

# Daniel Ari

+91 7288948107 | aridaniel7288@gmail.com | Hyderabad, India | LinkedIn

## PROFESSIONAL SUMMARY

Results-driven Embedded Firmware Engineer with 2+ years of experience in automotive ECU software development, skilled in Embedded C, microcontrollers, communication protocols, and debugging, focused on building reliable embedded systems.

## EDUCATION

**B.Tech in Electronics & Communication Engineering** 2018 – 2022  
Avanthi's Research and Technological Academy

## TECHNICAL SKILLS

<b>Programming</b>	Embedded C, C
<b>Firmware Development</b>	Peripheral Driver Development (GPIO, UART, SPI, I2C), Interrupt Handling, Memory Management
<b>RTOS</b>	FreeRTOS (Task Scheduling, Mutex, Semaphore, Queues)
<b>Microcontrollers</b>	STM32 (HAL + basic register-level)
<b>Protocols</b>	CAN, UDS (ISO 14229), SPI, UART, I2C
<b>Version Control</b>	Git, Bitbucket
<b>Project Tools</b>	Jira
<b>Documentation</b>	Confluence
<b>Tools</b>	Vector CANoe, VectorCAST, Oscilloscope, LogicAnalyzer, STM32CubeIDE
<b>Concepts</b>	Real-Time Systems, Debugging

## PROFESSIONAL EXPERIENCE

**Embedded Firmware Engineer — Nav Tech Electronics, Hyderabad** Jul 2023 – Present

- Developed **BMS firmware modules** using Embedded C for high-voltage automotive systems.
- Implemented **cell balancing algorithms** using SOC/SOHC parameters to optimize battery performance.
- Designed **voltage and temperature-based control logic** ensuring safe battery operation.
- Integrated **CAN communication stack** for real-time monitoring across 100+ battery cells.
- Performed **system integration and validation** to improve system stability.
- Debugged embedded issues using **CAN traces, oscilloscopes, and logic analyzers**.
- Participated in **code reviews** and design discussions for firmware features.
- Prepared **technical documentation** for firmware modules and test activities.
- Performed **unit testing using VectorCAST** to validate firmware modules, improve code coverage, and ensure software reliability.
- Resolved firmware issues through **debugging and root cause analysis**.

## PROJECTS

### Battery Management System – Balance Control Module

- Developed Embedded C firmware for battery balancing across 100+ cells.
- Implemented SOC/SOHC-based algorithms for energy optimization.
- Integrated CAN communication for real-time monitoring.

### Multi-Functional Camera (MFK-5) – ADAS

- Validated ECU communication using SPI and CAN FD.
- Analyzed timing and communication reliability using Vector CANoe.

### Multi-Protocol Communication Driver (STM32)

- Hands-on experience developing interrupt-based SPI, UART, and I2C drivers, improving communication efficiency and system reliability.