ADITYA GAWALI

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EXPERIENCE

Graduate Engineer Trainee

Larsen and Toubro Limited

Nov 2020 - Aug 2021 | Pune

- Conducted various testing operations of individual electronic and controller units
- Integrated sub-modules and units into the complete system for trials and operations.
- Designed and deployed highly reliable and robust electronics system and units for heavy engineered products.

Embedded software intern

Magnes Motors Pvt. Ltd.

Apr. 2019 - Jun. 2019 | Mumbai

- Implemented data logging automated solutions using wifi-equipped ESP32 and transmitting data to a centralized unit for future data analysis and testing
- Developed a Android GUI app for the user to visualise the health and essential data of the vehicle.
- Developed intelligent modules using microcontroller for Battery Management System (BMS) increasing operational efficiency by ~20%
- Refactored legacy round-robin architecture to real-time architecture using FreeRTOS resulting in decreasing latency by ~15%

PROJECTS

AVITRA : Surveillance and Disaster Mitigation Robot

Centre of Excellence in Complex and Nonlinear Dynamical Systems, VJTI

- Developed an autonomously navigating Omnidirectional robot capable of performing mobile manipulation for disaster mitigation operations.
- Designed velocity controller using optical encoders, thus optimizing base locomotion of the bot and improving overall efficiency of the locomotion,
- Upgraded manipulator to 6-Degrees of Freedom from 5-Degrees of Freedom by designing manipulator model along with its necessary software to control and execute the operation.
- Developed Publisher and Subscriber ROS nodes in Python for the robot to detect and reach towards the target destination.

Self-Balancing and Line Following Robot

Society of Robotics and Automation, VJTI

- Developed a Line-Following and Self-Balancing robot using ESP32 microcontroller and developed the code base in C using FreeRTOS.
- Implemented an HTTP WebServer on the ESP32 to tune and change the control parameters dynamically.
- Interfaced MPU6050, an Inertial Measurement Unit along with Complementary filter to get stable pose for self-balancing.
- Integrated Complementary filter with the readings to get stable pose of the robot
- Designed PD controller(Proportional and Derivative controller) to acheive stable results with minimal errors.

EDUCATION

M.S. in Computer Engineering

Virginia Polytechnic Institute and State University

2022-2024 | Blacksburg

B.Tech in Electronics Engineering

Veermata Jijabai Technological Institute

2016-2020 | Mumbai

COURSES

Development of Real-Time Systems

EIT-Digital (Coursera)

Apr 2020

Web Connectivity and Security in Embedded Systems

EIT-Digital (Coursera)

Apr 2020

I/O Efficient Algorithms

EIT-Digital (Coursera)

Apr 2020

SKILLS

- Programming Languages
  C, C++, Python, JavaScript, HTML, Java, VHDL, Scilab
- Software
  Robot Operating System, Linux, FreeRTOS, Git, ESP-IDF
- Hardware
  ESP32, STM-32 M3, Atmega128, RaspberryPi, Kintex-7

CO-CURRICULARS

- Volunteered for "Read a Story" campaign organized by L&T limited
- Organized and Conducted workshops and seminars for students of VJTI.
- Project Mentor for the Eklavya 2018, an annual mentorship program of SRA, where juniors build projects under the guidance of seniors.