

Ravikiran Guthula

Embedded Developer and R&D in Rurux Technologies Pvt Ltd.

|| Embedded C || OS - inter process communication || RTOS || Communication Protocols –CAN LIN SPI I2C UART || Micro- controller-ARM M3, M4 || Device Driver ||

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About Me

An Embedded Engineer focused on developing solutions with communication protocols and embedded operating systems. Skilled in ARM microcontroller firmware, sensor integration, and real-time systems. Passionate about creating efficient and reliable embedded solutions.

Projects

○ **Collision Avoidance System using CAN Protocol and STM32 Microcontroller.**

The system integrates two STM32 controllers, two CAN SN65HVD230 transceivers, an ultrasonic sensor, and an LCD display. The vehicle detects obstacles within a predefined threshold distance using the ultrasonic sensor, communicates data via the CAN protocol, and triggers warnings on the LCD display. Utilized SPI and I2C protocols for interfacing with peripheral devices, enabling efficient communication and control within the embedded system architecture. Based on the object's distance, the system automatically slows down the vehicle or applies a panic brake to prevent frontal collisions.

○ **IoT-Enabled Industrial Monitoring: 4-20 mA Sensor Integration with ESP32, RTOS, and MQTT.**

- ✓ Developed an IoT-based system to integrate industrial sensors (e.g., PT100, proximity sensors) operating on 4-20 mA with ESP32 microcontroller.
- ✓ Designed firmware using RTOS to manage real-time data collection and processing. Implemented MQTT protocol to publish data periodically and on event triggers over Wi-Fi to a server for industrial monitoring and analytics.

○ **IoT-Based Energy Monitoring System: Energy Meter Integration with ESP32 and MQTT.**

- ✓ Created an energy monitoring solution by integrating an energy meter with ESP32 using Modbus protocol.
- ✓ Developed firmware to fetch and process real-time energy data and published energy data to a server via MQTT over Wi-Fi, supporting both periodic and event-based updates for industrial energy management.

○ **Real-Time DAS System for Industrial Sensors: Data Fetching with Mega 2560 and Teensy 4.0**

- ✓ Developed a Data Acquisition System (DAS) to fetch real-time data from multiple industrial sensors, including PT1000, IR temperature sensors, proximity sensors, and relay activators (for HT, BTR, and CTR of hooter systems).
- ✓ Utilized Arduino Mega 2560 and Teensy 4.0 boards for sensor data collection and processing.
- ✓ Designed firmware to handle real-time data fetching from sensors and relay activation for system control, ensuring fast and accurate response for industrial operations.

Education

Post Graduation Diploma in Embedded System Design (CDAC) in Embedded System Design

Sunbeam, Pune - Pune, Maharashtra.

September 2023 to February 2024

Bachelors in Electronics and Instrumentation Engineering

AC Patil college of Engineering (Mumbai University)–Navi Mumbai, Maharashtra-2022

Diploma in Applied Electronics and Instrumentation

Sri YVS& BRMPolytechnic College. - Andhra University – 2017

Experience

- **Embedded Developer and R&D in Rurux Technologies Pvt Ltd.**

Pune, Maharashtra. (May 2024 - currently working).

- ✓ Embedded C
- ✓ MQTT protocol
- ✓ RTOS
- ✓ BLE
- ✓ Modbus
- ✓ NI LabView

- **Calibration Engineer at Metal Power Analytical Pvt Ltd.**

Andheri East Mumbai. (Jan 2023 – July 2023).

- ✓ Calibration of Various Spectrometers.
- ✓ Quality Inspections.

- **Service Engineer at Sterna Security Devices Pvt Ltd.**

Vashi, Navi Mumbai, Maharashtra. (Jan 2020 – Oct 2021).

- ✓ Providing supporting services to clients of BPCL SHELL RELIANCES and HPCL in terms of troubleshooting problems identifying and correcting technical issues providing advice on smart box as well as EM Locking system related upgrades and improvements.
- ✓ Installing and operating Key Management System (KMS) and wall PD system in various Petroleum Terminals.

Skills / IT Skills

- Embedded C
- CAN Bus protocol
- LIN protocol
- I2C protocol
- SPI protocol
- UART protocol
- Linux
- NI LABVIEW
- interprocess communication
- ARM Cortex- M4
- Raspberry Pi
- Linux Device Driver
- Real time operating system (RTOS)
- STM32

Languages

- English – Fluent
- Telugu – Fluent
- Hindi – Fluent
- Marathi – Intermediate

Technical Certifications

- Training in Embedded Systems and Designing in Micro link Pvt Ltd. Vijayawada
- Participated in workshop on Industrial Sensors
- Joined for PRECAT preparatory courses from SUNBEAM institution, Pune. (Sep 2022-Nov.

Hobbies

- Solving Rubix Cube
- Exploring Different Places and new things
- Photography
- Cricket