Ohm Vaghela

91572 66661 | von10@iitbbs.acin | https://www.linkedin.com/in/ohm-vaghela/ | https://grabcad.com/ohm.vaghela-1

The researchers are working hard day and night to excel in the current technologies available in the market, but applying them in the real world also requires interdisciplinary knowledge of various fields. So let's bridge the gap between them using my skillset

Education

Indian Institute of Technology, Bhubaneswar *CGPA: 8.41*

Dual Degree : B.Tech in Mechanical, M.Tech in Manufacturing Technology *2019 - 2024*

Projects

Lower Limb Exoskeleton *2022 - Current*

- Designed a lower limb exoskeleton prototype using **SolidWorks** and fabricated it for a project.
- Configured and implemented the **ROS (Robot Operating System)** environment for data processing, transmission, and robot control in the project.
- Utilized **MQTT protocol** for wireless data transmission in the project.

Flipkart Grid (top 10/10,000 teams) *July 2021- May 2022*

- Developed a system of 4 autonomous robots for warehouse navigation purpose using **ROS** environment, **Arduino**, and **RF module** for communication.
- Implemented image processing using **OpenCV** to extract robot's location and orientation from live video feed of arena captured by an overhead camera in a main system running ROS.
- Utilized **Dijkstra algorithm** to generate a path for robots' movement, and transmitted the robot's velocity vector to an Arduino via serial communication and RF module to control their movement.

E-yantra IIT-B robotics competition (top 10/9,000 teams) *2021-2022*

- Designed and simulated an autonomous self-balancing bike with an attached arm using **SolidWorks** and **CoppeliaSim**.
- Implemented an **LRQ controller** to balance the bike, using a disc attached to the bike to create an **inverted pendulum** configuration.
- Used a **Stanley predictive controller** for **autonomous steering**, and derived equations for the robotic arm while also implementing its controller.

Cyclone Prediction using statistical analysis *June 2021 - Nov 2021*

- Supervisor Dr Srinivasa Ramanujam Kannan
- Used the Cloud Top Temperature data extracted from the INSAT-3D satellite for the Bay of Bengal Region.
- Performed statistical analysis on the extracted data converting it to time series and analysing it using the TISEAN package

Skills

Programming	OpenCV, C++(OOP), Python, MATLAB, ROS
Simulation	Simulink, CoppeliaSim
Mechanical	Solidworks, Ansys (Fluent, workbench)
Electronics	Arduino, Sensors, Motors, RF modules, MultiSim
Operating System	Windows, Linux
Others	Microsoft Word, Excel, PowerPoint

LEADERSHIP

Governor - Robotics Society(IIT BBS)	Conducted workshops, lead projects, managed budget, organised competitions
Representative for Mechanical Batch of 2019	Communicated effectively between the class and the teacher and administration
Alma Fiesta - Publicity Team (2019-2020)	Executed marketing campaigns to promote the festival in various institutes across Bhubaneswar