Education, Manipal

VISION

- Excellence in Education of Aeronautical and Automobile Engineering fortified through Innovation and Teamwork.

MISSION

- Educate students professionally to face societal challenges.
- Provide a conducive environment for learning, reinforced with the principles of Aeronautical and Automobile Engineering.
- Promote Creativity and nurture Teamwork.



ACADEMICS

Dr. Vishnu G Nair, Assistant Professor-Senior Scale in the department of Aeronautical and Automobile Engineering has completed his Ph.D. in the field of robotics from NITK Surathkal on September 20, 2019. He has published a paper, "GM-VPC: An Algorithm for Multi-Robot Coverage of Known Spaces Using Generalized Voronoi Partition," in the prestigious journal of robotics, *Robotica*, published by Cambridge university press (Q1 journal). He has also contributed three chapters in the springer published series "Lecture Notes in Electrical Engineering."

Stanford Health ++ Hackathon 2019

Huang Engineering Centre,

Stanford University, USA

Date: October 19-20, 2019

Two students from Manipal Institute of Technology, Akshatha Kamath (3rd year student from the Dept. Computer Science and Engineering) and Jithin Sunny (3rd year undergrad at the dept of Electrical Engineering) accompanied by mentor Dr. Mohammad Zuber (Assistant Director, Innovation & Incubation MIT Manipal) were selected for Stanford Health++ Hackathon held at Huang School of Engineering at Stanford University, USA. Sarah Frandsen (Masters student at the Stanford Business school), Amy Le (Pharm. D. from Univ. of Texas at Austin) and Dr. Lauana (MD, physician at Disney cruises) were a part of MIT, Manipal

A total of 800+ candidates registered for the event and about 42 teams competed in various categories.

MIT, Manipal team built an Augmented Reality app that measures the height of babies to ascertain the accurate dosage of medicine to be administered in Emergency situations, In contrast to already existing solutions relying purely of the height-dosage correlation, our solution demonstrated an added accuracy in the predicted results due to the use of contour based estimation of Surface area and BMI. Furthermore, Machine Learning techniques were heavily used to achieve global scalability in the results. We demonstrated feasibility and profitability. Our team won the 'Global Health' category award with a cash prize of USD 1000 and an opportunity to discuss the business proposal with Alex Ventures, USA.

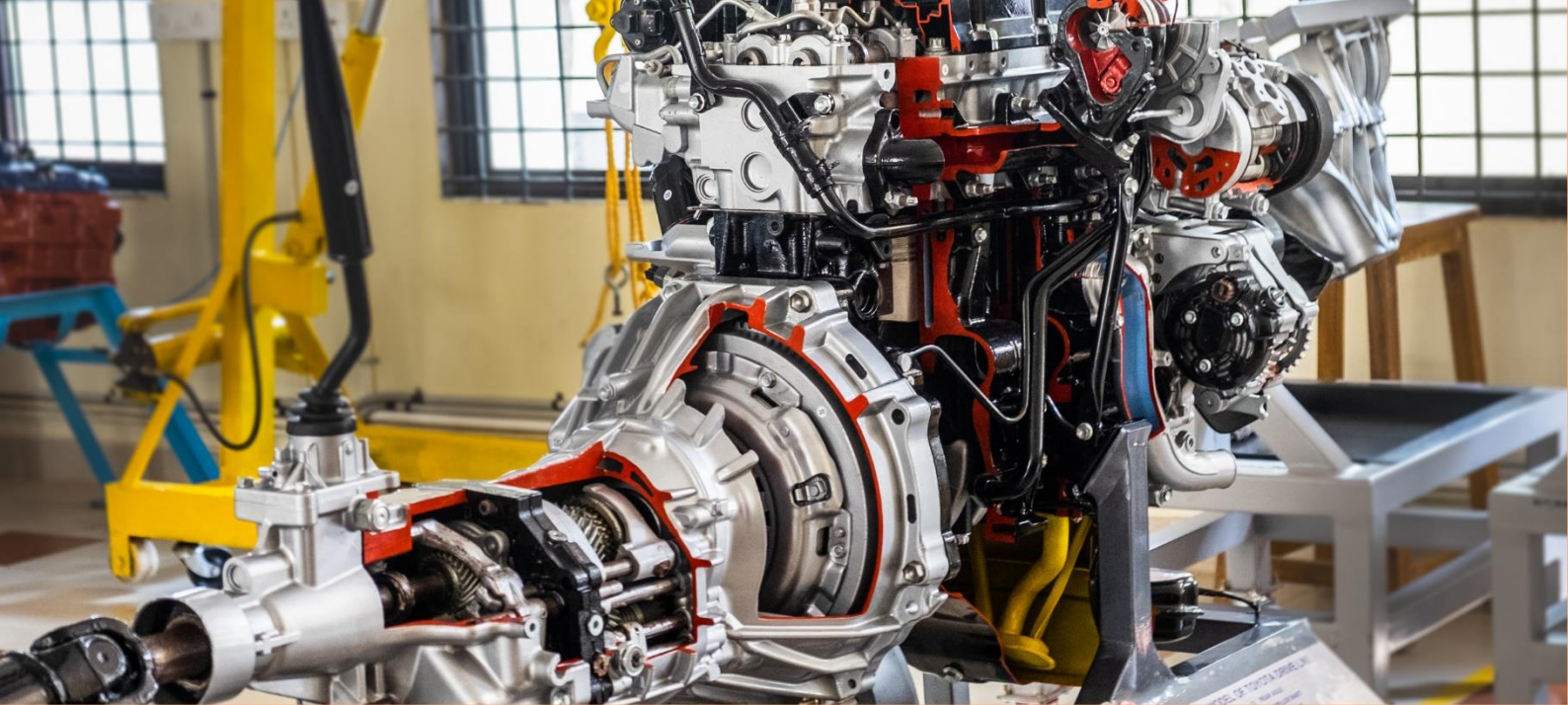
National Aerospace Conceptual Design Competition

