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

Proficient in software Tools: Python, C, C++, ROS, MATLAB, OpenCV, Linux, Git, Gazebo, RViz, SolidWorks, Fusion360, Altium.
Experienced in Hardware: Raspberry Pi, Arduino, IMU, Encoders, STM32 microcontroller, ESP8266.

WORK EXPERIENCE

Kick Robotics — **College Park, Maryland, USA**
Robotics Hardware Intern — September 2022 – Present

- Developed electrical circuits for autonomous vehicles, including integration of sensors, actuators, and control systems.
- Designed and created wireless sensor network for remote monitoring of water bodies, resulting in a 20% increase in monitoring efficiency by reducing the downtime of the system and at the same time reducing the cost of the product.
- Assembled hardware from conceptualizing the circuit based on the requirements to putting it together.
- Wrote firmware for a variety of embedded systems and collaborated with the software and product teams to ensure end-to-end product conformance and functionality.
- Created scalable hardware/firmware processes for a growing company.

Ommo Technologies — **Dallas, Texas, USA**
Mechatronics Intern — June 2022 – August 2022

- Designed and maintained test fixtures used to characterize, debug, and calibrate various Ommo hardware, both internally and on the production line.
- Created and maintained hardware and components documentation in the company knowledge base.
- Managed the manufacturing and production of custom hardware by working with overseas suppliers.
- Designed, tested, and debugged PCBs for various Ommo products using Altium, ensuring EMI compliance.

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

- Enhanced supply chain procedures and activities, from the efficient unloading of raw materials to the automated packaging of final goods.
- Assisted in reducing production lead time by 1.5 minutes increasing revenue by $10.3K per month.
- Coordinated with team members to report methods and results in selection of optimal AGV system to higher management.
- Conducted hardware debugging and testing.

PROJECT EXPERIENCE

USB Hub | (R&D, Fusion 360)

- Conducted extensive research on various USB standards to select the components for the embedded USB hub.
- Implemented hardware engineering principles and techniques to select electronic components for the USB hub.
- Designed and developed the initial schematic for the USB hub, taking into consideration factors such as power requirements and form factor.

ARAIC | (C++, Gazebo, RViz, ROS, MoveIt)

- Developed control system for a ventilator manufacturing plant consisting of kit building and assembly task.
- Developed the logic for flipping a part, movement of the kitting and the gantry robots, detecting and replacing faulty parts.
- Implemented hardware-in-the loop simulation and system integration testing using ROS.

Multi-medium Vertical take-off/landing aircraft (VTOL, Solidworks, Electro-Mechanical integration)

- Developed 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 the hovercraft for the vehicle to traverse through three mediums.
- Designed the electronics and hardware for the VTOL, including the motor controllers and IMU.

SAUVC Project | (Electro-Mechanical integration, SolidWorks, Finance, KiCAD)

- Headed the team and coordinated with various departments to ensure raw material procurement, financial outlook of the team, raising funds and finding sponsors for building an autonomous underwater vehicle.
- Designed the AUV control system as well as optimized the circuit design by simulations and testing.
- Decided on the final design of the AUV and oversaw the manufacturing.

Water Monitoring System | (R&D, Fusion 360, Solidworks, MQTT, PlatformIO)

- Developed an embedded system consisting of microcontroller and 8 sensors for water monitoring.
- Designed PCB layouts, selected components, and wrote firmware for the system, resulting in a reliable and efficient product.
- Implemented MQTT protocol for remote control of the system and developed a testing procedure to evaluate performance.
- Utilized Fusion 360 and SolidWorks to create 3D models of the system for visualization and simulation.