**Vishnu Deep**

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Objective:

Over **4**+yearsof extensive experience in embedded programming with proficiency in C, C++ andgood understanding of real-time systems. Looking for a position in an organization involved in design, development and testing of embedded systems software and hardware.

* Experience in 8/16/32 bit Microcontrollers architecture and its memory map.
* Experience in different engineering domains such as Automotive, Automation, control systems.
* Experience in ARM 7TDMI-S (LPC 214x and 2138), Cortex M0, M1, M3, R4, ATMEGA serieswith thorough architecture understanding.
* Experience in Requirement Analysis, Development, Design, System Integration, Configuration Management, Bug Fixing and Maintenance (SDLC).
* Expertise in EMBEDDED C, C++ and"Assembly language" programming.
* Work experience with CAN, I2C, SPI, LIN communication protocols.
* Work experience with RS-232, RS-485, and UARTSerial communications.
* Experience in **CAN** Boot loader. Firmware Up-grader.
* Hands on experience in Rowley Cross works, KeilµV, AVR Studio,Code blocks, IAR work bench, BCC Compilers.**, GHS Multi, CANoe and JTAG Debugger, SW debugger.**
* Experience in Project Management Activities such as Estimation, Planning
* Experience in different software life cycles in SDLC
* Good knowledge in ISO 26262 – ASIL Safety standards for Automotive software
* Hands on experience in unit testing, system testing and integration testing using manual and automated testing.
* Good experience in RTOS porting and experience in OSEK 3.0.3 and QNX, µC/OS-II, On Time RTOSFree RTOS
* Experience in Design tools like **UML**

TECHNICAL SKILLS

Programming languages: Embedded C, C++ and Assembly languages, Python

RTOS: OSEK 3.0.3 and QNX, µC/OS-II, On Time RTOS, Free RTOS

Protocols: CAN, LIN, I2C, SPI, RS232, RS485, UART, Customized protocols.

Microcontrollers: ARM 7TDMI-S (LPC 214x and 2138), Cortex M0, M1, M3, R4, ATMEGA series, Toshiba proprietary microcontrollers (TMPM369, Capricorn series)

Coding Standard: MISRA C

Software standards: OSEK 3.0 and ISO26262

Development and testing tool: CANoe and JTAG Debugger, Keil µV, AVR Studio, Code blocks, IAR work Bench, debugger

Configuration Management: CVS, Tortoise SVN

Code Editors: Source Insight, Eclipse and Notepad++

Testing tools: Tessie tool, CANoe, QAC, and LINT.

Design Tool: Enterprise Architect tool

Defect Tracking: Bugzilla.

Project Experience

Project # 01

Name : **SonnenInc**

Role : Embedded Engineer

Team size : 8 members

Tools : **C/C++, Embedded Linux (2.6.23)**

Client : **SonnenInc**– **Norcross, GA**

Duration :**Jun**-**2016 to Till Date**

BMC is a specialized SoC embedded on the mother board of a HPC server. BMC manages the interface between system management software and platform hardware. BMC primarily controls and monitors the activities from all the components in the motherboard of a server. The BMC is a WPCM450 SoC chip from Nuvoton(ARM926ejs) and runs a Linux based firmware.

Responsibilities:

* Develop system software for the baseboard management controller (BMC) on the Bull series of rack and blade servers. Part of a small platform team that enables low-level software/hardware functionality for new rack server
* Implemented BIOS FW update. As a part of this, implemented the application and customized the Linux MTD driver for the BIOS Flash which is connected through SPI bus.
* CPLD/FPGA firmware update over JTAG chain. As a part of this, ported the JTAG driver to WPCM450 platform.
* Understand requirements of the client and accordingly integrate the kernel device drivers in the android OS.
* Performed tests on the lower and middle layers of the android OS. Testing and validating the android apk’s on GM workbench.
* Designed C and C++ embedded software for automotive diagnostic software on QNX.
* Board Bring up and u-boot customization for the new board.
* Added the SPI Flash driver in u-boot to allow the BMC update from u-boot.
* SPI driver customization for a new FPGA slave.
* Developed HAL software library in user space of the three platforms to provide public interfaces to customers; the HAL library is to provide public interfaces to application customers; it consists of hal\_pulsei, hal\_pulseo, hal\_boot, hal\_rtc, hal\_nvm, hal\_lcd modules and so on
* Bring up of Broadcom based switch for the new Phy.
* PSU FW update application over I2C bus.
* OEM specific implementation of IPMI tool commands both in firmware and the tool.

