Senior Electrical Engineer / Senior System Architect / Capital Equipment Engineer

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About the Company

Vitara Biomedical is a medical technology company reinventing the standard of care for extremely premature newborns. Backed by leading venture capital firms, Vitara's neonatal artificial womb, known as EXTEND, was created by doctors at Children's Hospital of Philadelphia to closely mimic natural fetal physiology for babies delivered as early as 22 weeks. Similar to a mother's womb, EXTEND's fluid-filled environment aims to protect fragile lungs and other vital organs during the first 28 days of life, allowing them to mature so that newborns may transition to an incubator with a greater hope of surviving and thriving. At this stage of life, organs grow exponentially—and Vitara is working to make every day count.

We work in a fast-paced, collaborative environment where creativity, rigor, and mission guide every decision. At Vitara, you'll be a part of a team that cares deeply about the science, the impact, and one another. As Vitara grows, you'll shape how we operate and leave your mark on a first-of-its-kind technology.

Position Summary

This role is a senior individual contributor position supporting the development of the EXTEND neonatal support platform. Depending on experience and strengths, the role may emphasize device electronics design, system architecture, and subsystem integration.

This position spans device hardware development, subsystem integration, and select manufacturing and test equipment development. The successful candidate will design and troubleshoot electronics for the EXTEND system while also contributing to system architecture, firmware interaction, and integrated platform development.

Key Responsibilities

PCB & Circuit Design

- Design and debug multi-layer analog, digital, and mixed-signal PCBs supporting sensing, control, and power electronics

- Perform schematic capture, component selection, and PCB layout review (Altium or equivalent EDA tools)
- Execute hardware bring-up, debugging, and characterization using lab equipment
- Develop simple firmware or scripts to support hardware debugging and system integration
- Integrate sensors, wire harnesses, battery systems, and AC/DC power distribution
- Support electrical safety and EMC design aligned with IEC 60601

Systems Engineering & Architecture

- Collaborate with systems engineering to define electrical subsystem requirements and interfaces
- Contribute to system architecture and subsystem integration
- Support system-level risk and hazard analysis (FMEA, FTA) in accordance with ISO 14971
- Work with firmware and software engineers to define hardware interfaces and support system bring-up

Capital Equipment & Test Engineering

- Support development of tooling, fixtures, and automated test equipment used in device manufacturing and verification
- Partner with operations to support production process development
- Contribute to equipment qualification activities (IQ/OQ/PQ)
- Travel as needed to support system bring-up, laboratory testing (EMC, electrical safety), and collaboration with external suppliers or development partners.

Requirements

- Bachelor's degree in Electrical Engineering or related field (Master's preferred)
- 7+ years of electrical engineering experience
- Experience designing electronics for regulated or safety-critical systems
- Proficiency with PCB design tools such as Altium Designer or similar EDA platforms and strong hardware debugging/troubleshooting capability
- Experience integrating sensors, power systems, or electromechanical subsystems
- Experience contributing to complex system architectures
- Familiarity with embedded communication protocols (CAN, SPI, I²C, UART, Ethernet)
- Familiarity with wire harness design and associated tools
- Working knowledge of IEC 60601, IEC 62353, and similar electrical safety standards
- Familiarity with FDA design controls (21 CFR 820.30) and ISO 13485
- Ability to operate independently in a fast-paced startup environment