

POLICE SHIVA KIRAN REDDY

Embedded Firmware Engineer | STM32 | Embedded C | IoT Systems

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CAREER OBJECTIVE

Embedded Systems Engineer with one year of hands-on experience developing STM32F4-based industrial controllers, embedded web servers, and real-time data acquisition systems. Passionate about firmware optimization, Ethernet communication, and IoT integration. Eager to contribute to innovative embedded and automation products that bridge hardware and network systems.

PROFESSIONAL EXPERIENCE

Embedded Systems Engineer | Instrutel Systems Pvt. Ltd. | Apr 2024 – Apr 2025

- Developed STM32F407VGT6-based Single Board Controller (SBC) for industrial applications.
- Configured 24 digital inputs, 16 digital outputs, 16 ADC channels, 8 DAC channels, and 8 PWM I/Os.
- Developed Ethernet-based web server using WIZnet + LwIP stack for real-time configuration and monitoring.
- Implemented AJAX-based web dashboard with tabs for Modbus data, IP configuration, and SD card logging.
- Created Modbus-TCP client/server with multi-slave communication and auto-reconnect capability.
- Implemented SD card logging with FatFs for ADC and Modbus data, including timestamped logs.
- Developed UART CLI for debugging and Modbus command testing.
- Optimized firmware with DMA, interrupts, and watchdog timers to enhance performance and reliability.
- Collaborated with hardware and firmware teams to debug signals and improve PCB performance.

PROJECT HIGHLIGHTS

- Industrial SBC with Embedded Web Server (Apr 2024 – Oct 2024)

Developed a complete SBC with Ethernet, ADC/DAC, GLCD, and Modbus-TCP. Created web UI with AJAX updates and dynamic IP configuration.

- Modbus-TCP Gateway (Nov 2024 – Jan 2025)

Implemented Modbus bridge for industrial devices with CRC validation and TCP socket management.

- Battery Monitoring & PWM Control (Jan – Mar 2025)

Configured ADCs and timers for battery monitoring and PWM servo control with filtering and percentage estimation.

- SD Card Logging & HTTP Access (Feb – Apr 2025)

Integrated FatFs for logging and added HTTP endpoints for SD status, log control, and downloads.

TECHNICAL SKILLS

- Microcontrollers: STM32F4 (F407VGT6), ARM Cortex-M4, LPC2124
- Languages: Embedded C, C++, Data Structures
- Protocols: UART, SPI, I2C, Ethernet (TCP/IP, HTTP, Modbus-TCP)
- Peripherals: GPIO, ADC, DAC, Timers, PWM, SD Card, GLCD
- Tools: STM32CubeIDE, Keil µVision, Git, PuTTY, Hercules, TeraTerm
- Domains: Industrial Automation, IoT Devices, Web-Based Embedded Systems, Real-Time Control

EDUCATION

- B.Tech – Electronics & Communication Engineering | Bharat Institute of Engineering & Technology, Hyderabad | 2020 – 2024 | 61.46%
- Intermediate (M.P.C) | Narayana Junior College, Hyderabad | 2018 – 2020 | 87.6%
- SSC | Keshava Reddy High School, Sanga Reddy | 2017 – 2018 | 83%

INTERNSHIP

Vector India Pvt. Ltd., Hyderabad – Trained in Advanced Embedded Systems: ARM, UART, I2C, SPI, Timers, RTOS concepts, and debugging.

STRENGTHS

- Strong debugging and protocol analysis skills.
- Quick learner with strong embedded fundamentals.
- Excellent teamwork and documentation abilities.

PERSONAL DETAILS

Date of Birth: 13 March 2002

Location: Sangareddy, Telangana

Interests: Workout & Meditation, Listening to Music, Gaming