SAMEER V. PANCHAL

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Professional Summary:

Accomplished Embedded Engineer seeking challenging career opportunity in a technology driven organization where I can utilize my knowledge & skills.

Technical Proficiencies:

Operating System: Linux and Embedded Linux.
Hardware Platform: Freescale (VF-50/60, IMX-6), TI (AM335X) and Xilinx ZC702.
Languages: C, C++ and Python.
Scripting Languages: Shell Script.
Embedded Protocols: I2C, SPI, MODBUS, ONEWIRE, TCP/IP, NETLINK and MQTT.
Code Management Tools: Perforce and GIT.
Debugging Languages: GDB, G-prof, VALGRIND and MTRACE.
Technologies: Industrial Automation, IOT/IOE, Security, Gaming Platform and Audio & Video.
Area of Expertise:

- Requirement Analysis and Code Designing.
- Linux Internals and Kernel Customizations.
- Integration & Application Development for various Analogue & Digital Sensors.
- Code Optimization and Profiling.
- Good in Debugging and Troubleshooting.
- Working Knowledge of Adobe Photoshop, MS Office (Word/Excel/PowerPoint).

Professional Experience: 5 Years, 9 Months.

Einfochips India PVT. LTD., Gujarat

Embedded Engineer (9/2015 to Present)

- Project Requirement Analysis and understanding.
- Architecture Designing and Project Effort Estimation.
- Embedded Application Development and Kernel Customization.
- Code Review and Debugging.

Projects:

- **IOT Gateway Application:** This is a Software project where we are developing a stack that can be deployed on various hardware platforms. It includes many protocol layers for e.g MODBUS, Zigbee, Zwave, etc. that are useful in integrating various sensors and devices with the Gateway Device and further upload the data to the cloud.

My Contribution	• Integrating MODBUS protocol to the stack. • Developed a test application to test the MODBUS protocol layer. • Developed a python application to replicate cloud communication.
Platform	Linux, C, C++, Python, MQTT.

- **Multi-Platform Gaming Terminal Application:** This is a software project where we are developing a general architecture application for gaming terminal which can support multiple platforms like Fedora22, Oracle Linux and Windows. The Application developed is modular in structure so addition of any new sensor or interface to the gaming terminal does not impact the existing application.

My Contribution	• Integration and Library development of Barcode Reader and Printer. • Developed a test application for Barcode, Printer and Display Module. • Developed hardware monitoring application.
Platform	Linux, C, C++ and Shell Scripting.

- **Nuclear Power Plant Data Acquisition System:** This project is a Xilinx ZC702 based Acquisition System used with client's Test Services Software for analysis and periodic testing of strain gauges, pressure gauges and rotary encoders.

My Contribution	• Enable XADC & add XADC Read support in the Properties layer. • Add DS2431 support and modified its driver code to reduce sysfs entries removal time. • Used NETLINK protocol to detect add/removal of 1-wire slaves. • Added webserver support using lighttpd, useful for getting device information and configuring WiFi. • Performed unit testing
Platform	Linux, C, C++, Shell Scripting.

- **Wireless Doorbell and Wi-Fi Extender:** This project is based on TI's AM335X Processor integrated with WL1835 WILINK module works as a Wi-Fi enabled chime and extender designed to be compatible with client's existing products.

My Contribution	• Developed Health Monitor Application for the device. • Cross Compiled GDB to get back-trace from generated core-dump file. • Developed application to read/write Manufacturing Code in the HW Device. • Developed a diagnostic utility to update firmware using SD-Card, check working of all the system peripherals and generate a report of same. • Modified DTS file to support Wi-Fi PINMUX configuration. • Configured FFMPEG Framework to decode audio (MP3, OGG & AAC). • Performed unit testing
Platform	Linux, C.

- **Porting Windows code of existing product (MSO Device) to Linux:** In this project the customer wants to repackage its existing MSO Device, by replacing the existing Windows OS with Linux and interface its proprietary Chip Driver Modules used to test and analyze various Boards and Devices.

My Contribution	• Porting Hardware Properties Layer responsible for initializing all the registers and address required for read/write operation in MSO. • Porting Chip Drivers Modules responsible for capturing data of different modules. • Performed unit testing
Platform	Linux, C, C++, 1.6 GHz Intel Atom Processor.

<u>Kirti Telnet PVT. LTD.</u>

Sr. Embedded Developer (11/2013 to 9/2015)

- Embedded Application Development.
- Accountable for Platform Selection and Code Designing.
- Plan co-ordinate and execute project work and provide technical assistance to client.

Projects:

- **Automatic Load Balancing and Data Acquisition System:** This project is a Freescale VF50 based Acquisition System responsible for continuously monitoring the alert signal generated from the existing SCADA server and trip the High Voltage Lines in cascading way. The device and SCADA Server communication is done via MPLS-VPN data communication.