Project # 02

Name :**Quantenna Communications - Fremont, CA**

Role : **Firmware Engineer**

Environment : **ARM, MATLAB, C, IBM RTRT, UML, CANoe**

Client : Quantenna– **Fremont, CA**

Duration : **Nov-2015 to Apr-2016**

Basic Jikki-Board requirements for Capricorn-Btx/C. It should allow the testing and measurement of relevant features of Capricorn-Btx/C in mass production. The software is developed to test all the features of the Capricorn- Btx/C controller.

Responsibilities:

* Handling complete requirements for all different features.Worked on MATLAB TARGETLINK to generate firmware C code based on algorithms
* Designed and developed embedded real-time control system software using C coding in Autosar environment.
* Worked on Ethernet drivers and boot loaders in conjunction with VxWorks.
* Handled customer related task to develop and modify MATLAB models and generation of C code.
* Responsible for supporting the escalations and bug fixes found in the real-time control system software during alpha testing, beta testing of the software.
* Designed, interfaced and developed the hardware using microcontroller (8051) which communicates to pc through serial port and developed software for microcontroller using assembly and C language.
* Involve in technical reviews & Verify code according to coding standards.
* Perform Software Integration testing using Debuggers.
* Interacting with client on Software deliveries and requirement planning.

Project # 03

Name : **ITCS (Incremental Train Control System)**

Role : Embedded Software Engineer

Team size : 9 members

Tools :C, C++, **Green Hills Multi IDE, Green Hills Debugger, JIRA, PC-Lint, Cold Fire MCF5485 Processor**

Client : **GE-ALSTOM, Melbourne, FL**

Duration :**Jan-2014 to Aug-2014**

The Incremental Train Control System consists of equipment located onboard the locomotive (train borne), along the wayside (trackside), a customer-supplied CTC dispatcher’s office in Xining, and a communication network between the various components. Electrologixs is the subsystem of ITCS that interacts with the locomotive from wayside.

Responsibilities:

* Design and develop test software for testing transceiver modules; this includes creating test algorithms, test classes, test scripts, instrument driver, Integrating Third party software that interface all communications with Electrologixs.
* Participate in new board design and development of test software and new equipment set-up
* Bug fixing, root cause analysis and generation of BCRs, Bug closure reports.
* Perform verification on drivers and hardware functionality
* Work closely with Product Engineering team, Firmware and NPI group to transfer the design to Offshore manufacturing facilities
* Client orientation/support/maintenance/enhancement.

Project # 04

Name : Digital Controller for Speed and Torque

Role : Embedded Engineer

Tools :C, C++, Boost library

Client : **Mindtree Technologies, India**

Duration :**May**-**2011 to Oct-2013**

This is one of the basic instruments required for testing the engine with thehelp of an Eddy Current Dynamometer. By loading the dynamometer electrically and controlling engine throttle through throttle controller, the control achieved is very fine and reliable at different load and speed of the Engine (Torque/Speed characteristic of engine). The operating conditions of the engine and the dynamometer brake are characterized by speed and torque. The operation of the test bench is more stable if the brake is more powerful than the engine above the selected speed. For every position of the control on the engine (throttle) and on the dynamometer, there must be a defined torque speed curve. The characteristic points of engine curve must fall within the characteristic curve of Dynamometer

Responsibilities:

* Hardware design, review, debugging and fault finding
* Software development
* Design document and Test plans
* Unit testing of modules
* Functionality testing
* Integration testing
* System functionality testing and validation
* Customer and production department tech support
* **Environment:** C, Advanced C, C++, TCP/IP, Embedded Linux, RTOS, Bluetooth, LabView.

**Education:**

**Master of Science in Embedded Electrical and Computer Systems**

**Bachelor of Technology in Electronics and communication engineering, India.**

**Certifications:**

**Electronics and communication Engineer Intern,**

Servomax India limited(R&D), HYD, INDIA (Electrical transformers and invertors manufacturer company)

Performed my undergraduate project on solar tracking systems and learned many skills including

Design of Experiments, Circuit designing using micro controllers, Soldering, troubleshooting, motor design.

**Workshop on embedded systems and Robotics**

Learned basic understanding and introductory concepts on embedded system with many mini projects and acquired certificate and built Robots for different functionality by integrating software applications to the hardware requirements.