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Software Architect

WORK EXPERIENCE

January 2018 **Software Architect – Valeo Comfort and Driving Assistance France**

- Product Owner of connected car remote vehicle control and log and trace: In charge of the execution of the different software development steps to implement the service
from the backend till the actual execution on the car.
- Working on a platform Linux distribution (based on yocto): It will serve as a base for vendor specific products, to speed time to market and reduce the design costs.
- Design of Hardware Abstraction Layer libraries: Communications between the Network Access Device and the µC handling the CAN Bus, Audio, hardware & applications watchdog, gnss, time services, gpios, modem, …
- Development of libraries skeleton.
- Review of developers work.
- Design of a testing tool to test the platform against the requirements and enable their traceability.
- Management of the testing tool project.
- Development of main components and the skeleton of the testing tool.
- Worked on a type 1 hypervisor based solution in an RFQ for Renault-Nissan Alliance: to isolate sensitive applications from shared applications.
- Benchmarked open source type 1 hypervisor solutions: xen, jailhouse, kvm.
- Meetings with µC and µP manufacturers to choose multiple partners for upcoming projects: Creation and update of a database to ease the choice of the components (budget vs performances).

Technical environment: Hardware Abstraction Layer, MQTT, IOT, TCP/IP, Unix Domain Sockets, event driven programming, multithreading, Linux, python, C, BASH, GIT, GERRIT, TEAMFORGE ALM, yocto, Entreprise Architect, uml, hypervisors, doors.

September 2016 – December 2017 **Software Engineer – Alter Solutions Engineering**

Consultant for Sierrawireless.
- Development of a FOTA/SOTA abstraction layer to enable over the air updates.
- Development of Ecall and Era Glonass application framework API functions and applications.
- Development of AT commands forwarding mechanism based on Qualcomm's libqmi.
- Development of a tool to collect and report device reset root causes.
- Development of new features, unitary tests and integration tests.
- Bug fixing

Technical environment: Legato application framwork (http://legato.io) , LWM2M, IOT, TCP/IP, Unix Domain Sockets, event driven programming, multithreading, Linux, libCurl, C, BASH, GIT, GERRIT, JIRA.

June 2015 – September 2016 **Software Engineer – Antyas**

Consultant for Intel IMC.
- Development of a generic Linux device driver for intel's pmics vibrator (2 generations).
- Re-factoring of old Linux device drivers to fix compile time and run-time warnings and bugs.
- Development and adaptation of device trees and device drivers for the virtual prototype to support new devices.
- Modification of the Android sensors Hardware Abstraction Layer to support version 1.3.
- Development of a script that generates a minimal version of Android (basic tools, no UI) for development and debugging.
- Development of a root file system based on Buildroot for development and debugging.
- Development of a script that compiles and generates the necessary files to run on the virtual prototype.
- Kernel tweaking(minimum kernel features and device drivers + initramfs) for an FPGA based model bringup.
- Development of a script to automate the generation/update of the interrupt header file from an XML file.
- Setup a local git server for sharing developed tools with team members.
- Sustaining of Linux kernel for android products.

Technical environment: Android, Linux kernel(Device Tree, Device Drivers), Buildroot, intel SoFIA LTE2 (x86, Virtual Prototype), Intel SoFIA LTE (x86), SdeMMC, NOC, i2c, Input Devices, TCP/IP, QEMU, C, C++, Python, BASH, GIT, GERRIT, JIRA.

August 2014 – May 2015 **Software Engineer – Alter Solutions Engineering**

Consultant for Schlumberger
- Participation in the architecture of new apps.
- Re-factoring and optimization of old apps source code.
- Adding of some Linux kernel features to the DISPLAY board: update of keypad driver to support AUTO-REPEAT feature, Activation of LED TRIGGERS.
- Development of a SCREEN-SHOT app. Integration within the main display app.
- Development of an app to drive LEDs TRIGGERS. Integration within the main display app.
- Development of an MQX(RTOS) driver (CONTROLLER board) to drive the Toshiba G3 drive INVERTER.
- Development of a domain specific language for the non regression test tool (To be used by final users to write test scripts).
- Test and validation of new firmware versions.

Technical environment: *MQX (ColdFire), Linux kernel(Linux Machine Boards Files, Device Drivers), Root File System (timesys, buildroot), Freescale i.MX53 (ARM Cortex A8), TCP/IP, MODBUS, UART, C, C++/Qt, Python, pySide, Shell, GIT, JIRA.*

September 2012 – May 2014 **Software Engineer - E-T-A France – Paris**

- Animation of an R&D team.
- Specifications study and analysis, design and development of embedded hardware/software solutions.
- Development of user space apps (C, C++/Qt, python, bash scripts) and Linux device drivers.
- Setup of development environments.
- Writing test plans and documentation related to development milestones.
- Setup of a git server for software configuration management.
- Setup of Redmine Project manager to organize projects.

Technical environment: *Linux kernel(Linux Machine Boards Files, Device Drivers), Root File System (Buildroot), Freescale i.MX515 (ARM Cortex A8), Freescale i.MX28x (ARM9) TI Sitara AM3517 (ARM Cortex A8), TCP/IP, UDP, CAN bus, CAN J1939, I2C, SPI, UART.*

March – August 2012 **Software engineer - ON Semiconductor, DAA, Belgium (internship)**

Development of Linux device drivers for a Multi-Protocol platform, network user application and PC graphical user interface in Labview to support the ON Semiconductor silicon bench testing in the DAA (Design Analysis Area).

Technical environment: *T.I's Beagle Board XM, Atmel's at91sam9260 Olimex Board, Linux, C/C++, i2c, spi, lin, GPIO, tcp/ip, JTAG, PWM, Xenomai).*

January - May 2010 **Software Engineer - A5DDS Technologies, Tunisia. (Internship)**

Study and development of a VLSI Floorplan generator:
- Design partitioning.
- Power and clock distribution methodology.
- Measure criteria of Floorplan quality.

Technical environment: *Linux, Python, Algorithm (FM cut).*

Education

2012 Masters Degree M2 micro and nano Electronics, UFR Physique et Ingénierie Strasbourg, France.
2010 Engineering Diploma industrial electronics, Design of electronic systems, Engineering School Sousse, Tunisia
2006 undergraduate courses to prepare nationwide competitive exams in sciences, IPEIEM, Tunis, Tunisia.

English: Fluent

Technical Skills

O.S : LINUX, EMBEDDED LINUX, LINUX-RT, MQX(RTOS), Android, WINDOWS.
Programming languages and Frameworks: C, C++, Python, Go, Linux shell scripting, Makefiles, Autotools, Cmake, SQLite, Assembler, Qt, javascript, jquery, html5, css3, bootstrap4.
Hardware Description Languages : VHDL, SYSTEMC, VHDL-AMS.
Tools : BUILDROOT, YOCTO, GDB, SVN, GIT, JIRA, GERRIT, DOCKER, PLANTUML, QUARTUS II, NIOS II EDS, XILINX ISE, MODELSIM, CADENCE VIRTUOSO (MIXED SIGNAL DESIGN), LABVIEW, ORCAD, PROTEUS, MPLAB, PICC, SYNDEXIC, QUARTUS SOPC BUILDER, MATLAB.