Second National Aerospace Conceptual Design Competition (NACDeC II) was conducted by the Aeronautical Society of India. The problem statement was to design a LIDAR-equipped Unmanned High-Altitude Platform (LU-HAP) for carrying out mapping of coastal habitats, detecting shoreline changes, and generating an accurate digital elevation model of coastal areas for scientific studies.

The winning design was developed by Ashley Mudaliar and Anish Pai and mentored by Dr. Mohammad Zuber. The concept of MIT team was a solar-powered HALE (High Altitude Long Endurance) Unmanned Aerial Vehicle. It was to be developed for carrying out mapping of coastal habitats, detecting shoreline changes, and generating an accurate digital elevation model of coastal areas

for scientific studies. The second and third place was awarded to MVJ College, Bangalore, and IIT Kharagpur, respectively.





Research related news

The faculty members have published multiple research papers in various Scopus Indexed Journals and also presented papers in various international conferences.

Professor	Journal	Conference	Book Chapters
Dr. Mohammad Zuber	6	--	1
Dr. Vishnu G Nair	2	3	--
Dr. Mahesha GT	2	1	--
Mr. Chetan KN	5	1	--
Mr. Padmaraj NH	2	--	--
Mr. Anand Pai	1	--	--
Mr. Srinivas G	7	--	--
Dr. Chandrakant R Kini	2	--	--
Dr. Sriharsha Hegde	1	--	--
Mr. Yogish Pai	1	--	--
Dr. Dayanand Pai	--	1	--
Dr. Pramod Balwantrao Salunkhe	--	1	--



STUDENTS

- Several students of the Aeronautical and Automobile Department have been placed in Goldman Sachs, Deloitte, KPMG, TheMath-Company, LeadSquared, Verzeo, MyGate, Accenture, and Capgemini. Several students have received semester-long internship offers at IITs, IISc, and so on.
- AeroMIT is MAHE's official aeromodelling team that designs and fabricates aerial vehicles of various types for research and competitive applications. The team participated in SAE Aero Design East (Micro Class) held in March 2019, and Aerophilia held in September 2019 at Sahyadri College of Engineering.
- At Aerophilia 2019, teams had to design and fabricate a modular aircraft that assembles in the least possible time, is characterized by a high payload fraction, and performs aerobatics. The team stood 1st in the Aeromodelling Event. At the Drone Racing event, the 2nd and fourth positions were also secured by AeroMIT. AeroMIT placed 5th in Flight Performance, 6th in Design Report, 4th in Technical Presentation, and 5th in Overall World rank.
- SAE Manipal Collegiate Club organized several events under the Kraftwagen category in TechTatve'19 and also organized 'Garage Hunt' for 2nd-year students.

