Daniel E. Ripka

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Summary

Embedded Systems Engineer with a Bachelor's degree in Computer Engineering and 3+ years of professional experience in firmware development. Proficient in C/C++ programming, data structures, hardware-software interfacing, and real-time systems. Experienced in Agile-Scrum environments using Jira for task tracking and sprint execution with the goal of delivering production-ready code.

Skills

- Programming: C, C++, Python, Java, Scala, HTML, CSS
- Tools: Git, SVN, Bash, PowerShell, LTspice, Oscilloscope, Picoscope
- Development Environments: Visual Studio Code, PyCharm, IntelliJ, Microchip Studio, Renesas HEW
- Frameworks/Libraries: FreeRTOS, Pandas, Matplotlib, NumPy, Scikit-Learn, Django, CppUTest, JUnit, SDL2
- Systems: Windows 11, Ubuntu, VirtualBox, WSL, personal computer hardware repair/upgrades
- Productivity: Agile, Scrum, Microsoft Office, LibreOffice, Jira, Confluence, Trello

Experience

Badger Meter - Brown Deer, WI

Firmware Engineer, from June 2023 to Present

- Design, develop, and maintain firmware for Orion Cellular Endpoints using C/C++ within an Agile-Scrum environment.
- Engineered a custom, interrupt-driven UART protocol for Orion Cellular Endpoints to communicate dynamically with Badger Meter smart meters over a 3-wire interface, significantly enhancing speed, power efficiency, and enabling an expandable design.
- Designed and developed FreeRTOS task scheduling algorithms to optimize real-time task execution, data reporting, and resource management.
- Write and execute CppUTest unit tests to validate firmware updates and prove reliability.
- Create hardware abstraction layers (HAL) and device drivers to interface with various peripherals.
- Implement SPI and UART communication protocols for efficient data transfer across systems.
- Develop Python automation scripts to test device firmware and configuration tasks.
- Leveraged Pandas and Matplotlib to visualize and present field device data sourced from AWS.
- Conduct electronics environmental testing, including battery current and power consumption measurements.

Columbus McKinnon Corporation, Magnetek - Menomonee Falls, WI

Associate Engineer, from July 2021 to June 2023

- Developed two PyQt desktop apps for automated testing and monitoring of variable frequency drive (VFD) parameters using Modbus serial protocol.
- Created firmware to simulate crane load dynamics on a hoist using advanced motor dynamics.
- Engineered firmware to control overhead crane slowdown behavior triggered by a limit switch, maximizing operating space while maintaining safety, with integrated laser device support.
- Designed, developed, and implemented firmware validation tests.
- Migrated data and validated specifications for a new AC crane drive model.

Amazon Fulfillment Center - Oak Creek, WI
Packer, from May 2021 to July 2021
- Packed 60+ packages per hour, ensuring secure packaging to prevent shipping damage.
- Supported team by maintaining packing station resources and assisting colleagues.

University of Wisconsin - Milwaukee, Campus Technology Support
Desktop Support Technician, from September 2019 to March 2020, September 2020 to May 2021
- Provided technical support for Windows and macOS systems, resolving hardware/software issues.
- Configured and deployed desktops, laptops, and accessories, including imaging and setup.
- Managed incident tickets, client communications, and asset tracking using management software.
- Granted software and network access permissions as requested by users.

Greendale Lions Club - Greendale, WI
Volunteer, from 2021 to 2024
- Assembled wireless technology, networking, and payment systems for seasonal events.

Education

Bachelor of Science in Computer Engineering
University of Wisconsin - Milwaukee, May 2023