Alen Gigi Joseph

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CAREER OBJECTIVE

Seeking a challenging position where I can leverage my expertise in system design, programming, and autonomous systems development to drive innovation and optimize processes in a dynamic environment.

PROJECTS

A Hybrid Quadruped-Wheeled Robot (Main Project)   GitHub: View Project

- Designed and developed a hybrid quadruped-wheeled robot that transitions between wheeled and quadruped locomotion depending on the terrain

Low-Cost Autonomous Mobile Robot (Mini Project)   GitHub: View Project

- Developed an Autonomous Mobile Robot capable of traversing complex environments.
- Employed a 2D LiDAR sensor to perform Localization and Mapping.
- Utilised Robot Operating System (ROS) for communication and control, Docker for containerizing the system, and Adaptive Monte-Carlo Localization (AMCL) for precise positioning and navigation.

Urban BloomPord (Rural Investors Meet, Kerala, 2023)   GitHub: View Project

- Engineered an IOT based Indoor Plant growth and Monitoring system
- Implemented a Relay-based automated control with a RaspberryPi as the main controller.
- Created an android app for teleoperation of the pod.

High-Throughput Hydrogen Generator (Micro Project)   GitHub: View Project

- Developed a high-efficiency electrolyzer aimed at optimising hydrogen production by achieving precise control over both generation rate and output flow.
- Incorporated a Hall Effect flow sensor for accurate measurement of hydrogen gas flow rates and an Arduino-based control system to dynamically adjust and maintain the desired flow rates, ensuring consistent and reliable gas generation.

TripSage: An optimised route planner app: GitHub: View project

- Developed an app to find less congested routes to a destination using real time traffic data of roads.
- Implemented the GUI using MapBox's Map and Directions API based on OpenStreetMaps data.
- Built a Node.js server to process real-time traffic data from cameras equipped with machine learning models and computer vision algorithms. The system calculates vehicle speeds along routes to assess congestion levels and recommend optimal paths.

HealthVaults Mobile App (Freelance Work)   View in PlayStore

- Developed an android application for storing, managing and sharing Medical records with ease.
- Implemented frontend using Kotlin and server using Golang.. Utilised AWS S3 for cloud storage, SQL with Room for local data, and Firebase Cloud Messaging for push notifications.

EXPERIENCE

- Project Intern, **GE Aerospace Multi Modal Factory, Pune**: January – March 2025
- Eyantra Robotics Competition, **IIT Bombay** (Top 20 National): August 2024– March 2025

SEMINARS and PAPER PRESENTATIONS

- Development of a Terrain Adaptive Quadruped Wheeled Robot (**ICRAS 2025 Conference**)
- Cost Effective Indoor Localization using BLE beacons and LoRa WAN Gateways
- Development of a Low-Cost Autonomous Mobile Robot

SKILLS

- **Programming Languages:** C, C++, Python, Kotlin, Assembly, Verilog
- **Frameworks & Tools:** ROS, Arduino, Android Studio, Git, VSCode, Docker, Linux.
- **Server, Database and Cloud:** Node.js, MongoDB, SQL, AWS S3, Firebase
- **Design & Simulation:** Fusion 360, MATLAB, Simulink, Proteus, Gazebo
- **Embedded Systems**
- **PLC and SCADA**

CERTIFICATIONS and VALUE-ADDED COURSES

- Internet of Things – NPTEL (Score: 83%)
- Workshop on IoT – PaceLabs
- Business English Certificate – B1 Level, Cambridge Assessments

EDUCATION

- **Bachelor of Technology, Electronics and Instrumentation, 7.51 CGPA** 2025
  Federal Institute of Science and Technology, Ernakulam
- **Higher Secondary School (96.5%),** CKHSS, Manimooly 2021
- **High School (89.2%),** SMCHS, Fujairah, UAE 2019

CO-CURRICULAR and EXTRACURRICULAR ACTIVITIES

- Memberships: ISA (International Society of automation), FAB Lab, IEEE.
- Technical lead, College Fabrication lab
- Lead and Resource person, Robotics Lab, EIE-FISAT

HOBBIES and INTERESTS

Tinkering, Robotics Hobbyist, Designing, App Development

REFERENCES

Ms. Sreevidya P: Assistant Professor (Special Grade), EIE, FISAT +91 9447077129