

Chethan Shettigar

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PROFESSIONAL SUMMARY:

Embedded Software Engineer with 2+ years of hands-on experience developing automotive and IoT solutions. Specialized in Embedded Linux-based systems and firmware development across STM32, ESP32, Raspberry-Pi, and Linux-based automotive TCUs. Experienced in automotive communication protocols (CAN, J1939), BLE, and LTE/4G modem integration for reliable cloud communication using NATS and MQTT. Strong background in implementing secure OTA/FOTA mechanisms for remotely managing and updating field-deployed embedded devices.

PROFESSIONAL EXPERIENCE:

Consat-Orahi,

Associate Engineer - Embedded

Gurgaon, India

Aug 2023-Present

Eberspächer HVAC Monitoring Gateway (Linux-based, iWave G26)

Technologies: Embedded Linux, iWave G26 TCU, C++, Shell Scripting, CAN, J1939, UART, GPS, LTE Modem (Quectel EG95), NATS, OTA/FOTA

- Developed an Embedded Linux application on the iWave G26 BSP using C++ and shell scripting to monitor and process automotive HVAC data over CAN.
- Parsed GPS data via UART, converted it into J1939-compliant messages, and injected it into the vehicle CAN network.
- Integrated an LTE/4G modem for cloud connectivity and enabled reliable data publishing using NATS messaging.
- Designed and deployed secure FOTA workflows to support remote firmware updates for in-field automotive gateways.

Gas Cylinder Weighing System (STM32 / ESP32, IoT)

Technologies: STM32, ESP32, HX711 ADC, Load Cells, UART, 433 MHz RF, Wi-Fi, Blynk IoT, Low-Power Design

- Designed a load-cell-based weight measurement solution using STM32 and HX711 ADC.
- Displayed live readings on an I2C LCD with LED-based status indication.
- Transmitted weight data wirelessly via 433 MHz RF modules over UART.
- Migrated the solution to ESP32 to support secure Wi-Fi updates through the Blynk IoT platform.
- Optimized power consumption through deep-sleep strategies, achieving near-zero idle current.

Indoor Positioning System – Student Tracking (Embedded IoT)

Technologies: Raspberry Pi, BLE (iBeacon), MQTT, Embedded Linux

- Implemented a BLE-based indoor tracking solution using Raspberry Pi edge devices and iBeacon ID cards.
- Filtered BLE advertisements by UUID and Minor ID to identify and track individual devices.
- Published real-time presence and location events to an MQTT broker for downstream processing.
- Tuned BLE scanning and messaging for low latency and reliable multi-device operation on Embedded Linux.

On-Prem Surveillance & Recording Server (AI-Based CCTV System)

Technologies: Embedded Linux, Raspberry Pi, YOLO (Ultralytics), FFmpeg, Nginx, HLS, MP4, LTE/4G, RNDIS, NATS, Netbird (P2P), Python, Bash

- Built an on-prem AI surveillance solution on Embedded Linux for real-time analysis of RTSP camera streams.
- Implemented YOLO-based object and event detection (human presence, intrusion, fire/smoke, tampering) with custom-trained models.
- Improved detection accuracy by validating low-confidence inferences using an MLLM-based verification flow.

- Streamed live video via HLS and recorded footage in HLS/MP4 formats using FFmpeg, served through Nginx.
- Enabled secure remote access using P2P networking (Netbird) without public IP exposure.
- Integrated 4G LTE connectivity for vehicle deployment, configuring RNDIS networking on Raspberry Pi.
- Implemented OTA/FOTA pipelines to remotely update AI models and streaming services in deployed systems.

TECHNICAL SKILLS:

Programming Languages: C, Embedded C, C++ (Basics).

Target Platforms: STM32, ESP32 (ARM Controllers), Raspberrypi 3/4, iWave G-26 (Linux based TCU).

Operating System: Embedded Linux, FreeRTOS.

Protocols & Interfaces: CAN, J1939, UART, ADC, GPIO, Timers, Interrupts, BLE (iBeacon).

Connectivity: LTE / 4G Modems, MQTT, NATS, P2P Networking (Netbird).

OTA & Device Management: OTA / FOTA for Embedded Linux devices.

Tools: VS Code, STM32 IDE, Git, Arduino IDE.

EDUCATION:

PG Program in Embedded Software Development & validation for EV, Skill-Lync	(2023)
B-Tech Electrical & Electronics Engineering, Manipal Institute of Technology.	(2022)
Diploma–Electrical & Electronics Engineering, Dr T M A Pai Polytechnic, Manipal.	(2019)
10th – Govt High School, Volakadu.	(2015)