abhishekh reddy munnangi

graduate student in **robotics**

helloarm@pm.me
github.com/areddy42

education

M.Eng in Robotics at University of Maryland, College Park — Aug 2022 - Present
Finished second semester with 3.11 GPA

B.Tech in Mechatronics Engineering at Ajeenkya DY Patil University, Pune — Aug 2018 - May 2022
Graduated with 7.87/10 CGPA

skills

Computer Languages	C++, Python and MATLAB
Softwares	KiCAD, Fusion 360, Solidworks, STM32CubeMX
Utilities	Linux Shell, Docker

experience

Software Team Member at Terraformers URC — Apr 2023 - Present

- Developing software for the rover and its manipulator for the 2024 University Rover Challenge.
- Writing a URDF description file for the manipulator to integrate with ROS ecosystem.
- Setting up communication between an STM32 Nucleo Board and a single-board computer using micro-ROS.

Robotics Engineer Intern at iTrontik Smart Systems — May 2021 - Apr 2022

- Worked on the hardware of a nano class (less than 250g) quadcopter drone.
- Sized the components of a quadcopter drive system and selected suitable off-the-shelf parts.
- Designed and 3D-printed a sturdy quadcopter frame for prototyping using Fusion 360.
- Created circuit schematic and a 2-layer PCB design for USB charger board of the drone battery pack.

projects

Mint Flight Controller Board as personal project — Oct 2020 - May 2021

- Designed a miniature flight controller board for quadcopter drones based on STM32H7 microcontroller.
- Created the circuit schematic and a 4-layer PCB design in KiCAD.
- Ported ArduPilot flight control software to the new board by modifying the target hwdef file.

Brushless Motor Speed Controller as coursework project — Nov 2019 - Dec 2019

- Built a simple brushless DC motor driver based on 3-phase inverter circuit.
- Programmed an Arduino Nano board to signal the MOSFETs for driving the brushless motor.
- Created the circuit schematic in KiCAD and hand-soldered the components on a perfboard.

Hybrid Landing Gear as coursework project — Jan 2019 - May 2019

- Developed a landing gear system that also functions as a gripper for multicopter drones.
- Created the design in Fusion 360 that was further 3D-printed.
- Written code for an Arduino Nano board to read the PWM input from a radio receiver and control the servos.

Justbot Manipulator as coursework project — Nov 2022 - Dec 2022

- Created a 6 DOF manipulator design in Solidworks, built a ROS package, and simulated it using Gazebo and RViz.
- Wrote a Python publisher node to compute the inverse kinematics of the robot using numpy and rospy.