STRATA
WORLDWIDE

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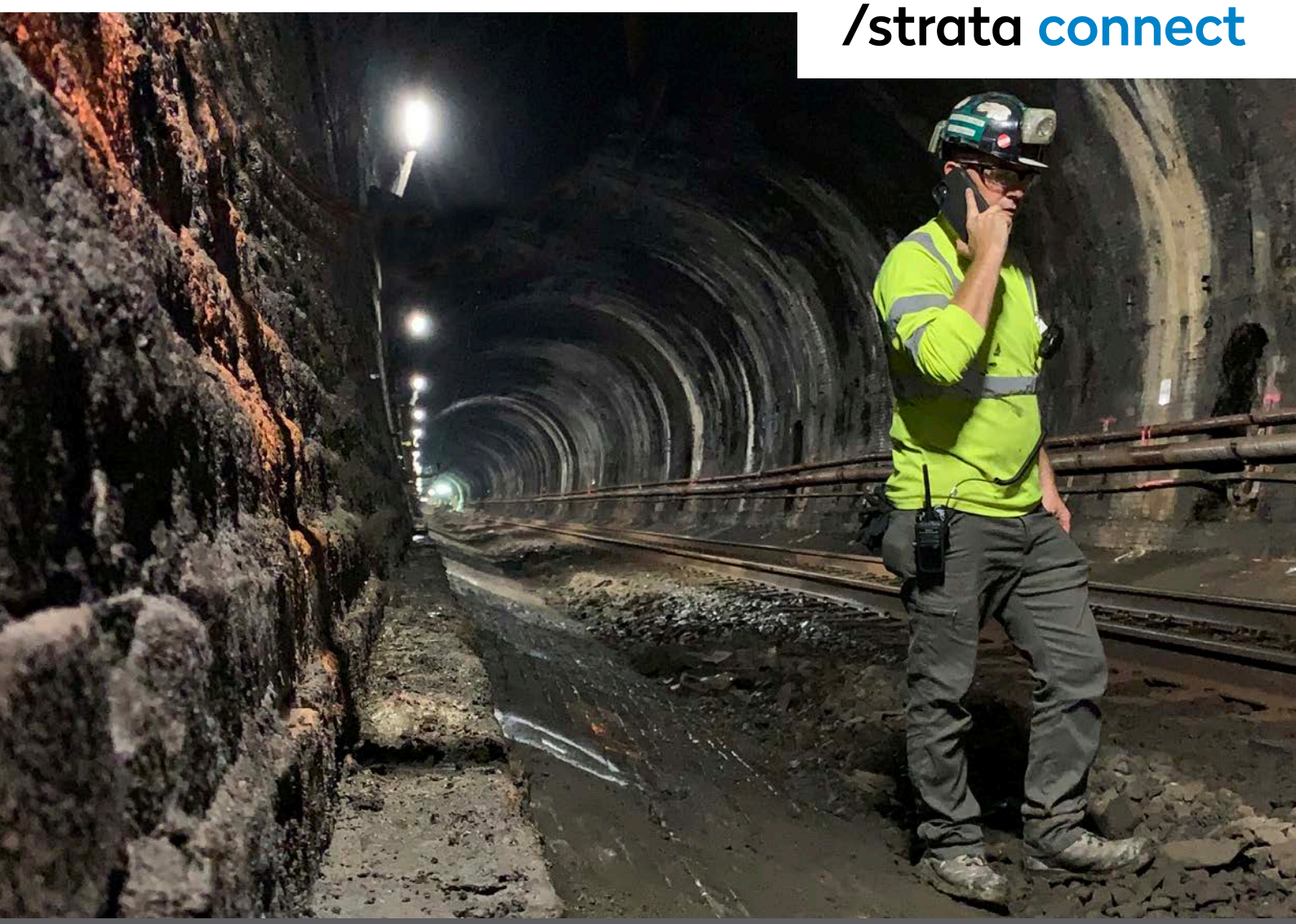
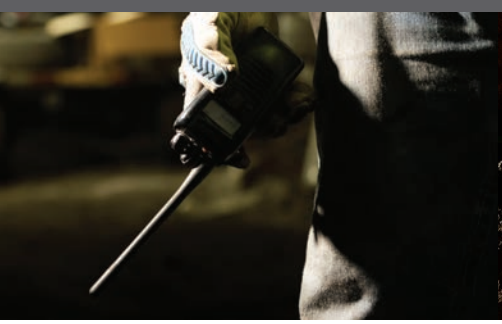
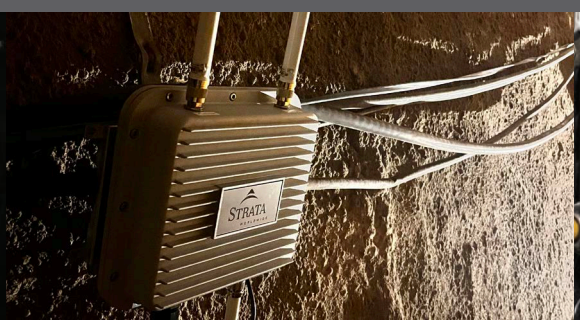


