SHIVASHISH MAHESHWARI

maheshwari.shivashish@hotmail.com

+91-9098552496

Summary:

➢ Almost **4.7 Years** of competitive working and **6 Month** of advanced embedded training experience in **Linux/QNX Embedded System Design & Development**.

➢ Highly motivated and energetic self-starter with good analytical, organizational, creative and communication skills. Ability to work independently as well as in a team.

➢ Worked on Linux systems and AOSP development.

➢ Experience in Embedded Middleware integration on multiple OS.

Work Experience:

➢ Worked in Whirlpool India, Pune as Specialist Software Engineering   (Sep 2018 till now)

➢ Worked in Smart I Systems Electronic Pvt. Ltd., Pune as Embedded developer   (Jun2017 to Sep2018)

➢ Worked with Wipro Technologies Pvt. Ltd., Pune as Project Engineer   (Jul2015 to Jun2017)

➢ Embedded trainee in Vector India Pvt. Ltd., Bangalore   (Dec2014 to Jun2015)

Educational Qualification:

➢ 2014-: **BE** in ECE with 7.02 CGPA.

➢ 2010-: **HSC** with 70% from St. Patrick Hr. Sec. School, Sohagpur, affiliated to MPBSE.

➢ 2008-: **SSC** with 65.2% from St. Patrick Hr. Sec. School, Sohagpur, affiliated to MPBSE.

Technical Skills:

- Microcontroller Assembly and Embedded **C** Language Programming.
- Json, Python, QT, QML.
- C#, HTML, C++.
- Worked on Microcontrollers:
    - ARM7 - LPC 2138, LPC 2148
    - 8051 - AT89-series, P89V51RD2
    - AVR – ATMEGA-series
- SOC:
    - Snapdragon 660, NXP- i.MX8
    - Intel - ATOM, Apollo Lake
    - Allwinner – H2+, H3
    - Renesas – RZ/N1D, RZ/G1M
- Worked on Yocto Linux, Buildroot, QNX and Ubuntu OS
- Worked on boards like Orange pi, iMX, Raspberry pi, Phytec and Neutron
- Worked on IDEs: QNX Momentics, KEIL, Pycharm, eclipse and QT Creator.
- Worked on Version Control Tool: GIT, SVN and CVS.
- Worked on Design Tools: Enterprise Architect, Express PCB.
- Worked on Simulation Tools: KEIL, MATLAB Simulink, Proteus and GCC Tool chain for ARM.
- Worked on GSM, Barcode reader, and RFID module at academic level.
- Complete Analog IO Design and Digital IO Design (Hardware, Firmware (drivers), and Testing) for Raspberry pi.
- Worked on Communication Protocols: I2C, SPI and UART (RS-232).

Other Responsibilities:

- Work on patentable idea
- Work on continuous integration project apart from work
- Providing training to fresher joining.
- Guide and take a lead part to manage the project.
- Planning new projects for developments, QA testing, and Environment Tests.
- Communicating with domestic as well as overseas members to resolve their queries immediately and efficiently.
- Identify and rectify driver and middleware library IO issues and responsible for their consistent performance.
- Communicate with overseas members to make middleware library according to hardware.
- Develop and explain POC to improve the product feature according to market change.

Project:

Benchmarking and Device analyzation

Project in:	Whirlpool India
Supported OS	Android and Linux
Technology:	Linux, AOSP

Description:

　　　To analyze custom OS for performance on custom hardware. Also test the uses of CPU, MEMORY and other OS resources.

　　　Get resources behavior in graphic format to analyze the application. Automation of data collection and plotting for analyzation.

My Role:

- Feature analysis for resource utilization data collection.
- Find minimum and maximum range of utilization by OS.
- Data analyzation with Python and database.
- Plot the html-based graph by Python.
- Automation of recursive process.

Custom communication on BLE

Project in:	Whirlpool India
Supported OS	Android and Linux
Technology:	Linux, AOSP

Description:

　　　To make a custom interface to communicate with Mobile to appliances. Analysis the issue of BLE communication. Fix application and OS driver issues for BLE communication. Add new characteristic for GATT.

My Role:

- Feature analysis for appliance to be supported by GATT.
- Simple interface by which AOSP code can communicate with Mobile using GATT.
- Analyzing of issue and fix for the BLE GATT server and client for SoC to Microcontroller.
- Demo application for Android to Android and Android to Microcontroller BLE GATT based communication.

Customization of AOSP for boards

Project in:	Whirlpool India
Supported OS	Android and Linux
Technology:	Linux, AOSP

Description:

To give a custom OS for hardware and support it for multiple ranges of product. Optimize the AOSP, port the driver and fix OS and custom driver the issue.

