

# Sekhar

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## Objective

To work as an embedded software engineer in an organization where I can utilize my existing skills and knowledge to develop new skills to contribute in the accomplishment of organization goals.

## Professional Summary

- Highly motivated and results-driven Embedded Systems Engineer with 2.5 years of hands-on experience in designing, developing, and testing embedded software and hardware solutions.
- Developed embedded firmware for microcontroller-based systems (STM32, ARM Cortex-M) to control hardware interfaces such as motors, sensors, and displays for IoT products.
- Implemented real-time control algorithms for power-efficient devices using FreeRTOS.
- Designed and tested communication protocols including UART, SPI, and I2C for seamless integration of sensors and peripherals in embedded systems.
- Worked closely with hardware engineers to bring up and debug prototype hardware, ensuring stable system performance.
- Integrated sensors (temperature, pressure, accelerometer) with embedded systems and implemented drivers for data acquisition and processing.
- Led the software testing cycle by creating test cases, performing unit testing, and working with hardware debugging tools like oscilloscopes and logic analyzers.
- Collaborated with cross-functional teams to ensure smooth product integration and performance optimization.
- Reduced power consumption by optimizing firmware and hardware interfaces, contributing to a 25% improvement in battery life for a wearable IoT product.
- Assisted in the development of embedded software for consumer electronics, focusing on power management and communication protocols.
- Participated in system-level debugging and troubleshooting, resolving issues related to memory leaks, I2C bus communication errors, and hardware faults.
- Developed and maintained low-level drivers for sensors and actuators, enhancing system responsiveness and performance.

- Contributed to the design and implementation of firmware updates over-the-air (OTA) for connected devices.
- Supported hardware bring-up and validation, ensuring successful integration of embedded firmware with circuit boards.
- Collaborated in the design and testing of safety-critical systems for automotive applications, ensuring compliance with industry standards.
- Proficient in embedded programming, firmware development, hardware interfacing, and troubleshooting.
- Strong background in microcontroller and microprocessor-based system design, with a deep understanding of real-time operating systems (RTOS), communication protocols, and hardware/software integration.

## Key Skill

- **Embedded Programming Languages:** C, C++Programming, Embedded –C ,Assembly
- **Microcontrollers/Processors:**ARM Cortex,STM32,LPC2148,LPC1768,AVR,Pinncale100 Board.
- **Real-Time Operating Systems (RTOS):** FreeRTOS, RTEMS, embOS.
- **Embedded Development Tools:** Keil uVision, IAR Embedded Workbench, MPLAB X, Eclipse IDE
- **Communication Protocols:** UART, SPI, I2C, CAN, UDS,Ethernet, Modbus, MQTT
- **Hardware Design:** PCB design, circuit simulation, and troubleshooting
- **Version Control:** Git, ,Tera term,SVN
- **Other Tools:** JTAG debuggers, Putty,Oscilloscopes, Logic Analyzers, Multimeters
- **Software Development Tools:** Python, MATLAB, Bash scripting
- **OS and Platforms:** Linux, Windows, Pinnacle100 board, Ubuntu.

## Experience

- Working as an Embedded Software Engineer –Infoswift software pvt ltd. from Oct 2022 to till date.
- Internship / Shikara Embedded Systems • Worked on embedded systems and Autosar from jan2022-aug2022.

## Education

**Avanathi Institute of Engineering and Technology| 2018-2022**

• Bachelor of Technology in Electronics and communication engineering.

**Board of Intermediate Education | 2016-2018**

. M.P.C Sri Lakshmi Junior College

**Board of Secondary Education, -2016**

## Projects:

### Project#1: Softeq

#### Description:

Softeq is Remote patient monitoring (RPM), AI-based medical imaging solutions, and uninterrupted workflow management. Your work would have been focused on the development and maintenance of systems that support the organization's modern ideology in healthcare technology, which is designed to reduce paperwork, serve more patients, maintain health records, and access medical data stored on open-network. This would have required a strong understanding of Java programming language, software development methodologies, backend development, and enterprise software development best practices

#### Roles & Responsibilities

- Develop embedded firmware and software for various embedded systems, such as microcontrollers, sensors, and communication devices. Use languages like **C**, **C++**, and **Assembly** for efficient embedded application development.
- Develop mechanisms for updating embedded firmware in the field via protocols like **OTA (Over-the-Air)** or **JTAG**.
- Implement and optimize communication protocols such as **UART**, **SPI**, **I2C**, **CAN**, and **Ethernet** to enable seamless integration between embedded systems and external devices.
- Design and implement embedded systems based on **RTOS** (Real-Time Operating Systems) like **FreeRTOS**, **ThreadX**, or **embOS** for systems requiring real-time performance.
- Develop and implement automated testing frameworks to improve testing efficiency and coverage of embedded systems.
- Provide ongoing support during the product lifecycle, including post-deployment firmware updates, bug fixes, and system enhancements.

### Project#2: INSTRUMENTAL PANEL CLUSTER

#### Description:

The main aim of the project was to read and analyze vehicle data using received as EEPROM And solve the bugs using the ULINK2 debugger. The project involves working with automotive electronics And communication protocols such as SPI. The data was read using flash magic. terminals and analyzed for Bugs using the ULINK2 debugger the project required a deep understanding of the functioning of EEPROM and SPI communication protocols.

#### Roles & Responsibilities

- Software developer and debugger expert responsibilities included reading and interpreting, Data, troubleshooting bugs using the ULINK 2 debugger and collaborating with team members to ensure That project milestone.

#### Declaration:

I hereby declare that the above written information are true to the best of my knowledge and belief and I will be responsible for any discrepancy.

DATE:  
PLACE: HYDERABAD

(SEKHAR.CH)