Robert Quinlan

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WORK EXPERIENCE

Embedded Systems/Software Engineer

L3 Telemetry - Bristol, PA - June 2015 to Present

Responsibilities
Designed and developed embedded aircraft air born telemetry system for Linux and windows. Developed enterprise wide network management system. Developed communication system to stream real time telemetry data. Developed code in C++, C and Java for Linux and windows.

Developed device drivers for embedded Linux application. Developed front end client in c#.

Skills used:
• Languages C++, C, Java, C#
• Operating systems Linux Windows Multithreaded development
• Client/Server ntier

Embedded Software Engineer

GE Transportation - Erie, PA - May 2014 to May 2015

Responsibilities
Continuation of Trip Optimizer project described below.

Embedded Software Engineer

GENERAL ELECTRIC Transportation - Erie, PA - February 2013 to February 2014

Trip Optimizer is an intelligent, fuel-saving cruise control for locomotive that optimizes fuel consumption based on a specific train's make up and the route traveled. The System calculates the most efficient operation by considering such factors as train length, weight, grade, track conditions, weather and locomotive performance. The trip's profile is updated continuously through a complex network of on-board computers, GPS systems and advanced algorithms that make adjustments, enabling the train to use less fuel while maintaining smooth train. The main purpose of this algorithm is to control the locomotive in an automated manner that optimizes for fuel efficiency. The Trip Optimizer is also added with new Interface called Locomotive Command and Control Module (LCCM) and use LCCM through the M-9155 network protocol [1] for all its locomotive information and governing needs. Prior to the advent of LCCM, TO interfaced with locomotive hardware through a miscellany of mechanisms including CPO, shared memory, serial-port comms, and discrete I/O. The key features of TO are Automatic throttle and dynamic brake control, Builds individual plan for each train over a given territory, Improved and consistent train handling, Eliminates over Speeding, Provides auto independent Distributed Power control, EPA certified advanced energy management system and Increasing footprint.

Responsibilities
• Requirement analysis for various customers, tracing and linking them using
requirement management tools.
• Source Code modification based on requirements and validation on GE-CCA HITL simulators
• Proactively communicate and collaborate with System Engineers and Train Control Engineers to analyze the HMI needs and functionality.
• Develop software for x86 and, Power PC architectures

• Software implementation for communication protocols: RS232, TCP/IP, CAN
• Develop embedded code for Interfacing with serial and CAN drivers, file management, communication systems interfaces, object oriented analysis and design (OOAD), task management, firmware development, and engine or power control applications.
• Analyze and fix bugs found during testing and validation
• Perform sanity test on locomotive simulators to ensure locomotive safety
• Deliver successful high quality embedded software products in C/C++, under both QNX and embedded real time operating systems
• Prepare necessary documentation for customer releases.
• Following the Agile Scrum methodology by attending daily scrum meetings, completing the user stories as per Sprints.

Embedded Software Consultant - Motorsports Division

SPORTVISION - Mountain View, CA - October 2011 to January 2013

Mountain View, California • Oct 2011- Jan 2013
Innovator of sports and broadcast media products.

Embedded Software Consultant - Motorsports Division
Embedded Software Consultant for motorsports (NASCAR) division based on OMAP 3530/Atmel AVR solution.

Selected Accomplishments:
• Develop custom in-house Linux Distribution (Kernel 2.6.35) for motorsport vehicle communication information
• Enhancements to communication signaling between OMAP and AVR
• Decrease system boot time and improve system stability issues.
• Ability to remotely update images in nand flash

Principal Engineer - Systems Engineering

BROADCOM - Sunnyvale, CA - January 2011 to October 2011

Sunnyvale, California • Jan 2011-Oct 2011
From acquisition of Beceem Communications. Specializing in WiMAX and LTE.

Principal Engineer - Systems Engineering
Systems Software Architecture for WiMAX and LTE software reference designs and customer platforms.

