SAIPRASAD KANDULA

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Summary
Embedded Software Engineer trained in advanced ARM Cortex-M development with strong expertise in STM32, FreeRTOS, and embedded C/C++. Skilled in real-time system design, peripheral driver development, and hardware debugging. Experienced in end-to-end embedded solutions including communication protocols (UART, SPI, I2C,), board bring-up, and system validation.

CORE COMPETENCIES
- Embedded C/C++ | ARM Cortex-M (STM32) | FreeRTOS | RTOS Multithreading
- **Communication Protocols:** UART, SPI, I2C
- GPIO | Timers | Interrupts | Board Bring-up | Logic Analyzer
- **Simulation & Validation:** hardware testing, debugging
- **Tools:** STM32CubeIDE, Keil, JTAG, Oscilloscope, Logic Analyzer

TECHNICAL TRAINING
Embedded Systems Trainee – Emertxe Information Technologies, Bangalore | Remote
Developed peripheral drivers (UART, SPI, I2C).
- Designed and implemented low-level firmware with register-level programming and debugging.
- Built hands-on expertise in real-time scheduling, task synchronization, and inter-task communication.

PROJECTS:
Firmware for Car Black Box :
- Designed embedded firmware to log vehicle events and sensor data for safety monitoring.
- Implemented interrupt-driven data acquisition with LCD interface and master-slave communication.
- **Tools/Skills:**PIC Microcontroller, Embedded C, Interrupts, Communication Protocols.

Device Driver Development for GPIO & Timers (STM32) :
- Developed modular, reusable drivers at register level for GPIO and timer peripherals.
- Validated through live hardware testing on STM32 Cortex-M4 boards.
- **Tools/Skills:** STM32, Embedded C, STM32CubeIDE, FreeRTOS.

Automatic Accident Detection & Rescue System (IoT)
- Built IoT-based system integrating GPS + GSM to send live location during accidents.
- Optimized embedded firmware for real-time alert transmission.
- Tools/Skills:AT89S52, Embedded C, IoT Integration.

Image Steganography (C Project)
- Created algorithmic solution for secure data embedding/retrieval in BMP images.
- Applied optimized bitwise operations for high efficiency.

EDUCATION
Emertxe Information Technologies, Bangalore   – Advanced Embedded Systems Certification | 2024
B.Tech, Electronics & Communication Engineering – GIET College of Engineering | **2019–2022 | 68%**
Diploma, Electronics & Communication Engineering – GIET Polytechnic | **2016–2019 |73%**