Strata COMMUNICATIONS & NETWORKING

Reliability, Flexibility, Redundancy, and Cost-Effectiveness





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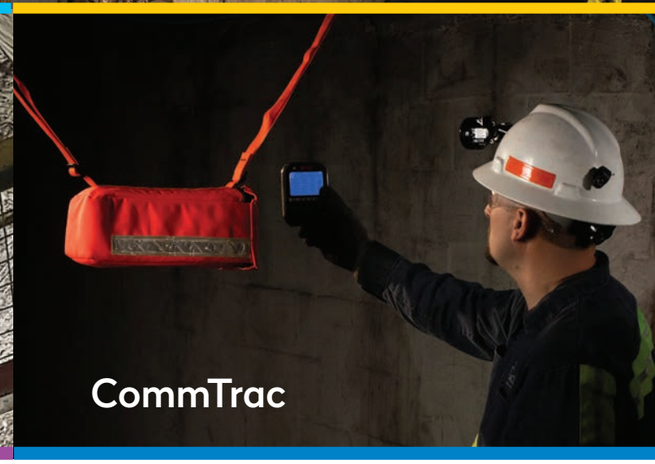
Strata COMMUNICATIONS & NETWORKING

Reliability, Flexibility, Redundancy, and Cost-Effectiveness



A well-connected underground environment with robust communication and data transfer yields a safer and more productive workspace.

In today's mining and tunnelling industries, effective data transmission, voice communication, and equipment connectivity are essential for a successful project. Our integrated systems prioritise reliability, flexibility, redundancy, and cost-effectiveness, ensuring that you have the tools you need to meet your operational goals. Strata's open architecture strategy enables the integration of our technologies with the technologies of other providers to provide a fully comprehensive and tailored system. Each system is designed and constructed specifically to the needs of each project.

Effective network solutions need:

- To be easy to install.
- To be maintainable by internal staff.
- Can expand and grow with project needs.
- A simple and understandable design.
- Full redundancy in case of emergency.
- Clear and accessible safety mechanisms.
- The ability to offer operational data from both personnel and machinery.

Enhanced Communications: Two-way communication options include push-to-talk radios, push-to-talk with Smartphones, fixed VoIP phones, mobile SIP phones, and text messaging for individuals or groups. The traditional double-twist MinePhone can be used as a redundancy option.

Safety and Productivity Tracking: Options for continuous breadcrumb and zonal tracking of personnel, vehicles and equipment.

Environmental Monitoring: Latest technology in environmental monitoring and gas detection for unclassified, potentially gassy, and gassy underground environments. Monitoring of air quality and particulates for the health and safety of workers. Sensor systems are connected to network infrastructures to allow for real-time data access and analysis.

Ventilation Monitoring and Control: By combining environmental monitoring and tracking information, Strata can develop an automated ventilation system that optimises ventilation fan usage and reduces power consumption.

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STRATA TECHNOLOGIES

LEGEND: Inherent to system | Capable with add-on device

	TRACKING		VOICE		TETHERED CAPABILITIES			UNTETHERED CAPABILITIES				
	Continuous Breadcrumb	Zonal (Bluetooth or Wi-Fi)	Leaky Feeder	VoIP	Fibre Extension	PoE Ports	Network Ports	High Mobility	Messaging	Emergency Response	Wi-Fi (802.11g/n/ac/ax) AP	IoT Wireless
	• Ubiquitous Coverage • Personnel • Equipment • Assets	• Gate Based • Personnel • Equipment • Assets	• Land Mobile Radio • Digital Mobile Radio • Repeaters/Headends • Portables	• PBX • Mobile SIP Phones • Fixed VoIP Phones	• Quick Connects • Break-out Boxes w/PoE • Patch Panels • SmartDisplay/PLC	• Wi-Fi Access Points • Cameras • Sensors • Detectors • Monitors • Traffic Lights • VoIP Phones	• IoT Devices • Lighting Systems • Refuge Chambers • Fleet Mgmt • Belt Monitoring	• Tele-remote • Autonomous Vehicles	• Two-way Text Msgs - Individuals - Groups - Broadcast	• Alarm Modes • Lone Worker • Man Down/SOS • Broadcast Alert Messages	• Access Points • Mobile Equipments • Open Standard • Centralised Mgmt • Access Control • Wi-Fi Calling	• Sensors • Detectors • Monitors
CommTrac	X								X	X		X
DigitalBRIDGE					X	X	X				X	
DigitalBRIDGE Plus+		X	X	X	X	X	X				X	
CONNECT Network		X		X	X	X	X	X	X	X	X	X
Vernetzen WoC		X		X			X	X			X	X

