MIT experience goes beyond the periodic system of lectures, tutorials and assignments. We believe in imparting education which is holistic, nurturing and experiential. MIT produces world class technocrats and engineers but we also want to create community change agents and believers, who will ensure that a way forward for humanity is through progress, kindness, shared interests and most of all, by accepting diversities of people.

Club and project activities in MIT has its major perks and satisfaction for students. Through participation and collaboration with diverse group of people, our students are enabled to develop new skills which includes communication, leadership, team work, time and resource management skills. It helps them to manage time and resources effectively, make pragmatic decisions and coordinate major events. These group activities provide functional skills that help students to rediscover their inner potential. It allows the students a learning to work with people, to manage conflicts and in finding solutions through team work and camaraderie. It helps students to make new connections and bonds, far away from their families.

This coffee table book has compiled some unbelievable accomplishments of our students achieved through sheer hard work, dedication, perseverance and above all a “can do” spirit that is the hallmark of education quality in the “mighty-mighty MIT”. Behind every project is a story of sweat and toil, of successes and multiple failures, of desperation and hope, of sorrow and cheers and of deep-routed friendship built through shared labour. I wish all the projects of MIT a very successful year ahead and want all the readers to find time to visit the factories of the champions of MIT-Manipal – a hub of experiential learning.
Engineering education is expected to be experiential. This could be carried out as a classroom activity by incorporating relevant modules in the curriculum, or as an outside the classroom activity. MIT is known to do this effectively in both the modes, thus, is identified as campus of experiential learning. More than 80 technical and cultural clubs provide these opportunities for learning outside the classroom. Prominent among the technical clubs are the 'Major Student Projects' - the student teams working on some theme based technical problems.

It all started in the year 2007 with a bunch of students approaching the administration to provide them support to conceptualize, design, fabricate, test and race a single seater, open-wheel Formula-style race car. The group identified themselves as 'Formula Manipal'. Since its first competition in 2008, the team has brought in lot of laurels to self and to the Institute. With this humble beginning, the campus now houses about 22 major project teams with each team having members ranging from 25 to 75. These passion driven team activities hone their communication skills, build team spirit and healthy relationship, skill them in identifying a problem, extract engineering specifications and provide an optimal solution, make them good planners, adaptable, and flexible, with all these skillset groom them to be potential leaders.

Update about most of these campus activity are available in the various forms such as respective team's website, Institute booklet - Prospectus, Institute newsletter - Focus, Annual Magazine - MIT Ingenuity etc. However, there was always a feeling that these activities should be brought out in the form of a coffee table book, for someone to enjoy the morning coffee or free time by going through it and appreciating the intellectual power of young minds. The book you are holding is the outcome of such a thought process.

If you are a parent of a child, I am sure you would like to see the achievement of your child reflecting in this book; if you are an entrepreneur or a corporate leader, you would like to have such a skilled manpower in your team; if you are an investor, you may wish to support any of these teams to come up with a startup or a product; if you are supplier of equipment, software tools or consumables, you may wish to support these teams. Altogether, we wish this initiative of ours will connect all the stakeholders and create a positive vibe among all.

Happy reading…
With easy access to resources, today’s children have ability for self-learning. They look for learning to be fun, hands-on, and experiential. Also, an engineering graduate is expected to have skill set to find solutions to problems of the society. Along with the domain specific knowledge, an engineer needs skills such as: Communication, Leadership, Teamwork, Problem Solving, Planning, Motivation & Enthusiasm, Adaptability & Flexibility, and Ability to Build Relationships. With highly competitive market, human resource has become a critical resource. Corporates are looking at this resource to start contributing from day one. With knowledge-based economy, today’s engineers are expected to demonstrate their ability for lifelong learning. All these mandates engineering education to be experiential, practical, relevant, and up to date.

In India, entry into engineering Institutions is highly competitive. With this, students have built-in competitive spirit. To foster this spirit, in 2007, Institute came up with the idea of ‘Major Student Projects’, wherein, institute provided infrastructure to build a technical project to compete in an international competition. Such an initiative was ‘Formula Manipal’, a student engineering project comprising of a group of undergraduate students aiming to conceptualize, design, fabricate, test and race a single seater, open-wheel Formula-style race car. Since its first competition in 2008, the team has participated in competitions in Italy, UK, Austria, Germany, and the Czech Republic.

