



Software Engineer - Embedded & Application Support

About ION Science Ltd:

ION Science has over 37 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:

The primary purpose of this role is to support, maintain and develop embedded software, desktop applications and bespoke production systems, such as databases and test jig control software, for gas detection sensors and instruments. The role spans the full product lifecycle including legacy systems, new product development, and ongoing product support. The ideal candidate would be multi-skilled with a passion for problem solving, continuous improvement with a strong can-do mindset.

MAIN RESPONSIBILITIES:

- Design, develop, and maintain embedded software using C/C++, bare metal, RTOS, DSP algorithms, primarily on ATMEL and STM32 microcontroller platforms.
- Develop and maintain Windows WinForms applications and support production SQL databases.
- 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.
- 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 sustaining existing products through maintenance and enhancement of embedded software, desktop applications and database management for gas detection sensor and instrumentation products. The successful candidate will also have the opportunity to provide support to new product development projects. 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: 5-10+ years Embedded Firmware/Software 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 & debugging using C/C++, bare metal, RTOS, and microcontrollers.
- Solid knowledge of MCU peripheral control and communication (UART, I2C, SPI, USB, MODBUS, DMA, PWM, GPIO, Timer, ADC, DAC, Flash, EEPROM, WDT, MCU/MPU clock & BLE).
- Solid understanding of Digital Signal Processing (DSP) for sensor data analysis.
- Familiarity with application & web development (C#, .NET, WinForms, ASP.NET) in a supporting capacity.
- Skilled in using IDEs such as Visual Studio, VisualGDB, Eclipse.
- Ability to work with and modernise legacy codebases and databases using SQL.
- Able to read schematics and understand function of hardware components.
- Experience of electronics debugging working with PCBs and microcontroller programmers.
- Use of standard electronics tools including debuggers, multimeters and logic analysers.
- Full product/system development cycle experience.
- 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.
- Self-motivated and driven to deliver high quality products.
- Desirable: Understanding of scientific principles of gas chemistry relevant to VOC gas sensing and detection.
- Desirable: Familiarity with cloud integration, IoT platforms with cyber security knowledge.
- Desirable: Knowledge of C/C++ code quality standards (MISRA C/C++, CWE top 25, etc).



- Desirable: Experience of identifying and evaluate product and market relevant emerging technologies.
- Desirable: Able to view the mechanical drawing and understand the function.
- Desirable: Knowledge of Agile/Scrum.

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:



Fun



**Embrace
change**



Respectful



Responsive



**Challenge the
status QUO**



Committed

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 may not be possible to provide feedback to all applicants. If you are successful, we will be in touch to arrange a call with the hiring manager.