Abishek Samraj Johnson Sembudurai

Abisheksam1921@gmail.com +31 685396048
linkedin.com/in/abishek-samraj-j-620085237 Indian

Education

MSC ROBOTICS, *UNIVERSITY OF TWENTE* 09/2024 – present
Specialization: Mechatronics and Physical AI Enschede, Netherlands

B.E. Mechatronics Engineering, 06/2018 – 05/2022
Kamaraj College of Engineering & Technology India
Afflicted to Anna University - CGPA - 8.36

Professional Experience

Larsen & Toubro Pvt Ltd, *Senior Engineer* 10/2022 – 07/2024 Vadodara, India

During my one year eight months tenure as a buyer in the Supply Chain Management department, I have gained technical knowledge in various mechanical and semi-automated packages, managing vendor proposals, and coordinating procurement activities. I also gained proficiency in business tools like SAP, Ariba, Enque and MOSS. Through this experience, I learned to take ownership of responsibilities, value teamwork, and contribute to the operational growth and success of the organization.

Skills

C++	ROS/ROS2
Python Programming	Visual Components
Industrial Automation	SOLIDWORKS
Supply Chain Management	PLC Programming
Latex	MATLAB

Interests

- Industrial Automation
- Mechanical Designing
- Control Systems
- Precision Mechanisms
- System Engineering
- Computer Programming
- Machine Learning
- PLC Programming
- Automotive Electronics

Certificates

AutoCAD Essential (Certificate of Completion) • **Solidworks** (Associate (CSWA)) • **Cyber-Physical Systems and Its Application Using NI LabVIEW** (Online Internship) • **LabVIEW** (Core 1) • **Machine Vision and IoT** (Participation)

Projects

Automated Production of FPV Drone Assembly, *Using Visual Components Software. University of Twente – Team Project* 12/2024 – 02/2025

We as a team have designed and simulated an automated multi-cell assembly line for FPV drones using Visual Components. We conducted hierarchical task analysis, time-motion studies, and cycle time optimization. Developed detailed automation concepts including robotic screw fastening, component stacking using custom jigs and grippers, and synchronized cell transport. We focused on precision handling, station design, and simulation-based validation to ensure high-throughput manufacturing (25s cycle time per unit).

DOBBY – Patient Companion Robot, 09/2024 – 11/2024

University of Twente – Group Project

Designed a bedside social robot to assist patients during hospital recovery by enabling non-verbal, gesture-based communication. Integrated LED eye patterns, ambient sound cues, and expressive head gestures for multimodal interaction. Developed interaction logic using Dialogflow and implemented human-robot communication based on asymmetric models and metaphorical embodiment. Focused on enhancing patient comfort, intent recognition, and emotional engagement in a healthcare setting.

Bike Extraction and Removal System (BEARS), *Implementing System Engineering Concepts. University of Twente – Group Project* 09/2024 – 11/2024

Applied Systems Engineering principles to design an autonomous robot that identifies and removes improperly parked bikes on campus. Defined stakeholder needs using onion diagrams, derived system-level functional, non-functional, and performance requirements, and modeled context and architecture diagrams. Developed black-box models, subsystem flow diagrams, and an allocation matrix for traceability. Led risk management using FMEA and Risk Management Analysis (RMA) and contributed to interface definition, cycle time budgeting, and SEMP planning.

IoT BASED SOLAR POWERED AUTOMATED LAWN MOWER, 08/2021 – 05/2022

Bachelors Final Year Project

The main objective of this project is to design and build a solar powered lawn mower which is easy to operate, more efficient, environment friendly and operated without the intervention of human being by implementing the concepts of IoT for controlling and monitoring the movements of lawn mower.

DESIGN AND SIMULATION OF VOICE CONTROLLED MULTIPURPOSE WHEELCHAIR, *Bachelors Mini Project* 08/2020 – 02/2021

Designed a multipurpose wheelchair which will be operated and controlled by human voice. The voice recognition and speech processing was done through Arduino programming language.

Publications

IoT BASED SOLAR POWERED AUTOMATED LAWN MOWER, 04/24/2022

International Conference on Recent Trends in Emerging Technologies and Engineering" organized by INTERNATIONAL INSTITUTE OF RESEARCH IN MULTIDISCIPLINARY (IIRM)