

NIKHIL BOLLA

Embedded Software Engineer

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Professional Summary

- Embedded Software Engineer with 1.5+ years of experience in automotive HMI systems and embedded firmware development.
- Strong expertise in **Modern C++ (11/14/17)** and **embedded C**, with hands-on experience in **STM32 microcontrollers** and **QNX-based real-time systems**.
- Experienced in developing automotive HMI applications using **Qt/QML**, and integrating scalable UI features with backend logic.
- Skilled in integrating vehicle communication protocols (CAN, SOME/IP) for reliable data exchange.

Technical Skills

Programming: C, C++17, Python

Embedded Systems: STM32, Embedded C, Firmware Development

Automotive: CAN, SOME/IP, AUTOSAR Concepts

Frameworks & Tools: Qt, QML, IBM Rhapsody, CommonAPI C++, CMake, GTest

Platforms & OS: QNX 7.0, Linux, Windows

Development Tools: Git, BitBucket, Jira, Visual Studio

Professional Experience

Hanyaa Auto Technologies

Dec 2025 – Present

Embedded Software Engineer

Hyderabad, India

- **Firmware Development:** Designed and developed **embedded C** firmware for an industrial control unit on **STM32**, implementing **state machine-driven control logic** to manage **20+ operational scenarios** under real-time constraints.
- **Communication Interfaces:** Integrated **Modbus over RS485, SPI, and UART** protocols for reliable communication with sensors and peripheral devices, ensuring robust error handling and synchronization.
- **Testing & Validation:** Built a **Python-based testing tool with UI** to simulate Modbus communication and validate MCU behavior, improving test efficiency and repeatability.
- **Peripheral Integration:** Developed low-level drivers and configured **MCU peripherals** (timers, interrupts) for real-time event handling and hardware interaction.
- **System Optimization:** Optimized control loop execution and peripheral interactions to reduce latency and improve real-time responsiveness.

People Tech Group (Client: General Motors)

Sep 2024 – Nov 2025

Embedded Software Engineer (Including Internship)

Hyderabad, India

- **HMI Development:** Designed and implemented **15+ automotive HMI features** using **C++17, Qt/QML, and XML**, integrating UI components with backend logic.
- **Model-Based Design:** Utilized **IBM Rhapsody** to design complex **state machines** and system behavior models, generating production-ready code and reducing manual implementation effort by **40%**.
- **Functional Safety:** Contributed to development of safety-critical modules aligned with **AUTOSAR** architecture and **ISO 26262** standards.
- **UI-Logic Integration:** Leveraged **HMIC Designer** to bind UI components with backend logic, generating optimized code and reducing development effort by **30%**.
- **Simulation & Validation:** Performed system validation using **ODI Simulator** and **WeCAN**, emulating ECU behavior and reducing target hardware testing cycles by **20%**.
- **Debugging & Issue Resolution:** Diagnosed and resolved critical defects using **GDB/cross-GDB core dump analysis** and **log-based root cause analysis**, including stack trace, register, and memory inspection.
- **Unit Testing:** Developed unit tests using **Google Test (GTest)** to validate application logic and improve code reliability.
- **Vehicle Communication:** Integrated HMI features with ECUs over **CAN and TCP/IP**, ensuring reliable and low-latency data exchange in a **QNX-based real-time environment**.
- **Agile Development:** Collaborated within cross-functional Agile teams, delivering features in **2-week sprints** with a **95% on-time delivery rate**.

Education

Vaageswari College of Engineering (JNTUH)

June 2024

Bachelor of Technology in Computer Science Engineering

Karimnagar, Telangana