

PROFESSIONAL SUMMARY:

Detail-oriented Automotive Embedded Systems Engineer with 1+ years of experience in MATLAB/Simulink and firmware development. Proficient in ARM-based microcontroller programming, embedded C, and communication protocols including SPI, I2C, UART, and CAN. Skilled in model-based design, sensor integration, and developing IoT solutions. Adept at technical documentation and delivering optimized embedded solutions in dynamic environments.

AREAS OF EXPERTISE:

- ✓ Embedded Systems & RTOS
- ✓ Embedded C programming
- ✓ MATLAB: Model Based Design (MBD), Simulink, Scripting
- ✓ Wired Communication protocols: SPI, I2C, UART and CAN
- ✓ Communication protocols: Wi-Fi, Bluetooth Low Energy, LoRa, basics of 5G networking
- ✓ Bootloader, Board support package
- ✓ ARM-based Microcontroller Programming & Interfacing

PROFESSIONAL EXPERIENCE:

Omegasoft Technologies Pvt Ltd. - Automotive Embedded Development | Oct 2023 – Present

Firmware Development & Microcontroller Programming:

- Developed and optimized embedded firmware for ARM-based microcontrollers, ensuring efficient and reliable operation in resource-constrained environments.
- Designed and implemented IoT-based weight monitoring system using Eagle PCB and ARM microcontrollers, integrating load cell sensors and displaying real-time data on an OLED screen.
- Programmed embedded applications using C and RTOS in Embedded Linux environments, optimizing system performance and resource management.
- Embedded System Development & Communication Protocols:
- Integrated and developed drivers for embedded communication protocols including SPI, I2C, UART, and CAN, ensuring seamless data exchange between peripherals and microcontrollers.
- Worked with analog and digital hardware, interfacing microcontrollers with peripherals, and ensuring correct signal processing for real-time applications.
- Developed firmware for ESP microcontrollers, utilizing industry-standard tools for debugging and version control (e.g., GitHub, JIRA).

MATLAB/Simulink & Model-Based Design:

- Applied Model-Based Design principles using MATLAB/Simulink for embedded system development, including script-based control of DC motors and simulation of real-time systems.
- Designed and simulated Anti-lock Braking System (ABS) using MATLAB tools, ensuring proper functioning through extensive simulations.
- Conducted debugging and optimization on Arduino Uno, enhancing motor control functionality and system responsiveness.

Automatic Wiper Control System Design:

- Gathered system requirements for automatic wiper motor control system, applying V-cycle development methodology for robust system architecture.
- Designed and developed system models in MATLAB Stateflow, implementing High, Low, and Auto modes for wiper motor control.
- Generated optimized code for real-time deployment using Embedded Coder, ensuring reliable performance and compliance with automotive standards.
- Conducted Model-in-the-Loop (MIL) testing and validation following MAAB guidelines to verify the accuracy and robustness of the system.

Technical Documentation & Project Management:

- Assisted in creating and modifying detailed technical documentation for project deliverables, ensuring clarity and comprehensiveness for internal and external stakeholders.
- Demonstrated effective written and verbal communication skills, ensuring clear and concise reporting of technical project progress.
- Managed multiple tasks effectively, meeting project deadlines with strong organizational and independent work management skills.

Debugging & Tools Proficiency:

- Utilized advanced debugging tools such as GDB, JTAG, and chip programmers to troubleshoot and resolve issues in embedded systems, ensuring high-quality software performance.
- Gained hands-on experience with version control tools (GitHub) and project management tools (JIRA), ensuring proper tracking of software versions and collaborative project management.

CERTIFICATION & SKILLS:

- ✓ “Architecting with Google Compute Engine” On Coursera.
- ✓ Design of an “Android app for Embedded System”
- ✓ Engineering: Undergraduate & Masters Virtual Internship’ by Inside-Sherpa
- ✓ Business English
- ✓ Quick Learner, Team Player, Student Volunteer, Leadership, Punctual, Enthusiastic. Strong in follow-ups and good Management Skills.
- ✓ AWS Certified Solutions Architect Associate SAA-C03 course on Udemy!

PROJECTS:

Project 1: LoRa- Based Soldier Tracking and Health Monitoring System

CDAC | 01' Aug 2023 - 31' Sept 2023

Developed an advanced health monitoring and tracking system for Indian soldiers in resource-limited areas using ESP32, LoRa technology, and GPS. Enabled real-time SPO2, heart rate monitoring, and location tracking with efficient data transmission to nearby camps for analysis and prompt response.

Project 2: Robotics for Bomb Detection Using Embedded Controller

Designed and developed a PC-controlled bomb detection robot using RF communication to enhance safety in hazardous environments. Integrated automated alerts and programmed motor controls for efficient navigation and real-time hazard detection.

ACHIEVEMENTS:

- Constantly get recognition from Clients and management for excellence in deliverables
- Event Manager (M.E.S.A)

EDUCATIONAL DETAILS:

2023 - 2023 | Centre of Development of Advance Computing (PG-Diploma)
| Embedded Systems Design CDAC, Hyderabad

2017 - 2022 | Savitribai Phule Pune University (B.E)
| Electronics and Telecommunications, SITRC, Nashik