

Devashish Mishra

Associate Staff Engineer, Nagarro

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A Software Engineer with 7 years of experience in leading teams and managing the full software development life cycle, delivering solutions in power systems, automotive, medical, and telecommunications. Proficient in programming languages, with expertise in creating high-quality software designs for medium-to-large scale projects, solving complex problems, firmware Development and ensuring strong project management and technical leadership while delivering innovative customer experiences using Agile Development Methodology

Work Experience

Nagarro Software Pvt Ltd

July 2020 - Present

Associate Staff Engineer

- Leading the backend team for development of USB-RS485 based communication protocol & APIs of PC based application to communicate with connected Load Bank.
- System Designing for SOME/IP Library Stack for Autosar Compliant.
- Led the development of automotive communication protocols SOME/IP stack in C++ for seamless data exchange within vehicles ECU following MISRA C++ Standard.

Senior Engineer

- Developed Linux based IoT gateway application software in C++.
- Implemented a custom ram disk image to optimize the boot-up process.
- Designed and developed firmware for healthcare devices, resulting in increased device reliability and performance.

Engineer

- Implemented low-level drivers for various peripherals, ensuring efficient and reliable operation
- Leveraged FreeRTOS for multi-threading, parallel processing, and effective hardware utilization

Frog Cellsat Ltd

Sept 2019 - Mar 2020

Software Engineer

- Designed and developed firmware for RF power controlling devices, ensuring precise and efficient control of RF power output
- Demonstrated proficiency in bare metal programming for MSP430 microcontrollers

ASES Pvt Ltd

Sept 2017- Aug 2019

Software Engineer

- Developed intuitive GUI applications using Python for fire detecting devices, enhancing user interaction and real-time monitoring
- Designed and implemented firmware for STM32 and Atmega2560 microcontrollers-based Fire monitoring device.

Skills

Programming

- C, C++
- Python
- Data Structures
- Algorithms
- OOPs Concept
- System Design

Library & Tools

- STL & Boost
- Visual Studio
- GNU Tools
- QT
- Make, Cmake

Operating Systems

- FreeRTOS
- Linux, Yocto
- Shell Scripting
- Android Automotive OS
- Multithreading
- Shell Scripting
- Memory Management

Embedded System

- ESP32, STM32, MSP430
- Device Drivers
- Debugging
- I2C, SPI, UART, MQTT, CAN, SOME/IP
- Bare Metal Programming
- MISRA C++
- Bootloader, U-Boot

