# Vishwajeet Bhagyawant

## MECHTRONICS AND CONTROL SYSTEMS ENGINEER

A robotics enthusiast with hands on experience of different robotics projects

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## EDUCATION

### B.TECH, Material Science
IIT BOMBAY

*06/2018 - Present*                                    *India*

Courses
- ROS Localization, Navigation and SLAM
- Intelligent Feedback and Control
- Theory of Machines and Machine Design
- Mechanics of Materials

## WORK EXPERIENCE

### Electronics Engineer | Face Tab
Augle A.I. Private limited

*05/2020 - 08/2020*

*Augle A.I. is the Company that offers Face Recognition based Attendance and Access Control systems.*

Achievements/Tasks
- Researched different **ARM processors**, **GPUs**, and LCD for the design of custom Linux tablet
- Decided best **compute module** and development board for testing and prototyping the tablet
- Worked on a temperature measurement device for measuring the temperature of a person from long distance

### Multi-agent Patrolling | Research project
Prof. Leena Vachhani and Prof. Arpita Sinha

*05/2020 - Present*

*A Research project Under professor related patrolling and decision making of cars*

Achievements/Tasks
- 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
- Studied various patrolling algorithms using **research papers** and implemented them on the SUMO platform.
- Implementing patrolling algorithms on **IoT** platforms by simulating different communication failure cases

### Electronics and Robotics Club | Convener
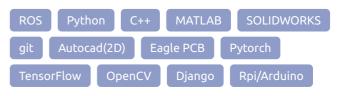ITC, IIT Bombay

*06/2019 - 06/2020*

*ITC is the technical council which focuses on tech activities in institute*

Achievements/Tasks
- Part of a 17 member team responsible for teaching Tech culture among the fresh minds of the institute.
- Conducted sessions on Arduino, Ros, Get Mechanised and Get Electrified for 500+ tech enthusiasts.
- Organized hands-on sessions like Electrified and HowThingsWork to give insight into equipment.

## SKILLS

ROS | Python | C++ | MATLAB | SOLIDWORKS | git | Autocad(2D) | Eagle PCB | Pytorch | TensorFlow | OpenCV | Django | Rpi/Arduino

## KEY PROJECTS

Terrace Farming Bot | Mechanical Subsystem (11/2019 - 12/2019) ⬈
- Ideated the mechanism to climb up and down the terraces of a particular height and perform farming tasks **autonomously**
- Designed and manufactured the **cad** model for **mechanisms** including climbing, seeding, plowing, and harvesting
- **Presented the mechanical subsystem** on behalf of Inter IIT contingent, IIT Bombay, in the DIC problem statement

Autonomous Indoor Drone | Flipkart Robotics challenge (06/2020 - Present) ⬈
- Designed a cad model for 2-kg payload drone, performed stress analysis and vibration analysis for checking the feasibility of frame.
- Among the **top 3** teams selected for **national finals** out of 1000.
- Currently working on a simulation challenge at national finale.

Quad-copter |Hobby project (02/2019 - 05/2019) ⬈
- Successfully built a quadcopter entirely from scratch using Arduino Microcontroller and implemented **PID** algorithms for stabilization
- Implemented an Advanced **Complementary Filter** and **Kalman filter** Algorithm to reduce noise up to 99% in gyroscope generated by propellers' vibrations and tested on 2D model approximation.
- Successfully built the quad-copter to **safely take-off and land** and achieved **perfect stabilization** while hovering in the air.

## ORGANIZATIONS

National Social Service (06/2018 - 06/2019)
*Volunteered for 80 hours under the national social service team by planting and maintaining trees on the campus*

## AWARDS AND CERTIFICATES

2nd Position, PlutoX Hackathon (01/2019 - 02/2019)
*Made a "Flame Sensing Drone" during the hackathon*

Silver Medal, Autonomous path finder (11/2018)
*A competition organized by Electronics and Robotics Club, IIT Bombay*

Modern robotics course - Robot kinematics + Robot Motion (12/2020 - Present)

Data structures and algorithms course (12/2020 - Present)

## INTERESTS

Mechatronics Systems | Control Systems | Listening to books and songs