

# NAYINI ISHWARYA

Hyderabad, Telangana, India

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## PROFESSIONAL SUMMARY

Embedded Systems Engineer skilled in embedded C, driver development, and communication protocols (CAN, UART, I2C, SPI). Experienced in firmware development, hardware integration, and LabVIEW-based testing with strong focus on system validation and reliability..

## TECHNICAL SKILLS

- **Programming & Languages:** Embedded C (Proficient), Python (Proficient), Assembly (Familiar), R (Known)
- **Architectures & MCUs:** ARM Cortex-M (STM32), ESP32
- **Operating Systems:** FreeRTOS, Embedded Linux (Basic)
- **Communication Protocols:** CAN, CAN-FD, UART, I2C, SPI, Bluetooth (BLE/Classic), Wi-Fi, TCP/IP
- **Tools & IDEs:** NI LabVIEW, STM32CubeIDE, Keil µVision, Git, VS Code
- **Hardware & Debugging:** PXI Hardware, Logic Analyzer, Oscilloscope.
- **Concepts & Methodologies:** Embedded Systems Development, Bare-Metal Driver Development, HAL Customization, RTOS Concepts, SDLC, Agile, Bootloader Concepts

## WORK EXPERIENCE

### Actalent

#### Associate Engineer – Embedded Systems

Aug 2024 – Present

Hyderabad, Telangana

- Designed and implemented a Daytime Running Light (DRL) control system using CAN-FD and the L99LDLH32 LED driver IC, including multiple dynamic lighting patterns.
- Developed wireless connectivity features by integrating Bluetooth and Wi-Fi (ESP32) for remote monitoring and embedded device communication.
- Contributed to embedded driver development, peripheral interfacing, register-level configuration, and communication protocol integration (CAN, UART, I2C, SPI).
- Built LabVIEW-based applications for automated testing, signal monitoring, and functional validation using PXI hardware.

## PROJECTS

### Automotive DRL System using CAN-FD

- Developed embedded firmware to control the L99LDLH32 LED driver IC and generate multiple dynamic lighting patterns.
- Implemented high-speed CAN-FD communication (2 Mbps) for real-time control and pattern synchronization.
- Performed timing validation, signal analysis, and debugging to ensure stable lighting performance.

### Smart and Effective Toll Fee Collection System

- Developed an embedded system using LPC microcontroller for automated toll fee collection and vehicle detection.
- Implemented peripheral drivers including UART, GPIO, timers, and sensor interfaces for real-time processing.
- Designed logic for automatic identification, fee calculation, and barrier control to improve system efficiency.

### ESP32 Wireless Connectivity Module

- Implemented Bluetooth and Wi-Fi communication for remote device monitoring and data transfer.
- Designed stable communication layers ensuring low-latency packet handling and reliable connectivity.
- Validated multi-device communication and optimized wireless performance for embedded applications.

### Ultrasonic Welding Machine PCB Validation using LabVIEW

- Designed LabVIEW test interfaces for functional validation and process-flow monitoring.
- Implemented alarm logic, sequence verification, and real-time measurement using PXI hardware.
- Performed signal acquisition and hardware control to validate complete machine operation.

## EDUCATION

### MLR Institute of Technology, Hyderabad, Telangana

Bachelor of Technology in Electronics and Communication Engineering

Dec 2020 – Apr 2024

GPA: 9.04 / 10.0