

SCHOLASTIC ACHIEVEMENTS

- Pursuing a **minor** in **Electrical Engineering**, IIT Bombay (2017)
- Among the top 3% percentile in **JEE Advanced** and 99.35% percentile in **JEE Mains** (2016)

WORK EXPERIENCE

- **FaceTab | Electronics Engineer | Augle A.I. Private Limited** May'20-Present
Design of custom Linux tablet with temperature measurement device for bio-metric attendance using facial recognition
 - Researched about different **ARM processors**, **GPUs** and LCD display for design of custom tablet PCB
 - Decided best compute module and development board for testing and prototyping the tablet
 - Working on temperature measurement device for measuring temperature of person from long distance

KEY PROJECTS

- **Multiagent Patrolling with cars** May'20-Present
Guide- Prof. Leena Vachhani and Prof. Arpita Sinha
 - Developed a decision-making algorithm based on surroundings using **Deep Reinforcement learning**
 - Incorporated Unity simulator and **MIT Deep traffic platform** for testing and training the model of car
 - Working on **designing of optimal path** for car on road junctions considering all constraints of car
- **Autonomous Indoor drone | Flipkart robotics Challenge** June'20-Present
Team of 5 people working on drone for navigating with 2kg payload and pass through square frames placed in room
 - **Ranked 52th out of 500** qualified teams for level 2 based on robotics quiz taken in level 1 qualifier
 - Designed proper **CAD model** of drone with all required things for level 2 and got selected for level 3
 - Working on **stability and structural analysis** of drone with payload and without payload for level 3
- **ABU Robocon | Controls Subsystem** Jan'19-April'29
Competition organised by ABU in Mongolia requiring autonomous walking bot and another with throwing capability
 - Developed an **Inverse Kinematics** algorithm in **micro-controller** to execute the motion of quadruped
 - Made a Controller to integrate functionality of different components like **grippers**, **pneumatic cylinder** and motors etc, developed electrical filters to reduce noise in signal for controlling motors
- **Terrace Farming Bot | Mechanical Subsystem** Nov'19-Dec'19
A Competition organized by DIC Agro, IIT Roorkee during 8th Inter IIT Tech Meet
 - Ideated the linear actuation **mechanism to climb up and down the terraces** of a particular height and perform the farming tasks like seeding, plowing, leveling and harvesting **autonomously**
 - Designed and simulated the cad model of the bot and assembled it by manufacturing it's all parts
 - **Presented** the mechanical subsystem **on the behalf of Inter IIT contingent** in DIC problem statement
- **Quad-copter | Hobby project** Feb'19-April'19
Electronics and Robotics Club, Institute Technical Council, IIT Bombay
 - Made a Quadcopter **from Scratch** using Arduino Microcontroller by implementing a **PID Algorithm**
 - Implemented a **Advanced Complementary Filter and kalman filter** Algorithm to **reduce noise up to 99% in gyroscope** generated by vibrations of propellers and **tested on 2D model** approximation
 - Successfully built the quad-copter to **safely take-off and land** and achieved **perfect stabilization** in air
- **Website Development | Electronics and Robotics Club** July'19-Aug'19
Institute Technical Council, IIT Bombay
 - Designed a **new official website** for Robotics club using **Django framework** in period of one month
 - Created a **database** of various events, blogs and team members of the club to make it **user friendly**

- **Vehicle tracker | Hobby project** Dec'19-present
A real time tracker for vehicles to track their position on roads
 - Designed a **circuit having GPS module** on it, and made a working prototype of circuit of GPS tracker
 - Created a **website using Google Maps API and Google cloud** to track the location of vehicles on map
 - **Optimized the accuracy** of location of vehicles on roads by using Google's snap to road algorithm
- **Cozmo Clench | Techfest 2018** Dec'18
Electronics and Robotics Club, Institute Technical Council, IIT Bombay
 - Competed with students from various engineering colleges in this Techfest Robotics competition
 - Developed a **wireless joystick controller** which could control the motion of bot and functionality of robotic gripper to perform different tasks given like pick and drop box at particular checkpoints
- **Thor Hammer | Hobby project** July'19-Aug'19
Electronics and Robotics Club, Institute Technical Council, IIT Bombay
 - Constructed an **electrical hammer** based on the concept of **Electromagnetism** of solenoid which was inspired from the one which is present in **MARVEL'S COMICS THOR**
 - Used a **NFC microchip** integrated in the form of ring as key to lift the hammer only by special person
- **Autonomous Path Finder | Line following competition** Jan'18
Electronics and Robotics Club, Institute Technical Council, IIT Bombay
 - Built an **autonomous robot** which follows a white line and **designed IR sensor** to detect white lines
 - Implemented PID algorithm in bot, **cleared all 3 stages** and emerged as **overall 2nd best performer**
 - Built an advanced version of bot and **represented IIT Bombay** in robotics festival **Robotex India 2019**
- **Home Automation | Arduino Hackathon** Oct'18
Electronics and Robotics Club, Institute Technical Council, IIT Bombay
 - Built a home automation system to **Control home appliances** like bulb over the Internet **using IoT**
 - Integrated the **nodemcu (WiFi module)**, relay switch and android app to make project into action
- **Gesture control bot | Arduino Makerthon** Oct '18-Nov'18
Electronics and Robotics Club, Institute Technical Council, IIT Bombay
 - Built a bot using **accelerometer** and **RF module** which can be **controlled** by **gesture** of hand wirelessly
 - Assembled it in a week and got the **award** for **second best project** ideation and implementation

TECHNICAL SKILLS

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|-------------------|---|
| Languages | Embedded C, C++, Python, R, MATLAB, HTML, CSS, node JS, JavaScript, LaTeX |
| Softwares | SolidWorks, Ansys, Autocad (2D), Eagle, Arduino IDE, STM32Cube, MPLAB IDE |
| Frameworks | Ros, Django, git, Pytorch, TensorFlow, keras, OpenCv |
| Electrical | Raspberry-Pi, Arduino, Node MCU, PIC, Intel 8051, STM32, MSP430 |

Position of Responsibility

- **Convener | Electronics and Robotics Club | Institute Technical Council**
 - Part of a **17 member** team responsible for **inculcating Tech culture** among the fresh minds
 - Conducted sessions on **Arduino, Get Mechanised and Get Electrified** for 500+ tech enthusiasts
 - Organized **XLR8**, club's main flagship event which saw a rise in the number of participants by **35%** and a huge success rate of **92%** and a mentored **150+** teams in debugging the circuits of their bot
 - Organized hands-on sessions like *Electrified & HowThingsWork* to give insight to everyday equipments

Extra-Curricular Activities

- Made a **flame sensing drone** in PlutoX hackathon, **stood 2nd and got internship opportunity** in PlutoX
- Participated in the **XLR8** competition and made a **bluetooth controlled bot** to tackle the obstacles and also **ideated the system** to show its status whenever it is going up or down the inclined plane
- Attended the workshop on Communication systems, system engineering, IoT, ROS and Path planning
- **Volunteered** in the **Smart india hackathon finale** hardware edition to cater hardware requirements of teams
- Made an **AR glass** using ArudinoMini & oled display to project data on glass using the **principles of optics**
- **Volunteered** for 80 hours under **nation social service** team by planting and maintaing trees in the campus

Key Courses Taken

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|-------------------------------|---|
| Electrical Engineering | Electronic devices, Introduction to electrical and electronics circuits |
| Computer Science | Computer programming and Utilisation, Web development |
| Miscellaneous | ROS Localization, Navigation and SLAM, linear algebra |