The success of this has led to initiation of many more student teams. The year 2008 saw the stak of ‘Team Manipal Racing’, of-road racing club to design and fabricate All-Terrain Vehicles according to the rules laid by SAE BAJA. Year 2009, AeroMIT was initiated to design, manufacture, and fly a complex, stable, and pokable model aircraft with minimal empty weight, maximum payload carrying capacity; RoboManipal was staked with an aim of taking pak in robotics competitions like Robocon. Parikshit Student Satellite Team staked in 2010 aims to build nanosatellites. Year 2011 was the beginning of ‘Solar Mobil’ with an aim of research & development of solar powered electric vehicle. Project Manas, aiming to develop an ‘autonomous drive system for vehicles’ optimized for Indian road and traffic conditions; Mars Rover Manipal, with a primary objective of building a Rover for University Rover Challenge was established in the year 2014.
Thrust MIT - working in the field of rocketry; R.U.G.V.E.D Systems - A.I. Defense Robotics team; Dronaid to provide engineering solutions to medical field using Drones; MotoManipal- building environment-friendly Electric Superbike; VISION - engaged in developing AR based applications; S.W.A.R.M - working towards development of Smart Wireless Autonomous Robots; Robotics and Circuits focused towards research and development in the field of robotics; Team Combat Robotics - working on combat robotics; Project AUV working on underwater robotics; Cryptonite - team of cyber security enthusiasts; loopMIT - active on SpaceX Hyperloop, and Manipal BioMachines - working on synthetic Biology are the recent additions to this list.

All these teams are interdisciplinary in nature, having student representation from first to final year. In the process of getting into the team, and selecting the members to the team, students learn to face and conduct interviews. With the team size ranging from 25 to 50, students learn to work in group. By working under tight schedules, they learn to meet deadlines. By submitting Quarterly progress report, scheduling the task and by presenting budget required for the financial year, they hone their documentation, planning and presentation, skills. To generate the financial support, they need to sell their idea to possible sponsors. In the process, they learn the marketing, budgeting, and accounting skills. Thus, with this activity, we have taken the learning experience beyond the classroom.

Projects being innovative in nature, these activities have seen many publications and start-ups coming out of these ventures. Institution also envisages more scope for publication and IPs. To enable this, teams have added a research wing.

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Formula Manipal, established in 2007, is the official Formula Student Team of Manipal Institute of Technology, MAHE, Manipal. The Team is engaged in designing & building of Formula Style race cars of the combustion & electric categories and participation in events held in India & abroad.

- The Team has participated in Formula Student competitions held across the world in countries like Austria, Italy, UK, Czech, Germany and Formula Bharath in India and won many accolades, over the years.

- Credited with 8 Journal & 2 conference publications, so far.

- Filed for 2 Patents, so far.
Dr. Ranjan Pai (CEO & MD, MEMG) getting firsthand experience of FMX4 (2014)

Team Members assembling the Car

FMX (2010) The Lightest Indian FSAE Car and the Most Motivated Team at Formula Student Austria
FM09 (2019) - Stood 10th in the Cost Event held at Formula Student UK

FMXI (2011) – Bagged 16th Position in the Cost Static Event at Formula Student Italy

FMX3 (2013) – Fastest Indian FSAE Car and the only Indian Team to achieve a podium finish at Formula Student Germany

FMX6 (2016) – Best Indian Team at Formula Student Czech that stood 16th Overall

FM08 (2008) The First Formula Student Car manufactured by Formula Manipal
FMX4 (2014) – Holds the existing National Acceleration Record of 4.19s

FMX6 2.0 (2017) - The First Formula Manipal car to implement a fully functioning Aero-Package

FMX8 (2018) - Overall Podium finish in Formula Bharat along with 1st position in Business Plan
Formula Manipal Team, 2021-22:
1. Sameer Hate (Team Manager)
2. Shubham (Team Leader - Combustion Vehicle)
3. Nainesh Patel (Team Leader - Electric Vehicle)
Team Mail id: formulamanipal@manipal.edu; Management: formulamanipal@gmail.com or management.formulamanipal@gmail.com

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https://www.youtube.com/user/formulamanipal96
https://twitter.com/formulamanipal?lang=en

FM20 (2020) - Topped the Autocross event with the best time of 92.24 seconds achieving First Position

Few but not the last of our Accolades and Achievements
SolarMobil founded in 2011, is the official Solar Car team of Manipal Institute of Technology, MAHE, Manipal, which is a team of passionate individuals who focus on the research and development of solar powered electric vehicles.

