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| **Claudy Guibert** | | |
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**Summary:**

Experienced Embedded Engineer with more than 10 years of experience in highly competitive product development environment. Motivated Developer who understands that preventing defects in any software starts at early development stage. Dedicated Researcher who thrives on efficient algorithm and modeled firmware architecture and who has the capacity to grasp, interface and incorporate concepts and modules related to other disciplines such as Control Engineering, Signal Processing, and Hardware Description Language(HDL).

* Low-level/Low-Power Firmware/Embedded Architecture Design
* Efficient Coding in C and C++
* Assembler Interfacing for Critical Coding
* VHDL Coding
* Embedded system Design with 8, 16, and 32 bits(ARM-Core) microcontroller
* Reverse-engineering existing/legacy code and optimizing behavior.
* Real-Time Software Design with Micrium OS-III, SMX, Keil RTX.
* Object Oriented Concepts, Analysis, and Design
* Root-cause findings through Data analysis and Test Cases.
* Strong desire and proven ability to learn new skills as required.
* Newly involved and studying AI/ML and Cloud/Edge Computing.

**Professional Experience:**

**Attenti Electronics Monitoring**

Senior Embedded Engineer – Odessa, FL

October 2018 -- Present (Full-time)

Fixed RF RSSI reading between MTD (Monitoring Device) and bracelet.

Implemented Algorithm detecting modem high power consumption anomalies and report to Server.

Reducing MTD Power consumption by turning ON/OFF services/devices periodically and/or as needed.

Implemented Low-power mode on GPS chip to further reduce power consumption.

Added support in External RAM for 1000 Exclusion/Inclusion rules tracking the offender.

Implemented Algorithm detecting sudden jumps (GPS thrown points) on GPS location readings using the laws of Physics and discarding those solutions.

**Jabil Circuit**

Senior Embedded Engineer -- St Petersburg, FL

December 2017 –November 2018 (Full-time)

Implemented Calibration algorithm for dimmer firmware based on attached string of bulbs.

Implemented Linear scale of brightness based on the maximum value from calibration.

Implemented Flash Wear leveling algorithm extending dimmer product lifetime.

Worked on an IOT solution using the Linux-based Legato application framework

Implemented I2C device driver for humidity/temperature sensor.

**Insight Global**

Embedded Engineer – Jabil Circuit, St Petersburg, FL

May 2017 – November 2017 (Contractor)

Conducted Engineering Research leading to Quotes for potential Projects.

Generated System Requirements for a Dimmer/Fan Controller Project.

Created Bring Board to Life (BBL) code to support hardware engineers.

Designed firmware architecture and implemented code in C language.

Created Board Support Package for UART, PWM and Interrupt on Change interfaces.

Created a high-level architecture based on Interrupts, FIFO buffer and Event flags.

**Wipro**

Embedded Automotive Engineer – Panasonic, Peachtree City, GA

March 2017 – April 2017 (Contractor)

Providing support/testing head/Infotainment units software for Production floor.

**USA Technologies**

Senior Embedded Engineer – USA Technologies Malvern, PA

April 2015 – April 2016 (Contractor)

Designed and Implemented scheduled OTA(Over The Air) firmware upgrade module.

* Binary file sent Over the Air from PC Server to the Eport Terminal device.
* Eport terminal, according to schedule, upgrades card reader firmware using serial ymodem protocol.
* Emergency upgrade triggers when scheduled upgrade fails, ensuring card reader is usable.
* Improved system response to asynchronous events(Interrupts) to match ymodem timing requirements.

Worked on File System Wear Algorithm.

Improved reliability and diagnostic report of DEX(Digital Exchange) protocol(for audit data/sales) module between Eport device and Vending Machine Equipment.

Improved State Machine related to Telit wireless modem initialization, registration, provisioning using AT commands.

Used Test Cases and Data logs to recreate technical issues occurring at customer sites and find root causes.