NETWORKING FEATURES

Reliability: Designed to perform under punishing conditions, ensuring consistent operation and reliable connectivity.

Flexibility: Customised solutions tailored to meet specific project requirements and modifications, and expansions of the systems are limitless.

Cost-Effectiveness: Designed for simplicity and in-house maintenance, keeping costs manageable.

Proven Technologies: Leveraging advancements from other industries to enhance underground operations.

Interconnectivity: Seamless integration between various systems and technologies.

Redundancy: Maximum safety and security, systems have built-in redundancy and fail-safe measures

Safety First: A well-connected underground environment is crucial for maintaining safety standards.

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TECHNOLOGY DESCRIPTIONS

CONNECT Network

CONNECT Network is a multifunctional modular system designed to provide effortless high-speed connectivity for many applications. Its simple “quick connect”, modular design enhances usability and flexibility, making modifications and expansions easy. It allows for fast connection of IoT and PoE/PoE+ devices at the Strata Data Unit Breakout Boxes. The Strata Data Units are placed along the network wherever high-speed connectivity is needed.

CONNECT Wi-Fi6 industrial-grade Wi-Fi Access Points (APs) are central to the system, and deliver high-speed, high-bandwidth, industry standards 802.11 b/g/n/ac/ax wireless access for all compatible devices. Utilised throughout the underground space, and supporting speeds exceeding 600 Mbps, CONNECT APs ensure reliable and continuous connectivity for both stationary and mobile applications.

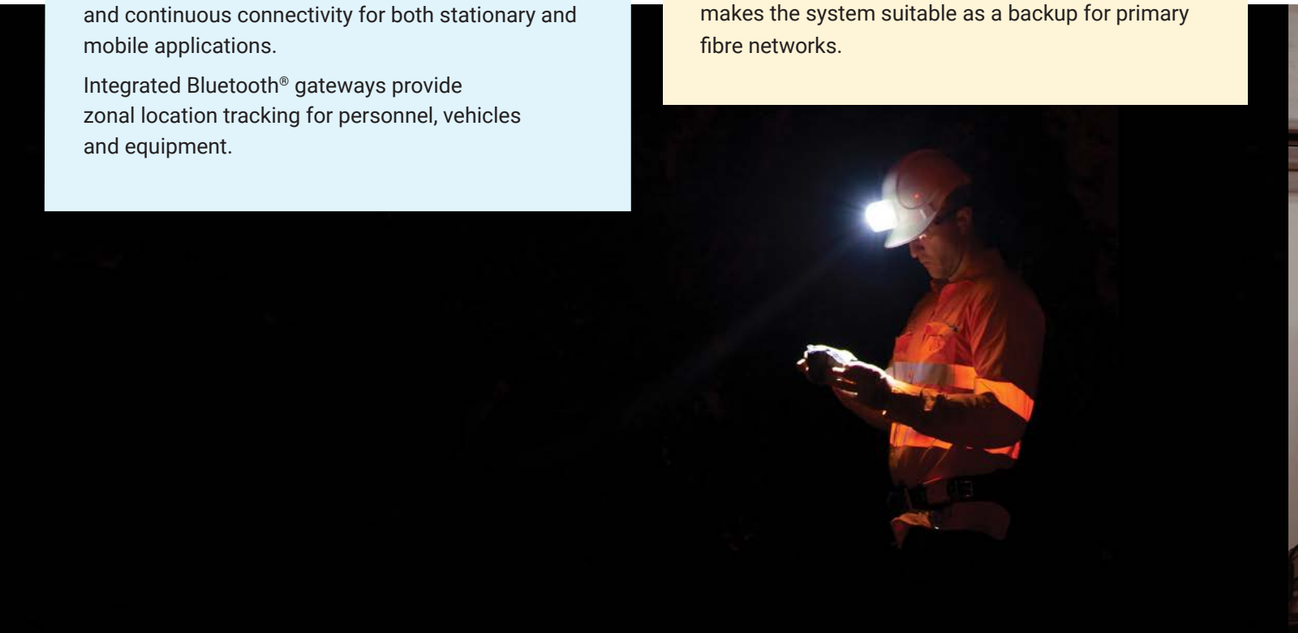
Integrated Bluetooth® gateways provide zonal location tracking for personnel, vehicles and equipment.