- Team has built 4 solar powered cars namely, Freyr-1, SERVe, SM-S1 and SM-S2 and participated in many events and won accolades.
- It has published 2 papers in reputed journals and 5 papers in conferences, so far.
- Current team has built the Chassis in their industrial partner, NTF Ltd., Gurgaon and composite exterior body building is underway there, in preparations for the Electric Solar Vehicle Championship (ESVC) conducted by the Imperial Society of Innovative Engineers, during June 2022, in the rally spanning over 3,000 kms. from Chandigarh to Pune.
SERVE - India's first Institutional Solar electric vehicle prototype, which won 3rd Prize at CII India Innovation Challenge, QuESTIngenium 2015 and 1st prize under category UJJWAL in IIT- Bombay Tech fest
Dr. Ranjan Pai (CEO & MD, MEMG) on a ride in SERVE

Welding with Fronius TIG Welding machine

Team member welding the autonomous prototype chassis

Dr. Ranjan Pai (CEO & MD, MEMG) on a ride in SERVE
Chassis of SM-S2 which featured at the Champions of Champions 2019, Vijayawada and Future Mobility Show 2019, Bangalore by ISIE

SERVE Launch Day
Solar Mobil Team, 2021 – 22:
1. Chirag Agrawal (Team Leader)
2. Allan Prabhakar (Team Manager)
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Faculty Advisors:
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Launch of SM-S1, which won ASME SLDC 2016 and 3rd place in Anveshan 2017

Members celebrating the completion of Chassis.
Project MANAS, established in 2014, is the official AI and Robotics team of Manipal Institute of Technology, MAHE, Manipal.

- One among the top 13 teams selected for the “Driverless Car Challenge” as a part of Mahindra’s Spark the Rise event.
- Grand prize winner and won the Lescoe Cup at Intelligent Ground Vehicle Challenge (IGVC) 2019, held in Michigan, USA.
- Team has 1 journal and 14 conference publications to its credit, so far.
- Filed for 1 Patent, so far.
- Currently working on the development of an unmanned aerial vehicle for participation in the Association for Unmanned Vehicle Systems International (AUVSI) Student UAS (SUAS) Competition to be held at Webster Field, St. Inigoes, Maryland during June 2022.
Our subscale drone Cleo for the competition AUVSI SUAS 2022
The team working on assembling the frame for the Drone made with Carbon Fiber

Our team at the Manipal Entrepreneurship Summit hosted by E-cell, MIT

Drone Cleo assembled with all the electronics and components installed to test the Algorithms developed by the AI Team

Testing of our main drone which will participate in the AUVSI SUAS 2022
Team members talking to the Representatives of UGC, showcasing their projects.

The team along with UG Solo in Michigan, Oakland after winning IGVC 2019

Autonomous Car Eve which is packed with cutting-edge technologies and efficient Algorithms.
Team working on our very own in-house Antenna Tracker

UGV Solo which won the Lescoe Cup at Intelligent Ground Vehicle Competition 2019

Project Manas Team, 2021 - 22:
1. Kalloi Saha (Team Leader)
2. Yatharth Agarwal (Technical Head)
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Mars Rover Manipal (MRM), established in 2014, is a multi-disciplinary team of engineering undergraduate students of Manipal Institute of Technology, MAHE, Manipal, working on building a next generation Mars Rover that will work alongside humans and assist astronauts in Mars exploration.

