

SUMANTH RACHA

+91 9505411946/ nagasumanth2@gmail.com

Profile summary

Proficient Junior Embedded Engineer skilled in developing, and testing embedded systems to drive technological innovation and efficiency. Dedicated to continuous learning, personal growth, and enhancing organizational success through advanced embedded solutions.

Skills

Programming Languages: C, C++

Microcontrollers: STM32, Arduino, ESP32, Quectel EC200U-CN

Communication Protocols: I2C, SPI, UART, RS485

IoT Protocols: MQTT, HTTP, BLE

Tools & IDEs: STM32CubeIDE, Arduino IDE, Visual studio code

Other: Git Version Control, Hive MQTT, FreeRtos, LSP

Projects

LoRa Terminal Unit / *C Programming, STM32WLseries, RS485Modbus, LoRa Protocol*

- Integrated water quality sensors, including residual chlorine, turbidity and pH sensor with terminal units.
- Optimized current consumption during sleep mode by employing transistor-based ground switching for all modules, improving overall energy efficiency.
- Implemented Secure communication between terminal unit and the gateway using LoRa protocol with AES encryption and decryption.

Temperature Monitoring Device / *C Programming, Thermocouple Sensor, MAX31855, LoRa Protocol*

- Developed a food temperature monitoring device that transmit temperature readings on demand using the LoRa protocol.
- Designed and implemented driver code for the MAX31855 module, integrating two thermocouple sensors with an STM32WLE series controller via SPI interface.
- Integrated a 16X2 LCD Display to provide real time temperature readings from both probes simultaneously.

Safe Paani Water Quality Monitoring System / *C Programming, nRF52833, GATT, RS485, nRF Connect*

- Developed a BLE application on the nRF52833 module to advertise sensor data using GATT services.
- Integrated water quality sensors with the nRF52833 module through the RS485 protocol to collect and transmit data.
- Utilized the nRF Connect app to monitor and verify the advertised sensor data from the nRF52833 module.
- Hands-on experience with the nRF9160DK module for advanced IoT and BLE applications

Smart Weather Monitoring System | *C Programming, STM32F401RBT6, LM35, ESP8266*

- Developed a smart weather monitoring system using the STM32F401RBT6 microcontroller on the Raayan Mini Board.
- Interfaced an LM35 temperature sensor to read and display temperature data every 5 seconds on a 16x2 LCD.
- Integrated a DS1307 RTC module to display real-time clock information alongside temperature data.
- Implemented data transmission to a remote server via the ESP8266 Wi-Fi module when internet connectivity is available.
- Enabled offline data backup by storing temperature and timestamp readings in EEPROM during network outages.
- Utilized STM32Cube, Keil μ Vision5 and ST-Link Debugger for firmware development and testing.
- Developed using a mix of bare-metal programming and STM32 HAL libraries for low-level peripheral control and high-level abstraction.

Experience

Symphisys

Embedded Trainee

Apr 2023 – Oct 2023

Hyderabad, IN

Fervid Smart Solution Pvt Ltd

Jr. Engineer

Oct 2023 -May 2025

Hyderabad, IN

Education

Kernel Masters, Hyderabad.

(Nov 2022 – Apr 2023)

Embedded AI Software Developer.

KITS Engineering College, Khammam.

(June 2017 –Sep 2022)

Mechanical Engineering (6.0 CGPA)

LOTUS Jr College, Khammam.

(June 2015 – Apr 2017)

Intermediate (81.4%)

NIRMALA HIGH SCHOOL, Khammam.

(June 2014- Apr 2015)

S.S.C.(9.0 CGPA)