**Bhuvan Bhatta**

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**Summary:**

I’m an embedded engineer with a bachelor degree in electronics and masters in computer science. Worked on SDLC with my career knowledge in agile environment for design, development, implementations, debugging and testing with CAN and other tools on ECU and microcontrollers in material handling, automotive, off road, construction industries

* Around **5** years of experience in software development, design, coding, and testing on C, C++, Embedded C.
* Expert in programming C, C++, python working in different embedded systems
* Proficient in model-based MATLAB, embedded software development in RTOS like Linux, QNX, VXWORKS
* Experience in software development, design, coding, testing and maintenance in Agile process
* Worked in automotive for different ECUs like Infotainment, telematics, IPC, HMI
* Involved in all phases of SDLC, extensive work experience in development and testing
* Involved in truck FMEA testing with the reliability and testing teams for component and code changes
* Exposure to standards and protocols like AUTOSAR, TCP/IP, I2C, SPI, USB, Ethernet, Wi-Fi, Bluetooth, CAN
* Hands on experience in IDE like MATLAB, LabVIEW, Eclipse, Visual studio, Cadence, Xilinx, CCS, Understand
* Worked on Sensors, Oscilloscope, Logic Analyzer, ARM Cortex processor, JTAG debugging, AWS IOT, MQTT
* Hands on experience with requirement management tools Git, JIRA, SVN
* Control Systems, embedded systems, computer networks, advanced programming and application development

**Skills:**

IDE: Net Beans, Eclipse, Visual Studio, MATLAB, NI LabVIEW, Cadence Allegro, Xilinx ISE, CCS, Cosmic, Understand, Beyond Compare

Software Management Tools: GIT, SVN, Clear case, JIRA

Programming Languages: C, Embedded C, C++, JAVA, Python, Perl

Micros Processors: ARM Cortex, STM, Atmel, NXP, MC68HC11, TI C 2000 MCU

Protocols: TCP/IP, I2C, SPI, USB, Ethernet, Wi-Fi, Bluetooth, CAN/LIN tools

Embedded: Sensors, Oscilloscope, Logic Analyzer, QNX, VX Works RTOS, JTAG, AWS IOT

**Work Experience:**

**The Raymond Corporation, NY February 2019 – Jan 2021**

**Class 3 model electric trucks (autonomous forklift)**

**Embedded Software Engineer**

Description: New component requirements analysis, reliability FMEA testing, test plans and documentation, JIRA, CAN debugs with IG and CAPL scripts.

Contribution:

* Worked on Code Composer Studio for Embedded Cand CAN open protocol for communication using Vector CANalyzer
* Worked on different configuration of code on same truck model using CCS that generates s37 file for deployment using Perl script
* Worked on cosmic compiler for creating an s19 file for the MC68HC11 microcontroller used electric forklifts
* Worked on changing the CAN protocol in the code from big endian to little endian from low level codes
* Worked on MATLAB for simulation testing the functional requirements of the components in electric forklifts
* Involved in test bench setup with controllers, sensors, PWM, actuators to test the components in the forklifts
* Worked on autonomous vehicle to detect obstacles by controlling brakes, traction and warning alert systems
* Worked on transferring CAN messages from autonomous vehicle, sensors and modules to vehicle manager
* Involved in reading the sensor data for obstacle detection to change the response of traction and brake system
* Worked on error handling for avoiding obstacles and collision by alert system to manual mode
* Reviewed the documents like test plans, technical information and reports for electric forklift safety, functionality
* Involved in truck FMEA testing with the reliability and testing teams for changes and pre-production
* Reviewed the design and specification navigation documents for the changes required in the code
* Reviewed error management documents from Curtis and update those documents with requirement changes
* Responsible for software development, debugging, Truck safety and bench testing for forklift responses
* Support in ensuring traceability among requirements and traceability to design documents, test plans and tasks
* Performed root cause analysis on issues related to production support and customer queries
* Worked on different modules in the vector CANalyzer for debugging with interactive block and CAPL script
* Coordinated with lead engineers, project managers & other software team members to create new design/software development features for upcoming project releases.
* Addressed change requests and defects in existing applications, new feature integration and new applications based on requirements.
* Responsible for organizing delegation with concerned teams for tracking project updates and swiftly resolving issues or assignments to meet the project deadlines
* Worked on Atlassian JIRA for project tracking, issues updates, Agile and Kanban boards for different projects
* Worked on Tortoise SVN committing the changes to software repositories for sharing software, and future improvements

**Calypso Soft Inc, MI June 2018 - January 2019**

**Automotive ECU testing**

**Embedded Software Engineer**

Description: IPC cluster SDLC, requirements development, design, software development, testing on ECU. Vector Cast tools for CAN debugging and testing.