- Participated in the University Rover Challenge (URC), International Rover Challenge (IRC), Indian Rover Design Challenge (IRDC) over the years and won laurels to the institute.
- Team has 16 Conference Publications to its credit, so far.
- Filed for 1 patent, so far.
- The team is currently preparing for the international competitions, URC 2022 & IRC 2022.
An Isometric Still of Rover at testing grounds

The Robotic Manipulator is capable of lifting payload up to 6kg

STM&IMU integrated PCB for robotic manipulator
MRM demonstrating their first prototype Rover in their workshop during 2015.
A Lead Screw Based gripper enabling power grip
A bevel differential powered End Effector
A rendered image of the drive system

LIDAR and Zed for autonomous navigation

Drive System for the year 2022
Mars Rover Manipal Team, 2021 - 22:
1. JyotishkaDuttagupta (Team Leader)
2. Piyush Raj (Team Manager)
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https://www.youtube.com/c/MarsRoverManipal

A detailed load analysis and simulation of the chassis
RoboManipal, founded in 2009, is the official robotics team of Manipal Institute of Technology, MAHE, Manipal. The team is working on research projects, 12 DOF Quadruped, 6 DOF Serial Manipulator and BIPED.

- Achieved AIR 9 ABU Robocon, Asia pacific’s biggest robotics competition in 2016.
- Secured 2nd place in the World Robot Olympiad(WRO) 2018.
- Qualified for Stage 2 of ABU Robocon for the last 3 years.
- Team bagged 1st place in Vichesta- the ROS simulation competition category under Takshak2021 (organized by RoboISM- IIT ISM Dhanbad), the largest Robotics Fest of India.
- Published 4 papers in the conferences, so far.
Rapid Prototype through soldering by an electronics subsystem member
Testing a prototype robot for ABU Robocon 2020

Robot used in ABU Robocon, 2015

A Biped designed and built by a RoboManipal member as a research project.
The team collecting runner's up trophy at World Robotics Olympiad India (WRO), 2018

Robots in action at Robowars, an event of TechTatva which is organised by RoboManipal

Runner's up at World Robotics Olympiad, 2018
Team RoboManipal all set to participate in finals of ABU Robocon 2015

Robot used during ABU Robocon, 2016

Robot used during ABU Robocon, 2018
RoboManipal team preparing robot for ABU Robocon 2016
RoboManipal Team, 2021 - 22:
1. Vismay Sharma (Team Leader)
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Arena for ABU Robocon, 2016

The printed circuit board of a controller which was built in-house at RoboManipal.

Robot prototyping design & manufacturing by Mechanical Team
Moto Manipal

MotoManipal, founded in 2018, is a team of Manipal Institute of Technology, MAHE, Manipal, engaged in developing an efficient and environment-friendly Electric Super bike.

- Secured three consecutive podium finishes at the National Online E-Bike Design Challenge (NOEBDC).
- The team is credited with 3 conference publications, so far.
- Involved in research on the following topics:
  - A comprehensive design methodology for electric vertical take-off and landing aircrafts.
  - Performance of Battery Super capacitor Hybrid electric bike.
  - Analysis and Optimization of winglet Design for high performance motorcycles.
- Currently engaged in making the bike ready for participation in Moto Student International competition to be held at Aragon, Spain in 2023.
Competing at the Asian E-Bike Challenge 2019 in Vishakhapatnam
MotoManipal Senior Team, 2021-22

Unveiling of E bike, 2019
E-Powertrain Subsystem of the e-bike

Raspberry Pi being used as the dashboard for display of RPM & Battery Management System Data

Modelling & Computational Fluid Dynamics (CFD) Analysis of the E Bike

Budget discussion by the Team Members

E-Powertrain Subsystem of the e-bike

Art and Graphics work for publicity through social media

Honing the skill with an Angle Grinder
MotoManipalTeam, 2021-22:

1. Aryan Singh (Team Leader)
2. Sidharth Seela (Technical Head)

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Tyre Alignment of the E-Bike
Team Manipal Racing, established in 2008, is the official Off-road racing team of Manipal Institute of Technology, MAHE, Manipal. The Team is involved in the design, manufacture & testing of an ATV (all-terrain vehicle) to participate in collegiate competitions organized by institutions like SAE.

