CONTROL SYSTEMS ENGINEER

Directing Controls technicians and engineers to provide 24/7 maintenance focused on safety, equipment availability, and production quality.

ELECTRONIC ENGINEER

Proficient in embedded systems design and programming, hardware integration and design for electromagnetic compliance. Familiar with serial communications design and audio / video / RF theory.

TECHNICAL WRITING

Authored white papers that identified and averted multi-million-dollar product crisis. Created several technical research papers that have had a significant impact on Amazon maintenance.

PROFESSIONAL EXPERIENCE

JLL – AMAZON ACCOUNT   Fresno, California   2018-2023

Control Systems Engineer (CSE) – 2021 – 2024

- Lead and train a team of 6 Controls technicians and engineers. Guide both Amazon and Controls implemented projects.
- First CSE to discover and document the root cause of fires and thermal events that impacted multiple Dematic SC3 sorters. Created and implemented an action plan to repair all 334 carriers at facility. Dematic then issued a corrective 52-week PM.
- First CSE to identify and document why Dematic Put-To-Light buttons had started failing on the Amazon Fulfilment Engine hardware. I alerted Amazon Software Engineering, who updated AFE software to work correctly with updated buttons.
- Identified root cause faults in electronics failures for multiple equipment types, including Allen-Bradley VFDs, various power supplies, and Dematic motor controllers.
- Improved OEE metrics, bringing facility from below 98.9% to consistently above 99.4%
- Brought package label apply kickout rates from 2.8% down to 2.1%, identifying primary drivers.
- Directed and assisted rebuilding special purpose Windmill sorter to repair extensive damage. This included overhauling all electronics, adding Lexan shielding, and reprogramming all Windmill IP addresses to meet the Amazon network security upgrade.
- Created special purpose Excel workbooks to turn raw data into useful information to find issues SCADA could not detect.
- Created Excel workbooks to track employee attendance and training.
- Created multiple workplace documents for stepwise equipment instructions, training documents, and briefings.

Lead Control Systems Engineer/Technician (CSL) – 2019-2021

- Created a wall-mounted Controls "Test bench" with PLC, ASi, Industrial Ethernet, and HMI.
- Created a OneNote passdown environment and methodology, and successfully lobbied the Controls team to adopt it.
- Hosted iGraph SCADA classes. Created videos of these classes and posted to Amazon Broadcast video network.

Control System Specialist (CSS) – 2018-2019

- Created facility SCADA metrics dashboard based on iGraph, used for troubleshooting and predictive maintenance.
- Recognized by facility Controls team as Subject Matter Expert on Dematic SC3

MDBoyd.com   Fresno California   2015-2018

Electronic Engineer – 2015-2018

- Personal Project: Microchip PIC based Aquaponics water monitoring system to monitor and log flow rate, turbidity, level, and pH.
- Technical Writing: English editor for Zingchuan Technology on 3 different user manuals to be distributed in USA.

CVAAS – AN EDUCATIONAL / SERVICE NONPROFIT ORGANIZATION   2016-2018

President / Chairperson

- Incorporated CVAAS as an educational nonprofit organization.
- Increased annual budget with membership sales and donations from $500 per year to $5,000 per year.

PELCO BY SCHNEIDER ELECTRIC   Fresno / Clovis California   2007 - 2014

Electronic Engineer 2 – 2007-2014

- Analyzed product hardware issues to create high-confidence corrections implemented by change orders and Production procedures.
- Supported customer contracts by analyzing and documenting product hardware failures. Implemented failure analysis techniques including optical and x-ray microscope, and using mechanical, oscilloscope, and data analyzer probing together with CAD navigation.
- Published two white papers, Author, editor, and co-researcher:
  o "Impact of Multicore Processors on the Video Line of Business", which demonstrated the necessity of heterogeneous multicore processors in digital video surveillance.
  o "The Impact of Advancing Processing Power on the Capabilities of the Surveillance Industry", which identified cell phone technology as the new driver of digital video surveillance.