My Contribution	• Develop application to continuously monitor for tripping signal. • Health Monitor Application for the device. • Data Logger Application. • Device Bring-up and Kernel Modification. • Perform Unit Testing.
Platform	Linux, C

- **Energy Monitoring and Data Acquisition System:** This project is a Freescale VF60 based Data Acquisition System responsible for continuously fetching data from the Smart Meters (connected together in daisy chain layout) over MODBUS protocol and updating the same over cloud using CURL library. On Cloud the data is represented using an admin panel containing various graphs and speed dials.

My Contribution	• Application to fetch Smart Meter Data and upload to the cloud using curl. • Health Monitor Application. • Device Bring Up and Kernel Modification. • Perform Unit Testing.
Platform	Linux, C

- **Bore-Well Monitoring and Automation System:** This project is a Freescale VF60 based Data Acquisition System responsible for continuously fetching data from the Smart Meters (connected together in daisy chain layout) over MODBUS protocol and updating the same over cloud using CURL library. On Cloud the data is represented using an admin panel which the user can login and accordingly ON/OFF the motor or create a schedule for the same.

My Contribution	• Application to fetch Smart Meter Data and upload to the cloud using curl. • Health Monitor Application. • Application to start and stop Bore well motor on time using RTC & Commands fired from the server. • Perform Unit Testing.
Platform	Linux, C

<u>Global Logica Software Technologies, Bangalore</u>
Embedded Software Developer (8/2012 to 10/2013)

- Code Development and testing new analogue and digital sensors.
- Prototype Development as per client request.
- Prototype Development for an IEEE Project Paper.
- Training Students and providing Hands-On workshop in Colleges.

Projects:

- **Load Cell based LPG Gas Cylinder Monitoring System.**
- **Accelerometer Controlled wireless Robot using ZIGBEE.**
- **Automatic Car Parking System using ultrasonic sensor.**
- **Centralized Heart Rate Monitoring System.**
- **Fingerprint based Voting Machine.**
- **RFID based Access Control System.**
- **Transformer Overload Monitoring System**
- **Load Cell based Weighing System.**
- **Water Flow Meter Data Acquisition system.**
- **Current and Voltage Monitoring System.**

My Contribution	• Requirement analysis and provide solution as per idea. • Application Development for the project. • Hardware Integration. • Perform Unit Testing. • Conduct Hands-on Workshops and Training for the project.
Platform	Windows, KEIL, Linux, C

<u>ISM Technologies, Bangalore</u>
Embedded Trainee (10/2011 to 07/2012).

- Successfully finished training on Embedded Linux Internals & Linux Device Drivers.
- Successfully implemented all the training modules and developed a demo project.

Projects:

- **RFID Based Heath Card Interrogator:** This project is LPC2129 based responsible to fetch RDIF Card ID and check if the patient is new or old and accordingly register or display patient's history of records fetched from the server respectively.

My Contribution	• Application Development to fetch RFID data. • Socket Programming to fetch Patients record. • Driver Code to use UART and fetch RFID Data. • Perform Unit Testing.
Platform	Linux, C

Academic Qualifications:

DEGREE	YEAR	INSTITUTE	University	Percentage
B.TECH	2011	Shrinathji Institute Of Tech. & Eng.	Rajasthan Technical University	64.50%
H.S.C	2007	Shree Swaminarayan Higher Secondary School, Gandhinagar.	Gujarat Higher Secondary Board Education.	62.61 %
S.S.C	2005	Hiramani School, Gandhinagar.	Gujarat Secondary Board Education.	74.86 %

Professional Key Achievements:

- Awarded a trip to Embedded World Conference-2015 held at Nuremberg, Germany on successful completion and execution of a project.
- Awarded an additional Certificate for successfully developing and demonstrating live project made via integrations of training modules.

College Achievements:

- Head Coordinator in National Level Technical Event "Techfountain XI (March 2011)".
- Event Coordinator in National Level Technical Event "Techfountain X (March 2010)"
- Editor-In-Chief of College Magazine 2011 "Renaissance".

Accountabilities:

- **Requirement Analysis:**
  - ✓ Understanding client's requirements and analyzing all the risk factors.
- **Code Designing & Review:**
  - ✓ Provide an efficient code design in-order to achieve client's requirement.
  - ✓ Analyze and check modules before release.
- **Development:**
  - ✓ Refer hardware datasheets and develop testing code for various sensors.
  - ✓ Developing source code & driver modifications as per module requirement.
  - ✓ Profiling and optimizing code.
- **Testing:**
  - ✓ Rectifying Hardware & Software related problems during development cycle.
- **Training:**
  - ✓ Guiding new Embedded Trainees.
  - ✓ Helping students in Hardware/Software during their project phase.

Declaration: I hereby do solemnly affirm that the details furnished above are true to the best of my knowledge.

Date: 09/09/2017 **(Sameer V Panchal)**