- Team's V1 was the first Indian ATV to qualify for the competition in SAE BAJA held in Wisconsin USA in 2011.
- Team Manipal Racing's V10 officially ended its twelfth season bagging achievements at BAJA SAE India NATRAX, Pithampur, MP in Jan 2020 where the team secured 25th in overall statics, 6th in acceleration, 11th in business presentation.
- Has 2 journal publications to its credit, so far.
- Filed for 1 Patent, so far.
- Currently focusing on the fabrication of Combustion & Electric ATVs for the physical event to be held during April and May 2022, respectively.
Presenting our award-winning ATV car, V5 to the VIPs
Team Members at the venue of BAJA SAEINDIA 2020

Team 2019-20
Team Manipal Racing Team, 2021 – 22:
1. Pranav Nair (Team Leader - Combustion Team)
2. Rishabh Jain (Team Leader - Electric Team)
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Faculty Advisors:

1) For Combustion Team
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https://www.youtube.com/user/TMRBAJA
AeroMIT

AeroMIT, founded in 2009, is the official Aeromodelling and Autonomous Aerial Robotics Team of Manipal Institute of Technology, MAHE, Manipal. They design and fabricate UAVs for various research and competitive applications.

- Currently engaged in the preparations for SAE Aero Design physical event to be held in California, USA during April 2022.
Team members configuring parameters for an autonomous aircraft.

Team members at work

Juniors’ Task Phase fixed wing aircraft
During Techtatva, hosting our very own aeromodelling competition - Skyrush

Members working on the aircrafts

The team with the autonomous Hexacopter
Flight testing of Drone by the team
AeroMIT Team, 2021 – 22:

1. Anirudh Krishna Mittal (Team Leader)
2. MVS Aashritha (Team Manager)

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Parikshit Student Satellite Team was formed in 2010 with 40 student members from across the departments of Manipal Institute of Technology, MAHE, Manipal, engaged in developing a student satellite. Their aim is to explore the fields of space science and work on experiments that could be performed in space.

- Parikshit's satellite has two payloads, a thermal camera which creates images using infrared radiations and an electrodynamic tether which is a long conducting wire which operates on electromagnetic principles.
- Mr. Adheesh Boratkar, a team member represented the University for testing Parikshit's Tether Deployment System in a zero-gravity parabolic flight at NASA.
- Team has published 52 papers in international conferences, so far.
- It is about to go for environment test and qualification model review and after the successful completion of the same, is likely to hand over the final flight model to ISRO soon.
Visit by Saber Astronautics, Australia to Parikshit Lab.
Model of the Satellite being built by the team

Team member interacting with Saber Astronautics, Australia in the Parikshit Lab.

Team member experiencing Zero G at NASA

Team members posing with Ms. Sunita Lyn Williams, at NASA
A regular day in the student project lab.

A day at the lab with a subsystem.

A still from the clean room.
Parikshit Team, 2021 – 22:
1. Akash Kumar Singh (System Administrator)
2. Chinmay R Marathey (Systems Engineer)
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https://www.instagram.com/parikshitsatellite/?hl=hi
thrustMIT Team, established in 2016, is Asia's top student-run rocketry team in Manipal Institute of Technology, MAHE, Manipal, that builds sounding rockets to promote the passion and knowledge of high-powered rocketry in India.

- Participates in the largest rocketry competition in the world, Spaceport America cup, held at Spaceport, New Mexico every year.

- Team won spot award for the design of the rocket and for the team professionalism during 2018 & 2019 respectively in the 10,000 feet COTS (Commercial Off The Shelf) category in the Spaceport America Cup.

- Team has published 2 papers in the international journals, so far.

- The team is currently engaged in the fabrication of sounding rocket for participation in the Spaceport America Cup event to be held during June, 2022.
3D printed nose cone for the subscale rocket

Rendering of the rocket

The workshop of team thrustMIT

The avionics team calibrating their sensors
thrustMIT at Spaceport America Cup 2019

Motor bay assembly
Enthusiastic team members holding their sub scale rocket

The aerodynamics team analyzing the flow simulations of the rocket

The aerodynamics team analyzing the flow simulations of the rocket
ThrustMIT Team, 2021 – 22:
1. Aneesh Surendra Salian (Team Leader)
2. Samanway Chakraborty (Team Manager)
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Assembly of motor bay

Pyrotechnic ignitor testing

Velocity contour of a rocket nozzle, with shock diamonds visible
Robotics and Circuits Team, nick named as RnC, founded in 2010, focused towards research and development in the field of robotics in Manipal Institute of Technology, MAHE, Manipal.

