Darshan Prakash Jain

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EDUCATION

University of Maryland, A. James Clark School of Engineering — **College Park, MD, USA**
Master of Engineering, Robotics, CGPA: 4.0/4.0 — May 2023

Mukesh Patel School of Technology Management & Engineering, NMIMS — **Mumbai, MH, India**
Bachelor of Technology, Mechatronics, CGPA: 3.57/ 4.0 — May 2020

TECHNICAL SKILLS

Software Tools: Python, C++, ROS, MATLAB, OpenCV, MoveIt, Linux, Git, Gazebo, RViz, SolidWorks, LATEX, KiCAD.
Hardware: Raspberry Pi, Arduino, IMU, Encoders, STM32 microcontroller, ESP8266.

WORK EXPERIENCE

Padmavati Metals Industries Pvt. Ltd — **Mumbai, MH, India**
Robotics Intern - Manufacturing & Operations — May 2019 – October 2019

- Responsible for improving supply chain operations and mechanisms, ranging from optimally unloading of raw materials to automated packing of finished product.
- Assisted automation team, helped in reducing production lead time by 1.5 minutes increasing revenue by $10.3K per month.
- Coordinated with committee in selecting and reporting methods and results in selection of optimal AGV system to higher management.

PROJECT EXPERIENCE

Perception for Autonomous Robots | (Python, OpenCV)

- Detected AR tags in a video decoded and placed a testudo image and a 3D cube on the AR tag.
- Performed Image stitching using feature detection and matching features between two images.
- Executed stereo vision to compute depth of image using sliding window technique to find matching area.

Planning for Autonomous Robots | (Python, Ros, Gazebo)

- Wrote Dijkstra algorithm to find a path from a random start point to goal point in a map with obstacle and tested algorithm with various start and goal positions by building map using OpenCV and visualizing path in it.
- Converted the Dijkstra algorithm to A* and implemented it in OpenCV.
- Devised A* algorithm for a turtle Bot and visualized it in gazebo and RViz.

Multi-Medium Vehicle | (Solidworks, KiCAD, Electro-Mechanical Integration)

- Designed an aircraft with a longer flight time and has an ability to traverse through three mediums -Land, Water, Air.
- Integrated a tricopter drone configuration with hovercraft for vehicle to traverse through three mediums.
- Developed electronic and control system for vehicle helps in switching mode from air to land and water.

SAUVC Project | (Electro-Mechanical Integration, Solidworks, Finance, KiCAD)

- Led 6 people for the Singapore autonomous underwater vehicle competition were had to build an autonomous underwater vehicle of defined size and constraint that could navigate a map and perform tasks as defined in competition handout.
- Headed team and collaborated with various departments to ensure raw material procurement, maintaining a sync between various departments, raising funds, and finding sponsors for building an autonomous underwater vehicle for participating in SAUVC.
- Designed the AUV control system as well as optimized circuit design by simulations and testing.

ACTIVITIES AND ACHIEVEMENTS

- Appointed as head of managing committee of Robo-Olympics games were a part of college technical fest TAQNEEQ in association with ISA in year 2018.
- Organized a one-day industrial visit to Gandhi Automation, India's largest supplier of automated doors, for 40 ISA students, by coordinating with on-site manager and college authorities in year 2019.
- Volunteered at an NGO to organize events to aid underprivileged by distributing food, books, etc.