My Role:
- Feature analysis for appliance to be supported by OS.
- Giving a simple interface by which AOSP code can be optimize.
- Script which can remove the package from AOSP and test the OS for its minimum functionality.
- Analyzation of independent packages which can be removed.
- Support to team on driver optimization.

Face capturing and recognition System

Project in:	Smart I Electronics
Supported OS	Windows and Linux
Technology:	AWS + OpenCV

Description:

To give more intelligence in the exciting Integrated Monitoring System.

In the module we have to develop the face capture form multiple camera and Recognized from our database.

We used python based face recognition in OpenCV to get the known and unknown face.

In another module we need to develop the storage of unknown face by cropping the face from camera image.

My Role:
- Requirements analysis which makes the module comparable for all the cameras in the market using RTSP.
- Giving a simple interface for re-usability and interface documentation.
- Dividing the face encoding and comparing to multiple systems to get results in less time.
- Learn and teach OpenCV working to junior members.

Integrated Monitoring System

Project in:	Smart I Electronics
Supported Linux	Armbian and Yocto Linux
Technology:	IoT
Board:	Open source hardware

Description:

To give more intelligence in exciting Integrated Monitoring System.

In the module we have to develop the image capture form multiple camera and DVR using RTSP or GET protocol.

With the same we need to process the frame using OpenCV to get the changes in frame, fast video and delete the duplicate image to save the memory.

In another module we need to develop the event based the image push to server. And show the local images and configurations using web HTML interface.

My Role:
- Requirements analysis which makes the module comparable for all the camera in the market.
- Giving simple interface for re-usability and interface documentation.
- Interfacing WIFI and LAN camera to hardware with dynamic change to get the best image.
- Design the database to event store and json config file to system and program details.
- Implement web Application layer using Python Flask and HTML with json

Linux and QT based Attendance system

Project in:	Smart I Electronics
Kernel and Linux version	Kernel 4.9 with Yocto 2.3
Build system:	QCC, QMAKE, HTML
Board:	Phytec, Beagle Bone, Raspberry-pi and Renesas CEV-RZ A1L

Description:

　　　　To Develop the HMI for the Biometric figure print attendance systems. GUI having the interface of all the virtual driver for keypad, serial data, and figure print sensor. Interface should port on Yocto based Linux board.

　　　　In another module we need to develop the HTML page by which all the configuration can be edit and system can be reboot properly.

My Role:
- Requirements analysis for Attendance system on linux.
- Giving simple interface for re-usability and interface documentation.
- Interfacing I2C and USB device to QT GUI.
- Implement Application layer using QT Creator.

Study of Kernel and Biometric device

Project in:	Smart I Electronics
Kernel and Linux version	Kernel 4.9 with Yocto 2.3
Build system:	Bitbake and Buildroot
Board:	Phytec, Beagle Bone, Raspberyy-pi and Renesas CEV-RZ A1L

Description:

　　　　To study the Biometric figure print protocol over USB and UART. Interface the sensor with QT GUI on Yocto based Linux board.

　　　　In another module of project we need to interface the I2C based touch pad as a keypad driver.

　　　　And implementation of the code as a server by which any type of HMI can be develop and interface easily.

My Role:
- Requirements analysis for Linux environment for Access control on Linux.
- Giving simple interface for re-usability and interface documentation.
- Interfacing I2C and USB device.
- Implement the i2c based keypad driver.
- Validation and bug fixing.

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Middleware and driver's development on QNX

Project in:	WIPRO Technologies.
Board and SoC Used:	Automotive Industries board on Intel Apollo Lake SoC
Language and IDE Used:	C on QNX Momentic

Description:

This project comes with development of multiple Middleware Library and Resource Manager on QNX RTOS.

This is one of the modules of project where we have to configure the NTSC decoder IC for desire output. And providing interface application level NTSC Decoder library to display the image on QNX Screen framework for HDMI screen.

In another modules of project we have to develop the intermediate device drivers over the physical device drivers. These drivers are developed to facilitate multiple applications the use of single physical device (UART or I2C). These drivers are developed using QNX Resource. These drivers actually creates the logical nodes in /dev path of QNX file system. These logical nodes can be open, close, read and write like any other physical device nodes.

My Role:
- Requirements analysis.
- Study architecture of QNX Resource Manager and its usage.
- Study architecture of QNX Capture framework, Screen Framework and NTSC IC.
- Design and Development of module along with Library.
- Validation and bug fixing

Middleware Development for Car infotainment system.