Students of our department have published the following papers in Scopus Indexed Journals under the guidance of professors :

- Iva Surana, Dhruv Jignesh Pandya, N. H. Padmaraj, S. Hegde, and K. N. Chethan, "Influence of filler material on mechanical and vibration properties of basalt / epoxy composites", Mater. Res. Express 6(2019) 085342. DOI: <https://doi.org/10.1088/2053-1591/ab279e>
- Armaan Aditya, Srinivas G "The Numerical Analysis of NACA 0018 Airfoil: Studying the Effect of Flap" International Journal of Mechanical and Production Engineering Research and Developments (IJMPERD). ISSN(P): 2249-6890; ISSN(E): 2249-8001, Vol. 9, Issue 4, Aug 2019, 1047-1054. DOI: [10.24247/ijmperdaug2019107](https://doi.org/10.24247/ijmperdaug2019107)



- **Varun Chivukula, Ruchika Mohla, Srinivas G “Performance Enhancement of Aircraft Engine Axial Flow Turbine Using Theoretical, Experimental and Numerical Approaches – A Review” Journal of Mechanics Engineering Research and Developments (JMERD) ISSN: 1024-1752. CODEN: JERDFO, Vol.no.42, Issue no. 4, Year 2019, PP 172-183. DOI: <http://doi.org/10.26480/jmerd.04.2019.172.183>**
- **Sabarinathan V, Chandrakant R Kini, Srinivas G “Plastic Oil As An Alternative Fuel In Diesel Engine” Journal of Mechanics Engineering Research and Developments (JMERD) ISSN: 1024-1752. CODEN: JERDFO, Vol.no.42, Issue no. 42, Year 2019, PP 215 220. DOI: <http://doi.org/10.26480/jmerd.04.2019.215.220>**
- **Rajat Rohit, Chandrakant R Kini, Srinivas G “Recent Trends in Aerodynamic Performance Developments of Automobile Vehicles: A Review” Journal of Mechanics Engineering Research and Developments (JMERD) ISSN: 1024-1752. CODEN: JERDFO, Vol.no.42, Issue no. 4, Year 2019, PP 206-214. DOI: <http://doi.org/10.26480/jmerd.04.2019.206.214>**
- **Siddharth Naidu, Jagadeesh Kota, Srinivas G “The Numerical Analysis of Marine-Ship Propeller” International Journal of Mechanical and) Production Engineering Research and Development (IJMPERD). ISSN(P): 2249-6890; ISSN(E): 2249-8001, Vol. 9, Issue 4, Aug 2019, 1097-1108. DOI: [10.24247/ijmperdaug2019113](https://doi.org/10.24247/ijmperdaug2019113)**
- **Bhavana G N S, S Suraj Singh, Srinivas G “The Numerical Simulation and Evaluation of Aircraft Engine Axial Flow Turbine Using Numerical Technique” International Journal of Mechanical and Production Engineering Reseach and Developments (IJMPERD). ISSN(P): 2249-6890; ISSN(E): 2249-8001, Vol. 9, Issue 4, Aug 2019, 989-984. Doi: [10.24247/ijmperdaug2019101](https://doi.org/10.24247/ijmperdaug2019101)**
- **J K Ajay Kumar, Srinivas G “The Performance Evaluation of Injector Using Numerical Technique” International Journal of Mechanical and Production Engineering Research and Developments (IJMPERD). ISSN(P): 2249-6890; ISSN(E): 2249-8001, Vol. 9, Issue 4, Aug 2019, 971-978. Doi: [10.24247/ijmperdaug201999](https://doi.org/10.24247/ijmperdaug201999)**

Student International Conference Attended:

Keshav Sharma B.Tech (Aeronautical Engineering) Presented a paper titled "Flying Smart: Smart Materials used in Aviation Industry" in 2019 First International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2019) held at KLE Dr. M.S. Sheshgiri College of Engineering and Technology, Belgavi During 12-14 Sept 2019.



Revati Borkade and Dheeraj Goasangi presented the paper titled " Static Analysis and Fatigue life prediction of Composite Leaf spring in automobile suspension systems." at the 3rd International Conference on Research Emerging Trends in Materials and Mechanical Engineering (ICRRETMME-2019) at Reva University, Bangalore.

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