MARTIN BOYD

BOYD@MDBOYD.COM   559-892-0102 (SMS welcome)   WWW.MDBOYD.COM   WWW.LINKEDIN.COM/IN/MRMBOYD

PELCO   Fresno / Clovis California   1996 - 2007
Electronic Engineer 1 – 1996 - 2007

- Published the executive proposal, "Necessity of Manufacturing Change", explaining the legal necessity for a major change in manufacturing processes. Executive staff accepted and acted on this proposal, saving 40 million dollars of yearly international sales.
- Published white paper, "Lead Free Manufacturing", which explained European product RoHS directives impacting business.
- Project manager and hardware designer for failsafe recording consumer product used in massive scale analog video monitoring systems.
- Created a current product maintenance program. Did product triage and created changes, with functional and EMC testing.

MILITARY EXPERIENCE

United States Air Force   Pacific Air Forces and Air Combat Command
Staff Sergeant (E5) AFSC 2E178 Ground Radio Communications Craftsman

- Awarded Air Force Commendation medal for emergency rebuilding of Air Traffic Control (ATC) electronics destroyed by lightning.
- Maintained radio and control systems for ATC, Approach Control, Forward Air Control, and fiber optic, facsimile, & audio systems
- Established, assembled, and managed an all-volunteer Military Auxiliary Radio System (MARS) station.

TOOLS & SKILLS

Platforms: MS Windows, Ubuntu Linux, Mozilla Firefox, Google Chrome, Android, Raspbian (Raspberry Pi), Oracle VM Virtualbox
Office MS Office suite: Word, Excel, PowerPoint, Access, Outlook, Visio
PDF: Adobe Reader, Foxit PDF reader, Adobe Acrobat, PDF printer
Open Source: Open Office, LibreOffice, KiCad, FreeCad, SketchUp
Project Management: ASANA, JIRA, MS Project, Mindjet mindmapping
Publishing: Scrivener, Scribefire, MS Publisher, Wordpress,
Graphics: GIMP, Inkscape, Visio, Cerious Thumbsplus
Audio & Video: Cubase AI, Cubasis LE, Audacity, Adobe Audition, VLC

DEVELOPMENT
EDA: Altium, Protel, KiCAD
Version control: GIT, Subversion, VersionDog

IDE: Eclipse, Slickedit, MPLAB, Arduino, Visual Studio Code, GCC

CAD: Sketchup, LibreCAD

Simulation: LTSpice IV, Mathematica
Languages: Microchip RISC, ANSI C, C++, Python

TOOLS
Oscilloscope, voltmeter, spectrum analyzer, frequency synthesizer, datalogger, multichannel DSO, X-ray inspection, CAD-based debugging, JTAG, ICE, ICD

AUDIO TOOLS
Zoom H4 portable audio recorder, Steinberg UR44 6x4 Audio Interface, Alesis MultiMix 8 USB mixer,

STANDARDS
Fieldbus standards AS-i, Profibus, Industrial Ethernet. Serial: RS-232, RS-422, RS-485, IEEE-1284, I2C (SMBus), SPI, USB, SCSI, Parallel/Serial ATA, PCI-X, JTAG IEEE 1149.1, UART/USART, IEEE 802 (some physical layers)

EDUCATION

- 160 college credits toward a bachelor's degree in Electronics Engineering. University of California, Fresno
- Ground Radio Communications Specialist certification. (Technician, 992 classroom hours)
- Advanced Digital Techniques certification. (Technician, 168 classroom hours)
- Air Force Leadership, Management, and Quality Awareness certifications. (Management, 238 classroom hours)

ACTIVITIES & INVOLVEMENT

- Amateur radio operator: General class, callsign KD6TXV
- Maker Culture: fascinated by the integration of electronic control systems into permaculture and aquaponics.
- Professional organizations: IEEE & IEEE Communications Society; ARRL – national association for amateur radio
- Member of advisory boards for Clovis Community College Mechatronics / Industrial Automation, and Fresno City College Electrical Systems Technology, both of which have certifications for Controls technicians.
- Volunteer for FIRST Robotics Competition in California Central Valley