- Team participates regularly in the international events, Virtual RobotX Challenge and RoboCup Rescue.
- Team has published 1 paper in international journal, so far.
Maze Solver Bot: A LiPo battery powered moving bot that uses five IR sensors at the head of the bot to detect lines on a plane surface.

Auto-quadcopter: Semi-automatic drone, with four rotors, made with Arduino 328p UNO and mainly accelerometer, controlling the angle and Moment of Inertia of the drone.

All Terrain Hexapod: A six legged robotic system capable of traversing multiple terrains, includes a new sensor modality based on servo feedback and real time terrain adaptive gaits.
Internet Controlled Robot: Small surveillance robot with an inbuilt robotic arm and multiple sensing modalities, the bot can be controlled over the internet using an android app.

Object Recognition Bot: Wandering through the premises in search of the required item, the ORB retrieves objects using app-based commands.

Talking Glove: With the heart of gold and the arm of code, the Talking Glove lends a helping hand towards the deaf. It works on a fundamental idea- to convert gestures and signs into a speech output.

Home Automation: The project demonstrates a system capable of controlling home appliances including Lights and Fans, Music Systems power plugs both over a mobile application and automatically.

Home Servant: The home servant is sure to grow on all our lethargic souls, with it's extensive use of image recognition techniques to assist one with mundane and physically taxing chores.
Surveillance Camera: An application of Computer Vision to security cameras, this project adds features including object and person tracking, and automated intruder alerts.

Robotics Arm: STRIDER [Self Excited Tripodal Dynamic Experimental Robot] is a Raspberry pi run, 3-legged robot with multi-hinge and has 12 Degree of Freedom (DOF).
RnC’s team, 2021 - 22:  
1. Sairaj Nayak (Team Leader)  
2. Rishabh Dugar (Project Manager)  
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Dual Axis Solar Tracking: The Dual Axis Solar Tracking Panel automatically configures itself in response to lighting and weather conditions to receive an optimal amount of solar energy to be generated into electricity.
Project Vision started in 2018, is the student team working on Augmented Reality/Virtual Reality in Manipal Institute of Technology, MAHE, Manipal. We develop Virtual Reality experiences for the Oculus Quest 2.

Our previous projects include:

EDU-AR: Augmented Reality app for visualizing complex 3D models in AR.

- Currently, the team is working on developing a Virtual Nature experience for the 2022 International AR/VR competition (Sweden).
- Our project is titled "GAIA: EMPOWERING NATURE," and it brings different aspects of the world home using Virtual Reality.
- Team has published 2 papers in the conferences, so far.
A picturesque view of our VR Desert Biome Game scene

In preparation for the 2022 International AR/VR competition (Sweden)
Home page of our VR nature experience for the 2022 International AR/VR competition (Sweden)

A peek into the frosty peaks in our VR experience
In the make of designing a frigid terrain in VR

Designing, optimizing & troubleshooting on the Oculus Quest 2
Project Vision Team, 2021 – 22:
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2. Nikhil Vinnakota (Team Manager)
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Links:
https://instagram.com/vision_mit?utm_medium=copy_link

- Participates in the annual Intelligent Ground Vehicle Competition (I.G.V.C.) secured 8th position worldwide in the design challenge of I.G.V.C., 2018 at Oakland University, Michigan, U.S.A.
- Published 1 paper in international journal and 3 papers in conferences, so far.
- Currently, the team is working on their flagship project, W.A.L.R.U.S, an autonomous reconnaissance vehicle that can traverse on land and houses a detachable drone for aerial surveillance which can scout for enemy targets and topology observation to generate a detailed map to get a lay of the land.
Members of RUGVED Systems assembling the Drone Launchpad, winning TATA Makerthon Challenge.

Robust Multi-class object detection done in real-time by a lightweight deep learning model.