Selected Accomplishments:
• Development and architecture of WiMAX subsystem in QNX OS on customer platform (OMAP 4430).
• Platform Integration requirements and architecture of VoLTE stack into reference design
• Multi-site Project management, planning, and coordination of tasks between customer and team members.

Large international designer

QUALCOMM - Raleigh, NC - 2007 to 2010

manufacturer, and marketer of digital wireless telecommunications products/services. Customers include global ODMs/OEMs and semiconductor firms.

Staff Engineer - Computing and Consumer Product Division
Create Windows Mobile 6.1/6.5/7 BSP software for QSD8650/8250 SnapDragon ~1GHz ARM Cortex (ARMv7-A) architecture processors. Part of team responsible for board bring-up, BSP development, and smartbook

reference software design. Collaborate with teams to assess/establish processor requirements, develop new features, and integrate BSP software from previous processor baselines.

Selected Accomplishments:
• Contribute to System Performance team initiatives, e.g. boot time, system load ordering, memory, latency.
• Kernel enhancements, e.g. L1/L2 Cache Parity Error handling, Performance Monitors.
• Bootloader enhancements, e.g. battery charging, keyboard, test menu.
• Contributed to board bring-up across multiple chipset ASIC revisions, baselines, and AKUs.
• Work with multi-site technology teams to resolve system issues.
• Develop python scripts to automate target performance baselines issues.
• Develop I2C multi-client and multi-master WM Stream driver in interrupt/polling mode function.
• Work with HW teams to resolve timing defects in I2C core and develop software workarounds.
• Provide slave device development (keyboard, touchpad, PMIC, sensors) and resolve latency issues.

Principal Software Engineer

TAPROOT SYSTEMS - Morrisville, NC - 2003 to 2007

Morrisville, North Carolina • 2003-2007
A provider of smartphone embedded handset software; specializes in Telephony, Wireless LAN, and BSP software service development. Had roughly 100 employees during peak of operation.

Principal Software Engineer (Technical lead, Software Architect)
Developed Wi-Fi solutions for Symbian OS, and BSP Reference design software solutions for Windows Mobile. Facilitated business development by participating in pre-sales activities with OEMs, reviewing SOWs, and responding to RFIs. Contributed to software development projects by collaborating with teams to define system/subsystem requirements, software architecture, and resolve certification issues. Contributed to porting across multiple OS versions/releases. Mentored employees in technical matters.

Selected Accomplishments:
Reference Design Service Contract for Qualcomm MSM7500/7200 Processors: Based on integrated dual processor solution (ARM11, ARM9) for Windows Mobile 6/6.1 Solutions.
• Implemented/Extended GPSID for standalone and A-GPS operations; CETK GPS test harness per verification.
• Implemented SD/MMC/SDIO multiplexing host controller driver in polling FIFO and DMA INTR Mode.
• Implemented AMSS RPC SMEM control/event processing and multi-client shared memory between AP/BP.
• Resolved thread priority, stability, memory, and synchronization porting related issues.

Wi-Fi Solution (802.11 b/g): Fulfilled multiple roles in development of Wi-Fi subsystem for UIQ-related projects. Core development based on Symbian OS versions 7.0-9.1.
• Architecture and Implementation of Wi-Fi subsystem for different OEM vendors.
• Solutions based on Phillips, Marvell, and TI Wi-Fi chipsets.
• Implemented command/frame-based semiconductor flavors.
• Implemented multi-client Wi-Fi control subsystem via client-server with polymorphic plug-in.
• Development includes connection management, Ethernet data frame translation, host driver implementation.
• Architecture and implementation of Wi-Fi security subsystem (802.1x).
• EAP Authentication methods include TTLS, PEAP, TLS, LEAP, CHAP, GTC, MD5, EAP-SIM, EAP-AKA, PSK.
• Encryption(802.11i/WPA/WPA2) includes CCMP-AES, TKIP, Dynamic/Static WEP.
• Collaboration with Symbian (9.3) for Security Subsystem Key Exchange communications framework.
• Resolved certification issues with handset OEMs gaining acceptance from Wi-Fi Alliance.

