

VACANCY: Embedded Software Development Engineer

Syntell is a leading South African technology company with a proven track record in providing practical, innovative services and systems, including end-to-end traffic law enforcement services and systems; and **state-of-the-art road traffic management systems offering complete turnkey solutions for intersection installations**. In addition, we offer local authorities a complete outsource model for prepaid electricity vending and revenue enhancement services.

Build the brain and backbone of South Africa's intersections

Help build and operate the technology that keeps South Africa moving—across a **~750,000 km** national road network (the largest in Africa, top-10 globally). In Cape Town alone there are **~1,650+ signalised intersections**, and Johannesburg manages **~2,000+**—a massive, real-world canvas for embedded control and city-scale RMS analytics. Your work will directly improve congestion, safety, and uptime at the country's most critical junctions.

Join Syntell's Traffic Systems business to lead the teams that design, build, and operate modern traffic signal controllers (embedded hardware/firmware/software) and a city-scale **RMS (Remote Management System)** that monitors, configures, and optimises intersections—including **AI (Artificial Intelligence)**-powered “green-wave” optimisation via specialist partners. We specify the hardware, outsource PCB manufacture and component kitting, **assemble in our own production facility**, and design/maintain our **test jigs** end-to-end. Your remit spans embedded **MCU (Microcontroller Unit)** firmware, **OS (Operating System)** drivers, backend, frontend, and cloud—working shoulder-to-shoulder with Field Technicians and Production - and **leading innovation streams** that solve uniquely South African challenges (low-power/green energy, low-cost products, vandalism and cable-theft resilience).

An opportunity exists for an individual who is passionate about software development for embedded systems in C/C++/Go and has some experience building an integrating full-stack components. Become an expert in the complex world of safety-critical traffic control systems and also be exposed to next-generational AI edge-services.

Location: Cape Town

Reporting Line Manager: Engineering Manager

Contract Type: Permanent

Main Outputs:

Software Development

- Write, debug and optimize code for embedded linux-based systems, often in low-level programming languages like C, C++, Go or Assembly.

Hardware-Software Integration

- Work closely with hardware engineers to understand hardware designs and constraints. Develop software that interfaces directly with sensors, actuators, and other hardware peripherals. Conduct hardware-software integration testing to ensure functionality.

System Design

- Design software architectures that meet performance, power, and memory constraints. Analyse system requirements and translate them into detailed software specifications. Create robust and scalable solutions for real-time or embedded environments.

Testing and Validation

- Develop and execute unit tests, integration tests, and system-level tests. Use debugging tools (e.g., JTAG, logic analysers) to identify and resolve issues. Validate the embedded system's performance under various conditions.

Documentation

- Write and maintain documentation, such as system requirements, design specifications, and user manuals. Ensure software complies with industry standards (e.g., ISO, MISRA, AUTOSAR).

Optimization and Maintenance

- Continuously optimize code for speed, power consumption, and memory usage. Maintain and upgrade software to support hardware updates or improve system performance.

Collaboration

- Collaborate with cross-functional teams, including hardware engineers, system engineers, and product managers. Work with customers or stakeholders to understand requirements and provide technical support.

Research and Development

- Stay updated on the latest technologies, tools, and trends in embedded systems. Experiment with new architectures, protocols, or tools to improve performance or reduce costs.

Qualifications and Experience

- University Degree that as a minimum is equivalent to BSc Honours Degree, preferably in Computer Science or light current electrical engineering.
- 4 or more years' software development experience with C++, Java or Go.
- 2 or more years' experience with embedded software development – how to design multithreaded applications, how to debug them, how to test them.
- 2 or more years' experience integrating application software on real time operating systems.

Competencies

- Good Communication skills
- Able to work independently
- Good team player
- Sound knowledge and in-depth understanding of real time, multitasking software for embedded systems, with relevant experience.
- Sound knowledge of installing and maintaining Linux operating systems on board support packages.
- Sound knowledge of IP networks
- Sound knowledge of software configuration control
- Sound knowledge of OOD, test driven development, continuous release approach
- Competent with Windows OS and – MS Word, Excel, PowerPoint, and Outlook
- Understanding of the System Engineering approach for software development
- Be in possession of a valid South African driver's license.

Salary

- Market related

How to apply:

EMAIL your CV to applications@syntell.co.za.

If you do not hear from us in 2 weeks after your application, please consider your application unsuccessful.

Closing Date: 11 February 2026



Syntell