

Mark Joel Moparthy

Embedded Engineer

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📍 Bengaluru

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PROFILE

Embedded Software Engineer with 1+ years of experience in developing robust firmware for automotive and telematics systems. Proficient in implementing protocols such as UART, SPI, CAN, K-line, CAN-TP, I2C, USB, MQTT, and TCP, with hands-on experience in real-time data handling using FreeRTOS. Skilled in working with ARM-based microcontrollers including STM32, Renesas RA6M1, Renesas RL78, and cellular modules like the Neoway N58. Driven by a passion for building efficient, scalable embedded solutions with seamless cloud and wireless communication integration.

PROFESSIONAL EXPERIENCE

Embedded Engineer, *Infiquity Auto Technologies Pvt. Ltd.*

04/2024 – Present

Project 1: 4G Telematics System for Electric Vehicles

Bengaluru

Duration: 11 Months

Platform & Tools: Embedded C, Renesas RA6M1, Neoway N58, E2 Studio, Docklight, RTT Viewer, Logic Analyzer, PCAN, MQTTBox, J-Link, ST-Link

Protocols & Interfaces: UART, CAN, CAN-TP, I2C, SPI, USB, BLE, MQTT, TCP/IP

Language: Embedded C, C

Description: Designed and developed a 4G-based telematics system for electric vehicles to capture GPS, battery health (via ECU), and motion data, transmitting it to the cloud for remote diagnostics, geo-fencing, and fleet monitoring through a web interface.

Key Responsibilities:

- Developed communication stacks for UART, I2C, USB, CAN, and CAN-TP.
- Integrated GPS, MQTT, and TCP/IP over Neoway N58 module using AT commands.
- Implemented FreeRTOS-based multitasking for real-time sensor and communication tasks.
- Performed secure data logging via SPI Flash with offline diagnostics fallback.
- Ensured real-time cloud synchronization and system stability using debugging tools like RTT Viewer and Docklight.

Project 2: Integrated Cluster System

Duration: 4 months

Platform & Tools: CS+ IDE, Visual Studio Code, Teraterm, ResearchDownload, Docklight, Logic Analyzer, PCAN

Language: Embedded C, C

Description: Led the development of an Integrated Cluster System that unified the PMVA Display, Telematics Control Unit (TCU), Vehicle Control Unit (VCU), and Acoustic Vehicle Alerting System (AVAS) into a single platform. This architecture reduced BOM costs by sharing CAN, power, and enclosure resources. Introduced Firmware Over-The-Air (FOTA) and Configuration Over-The-Air (COTA) updates to enhance maintainability and scalability, while also optimizing power consumption and system reliability.

Key Responsibilities:

- Implemented OpenCPU programming on Neoway N58 to integrate GPS, IMEI retrieval, and RTC operations.
- Designed and implemented GPS-based location tracking with real-time module synchronization.

- Developed custom debug print functionality for advanced logging and traceability during development.
- Created efficient memory file operations for data logging, ensuring robust runtime data storage.
- Contributed to system-level debugging using PCAN and Logic Analyzer for timing and CAN bus analysis.

EDUCATION

Bachelor of Engineering (ECE), KLE Institute of Technology 6.7 CGPA	08/2020 – 07/2023 Hubli, India
Diploma (ECE), KLE Society's Smt. C I Munavalli Polytechnic 64.65%	06/2017 – 04/2020 Hubli, India
SSLC, Saint Andrew's English Medium High School 75.04%	07/2016 – 04/2017 Hubli, India

SKILLS

Programming Languages

C, Embedded C

OS

FreeRTOS, Ubuntu, Windows

Protocols

UART, CAN, CAN-TP, SPI, I2C, TCP/IP, MQTT, USB, K-Line

Tools

Docklight, PCAN-View, Logic, J-link RTT Viewer, Teraterm, ResearchDownload

IDE

e2 studio, CS+, STM32Cube, KeilVision, Code Blocks, Visual Studio.

Flashing Tools and Debugger

Segger J-Link, Segger RTT Viewer, ST-Link.

Version Control Systems, Project management

GitHub, Zoho

COURSES

Advanced Embedded Systems, Cranes Varsity Pvt.Ltd	08/2023 – 03/2024 Bengaluru, India
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CERTIFICATES

- Advanced Embedded Systems Course (Cranes Varsity Pvt.Ltd)