Software Engineer - Embedded & Application Support

About ION Science Ltd:

ION Science has over 36 years of industry experience designing, manufacturing, and supplying PID gas sensors, gas detection instruments and leak detectors for a wide range of industries and applications. We are an unrivalled worldwide gas and leak detection company, with a team of workers who strive to deliver exceptional product quality and customer satisfaction. In 2022 ION Science were awarded the Queen's award for Enterprise for MiniPID Sensors. This is a fantastic opportunity to join our dynamic and growing team and be part of a well-recognised brand associated with quality.

MAIN PURPOSE OF JOB:

To design, develop, and maintain embedded software for gas detection instruments, while providing support for application software activities such as interface development, prodution test jigs, and system integration. The role spans the full product lifecycle, including legacy systems, new product development, and test jig control software.

MAIN RESPONSIBILITIES:

- Design, develop, and maintain embedded software using C/C++, bare metal, FreeRTOS, DSP algorithms, and STM32 microcontroller platforms.
- Lead integration of hardware and firmware, including Hardware Abstraction Layers (HALs) and Device Drivers.
- Troubleshoot hardware issues, perform fault finding, and resolve system-level problems.
- Support application software development that interfaces with embedded systems.
- Assist in the development of production support software, including databases, test jig interfaces, and calibration tools.
- Contribute to new product development while maintaining and enhancing legacy embedded systems.
- Apply systems thinking to ensure cohesive integration between hardware, firmware, and supporting software.
- Identify and evaluate emerging technologies relevant to gas detection and industrial instrumentation.
- Collaborate with cross-functional teams including electronic engineers, mechanical engineers scientists, researchers, product managers, and product verification.
- Participate in code reviews, testing, and documentation to ensure high-quality deliverables.

JOB ROLE:

This is a hands-on engineering role focused primarily on embedded software development for instrumentation products. The successful candidate will also provide support to application

software efforts, particularly where integration with embedded systems and production tooling is required. The role demands strong technical problem-solving skills, a collaborative mindset, and the ability to work across disciplines to deliver robust and reliable solutions.

QUALIFICATIONS:

- Essential: Degree level qualified.
- Essential: 2-5 years engineering experience.
- Desirable: engineering experience in sensors and instruments.
- Desirable: experience in hazardous location ATEX design and certification EN 60079-11.
- Desirable: previous experience of design to SIL2 functional safety EN 61508.

SKILLS/EXPERIENCE:

- Strong experience in embedded software development using C/C++, bare metal, FreeRTOS, and microcontrollers.
- Solid understanding of Digital Signal Processing (DSP) for sensor data analysis.
- Familiarity with application and script development and support (e.g., C#, Python, JavaScript)
- Experience with .NET Compact Framework for resource-constrained environments.
- Skilled in using IDEs such as Visual Studio, VisualGDB, and Keil.
- Experience of communication protocols (e.g., UART, SPI, I2C, Modbus, CAN), USB communications and wireless interfaces such as BLE and LoRaWAN.
- Ability to work with and modernise legacy codebases.
- Familiarity with cloud integration, IoT platforms, and Agile development.
- Able to read schematics and mechanical drawings and understand function of mechanical and hardware components
- Working with PCBs and microcontroller programmers
- Use of standard electronics tools including debuggers, multimeters and logic analysers
- Proven experience of developing products for test and production environment DFT/DFM)
- Possess good levels of organisation and prioritisation skills including version control, documenting the design evolution and capturing key design decisions
- Have a flexible, collaborative approach with good critical thinking skills and excellent attention to detail.
- Ability to work on multiple projects and meet required deadlines.
- Strong communication and teamwork abilities, building rapport with internal departments and external customers
- Self-motivated and driven to deliver high quality products
- An understanding and experience of following an NPD process
- Desirable: Understanding of scientific principles of gas chemistry relevant to VOC gas sensing and detection.

BENEFITS:

- 25 days annual leave + Bank Holidays (annual holiday increasing with service)
- Excellent employer pension contributions of 8% after probation
- Life Assurance of 4 times of pensionable salary
- In-house training
- Discretionary Annual Bonus
- On site shower & changing facilities
- Long term service awards
- Monthly lunch & drinks laid on by the company
- Sick Pay
- Christmas party
- On-site parking
- Private Medical with AXA
- Bike Purchase Scheme
- Car share scheme
- Early finish on Fridays

WORKING PATTERN:

- Monday to Thursday: 08:30 – 17:00
- Friday: 08:30 –15:45
- Immediate start available
- Full time – Permanent position

LOCATION:

This role is based at the ION Science head office, located in Fowlmere, 10 miles south of Cambridge. The role is required for you to be on site.

Our Core Values:

See what our employees have to say about working at ION:
https://ionscience.com/en/careers/

Due to the high volume of CVs we receive, it might not be possible to provide feedback to all applicants. If you are successful, we will be in touch to arrange a call with our recruitment manager.