

Yug Ajmera

Robotacist

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Education

BITS Pilani Hyderabad Campus

B.E.(Hons.) Mechanical Engineering, Minor in Data Science,

CGPA : 8.57/10.0

Hyderabad, India

2017 - 2021

Zydus School For Excellence

ISC (Class XII), 94.6%

Received 7 scholar trophies for academic excellence.

Ahmedabad, India

2017

Skills

- o **Experienced:** ROS, Gazebo, RVIZ, Python programming, Arduino and Raspberry Pi Interfacing, Soldering skills, HTML, CSS, Javascript.
- o **Intermediate:** MoveIt, Java programming, C programming, Git, Linux, SolidWorks, Creo, IoT, OpenCV, AutoCAD, \LaTeX , 3D printing, MATLAB.
- o **Familiar:** V-REP, Android Studio, Processing 3, C++ programming.
- o I write a blog on Robotics and Automation named **Innoware**.

Internships

APTRI Labs

Summer Intern,

Developed ALFA - An open-source floor-assistant robot, that can be controlled over the internet. Assembled electronics, wrote shell scripts and employed the Lighttpd webserver.

Ahmedabad, India

May 2019-July 2019

Vinnan Labs

Research Intern,

Worked on "Autonomous UV Sterilization Robot" based on ROS which was funded under BIRAC Innovation Challenge, SoCH. Wrote scripts to perform trajectory record and playback and implemented 3D mapping in ROS using Octomap.

Hyderabad, India

October 2018 - February 2019

Projects

Mobile Robotics.....

navros_pkg

ROS package for autonomous navigation of differential drive robots.

Implemented ROS Navigation stack on a Gazebo simulation of a differential driven car. SLAM algorithm is used for mapping and creating local and global cost maps. Used Dijkstra's algorithm for path planning and the robot localization is carried out using Monte Carlo localization algorithm.

Personal

February 2019

teleop_keyboard_omni3

Generic keyboard teleop for three-wheeled omnidirectional robots.

Personal

March 2019

Performed motion analysis of three-wheeled robots and extended the results to develop the control algorithm. This package has been added to ROS package index. The code was initially tested on a Gazebo simulation and then extended to an actual robot.

Robot User Interface(RUI)

Web applications for control, mapping and navigation of mobile robots.

Personal

April 2019

ROS package that allow users to teleoperate as well as autonomously navigate mobile robots in unknown environments through web applications.

line_maze_ros

ROS package for solving line mazes using OpenCV

Personal

August 2019

Implemented multiple centroid tracking algorithm to follow lines and used the left-hand rule to solve the maze. The results of the algorithm were verified using Gazebo simulations.

Aerial Robotics.....

Autonomous control of Drone using on-board micro-controller

CS Department

Development of ROS packages for autonomous control

Ongoing

Currently working under Dr.Paresh Saxena to build a drone based on Raspberry Pi. The autonomous behavior will be implemented onboard in Python using the ROS framework.

Hexacopter

A six rotor drone built using APM flight controller

Personal

August 2018

This project was funded under the Student's Union Technical Challenge 2018.

Medical Robotics.....

Smart Spoon

Mechanical Department

Low-cost spoon for people with hand tremors

Ongoing

This project is being done under Dr.Sujith R and Dr.Amrita Priyadarshini. The aim of this project is to fabricate a low-cost self-adjusting spoon for people with Parkinson's disease. The PID control algorithm will be used to keep the spoon stable.

Arduino Projects.....

- o **Humanoid Robot** - Designed the robot on Solidworks and wrote the walking algorithm.
- o **Voice Controlled Car** - Most viewed project with 23K+ views on arduino.cc.

Positions of Responsibility

Hyperloop India

Software Lead

Ongoing

Currently leading the software team of Hyperloop India for the Hyperloop Pod competition organized by SpaceX.

Automation and Robotics Club (ARC)

Treasurer

2018-2019

Conducted, taught, and mentored numerous workshops related to robotics for freshers and sophomores. Executed and managed the activities of the club.

Gujarati Association

Secretary

2018-2019

Organized 'Dandiya Night' - a cultural dance event at BITS Pilani, Hyderabad which was attended by over 1000 students for which a fund of 60,000 INR was raised.

Student Mentorship Program

Mentor

2018-2019

Conducted classes for freshmen and sophomores on the basics of ROS.