Kevin DeVries

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SUMMARY

Experienced technical leader of embedded and real-time systems for aerospace, aviation, and medical products. Engineer of mission critical software, developing from the perspective of the system. Designs and develops with a focus on high reliability and long-term maintenance. Excel at collaborating with small teams focused on the development of R&D and commercial products.

WORK EXPERIENCE

TECHNOLOGY KITCHEN	Austin, TX	Oct 2012-Present

Technology Kitchen provides electro-mechanical and software design services to a variety of industries, with focus on the development and manufacturing of commercial products.

Principal Engineer

Member of a small team of firmware engineers developing embedded software for various products. Most software written in C for the Microchip suite of processors.

- Established common code segments from existing projects and designs to enable rapid development. Factored the code for re-use and compile-time configuration to scale the fingerprint based on the target processor and requirements of the project. The use of the libraries and project templates allowed for prototype board bring-up to under four (4) hours for common hardware elements.
- Created baseline bootloader firmware that performed software updates via UART, USB, and Ethernet. Code adjustable to other forms of data sources (e.g. external flash). Typical bootloader support for projects could be achieved in under four (4) hours.
- Introduced software development tools and approaches which increased the quality of the firmware produced by Technology Kitchen. As a result of a more rigorous development process, the number of customer-detected issues was typically less than two per project. Consequently, we saw an increase in requests for enhancing the functionality of the delivered product.
- Worked on over a dozen projects per year with different scopes and peripheral management:
    - Off-chip peripheral integration (GPS, accelerometers, magnetometers, EEPROM. flash, A2D) using various buses (UART, I2C, and SPI).
    - Internet-Of-Things systems with network access through wired, Wi-Fi, and proprietary LANs.
    - Low-power systems that run off batteries for years.
    - Systems with LCD and N-segment displays.
- Supported the maintenance and software reconstruction of a Linux-based video streaming and scene authentication device used in military installations. Significant efforts were made to streamline inter-process communications and configuration management, removing unnecessary context switches and simplifying the IPC API.

CS INNOVATIONS	Scottsdale, AZ	Jan 2010-Sept 2012

A subsidiary of Westinghouse Electric Company designing next-generation solutions for nuclear power plant safety systems.

Principal Engineer

Part of a small team of software engineers developing test and calibration applications for CS Innovations flagship product, the Advanced Logic System (ALS).

- Upgraded the primary engineering tool used to verify the functionality of first-run boards and new releases of firmware. New features included translation of engineering data to human-readable text, enhanced calibration sequences, and support for the full suite of ALS products. Upgrades allowed test engineers to perform board checkout in a more efficient and consistent manner (C++/MFC/Windows)

- Defined a software process to meet 10CFR50 Appendix B specifications. The development plan allowed tailoring to enable CS Innovations to have a repeatable development process for software-based test and development tools, as well as a process for creating software-based safety systems.

- Designed and developed a GUI-based maintenance and calibration tool for the Diverse Actuation System (DAS) in Westinghouse Electric's AP1000™ nuclear plant platform. Aided in the specification and design of the ALS-based design of the DAS resulting in a successful demonstration of our deliverables. (Java/Windows)

- Assumed technical leadership of the DAS project when other aspects of the project were not performing to quality or schedule. Immediately galvanized the team which started to execute with a significant increase in work product quality and re-aligned to the project timeline. Delivered a system for environmental qualification and provided detailed documentation to support a final design review.

- Self-taught C++/MFC/Visual Studio for use in test applications.

VERTICAL POWER   Albuquerque, NM   June 2006-Aug 2009

A startup company focused on developing electronic circuit breakers for the experimental aviation market.

VP Engineering/Software Lead

Co-founder and primary software developer for a first-of-its-kind electronic circuit breaker (ECB) system developed for the experimental aviation industry.

- Developed the software for the first prototype that was instrumental to securing $750,000 in venture capital funding.

- As a collaborative effort, defined over 700 system and software level requirements for the flagship product based on use-case scenarios, conceptual feature sets, and non-competing avionic capabilities.

- Within a deadline of one year, designed and developed the production software for our two initial products (VP-200 and VP-100) which were successfully launched with 'Best New Product 2007' at AirVenture, the premier aviation air show in the U.S. (C/Java/Embedded Linux/Atmel/ARM/PIC/Xilinx)

- Performed unit, lab, and field tests resulting in the reduction of defects, enhancement of the user-experience, and over 400 hours of issue-free flight hours.

- Based on existing code, created two new products (VP-50 and Climate Control) within a 3 month period, allowing for increased sales and revenue. Introduction of the Climate Control system soared Vertical Power into an article in *Flying*, the leading certified aircraft magazine in the U.S.

