Rahul Pathak

https://github.com/pathakraul

Email : rahulpathak@live.in

Mobile : +91-976-411-8018

Summary

- Professional with 10+ years experience in software design, development and delivery including automation in automotive domain.
- Handling multiple responsibilities as Software Engineer, Technical Delivery Manager and RFI/RFQ Lead for Automotive Infotainment BSP Platform.
- Experience as TDM and Software Engineer for Hypervisor based BSP Platforms, Linux based BSP Platforms with Qualcomm 81xx/61xx SoC and Renesas R-Car Mx SoC family, NXP iMX28)
- Experience in Product Development with CES2020 Smartcore Property Development. Also as TDM for CES2020 Software Delivery.
- Experience with MIPI-CSI Cameras, UART, I2C, SPI, GPIO, LVDS, Disk encryption.
- Experience as RFI/RFQ Lead for the Smartcore Platform with ownership of Engineering Quote Inputs.
- Experience with Systems Programming, Linux Kernel, Device Drivers, DevOps, Python.

Experience

- **Visteon** Pune, Maharashtra

  Senior Software Design Engineer *April 2016 - Present*

  - **RFI/RFQ Lead - Smartcore Platform Team**: Responsible for Platform Engineering Quote Inputs and BOL for new pursuits. Working with System Engineers and HW Architect on the requirements and proposed system architecture, laying foundation for the SW Architecture. Defining RASIC between OEM, Visteon and other tier1-2 suppliers.
  - **Camera Sensors Drivers**: MIPI-CSI based cameras and sensors (AR0231 and OV2311) driver development and porting on the Qualcomm releases.
  - **SmartCore Platform**: TDM and Software Engineer for SmartCore Platform Delivery for Automotive IVI and Cluster system. SmartCore is the Visteon platform (Hypervisor with QNX, Android as Guest OS on Qualcomm 81xx/61xx SoC family)
  - **CES2020 SmartCore Property Development**: TDM and Software Engineer responsible for end to end SmartCore platform based product development and delivery for CES2020. Worked on board bringup, display and camera porting and configuration.
  - **DriveCore Platform**: TDM and Software Engineer for Visteon ADAS Platform(Linux with Qualcomm 8155). Responsible for Yocto based BSP development which included Display, Camera and other peripherals bringup and configuration.
  - **Framework for Test Automation**: Developed the framework for remote test execution on Android and QNX which are two VMs running on the target. XML based testcases which were easy to create/modify. Used ADB for Android and Serial/Ethernet for QNX. Implemented functionality like Screen validation through Image Hashing for image comparison, Text extraction via OCR to validate the displayed text on the screen.
  - **Factory Flasher**: Developed an python multi-threaded server to handle the flashing of boards on the production assembly line. Server used TCP/IP for communication and data transfer with the targets. Client was stored in the initramfs of the minimal boot image flashed on the target. Targets on the first boots establishes connection on the static server IP stored in the client. Server spawns a thread to serve that client and flash the complete image. U-Boot modification for loading the network client for establishing the communication with server.
  - **DockerBuild**: Unification of different build setups - Android, QNX and Linux to provide a single docker based build environment.

  Senior Embedded Software Engineer *April 2015 - March 2016*

  - **Multidomain Linux OS/BSP Platform**: TDM and Software Engineer responsible for development, testing and delivery of the OS/BSP platform for Automotive IVI system. Responsibility included working with chip vendors and customer facing teams, handle the requirements, preparing the development plan with work with the team for implementation/integration and delivery of OS/BSP platform.
  - **Car and Home Automation with Alexa**: Alexa based Car and Home automation running on IVI system. Alexa client running on the target sending the voice commands to Alexa Cloud Service. Created custom Alexa AWS Lambda skill which receives the transcribed audio and based on the command dispatches the message to AWS IoT MQTT broker. Broker publishes the commands to subscribed clients. Car IVI system and Home devices acting as the MQTT client receives the command message via MQTT and execute the command.

  Software Engineer *March 2014 - March 2015*

- **Audio Manager**: TDM and Software Developer in Audio Manager team for Automotive IVI system. Implementation of new features, scaling the audio manager to support new audio sources and sink
- **Audio Bridge Driver**: Implemented ALSA audio bridge driver for PCM audio transfer between audio services and DSP service for ECNR processing.

- **Barclays-InfoVision** Pune, Maharashtra
  Software Engineer *Feb 2013 - Feb 2014*
  - **Secure Boot**: Security hardening of a internet banking dongle which was an embedded device with iMX28 SoC. Purpose was to make device secure because of presence of important user and bank information on the device. Achieved full disk encryption using kernel inbuilt cryptography framework dm-crypt, a device-mapper target. Accelerated encryption/decryption throughput by utilizing inbuilt Hardware Crypto-Engine.

- **Wipro** Pune, Maharashtra
  Project Engineer *March 2010 - Jan 2013*
  - **Environment Loader**: Application designed with NOR Flash Interface for storing, loading, integrity check of the system environment variables. These environment variables are the configuration parameters for other application/services.
  - **Bare Metal UART Driver with Abstraction Layer**: Low level UART Driver for Renesas SH7269 Board along with abstraction layer on top of device driver to provide easy to use APIs.
  - **Software Watchdog**: Software Watchdog Daemon to monitor the health of network services running in an VoIP phone.
  - Performance Optimizations in the DHCP Client running in VoIP Phone.
  - Network Lab management with Routers/Switch configuration for VoIP Phone testing.

Education

- **Center for Development of Advanced Computing** Bangalore, Karnataka
  PG Diploma - Embedded Systems Design *Sept. 2009 – Feb. 2010*
- **GLAITM - Uttar Pradesh Technical University** Mathura, Uttar Pradesh
  Bachelor of Technology in Electronics and Communication *June. 2005 – April. 2009*
- **Army School, 10th and 12th** Agra, Uttar Pradesh
  Maths, Biology *April. 2005*

Skills

- **Languages**: C, Python, Rust, Bash
- **Linux and Bootloader**: Linux BSP, Device Drivers, U-Boot
- **SoC Families**: Qualcomm 81xx/61xx, Renesas R-CAR M2, NXP iMX28
- **Other Skills**: GIT, Repo, AWS, OpenCV, MQTT, Yocto, Docker Momentics, Eclipse, Numpy, Pandas

Recognitions

- Multiple Recognitions for Performance at Visteon.
- Best Performer Award for 2011-2012 Avaya-Wipro.

Projects and OpenSource Contributions

Github : https://github.com/pathakraul
Linux Kernel : https://rb.gy/70lq68