

Mohan S

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TECHNICAL SKILLS

Programming Languages: Embedded C, C++, Linux OS, Design Pattern, MultiThreading, OOPS

Version Control: Git, GitLab, GitHub

Development Tools: Visual Studio Code, Jira, Confluence, Whitney, Tera Term, Putty, Docker, KPI, STM32CubeIDE, Tinker CAD, MATLAB, Arduino IDE,

Operating Systems: Linux/Ubuntu 20.04

Others: STB, CAN, SPI, GPIO, I2C, UART, HDMI, USB, RTOS, Multimedia, Generative AI, ChatGPT,

PROFESSIONAL SUMMARY

Embedded Software Developer

GlobalLogic Hitachi – Bangalore, India

September 2022- present

- Embedded Software Engineer with **3 years** of experience in firmware development, specializing in C/C++ programming, debugging, core analysis and smart TV technologies.
- **Collaborated** with SoC vendors to resolve software bugs for over **4 major platforms** (Realtek, MediaTek, Sigma, MStar), ensuring seamless Roku device performance.
- Implemented coding standards and best practices in **Embedded C/ C++ 11 & 14**, enhancing code maintainability by **30%**.
- **Conducted 100+** debugging sessions using GitLab, Whitney, and QAHub, achieving a **98% issue resolution rate**.
- **Developed and implemented** LED Motion Clarity options has BFI support, enhancing motion rendering and reducing flicker by **30%**.
- Designed and integrated exit_user_nav and exit_idle_auto_exit features for apps, improving user flow **efficiency and reducing idle state**.
- Wireless Protocols: Basic Knowledge of I2C and SPI protocols. Wired Protocols: Good Knowledge of UART.
- Demonstrated expertise in software release methodologies such as Agile, Waterfall and having successfully completed a prior release cycle within a **6 month timeframe**.
- Involved resolving complex issues through Jira tickets, including **regression and functional bug fixing** to ensure software stability and performance.
- Streamlined OTA update processes, resulting in a **20% increase** in deployment efficiency.
- Optimized TV audio and video playback, improving overall performance metrics by **15% for end-user experiences**.

PROJECT DETAILS

Project Name: Roku RTN Bug Triage and Performance Analysis

Role: Embedded Software Developer

Technology: Embedded C++ 11 & 14, Shell & Python Script, Ubuntu 20.04.

As part of the Roku RTN team, I contribute to bug triaging for various critical aspects such as Roku OS, audio, video decoding, and channel applications across multiple platforms (Realtek, MediaTek, Sigma, MStar). Additionally, I collaborate closely with SoC vendor teams to identify and address software bugs related to Roku operating systems deployed on diverse platforms. I also conduct comprehensive analysis and testing of TV audio and video performance to ensure optimal user experiences across Roku devices. My role requires proficiency in Embedded C++ 11 & 14 concepts and familiarity with embedded Linux OS principles.

Responsibilities:

- Collaborate with team members and SoC vendors to identify and triage software bugs in Roku OS and related components.
- Conduct detailed analysis of TV audio and video performance to optimize user experiences.
- Develop and enhance software components using Embedded C++ 11 & 14.
- Utilize GitLab for version control and collaborative development.
- Strong analytical and problem-solving skills, demonstrated through successful bug triaging and resolution.
- Ensure compliance with coding standards and best practices in embedded software development.
- Communicate effectively with cross-functional teams to address technical challenges and deliver high-quality solutions.

EDUCATION

PG Program in Embedded Software Development & Validation for EV Applications

June 2022- July 2022

Skill-Lync

Bachelor of Engineering (B.E.) in Electrical and Electronics Engineering

2018-2022

Anna University – **7.5 CGPA**

PERSONAL PROJECT

MQTT Protocol Based Smart Gardening System Using ESP32

- An automatic smart garden watering system with parameters measuring temperature and humidity using soil moisture sensor and NTC Thermistor sensor.
- ESP32 connected to the internet with optimization of data communication using the MQTT – Message Queue Telemetry Transport protocol.
- The signal pin gives the Analog value which is proportional to the amount of moisture in the soil. The two electrodes are inserted into the soil to get the moisture level of the soil.

Fire Detection Alarm System using 8051 Microcontroller

- For smoke detection, an MQ9 gas sensor is used. A comparator is interfaced between the sensor and microcontroller. If smoke is detected then this sensor gives high output to the comparator.
- Then the comparator gives high pulse output to the microcontroller. Due to the fast response of the sensor, we can take immediate action on it and can prevent from further damage.
- If sensor crosses the threshold value then the buzzer will be turned on and LCD displays the message as smoke detected.

Measuring the distance of an object using an ultrasonic sensor and also smoothening the sensor data using a moving average filter

- Measuring the distance in terms of inches of an object using an Ultrasonic Distance Sensor.
- The sensor data is smoothened by using the Moving average filter technique to eliminate the high-frequency variations from the sensor data.
- Measuring the distance travelled by the wave to the object and gets bounced back from the object to the sensor.

Interfacing a 16*2 LCD with Arduino using I2C protocol

- Communication between Arduino and 16*2 LCD using I2C protocol.
- Displaying the message sent by Master and received by slave i.e. LCD display.
- Using the inter-integrated circuit communication protocol, transferring the data i.e. the message we want to display is sent to the LCD.

Creation of user defined data type to implement the user interfaces for working with ‘Set’ (Mathematical Set theory) using Linked List

- Implementation of interface for mathematical Set Theory using C programming. Giving two lists of data as input to get the output as union & intersection for a given list of data.
- Insert the node to 1st and 2nd list accordingly. Intersection of data of two lists. Getting Union of two list.
- Intersection of data of two list. Union of data of two list.

AWARDS AND ACHIEVEMENTS

- Received **multiple Spot Awards** for exceptional contributions to bug triaging and performance optimization.
- Successfully completed on-job training courses within the current financial year, enhancing skills and knowledge in embedded software development.

CERTIFICATION

- Introduction to Embedded Systems Software and Development Environments.
- Complete modern C++ 11, 14.
- Mastering microcontroller and Embedded driver development.