**Systemart LLC**

Embedded Engineer – Ametek, Horsham PA

January 2015 – March 2015 (Contractor)

Designed API for Master/Slave Modbus module.

Implemented Modbus protocol on msp430 Microcontroller.

Integrated and tested Modbus module into ongoing project.

**US Engineering Technical Services Inc.**

Embedded/Digital Engineer-- General Dynamics, State College PA

January 2014 – October 2014 (Contractor)

Led Local Team of Engineers, coordinating with other development site involved in project.

Added Ethernet/SNMP Support to Antenna-Mount SSPA(Solid State Power Amplifier) with TI Stellaris ARM-Cortex.

Migrating/Designing a (Freescale HC11/xilinx FPGA)-based SuperLoop system(ModuMax) to a STM32 Cortex\_M4 /Altera Cyclone IV using SMX RTOS.

* Reverse engineering C code in order to extract Knowledge, Firmware architecture, and Tasks.
* VHDL Code Port, Logic/Timing Verification with Altera Signaltap II analyzer.

Using RTC as Version Control and Team/Task Management with Eclipse as Client.

Parallel development on HC11 and Borland C++/Cosmic Compiler.

Documentation Support with Doxygen.

Supporting Legacy firmware, finding/fixing defects, performing risk analysis on code changes, deducting

Tests cases, writing Test procedures for Regression and Confirmation Firmware Verification.

**Volt Management**

Embedded Engineer-- Brooks Intruments Hatfield, Pa

May 2012 – March 2013(Contractor)

Designed firmware architecture for Flow Meter device.

Implemented all low-level interface drivers for internal and external peripherals:

Low-power SPI External ADC, External DAC, UART for bootloader and HART interfacing

Designed and implemented (pseudo) real-time firmware architecture in C language using

* Timer(Systick) Interrupt as an engine scheduler
* Preemptive Interrupt Priority
* State Machines

Activated Low power features of the ARM Cortex M3 STM32L151xx microcontroller.

Wrote Bootloader for Flash updates.

DMA Support for internal ADC and UART/HART communication.

Designed and implemented low-power scheme for external devices such as SPI-Bus ADC and DAC.

Implemented HART communication code with external master device through UART.

Implemented Interactive LCD menu to read, modify, and update data in nonvolatile memory.

Worked on IEC60335 Class B Safety/Fault Detection software Development.

**Kelly Mitchell**

Embedded Engineer – Abbott Laboratories Princeton, NJ

February 2012 – May 2012 (Contractor)

* Led Team efforts regarding firmware release, reviews and Test Procedures.
* Writing detailed Requirements for existing STM32F205-based (Cortex M3) C code in uc/OS-III RTOS.
* Using schematics to locate and assess external interfaces/peripherals to the microcontroller.
* Using oscilloscope, IAR debugger and writing additional code as tools and components of modules test plans.
* Validating/testing existing code and using Use and Test cases for maximized Code Coverage.
* Reviewing/perfecting UML Class/ sequences diagram and interactions between objects.
* Fixing bugs and/or adding requirements and functionalities as required.
* Writing ECRs (Engineering Change Requests) and conducting reviews about validated C++ code.
* Using IBM Outdoors software package for all code change cycles.

**Prodigy Software Group**

Embedded Engineer & Test Engineer – Lutron Technologies Coosperburg, PA

August 2010 – October 2011(Contractor)

* Wrote C code to support extended DALI command for LED according to IEC standard.
* Helped design/improve C code for feedback controls(PID Controllers for Supplied voltage & Current)
* Debugged and improved real-time modules in LED driver project requiring 120/240/277V AC.
* PID Controller modeling for a Voltage Generator through PWM using Matlab.
* Set Flash parameters for same C code working with different power/load ranges LED driver bulks.
* Implemented a test strategy and wrote test plans for LED drivers
* Participated in large-scale bench-testing of all Led driver bulks using oscilloscope and IAR debugger.
* Conducted hardware test on components such as optocouplers, thermistors & simulating lifetime degradation affecting feedback control dynamics over time and at high/low temperature.

