Ayan Pahwa

Bachelor of Technology, Applied Electronics and Instrumentation - 2016

Objective

To secure a job with reputed company, working in the field of '**Embedded Systems**', '**Automation**' or '**Internet of things**', where I get challenges regularly which I wish to overcome with my skills, knowledge and experience.

Work Experience

- **Embedded Software Engineer:** Mentor Graphics, Embedded Software Division (June 2016- Present)
  - Work area focuses on providing customised Embedded Linux distribution for automotive in-vehicle-infotainment(IVI) head units systems based on GEN-IVI compliant, on top of Mentor Embedded Linux(MEL), powered by open-embedded and yocto project.
  - Worked with automotive tier-1 client cross countries, understanding specific requirement, porting and modifying open source packages.
  - Maintaining Build system based on poky-yocto and automating build using continuous integration server- Jenkins
  - Fixing bugs and validating fix following Agile DevOps approach by running automated test suites using internal test harness.

- **Embedded Linux DevOps Intern (Embedded software) - :** Mentor Graphics, Embedded Software Division (December,2015 - May-2016)
  - Designing new automated test suites for middleware package functionalities.
  - Automating existing build and test suites like GStreamer, QT, wpa-supplicant, connman, libcurl, iproute2 etc.
  - **Major Project:** WiFi test suite to test target connection to different configuration of an Access Point- open, WEP, WPA, WPA-2.
  - **Major Project-II:** BootBox to automate flashing of embedded targets.
  - **Major Project-III:** USB connX hardware to test USB device drivers performance.

Professional Skills

PC/Web

- Sound Knowledge of **Linux internals, command line interface** and development.
- Multiple Operating systems hands on exposure- Linux (Desktop/Embedded), Mac OS X, MS-Windows.
- Understanding of open source software licensing package porting and cross compilation.
- Experience working on professional agile and DevOps tools such as **JIRA, Confluence, TestLink, Jenkins, Travis CI, Github, GitLab(Stash), Basecamp**.
- Experience in scripting using **Shell/Bash and Python**.
- Sound knowledge of cyber security, vulnerabilities and attacks like DDos, Brute force, Phishing, SSL Stripping.
- Sound knowledge of IoT protocols like **MQTT** (Server/Broker-Mosquitto, Client-Paho), **CoAP**
- Sound knowledge of working of **WEB REST API**, hosting servers and front end tools
- Third party web APIs integration using TEMBOO services
- Knowledge of software Version control using **GIT, continuous integration, continuous deployment**.
- Schematic, PCB designing and soldering.

Embedded Systems

- Worked on Embedded Linux based systems- Busybox, Yocto, OpenWRT, Debian.
- Experience working with microcontrollers (8051, AVR, ARM7) with advance peripheral interfacing like **i2c, SPI, UART, USB**.
- Knowledge of Build system and generating custom Embedded Linux Image using **OpenEmbedded/Yocto Project for ARM, x86-64 and PowerPC targets.**
- **Knowledge of kernel configs, drivers, firmwares and creating layers for development and Quality Assurance for embedded linux distros.**
- Worked on single board Linux computers like **Intel Galileo, Edison, Raspberry pi, Beaglebone black, i.mx6(Sabre AI/Sabre SD), Renesas RCAR3-Salvator-X** etc.

- Worked on Atmel and TI microcontrollers including AVR based ATmega328PU/ PB, TI- **MSP430, TIVA C, CC3200** etc using Code Composer Studio and Energia IDE.
- Worked on projects based around radio frequency including Zigbee, **Bluetooth Low Energy**, WiFi, Nordic based RF transceivers.
- PSoC Creator for Cypress PSoC and PRoC platforms including BLE
- Experience in circuit prototyping, debugging and implementations.

Research and Publications

S.No	Topic	Conference/Journal	Status
1	Automated Embedded Software DevOps using BootBox	IEEE ELECTRONICS MAKERS-2017	ACCEPTED
2	IoT enabled water tank management system	IARDO Entrepreneurship & Sustainability conference	ACCEPTED
3	Getting Started with MicroPython	Open Source for You and Electronics for you Magazine	Published, Feb 2017, May 2017
4	Automated Plant Feeder	Electronics for you magazine	Published, Nov 2014
5	Securing IoT Devices	Mentor Graphics Blog	Published, May 2017

Academics

QUALIFICATION	SPECIALIZATION	INSTITUTE	BOARD/ UNIVERSITY	CGPA/ PERCENTAGE	YEAR
B. TECH	Applied Electronics and Instrumentation	JRE group of Institutions	U.P.T.U	73.52%	2016
XII	PCM	St.Lawrence Convent	C.B.S.E	67%	2012
X	—	St.Lawrence Convent	C.B.S.E	8.6	2010

Additional Skills / Hobbies

- **Follow/Contribute Eclipse IoT/M2M projects: Paho, Kura etc**
- **Follow/Contribute EazyExit HomeAutomation project with advance features like SOTA(Software updates over the air), FOTA(Firmware updates over the air).**
- 4+ year experience in building, programming, and flying **unmanned aerial vehicles** like RC-Airplanes, Multi-rotors (Drones) with autonomous navigation, ground station telemetry and Live video-feed downlink features.
- Experience working on 3d printers (Designing, extruding and setting prints).

Projects Online Documentations

Instructables : http://goo.gl/2AJcae
GitHub : http://goo.gl/ckVLpf
Element14 : http://goo.gl/diCxPO

Certifications/Courses

- ATMEL AVR and ARM7 based NXP TDMI microcontrollers (January, 2015).
- Getting started with Linux, Independent certification course by Linux foundation and edx.org
- RTOS, Device Drivers and Embedded Linux (May-2016).

Achievements

- Selected for Getting started with I**ntel Galileo sessions by Intel and Make magazine** (February, 2014).
- **Won 1st runner-up at National Hardware hackathon on Internet of things organised by NSIT-Delhi with Texas Instruments and Tata Power**.
- **Selected to participated and compete in first ever IoT hackathon roadshow in India by Intel at Bangalore, India (November, 2014)**.
- **Selected to compete in Element14 IoT based 'Enchanted Objects' international design challenge.**
- Supper-Affiliate and Host - **Google's Maker Camp, 2014**

Academic Projects

Enchanted Wardrobe	IoT based wardrobe that suggests clothes as per weather conditions of the day, built for **Enchanted objects, Element14 Design challenge**
Eazy Exit	Home automation solution using Near-Field Communication, Python flask server, WS8212 addressable LEDs and 3d printing made during TI IoT event.
Smart Traffic Monitoring	Project made during Intel's IoT hackathon at Banglore, IoT based smart system to monitor traffic by doing image processing on a **single board linux compute**r using **OpenCV** library.
SheCure.	A wearable electronics based project attempt to help women and children in distress.
J.A.R.V.I.S	Just Another Radical Virtual Intelligent System)
USB ConnX	USB connection exerciser, for automated testing of USB device drivers.

Personal Details:

- Full name: Ayan Pahwa
- Date of Birth: August 27, 1994
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