Project in:	WIPRO Technologies.
Board and SoC Used:	Intel Apollo Lake SoC
Language and IDE Used:	Shell script and C on QNX Momentic

Description:

This project comes with development of Middleware Library for peripheral on board. In this we have to develop board specific GPIO confirmation middleware Library.

Purpose of this project is to validate the QNX Neutrino RTOS device drivers which are ported from Linux platform. Validation is done using automated test framework for different device drivers like UART, I2C, SPI, RTC, SDMMC and HDMI.

My Role:
- Merging of QNX provide BSP with Wipro made library.
- Complete Requirements and design analysis for GPIO Library.
- Study of Apollo Lake SoC Hardware and ball diagram to design GPIO Library.
- Implementation of GMSL Library code with test case.
- Complete Requirements and design analysis for LCD and HDMI error recovery.
- Porting Linux driver test code to QNX environment.
- Implementation of test design, code, specification and report for GPIO, SD-MMC and UART device driver.

Validation of QNX Neutrino RTOS device drivers of Car infotainment system

Project/Module Name:	WIPRO Technologies.
Board and SoC Used:	Development Board on Intel ATOM SoC
Language and IDE Used:	Shell script and C

Description:

Purpose of this Project to validate the QNX Neutrino RTOS device drivers which are ported from Linux platform. Validation is done using automated test framework called QTP (QNX Test Project). Different device drivers like UART, I2C, SPI, RTC, SDMMC and HDMI are validated. Purpose of this project is to test QNX drivers, developed for HCU board.

My Role:
- Testing Requirements analysis for SDMMC, RTC and I2C.
- Test case Design and Development.
- Test application development using C and Shell scripting for test automation.
- Implementation of test design, specification and report.
- Coding and Jenkins automation for test case.

QT HMI Development

Project in:	WIPRO Technologies
OS:	QNX and Linux
IDE Used:	QT Creator

Description:

Purpose of this project to develop HMI interface using QT QML. The interface library made by which those component can re-use to communicate with low level system call.

My Role:
- Giving simple interface for re-usability and interface documentation.
- Implement Application layer using QT Creator.
- Validation and bug fixing

Automation of IP Camera

Project in:	Academy
Compilation:	Python, ARM GCC and x86 GCC
Build system:	Yocto, Ubuntu
Board:	Beagle Bone, Raspberyy-pi and Generic PC

Description:

To study the IP camera capture process. Tale the output of motion detection and analysis of image.

Detection of vehicle resignation and comparison of vehicle to RFID of driver from server.

Biometric figure print protocol over USB and UART. Interface the sensor with QT GUI on Yocto based Linux board.

My Role:
- Requirements analysis.
- Giving simple interface for re-usability and interface documentation.
- Implement Application layer using QT Creator.
- Validation and bug fixing

Automatic Toll Gate Control System Using RFID	
Project in:	Vector India Pvt. Ltd.
Client	Internal
IDE Used:	Keil
Duration:	2 months

Description:

 To study the RFID protocol, UART interface on Raspberry pi and LPC2148 microcontroller.

My Role:
- Requirements analysis.
- Giving simple interface for re-usability and interface documentation.
- Implement Application layer using QT Creator.
- Validation and bug fixing

Academic	
Project Name:	Wireless monitoring system and computer control home appliances
IDE Used:	Proteus, Keil and Code Vision AVR

Description:

To make wireless monitoring system using camera and computer control home appliances using UART.

My Role:
- Requirements analysis wireless monitoring system.
- Design and coding to communicate camera's motor moment using RF Transmitter and Receiver.
- Complete Hardware design and UART (RS323) Firmware Development.
- PCB Layout for home appliances.

Academic Technical Course:

➢ Basic MATLAB from Embedded vision InfoTech Pvt. Ltd.   [Jun 2013 - July 2013].

➢ C & C++ from Vedisoft Software and Education Services Pvt. Ltd. Organization.   [Jan 2013 - July 2013].

➢ Embedded systems Design in AVR microcontroller from DRMZ tech Pvt. Ltd.   [Dec 2012 – Jan 2013].

Awards And Achievements:

➢ Rewarded as Sinning Star in Wipro Technologies Pvt. Ltd. for the month of August-2016.

➢ Won second prize in circuit design competition organized by KCBT collage.

➢ Won first prize in chess in school level Chess competition.

Personal Information:

Name:	Shivashish Maheshwari S/O Harish kumar Maheshwari
Address:	Abhiman Gram, Old Warje, Pune-411058.
Languages:	English, Hindi.

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