Intelligent Ground Vehicle Challenge (IGVC), Held in Oakland University, Michigan, USA.
RUGVED Systems secured 8th rank worldwide in IGVC design challenge in 2018

SAU (Soldier Assist Unit)- Wireless network of health monitor vests for soldiers

Drone Launchpad made by RUGVED Systems for the Tata Makerthon 2017 held at IIT Bombay

LIDAR Field of Vision on RViz of a Drone
A member of RUGVED Systems honing his skills for project WALRUS
Lane detection of the IGVC robot vehicle
Manipal BioMachines, founded in 2020, is the official synthetic biology and genetic engineering student project of Manipal Institute of Technology, MAHE, Manipal.

- In 2020, the motto of the team was to genetically engineer a bacterium that will be capable of converting methylmercury and other organic mercury compounds into elemental mercury in conditions prevalent inside the human gut.
- For 2021, the aim of the team was to make an overall sustainable alternative to traditional chemical pesticides that is modular in nature through synthetic biology and genetic engineering.
- Team has published 1 paper in the conference, so far.
- Competes in the annually held iGEM (International Genetically Engineered Machine) competition.
- One among the Gold Medal Winners in iGEM 2020 and Bronze Medal Winners in iGEM 2021.
- One among 90 iGEM teams awarded $2500 grant, in 2021.
ManipalBioMachines Team 2021-22:
1. Anooshka Pareddy (Team Leader)
2. Kowshika M (Team Manager)

Team Mail ids:
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Faculty Advisor:
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https://2020.igem.org/Team:MIT_MAHE
https://www.facebook.com/ManipalBioMachines
https://www.linkedin.com/company/Manipal-Biomachines/?originalSubdomain=in
https://www.instagram.com/manipalbiomachines/
loopMIT, established in 2019, is a dedicated team of undergraduate students of Manipal Institute of Technology, MAHE, Manipal, from various fields of engineering working on designing, developing and building a sub scale prototype transport vehicle known as the Hyperloop Pod.

- At present, the team is engaged in the design of the POD.
- Team has published 4 papers in the international journals, so far
- Team is aiming to participate in the SpaceX Hyperloop Pod Competition, in the near future.
Team members at work
loop MIT Team, 2021 – 22:
1. Harsh Mishra (Team Manager)
2. Abhishek Prakash (Technical Head)
Team Mail ids: loopmit2019@manipal.edu; loopmit2019@gmail.com

Faculty Advisor:
Prof. Santosh Kumar Choudhary
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https://www.in.linkedin.com/company/loopmit
https://www.instagram.com/loopmit/?igshid=ea37cu3nqgpj&hl=hi
Established in 2019, Project AUV Manipal, Manipal Institute of Technology, MAHE Manipal is the official student team consisting of a group of individuals brought together having a common interest in developing the Autonomous Underwater Vehicle (AUV).

- Team is working towards participation in the international event Robosub, held annually.
- In the Flipkart Grid Challenge held during 2022, the team stood one among 50 out of 1000 teams qualified for 2nd round.
AUV Manipal Team, 2021-22:
1. Somya Patnaik (Team Leader)
2. Pranav Subramanya (Team Manager)

Team Mail Ids.:
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projectauvm@gmail.com

Faculty Advisor:
Prof. Vijay Kumar Pandey
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https://www.instagram.com/project_auv_manipal
Team Combat Robotics, founded in 2018, is a team of enthusiast undergraduate students from different factions of engineering in Manipal Institute of Technology, MAHE, Manipal, working on building efficient combat capable robots.

- Team has built bots for 3 event categories: RoboWars, RoboSoccer and RoboSumo.
- Participated in events held at BITS Pilani Quark, IIT Bombay Tech Fest, NITK Suratkal and many more.
Robowar at TechTatva 19, MIT

Robowar clash

Round 1 starts

Robowar at TechTatva 19, MIT
Robowar 2022, NITK, Suratkal

Quick repairs between the matches

Crab, RoboSoccer

Testing the horizontal bar spinner
Testing the Drum Spinner

In the arena, ready for battle

Aura, 15kg bot

Preparation for Building Robo Soccer bot underway, using Angle Grinder
Team Combat Robotics Team, 2021 – 22:
1. Gagan Deep (Team Leader)
2. Akshatha K Poojary (Team Manager)

Team Mail Id: tcr.mit@manipal.edu

Faculty Advisor:
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https://www.instagram.com/teamcombatroboticsmanipal/?hl=hi

Mechanical Team working on bot design
Cryptonite, founded in 2018, is the official ethical hacking and cybersecurity team of Manipal Institute of Technology, MAHE, Manipal. The team focus their work in the fields of attack-defense, cryptography, cyber forensics, reverse engineering, binary exploitation and web exploitation.

