

Mohammed Saad Hashmi

7 Bina Nagar Vasna Road, Vadodara 390015

in hashmis79 saadhashmi.netlify hashmis104@gmail.com hashmis79 +91 9925936955

EDUCATION

Veermata Jijabai Technological Institute
B-tech Mechanical Engineering CGPA: 8.20/10

Mumbai, India
August 2019 - July 2023

EXPERIENCE

Technology Innovation Hub for IOT, IIT Bombay, India
Engineer - State Estimation and Control

Mumbai, India
July 2023 - Present

- Spearheaded the development of a cutting-edge obstacle detection system for drones utilizing the Realsense D455 depth camera with python, numpy and **OpenCV**.
- Conducted rigorous testing across diverse lighting conditions and scenarios to ensure optimal performance and reliability.
- Was responsible for the integration of the obstacle avoidance stack to the drone testbed using **MAVROS, ROS**.
- Formulated and executed a suite of real-world test cases, specifically tailored to agricultural environments, to validate system effectiveness and accuracy.

Centre for AI and Robotics, DRDO, India
Intern

Bangalore, India
June 2022 - July 2022

- Designed the simulation setup for 6 DOF Arm Manipulation of Various Objects using **ROS, Gazebo, MoveIt**.
- Implemented GraspNet for End Effector Pose Estimation while picking up uncommon objects.
- Instrumental in the interfacing of Gazebo, MoveIt, OpenCV, and GraspNet for a functional simulation Setup.

Robert Bosch Center for Cyber-Physical Systems, IISC Bangalore
Research Intern

Bangalore, India
Dec 2021 - April 2022

- Designed the foot of a quadruped and later 3D Printed the part(made of **TPU**).
- Tested the response of the foot when in contact with the ground using a **Force Sensing Resistance (FSR)**
- Redesigned the **Heat Sink** for the Motor Drivers to Reduce the effective temperature by 40 Degrees Celsius.

PROJECTS

Acti-V-Link Gripper

github.com/Acti-V-Link

SolidWorks, Aruco Markers, ESP32

May 2023 - Present

- Designed a novel Linkage gripper with active surfaces for In-Hand Manipulation tasks. Also iteratively refined the gripper through multiple prototypes, optimizing its functionality.
- Programmed a feedback system for Rotation and translation of grasped objects using Aruco markers and a webcam.

Delta PSP - Pick and Place Bot

github.com/Delta2021

SolidWorks

May 2021 - July 2021

- Succeeded in designing and in the construction of a fully scale gantry bot for the purpose of sorting parcels in a limited Time frame of 2 Months.
- Refined the design by Standardizing all the parts for manufacturing hence reducing the time for construction by 15 Days.

Vitarana Drone - Disaster Management

github.com/E-Yantra_Tasks

ROS, Gazebo, Python, OpenCV

Oct 2020 - Feb 2021

- Spearheaded the development of a Robust autonomous **ROS** based Control System on a UAV(Quadrotor) simulated in Gazebo. Under the All India Eyantra Robotics Challenge.
- Created a 2 stage Nested PID Control for controlling the position of the drone.
- Used HAAR Cascades in **OpenCV** for Detection of Landing markers with an accuracy of 99% and implemented **Obstacle avoidance and Path planning**.

POSITION OF RESPONSIBILITY

Society of Robotics and Automation

Mumbai, India

Mechanical Head

June 2021 - July 2023

- Co - conducted workshops like Wall-E (Self-balancing bot) and Mario(3-DOF Manipulator) for over 200 Freshmen.
- Contributed to the code for 3-DOF Manipulator in **ROS- Gazebo** for the Mario Workshop.
- Taught the basics of various topics like **CAD, Forward Kinematics, Pneumatics** to over 100 Freshmen

ACHIEVEMENTS

- Was in the **Top 20 Teams** nationally, for All India E-yantra Robotics Challenge.
- Was in the **Top 18 Teams** nationally, in Micro-Mouse Challenge organized by IIT Bombay.

SKILLS

- **Programming Languages** : Python, C , C++
- **OS** : Windows, Linux, ROS, Gazebo, MoveIt
- **Softwares** : CoppeliaSim, Git, Github, Matlab
- **CAD Modelling** - Solidworks, Fusion360
- **Languages** - English, Hindi
- **Soft Skills** - Team Management, Mentoring, Leadership, Project-Based Learning