Controls Engineer

Job Category: Engineering

Requisition Number: CONTR001989

Description

The Controls Engineer will be part of a small team of engineers developing software used to control a grid-connected inverter. Tasks may range from software architecture, communication, peripheral interface and control system design and will involve coding, debugging, testing, documentation and working with interdisciplinary teams.

DUTIES:

- Develop algorithms used for closed-loop control of grid-connected inverters.
- Develop drivers and APIs used to communicate with peripherals and external subsystems. Examples are USB, SPI, I2C, UART, Modbus, CAN, Ethernet, TCP/IP, A/D converters and digital I/O.
- Implement customer interface features as required.
- Implement algorithms used to detect abnormal conditions, such as arc faults, ground faults, abnormal voltage and frequency, an open phase, an unintentional island, or internal hardware failures, and respond in a deterministic manner to each condition as required by compliance standards.
- Develop and execute computer simulations to verify algorithm functionality.
- Structure code in order to optimize processor and memory utilization.
- Support customer service team in troubleshooting issues identified on inverters in the field.
- Support manufacturing teams in order to ensure that production testing is sufficiently comprehensive but also efficient.
- Work with the applications engineering, product management and sales teams to understand customer needs and implement features that will support these needs.
- Work other engineering disciplines to ensure successful overall integration of each product.
- Prepare and execute a validation plan for assigned tasks utilizing the testing team for support.
- Integrate code from different developers by following a release process and utilizing SVN tools.
- Prepare software design documentation and test reports.
- Ensure software quality by following coding standards and conventions, participating in and conducting code reviews, performing static code reviews and utilizing automated software analysis tools.
- Other duties and responsibilities will be assigned as needed.

REQUIREMENTS:

Skills/Knowledge/Abilities:

- Must be proficient in developing and understanding code written in C or C++
- Must be proficient in one or more of the following areas with a preferred 3 or more years of experience:

1. developing applications and device drivers for embedded systems
2. designing closed-loop control systems

- Must have a specific interest in developing and testing algorithms and software
- Must have experience developing code for real time system or operating systems (RTOS)
- Must be self-driven, organized and capable of working independently to solve engineering problems logically and efficiently
- Must be willing and able to work in a high voltage test environment and follow established safety procedures
- Must be willing and able to perform testing outdoors occasionally
- Must be fluent in English and have good writing and team-working skills
- Must be willing to travel on occasion (less than 20 percent)
- Strongly desired to have experience with modeling and scripting in Matlab® and Simulink®
- Strongly desired to have knowledge of and experience with power electronics, inverters and three-phase power systems
- Strongly desired to be capable of reading and interpreting electrical schematics and have a basic understanding of analog and digital electronics
- Desired to have experience working with common lab test equipment, such as oscilloscopes, power analyzers and sensors
- Desired to have a strong background in good programming practices, building robust and adaptable software programs, version control and software quality
- Desired to have experience setting up and working with a development environment, such as firmware loading, JTAG and debugging tools
- Desired experience working with peripherals and communications protocols such as USB, SPI, I2C, UART, Modbus, CAN, Ethernet, TCP/IP, A/D converters and discrete I/O
- Desired experience or interest in working with solar power systems

Education/Certification:

- Must have B.S. or B.Eng. in Electrical, Computer or Software Engineering
- Desired to have M.S. or M.Eng. in Electrical, Computer or Software Engineering

To apply, follow this link:

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