- Team hosted nite CTF - A 48hrs CTF competition which was rated 22.30/25 on CTFtime.
- This event of Cryptonite saw 1200+ participants from 43 countries including 27 university teams. Teams from UIUC, UD, Delaware, and FIT, Florida were also in attendance.
- Participated in Loki CTF 2021, CSAW'21 and ASIS CTF 2021 and won laurels.
- Published 1 paper in international journal and 8 papers in conferences, so far.
- SohomDatta, Reverse Engineering Head was rewarded 3133.70 USD/ (~2 lakh INR) for identifying a bug in one of Google's front-end open source libraries as part of Google's Vulnerability Rewards Program
Abhay Narayan Secures 2nd Place at Inctf in August 2019

Workshop on Remote Code Execution Held on 25th February 2022

First Batch of Cryptonite Team Recruits
Securebug Loki CTF 3rd Place Winners

Secured 7th place in wtfCTF 2022 hosted by Manipal Information Security Team (MIST)

Workshop on Penetration Testing Held on 24th July 2021

Groundwork for Hosting niteCTF 2021
Hosted niteCTF 2021

SohomDatta, Head of Reverse Engineering Featured in Times of India
Cryptonite Team, 2021 - 22:
1. Cynthia Maria Dsouza (Team Manager)
2. Aman Priyanshu (Technical Head)
Team Mail Ids: cryptonite.mit@manipal.edu; teamcryptonite18@gmail.com

Faculty Advisors:
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https://www.instagram.com/cryptonite_mit?igshid=kte0s63rszbl
Dronaid, founded in 2017, is a one-of-a-kind student project initiated in Manipal Institute of Technology, MAHE, Manipal, with an effort to make healthcare more accessible and hassle-free in India by means of incorporating artificial intelligence (AI), Unmanned Aerial Vehicles (UAV) and app development in building a network of healthcare systems and bring about practical clinical applications in accidents and emergency services at the community level.

- Team is currently involved in developing an “Autonomous Drone System”, using an Artificial Intelligence (AI) configuration/interface, that not only navigates on its own but also can make important in-flight decisions like determining shortest route and terrain assistance. These independent drones can then be integrated into what we call a “drone network”.
- Project Dronaid was initiated as a unique collaboration between the students of Manipal Institute of Technology and Kasturba Medical College.
Display of two prototype drones worked on by the current team
Flight testing of drone for extended application of artificial intelligence

Members at work
Dronaid Team, 2021 – 22:
1. Ritujit Chaudhury (Team Leader)
2. Tushar Elangovan (Team Manager)
Team Mail Id: dronaid@manipal.edu

Faculty Advisor:
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https://www.instagram.com/accounts/login/?next=/project.dronaid/
S.W.A.R.M Robotics

S.W.A.R.M (Smart Wireless Autonomous Robotics Manipal) Robotics, established in 2017, the team in Manipal Institute of Technology, MAHE, Manipal, is to make a collective of multiple autonomous entities which are virtually independent of each other but interact and communicate with each other to reach a common goal, which may be simple tasks like mapping an unknown environment or complex tasks like performing search and rescue tasks in high risk environments, hereby reducing the risk to human life.

· Currently the team is working on advanced sensors and drivers being used by the team as a test bench for research in the field of autonomous swarms with a focus to make them more efficient and faster.
· Team has published 2 papers in the conferences, so far.
S.W.A.R.M ROBOTICS Team, 2021–22:
1. Samarth Shankar (Team Leader)
2. Satyam Thiwary (Team Manager)
Team Mail Id: swarm@manipal.edu

Faculty Advisor:
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