Senior Software Engineer

PANASONIC MOBILE COMMUNICATIONS - Suwanee, GA - 2000 to 2003

Suwanee, Georgia • 2000-2003
An OEM of wireless handsets, North American division had roughly 250 employees.

Senior Software Engineer
Created and enhanced software subsystems to fulfill wireless carrier and QA requirements. Defined requirements and introduced new features. Eliminated defects from various software subsystems.

Selected Accomplishments:
Nokia Series 60 Symbian OS: GSM/GPRS mobile phone solution, based on OMAP 1510 AP, Infineon SGOLD BP.

- Implemented and integrated CSR H5/BCSP HCTL and BCCMD protocols.
- Implemented LDD/PDD for HDLC GSM 7.10 solution.
- Define use cases and requirements for AP/BP communication.
- Define Test and Adjust Mode (TAM) component for calibration, testing, and customization.
- Populate Factory, Service Center, and Carrier Requirements.

Nucleus Plus: TDMA (IS-136) mobile phone solution based on Prairiecomm (PCI3620) w/ARM7 (no MMU).

- Implemented secure ESN bootloader and critical bank preservation.
- Implemented custom Serial Protocol for uploading and downloading melodies/bitmaps to NVM.
- Enhanced and resolved issues regarding critical Alarm Task Handler.
- Implemented NVM customization interfaces for Authentication, Security, and NAM.
- Coordinated implementation of Factory and Service Center programming.
- Resolved Factory and Service Center production related issues.

RF Systems Performance Engineer

VERIZON WIRELESS - Plymouth Meeting, PA - 1999 to 2000

Plymouth Meeting, Pennsylvania • 1999-2000
Large RF wireless carrier serving clients nationwide. Specializes in wireless voice/data services.

RF Systems Performance Engineer
Ensured wireless network performance for base stations in the North Eastern region. Utilized parameter thresholds to simulate network performance. Analyzed frequency cell planning, addressed call-processing failure problems, and conducted drive tests. Resolved issues around CDMA, CDPD, and AMPS.

Selected Accomplishments:

- Initiated significant improvements for region performance, automation of geographical performance reports and base station cell filters.

EDUCATION

Artificial Intelligence

Stanford University
2011

Bachelor of Science in Electrical Engineering

Lehigh University - Bethlehem, PA
1999

ADDITIONAL INFORMATION

SELECTED TECHNICAL SKILLS

OOD Modeling: UML, OCL
Software Applications: MS Office, MS Project, Visio, Open Office
SCM Applications: Perforce, ClearCase, ClearQuest, SVN, Git, Bugzilla, PVCS, Tracker, Doors
Languages: C, C++, ARM Assembler, Python, Perl, XML, Fortran, HTML, VHDL
OS: Linux/Unix, QNX, Windows Mobile (6.x/7), WinCE (5/6), Symbian (Nokia Series 60/UIQ, 6.0-9.1), Nucleus Plus, Windows (7/XP)
IDE/ICE: QNX Momentics IDE, Platform Builder, Trace32 Lauterbauch, Eclipse, GDB, ARM Development Suite, Rational Rose RT, Microsoft Visual Studio, CodeWarrior
CPUs: Cortex (ARMv7-A, A8), ARM11, ARM9, ARM7, 0x86
Microprocessors: QCT […] TI OMAP […] Infineon, Prairiecomm
Peripherals: BRCM/Beceem WiMAX (BCSM350), TI WiFi (TINet1100B), Marvell WiFi […] Phillips WiFi (BGW211), CSR Bluecore (Casira), Qualcomm GPSOne, Fujitsu Flash […] […]
Open Development Platforms: Gumstix, Beagleboard