Project Management

- JIRA, GIT
- Agile
- Technical leadership

Education

Bachelor of Technology

Electronics & Communication Engineering

Noida Institute of Engineering & Technology, Greater Noida

2013-2017

XII Senior Secondary

Science & Mathematics

CBSE, Delhi

2011-2012

Projects

Project Name Description	A PC-Based, load banks control and monitoring application Development of an application which controls & monitors Load banks on communication interfaces like USB-RS485, CAN Bus & Modbus TCP/IP. A load bank simulates electrical loads for power source testing without normal connections.
Technology Responsibility	C++, Dart, Flutter, Multithreading, RS485, Modbus TCP/IP, CAN communication <ul style="list-style-type: none">• Leading the backend team for application development.• High & Low level designing of messaging protocol.• Development of messaging protocol using Dart Programming Language which improved system performance by 35%.• Managed a team for Modbus based communication tasks with Load Banks.• Designed Class & Sequence Diagram for PCAN based communication with Load Banks.• Planning with UI team to define common APIs to interact between frontend & Backend.• Integrated multithreading concepts to maximize performance and handle concurrent communication tasks effectively
Project Name Description	SOME/IP Protocol Library for In-Vehicle communication Developed a robust and efficient C++ library to implement the SOME/IP (Scalable Service-Oriented Middleware over IP) protocol for communication in autonomous systems. The library enables seamless interaction between electronic control units (ECUs) in a distributed environment, facilitating data exchange and service discovery.
Technology Responsibility	Modern C++, Linux, Multithreading, Boost Library, Raspberry Pi, UDP/TCP <ul style="list-style-type: none">• System Designing of Library stack.• Researched and thoroughly understood the SOME/IP protocol specification and service discovery mechanisms to design the library's core functionalities• Implemented the packet creation and parsing modules, ensuring compliance with the SOME/IP protocol standards.• Developed the service discovery protocol, enabling devices to automatically discover and register services on the network.• Utilized Boost libraries to handle network communication and socket operations efficiently.• Integrated multithreading concepts to maximize performance and handle concurrent communication tasks effectively.
Project Name Description	Cloud-Enabled IoT Gateway Solution Development of a complete and bootable Linux environment for an Intel processor-based IoT Gateway box. The project aimed to establish seamless communication and file sharing capabilities between the root device and cloud applications. The IoT Gateway Box served as a crucial link between local healthcare devices and cloud-based data processing.
Technology Responsibility	C, C++, Linux, Build root, Wt, STL <ul style="list-style-type: none">• Implemented robust error handling mechanisms using C++ to ensure the stability and reliability of the IoT Gateway Box application.• Developed and integrated features into the Web UI using the Wt library to provide a user-friendly interface for monitoring and managing the IoT Gateway Box.• Led debugging efforts to identify and resolve issues related to the secure and seamless uploading of files from the IoT Gateway Box to the cloud application.
Project Name Description	Scale Device Integration with Uni Data Link (UDL) for Healthcare Company Development of drivers for new scale devices to facilitate seamless communication with the Universal Data Link (UDL), specifically using C++ and customized RAM disk images for the single-board computer provided by TQ, TQM5200.
Technology Responsibility	C++, Linux, U-Boot, RAM disk, Linux <ul style="list-style-type: none">• Collaborated closely with the Uni Data Link development team to understand the UDL working principles, ensuring a seamless integration of the scale device drivers with the UDL platform, reducing integration time by 25%.• Worked with the team to update the RAM disk image with new software updates, ensuring the system was equipped with the latest features and security patches.

Project Name	Optical Repeater Integration for Improved Telecommunication Coverage
Description	Development of optical repeaters utilizing RF over Fiber technology to enhance coverage in areas where Fiber is readily available. The project involved porting the firmware to the Remote Optical Unit (ROU) - placed remotely to enhance signal coverage.
Technology	C programming language, MSP430 microcontroller, Code Composer Studio, OrCAD design, RF Analyzer, and RF Generator
Responsibility	<ul style="list-style-type: none"> Developed algorithms for calculating the power of the signal through ADC (Analog-to-Digital Converter) and performing attenuation or gain based on user configuration settings, resulting in a 15% improvement in signal quality. Implemented code for writing and reading the ROU's configuration in the microcontroller's flash, facilitating easy customization and configuration management. Established communication between the ROU and the Master Device using UART-SPI Bridge, achieving seamless data exchange and integration with the overall telecommunication system.
Project Name	Haemoglobin Measuring Device
Description	Project involving the porting of hardware (MCU) and firmware of an existing haemoglobin meter, along with the development of a comprehensive Hardware Abstraction Layer (HAL) for the device application. The project aimed to enhance the functionality and cost-efficiency of the handheld haemoglobin measuring device.
Technology	C, STM32, STM32CubeIDE, Glass LCD
Responsibility	<ul style="list-style-type: none"> Designed and implemented a software LCD library for the 6COM, 10 SEG LCD, optimizing display functionality and reducing hardware dependency, resulting in a 15% reduction in BOM cost. Developed the HAL Layer for the LCD subsystem, enabling seamless integration with the firmware and ensuring efficient utilization of the LCD hardware, achieving a 20% improvement in LCD performance. Led debugging and resolution efforts related to RFID, BLE (Bluetooth Low Energy), ADC (Analog-to-Digital Converter), and other peripherals of the haemoglobin measuring device, reducing the overall system's failure rate by 30%.