Contribution:

* Involved in Requirement analysis, design of IPC Cluster software development, HMI using EB, C++
* Involved in software development and integration of IPC cluster HMI features with drivers
* Developed graphics for various HMI modules Media, Phone, Settings, HVAC using QT/QML
* Developed widgets and image library to developed screen like Fuel gauge, tachometer, settings menu, buttons, warning and telltales using QT tool chain
* Worked on ADAS systems in automotive with lane keep assist, cross traffic alert and adaptive cruise control
* Involved in developing the requirements for functional safety with the ISO26262 and AUTOSAR standards
* Worked on device driver, boot loader/BSP on microcontroller and BSW to support software and communication
* Embedded C Code generation using MATLAB Coder and used CANalyzer for debugging
* Reviewed the created the test cases to make sure all the implemented design covered
* Updated the test plans and documents to the functional requirements for the component working and safety
* Modified C\C++ code on 32 Bit/64bits environments to support enhancements, fixed bugs in the existing software in multithreaded, highly scalable, high throughput applications
* Worked on AUTOSAR for memory mapping and communication with CAN, LIN, MCAL
* Worked on implementation and application layers of MCU and MCAL mapping memory modules
* Worked on ECU to transfer UDS data through CAN J 1939 and algorithms for testing and diagnostics on ECU
* Involved in CAN protocol integration and involved in device driver SPI, I2C update in QNX RTOS
* Performing unit testing using the Vector CAST and mentoring the team on the issue in the Vector CAST tool
* Involved in communication interface development between IPC cluster and infotainment system
* Defect analysis includes CAN log analysis and issue reproduction, core dump analysis

**Cirrus Labs, GA December 2017-- May 2018**

**IOT data transfer with MQTT**

**Embedded Software Engineer**

Description: low level driver functions for Arduino chip for Bluetooth and Wi-Fi connectivity, client server data transfer protocol (python), AWS IOT services for generating JSON format message, MQTT protocol for AWS server and cloud to transfer and store the requests from IOT device.

Contribution:

* Worked on C, C++ object-oriented programming for Infotainment, telematics development in Linux
* Programming for developing the interface of clients with the embedded system or IOT device for transferring the data in JSON format on real time Linux environment systems
* Worked on VX Works and QNX RTOS for real time debugging and data transfer while testing the embedded device drivers, telematics information, serial communications
* Worked on the cloud computing data for AWS IOT data collection, transfer information and notifications.
* Involved in RTOS service code update for Interrupt service, IPC communication, multi-threading, shared memory
* Application development for receiving and analyzing the data from CAN bus and IOT into different categories using the Cumulocity IOT, an AG software
* Initiated application development process for notifications and network connection with CAN, BLE and Wi-Fi
* Involved in development of Linux middle layer for HMI components and development of function API to receive CAN messages
* Integrated MQTT in python from git for OTA to transfer system information for telematics and configurations
* Involved in sending notifications, software updates and testing the software changes, running diagnostics with FOTA software on the IOT device
* Integrated HMI App frame work with other services running on infotainment application layer
* Involved in software integration and unit testing, system testing for security, telematics, infotainment features

**Aczet Inc, NJ July 2017--December 2017**

**Low level Testing**

**Electronics/Embedded Engineer**

Description: low level testing on microcontrollers, testing using logic analyzers, ADC, DAC, on electronic component like sensors, battery and wireless connectivity.

Contribution:

* Developed and validated the firmware for audio and wearable products with ARM and PIC microcontrollers
* Reviewed Hardware Schematics, SOC for new H/W product, debugged power consumption, developed prototype for new Hardware interface with CAN, I2C, SPI, RS232, USB, BT
* Developing special test fixture to emulate step counter, Power consumption testing and validation using test driven development process
* Worked on weighing balances of different scales, electronic components, ADC, DAC, sensors, batteries and display boards
* Developed test instruments to measure and validate battery and charging system time cycles and performance.
* Worked on high and low battery testing with temperature changes and checking the performance
* Designed High Power H-bridge, gate drivers and all supporting electronics, software, PCB and enclosures On-going and follow-on work with various clients, designing/building various electronic circuits for evaluation of sensors, and computer peripherals, software enhancements/maintenance
* Designed software for testing purpose using Cadence Allegro, Xilinx ISE and Micro-controller programming
* Knowledge and work on network protocols such as Ethernet, TCP/IP, CAN/LIN tools
* Testing the generated signals and radars in Laser and XRF machine using the oscilloscope and MATLAB

**HCL /CDC, Hyderabad, India Jan 2014 - May 2015**

**Auto Billing Shopping Cart**

**Embedded Engineer**

Description: Model development for a shopping cart with auto billing technology using RFID. GPS tracking device with GSM

Contribution:

* Worked on Arduino, Raspberry PI programming and working for various operations
* Worked on Micro-controller programming, testing and JTAG debugging
* Worked in, Agile methodology environment for development and testing
* Worked on designing, testing, and simulation tools for electronic circuit boards
* Worked on GPS and wireless communication (GSM 4G) between hardware device MAC and software application
* Simulating process performed on Proteus Design Suite, programmed embedded system in C language using keil software for processor
* RFID based trolley system with an inbuilt billing security system, scans the products in the trolley by reducing human interference and billing time
* The electronic circuit was designed and simulated in Proteus Design Suite Keil software is used for programming the ARM processor
* Software and hardware testing were performed on the model for rectifying the errors and connection issues
* Predefined RFID scanner and blocks were used for recognizing/differentiating the products
* Reviewed the working prototype regarding various test conditions and rectified different errors

**Academic Project works:**

C++ - Tic TAC Toe/ X’s O’s Game April 2016

CADANCE / XILINX - RGB LED changing colors with power and frequency June 2014

MATLAB/SIMULINK - Water Level Control in Tank December 2013

LAB VIEW - Temperature Control of Metal May 2013