BOEING-SVS   Albuquerque, NM   Jan 2004 – June 2006

A division of Boeing that provides engineering solutions for pointing and tracking systems integral to directed energy projects.

Senior Embedded Engineer

Designed and developed software systems for multiple government and internally-sponsored projects.

- Team lead for the Airborne Tactical Laser (ATL) pointing and tracking embedded software. Duties included requirements development and management, design and development of the digital recording

station, system integration and test. Led team to successful delivery of the system to the customer. (C/VxWorks/Intel/PPC)

- Team lead for a counter-mortar pointing and tracking system (CRAM). Working with a controls engineer, we rapid-prototyped the software for gimbal control that would automatically acquire and track mortars from a radar hand-off. During the first live trials, our system beat out all pre-existing competitors and became the gold standard for position and rate of a launched mortar. (C/VxWorks/PPC)

- Performed initial embedded systems design of an internal R&D LADAR (Laser Detection and Ranging) program. System captures return signals from a highly focused LADAR at GHz rates and stores the data for post-processing and analysis. (C/VxWorks/PPC)

- Helped define and implement agile development practices; process definitions were adaptable to both large and small projects.

INLIGHT SOLUTIONS   Albuquerque, NM   Jan 2001-Oct 2003

A biomedical company dedicated to finding a non-invasive solution to reading glucose levels in diabetics.

Senior Embedded Engineer

Team lead of the embedded computer system for a non-invasive glucose monitor.

- Defined the processes used to develop embedded software for FDA regulations.

- Interfaced custom embedded computer system with engineering prototype of non-invasive glucose monitor. System included data acquisition and servo-mechanism control for a spectrometer. Prototypes were used to collect data during clinical trials. (C/VxWorks)

- Developed and deployed software that automated the creation of aqueous solution sets used for evaluation of new spectroscopic instruments and methods. Resulting system reduced solution set assembly time by 25%, eliminated most human errors, and created high quality samples (< 1% error per solution component).

SVS (now BOEING-SVS)   Albuquerque, NM   Aug 1995 – Jan 2001

A science and engineering firm which provides engineering solutions for pointing and tracking systems integral to directed energy projects.

Real-Time Software Engineer

Designed and developed software for visual and optical tracking systems.

- Key Project: Developed first generation of the Airborne Laser (ABL) tracking systems which contained five separate optical tracking systems. One such tracker was fed by a 5 KHz 128x128 CCD camera and incorporated 32 PPC processors. (C/Mercury multi-processor systems)

- Earned SVS Performance Award: 1997.

LUNAR AND PLANETARY LABS   Tucson, AZ   Jan 1992 – July 1995

A part of the Planetary Science College (University of Arizona) interested in developing sensor suites for space missions.

Senior Programmer

Developed software for space-based programs: Gamma Ray Spectrometer on the Mars Observer (1993); Flight Software for the Imager on Mars Pathfinder (1997).

EDUCATION

University Of Arizona   Tucson, Arizona   May 1993

      MS in Computer Science

      Golden Key Honor Society

      Association for Computing Machinery, Student Chapter, Treasurer

University of Colorado   Boulder, Colorado   May 1991

      BS in Computer Science

      Golden Key Honor Society, Graduate Adviser

SKILLS

Assembly	Intermediate	Rarely used/3 yrs
C	Expert	Currently used/25 yrs
C++	Intermediate	Currently used/3 yrs
Java	Expert	Currently used/12 yrs
MatLab	Intermediate	8 years ago/5 yrs
UNIX/Linux	Intermediate	Recently used/22 yrs
VHDL	Beginner	7 years ago/2 yrs
VxWorks	Expert	7 years ago/16 yrs

ADDITIONAL INFORMATION

Publications

Calibration of the Imager for Mars Pathfinder (IMP). Devon G. Crowe, et. al. Lunar and Planetary Conference Proceedings, Houston, TX, March 1995

Ground Demonstration of an Optical Control System for a Space-Based Sparse Aperture Telescope. David DeYoung, et. al. SPIE proceedings: Space Telescopes and Instruments V. Kona, Hawaii, March 1998

Patents

#7,796,054		Aircraft Electrical System Evaluation
#7,622,818		Backup Electrical Power System for Solid-State Aircraft Power Distribution Systems
#20080237402	Pending	Aircraft trim safety system and backup controls
#20090306837	Pending	Aircraft Exhaust Gas Temperature Monitor
#20090306836	Pending	Aircraft Emergency Handling
#20090302174	Pending	Variable Speed Flap Retraction and Notification
#20090212975	Pending	In-Circuit Testing For Integrity Of Solid-State Switches

Activities

White water rafting captain (9 years) and President (1 year) for White Water Adventures, a rafting ministry.

Working towards a black belt in Taekwondo. Current Belt: Purple (5th of 10 color).