

# Guru Savant *Embedded Engineer*

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## Profile

Dedicated Embedded Engineer with 1.7+ years of experience in embedded firmware development and industrial automation. Skilled in ARM cortex microcontrollers (STM32, RL78, LPC21xx, ESP32), communication protocols (CAN, UART, I2C, SPI, MODBUS, J1939), and Windows desktop application development using C# and .NET. Proficient in MISRA-C compliant coding, DFMEA preparation, AIS-173 and AIS-004 standards. Adept at handling real-time testing, data acquisition systems, and full lifecycle software development. Strong background in GUI development and test automation for electric vehicle (EV) applications.

## Professional Experience

04/2024 – Present  
Bangalore, India

### Embedded Firmware & Software Developer

*Infiquity Auto Technologies Pvt Ltd*

- Developed embedded firmware for electric vehicle (EV) platforms, including Acoustic Vehicle Alerting Systems (AVAS), CAN converters, and noise level measurement devices.
- Designed and implemented C# desktop applications with real-time data acquisition, analysis, and charting to support AutoDV Test Bench for Train DV and other EV testing platforms.
- Led the development and integration of the AutoDV Test Bench for Train DV, enhancing automated validation and testing capabilities for train digital verification.
- Integrated multiple communication protocols such as CAN, UART, USB, I2C, I2S, J1939, and MODBUS (RS485) to ensure seamless hardware-software communication across automotive and rail testing systems.
- Managed full software development lifecycle (SDLC) activities including requirements analysis, system design, implementation, testing, and client deployment, delivering reliable and scalable solutions for automotive and rail testing environments.

## Education

08/2019 – 06/2023  
Mangalore, India

### B.E - Electronics and Communications

*Visvesvaraya Technological University*

CGPA : 8.1

## Skills

### Programming Skills

- C, Embedded C, C++, C#

### Tools

- STM32CubeIDE, Keil, CS+ Studio, Visual Studio, Espressif IDE, Arduino IDE

### Debugging and Support Tools

- P-CAN View, Docklight, Logic Analyzer, Oscilloscope, KiCad, SSCOM, Modbus Poll, Proteus, LTSpace, GitHub

### Other Skills

- Windows .NET Framework , C# GUI Development
- UI/UX Designing

### Microcontrollers

- STM32, Renesas(RL78), NXP(LPC2129/2148), ESP32

### Protocols

- CAN, UART, SPI, I2C, USB, MODBUS(RS485), CAN TP, ADC, DAC, BLE.

### O.S

- Windows, Linux, RTOS(FreeRTOS)

## Projects

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03/2025 – Present

### AVAS

- **Objective** : Artificial engine sound generation for pedestrian safety in EVs. Dynamic sound control based on vehicle speed via CAN (J1939). Customizable throttle, horn, and indicator sound profiles.
- **Technologies Used** : Renesas(RL78), CS+, Dock Light, E1/E2 Emulator, Function Generator, Oscilloscope.
- **Responsibilities** :Developed embedded software for dynamic sound generation synchronized with vehicle speed, leveraging real-time CAN communication (J1939) to precisely control audio output. Ensured strict adherence to MISRA-C coding standards and maintained comprehensive, up-to-date DFMEA documentation throughout the entire development lifecycle. Collaborated closely with cross-functional testing teams to successfully achieve ARAI certification, while proactively identifying and resolving hardware integration challenges such as noise filtering and audio distortion mitigation to enhance system reliability and performance.

10/2024 – 03/2025

### EV NLM

- **Objective** : Developed an automated tool & system to measure EV motor gearbox noise levels at different speeds and load conditions using DB meter integration.
- **Technologies Used** : STM32F407xx, STM32CubeIDE, Visual Studio, C# GUI, CAN, MODBUS, USB, UART, I2C, DB meter.
- **Responsibilities** : Developed embedded firmware and a desktop GUI for real-time noise measurement, integrating a dB meter with automated data logging through a C# application. Implemented communication between the microcontroller and external systems using CAN, UART, MODBUS, and I2C protocols to ensure reliable data exchange and control.

04/2024 – 09/2024

### CAN Converter

- **Objective**: Development of a CAN-based converter for vehicle oil sensor and speed data transmission, enabling accurate parameter monitoring via SAE J1939 protocol.
- **Technologies Used**: CS+, P-CAN View, Function Generator, Oscilloscope, Dock Light, Embedded C.
- **Responsibilities**: Designed and implemented firmware to capture and transmit analog and pulse-based sensor data over the CAN bus, integrating ADC for precise analog readings and GPIO-based pulse counting for accurate speed measurement. Optimized CAN message latency and stability to ensure real-time performance while adhering to MISRA-C coding guidelines. Contributed to the successful ARAI certification process under AIS-004 standards.

## Certificates

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### Advanced Embedded Systems

08/2023 - 04/2024

Vector India Pvt Ltd

Bangalore, India