**Daktronics, Brookings, SD**

Embedded Test Electronic Engineer – C, VHDL languages

April 2006- March 2010 (Full-time)

* Wrote low-level microcontroller (STM32 & HC12) firmware in C and assembler to interface with on-board and external peripherals such as ADC, Timer, SPI Flash, EEPROM, LCD, RS232 Serial Port, CAN serial bus, FPGA… Wrote high-level abstraction layer modules as protocols between master and multiple slaves.
* Implemented DMA, freeing microcontroller from data transfer between memory and peripherals.
* Wrote VHDL modules interfacing FPGA with microcontroller and output circuits toward slave devices.
* Debugged firmware using IDE built-in debuggers through JTAG, Altera/Xilinx logic analyzers, RS232 ports, oscilloscope.
* Implemented Test firmware in C and VHDL on test controllers in a loop back to the DUT (Device under Test).
* Wrote automation scripts/macros with teraterm/hyperacess for test sequence and testbench providing clear and detailed failures explanations.
* Designed test fixture hardware and firmware to be used on the field or in manufacturing.
* Performed stress/burn-in (temperature cycling, salt, humidity) test on circuit boards.
* Wrote detailed test procedures and troubleshooting resources reducing gaps between designers and repair technicians using C and teraterm macros.

**Education:**

BS, Electrical Engineering,

Faculte des Sciences, Haiti.

BS, Electronics Engineering Technology, 2001-2004

Devry University, Orlando, FL

**Certifications/Certificates:**

* ISTQB Certified Software Tester(Foundations Level) – since 2014.
* Software Processes and Agile Practices Certificate. – 2016

**Continuing Education/Seminars/Webinars/:**

* Currently enrolled (2021) into SimpliLearn AI/ML & Data Science Dual Track Course
* 4-day/Intensive Wireless Communication Course (IEEE ComSoc)
* Software Product Management Specialization (Coursera:University of Alberta)
* Programming with Matlab(Coursera)

**Ongoing Professional Development/Interests:**

* Self-study/Review in following areas of interest:
  + Programming with Embedded Linux
    - Using BeagleBoard
    - Raspberry Pi
  + Digital Signal Processing Theory and Implementations
    - Using OMAP-L138 TI board(C6000 DSP+ARM Processor)
    - Using FPGA-based boards
    - Using Matlab
  + Wireless Communications
  + IOT(Internet of Things)
    - Using Intel Galileo board/Raspberry PI
  + Algorithm Design & Analysis
  + Model-based Design with Matlab & Simulink
  + Java Programming

**Professional Affiliation:**

* IEEE Computer Society Member
* IEEE Communications Society Member

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| **Technical Skills:** | |
| Programming Languages | C, C++, Python, VHDL, Matlab, Labview |
| IDE/EDA Tools  Real-time Operating System  Microcontrollers  Digital Signal Processors  Synthesis/Simulation Tools | IAR workbench, Keil uVision  TI Code Composer Studio  AVR Studio4  Micrium OS-III, SMX, CMX  16-bit HC12//HS12 , AVR 8-bit  32-bit STM32 (ARM-Cortex M3)  32-bit NXP (ARM-Cortex M3)  Multi-core OMAP-138/TMS320C6784  Quartus Altera, Xilinx ISE, Active-HDL |
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| FPGAs(Field programmable Gate Arrays) | Altera CPLD/FPGA Cyclone IV  Xilinx Virtex2, Spartan3 |
| Modeling & Computation Tools | UML(OO), Mathcad, Matlab & Simulink |
| Test methodology | Test-driven Development(Unit Testing)  BIST(Built-in self test)  JTAG Debugger |
| Cloud Platforms | IBM Bluemix, Sierra Wireless Airvantage |
| Software Version Control | MKS, Rational Team concert(RTC), Subversion |

**Spoken and Written Languages:**

* English
* French