DigitalBRIDGE Plus+™

DigitalBRIDGE Plus+ is a unique technology that uses VHF leaky feeder systems to deliver high-speed, high-bandwidth data connectivity for Ethernet field devices while retaining superior voice clarity with push-to-talk radios.

Using DigitalBRIDGE Plus+, operations can tap into the leaky feeder cable at any point to connect IoT and PoE/PoE+ devices. These are quickly connected to the network at the DigitalBRIDGE Plus+ Line Amplifiers (2-Ethernet ports) and the Quadports (4-Ethernet ports). Bluetooth® reader modules can be fitted to DigitalBRIDGE Plus+ network components to provide Bluetooth® location tracking for personnel and equipment.

The performance of DigitalBRIDGE Plus+ is comparable to fibre optic with enhanced Big Data Analytics (BDA) and fast transmission speeds. This makes the system suitable as a backup for primary fibre networks.



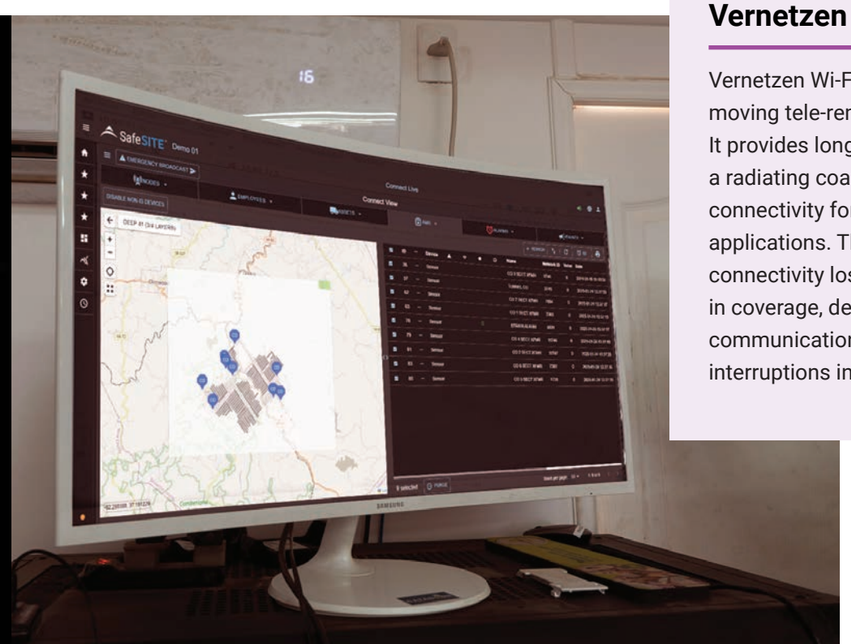
DigitalBRIDGE™

DigitalBRIDGE is an industrial-grade coaxial cable system designed to be an easy-to-install backbone for connecting and powering PoE field devices. Coaxial cable is durable and well-suited for harsh underground environments, and it does not require a certified specialist for maintenance or upgrades. DigitalBRIDGE is ideal for expanding fibre optic networks and can be easily connected to an underground fibre switch. It allows power to be carried through the cable, eliminating the need for additional cable runs.

Connection of PoE devices can be done at any point along the cable, with the simple inclusion of a system Quadport. Quadports provide four (4) PoE connection ports.

CommTrac®

The Strata-designed 900MHz wireless mesh network formed by underground, battery-powered communication nodes. CommTrac nodes are quick and easy to install, requiring no cables or external antennas. This completely wireless system provides breadcrumb tracking of personnel, vehicles, and equipment, along with wireless telemetry and two-way text messaging through handheld devices equipped with full QWERTY keyboards. CommTrac technology can be seamlessly integrated into both Strata-developed devices and third-party devices. This integration allows for real-time data retrieval and enables remote control and command of the devices.



Vernetzen Wi-Fi over Coax (WoC)

Vernetzen Wi-Fi over Coax (WoC)is designed for fast moving tele-remote equipment and vehicle automation. It provides long-distance linear Wi-Fi coverage along a radiating coaxial cable, which offers continuous connectivity for mobile and stationary industrial applications. This unique technology helps eliminate connectivity losses due to handoffs and dead zones in coverage, delivering high reliability and low latency communications for applications that cannot tolerate interruptions in connectivity

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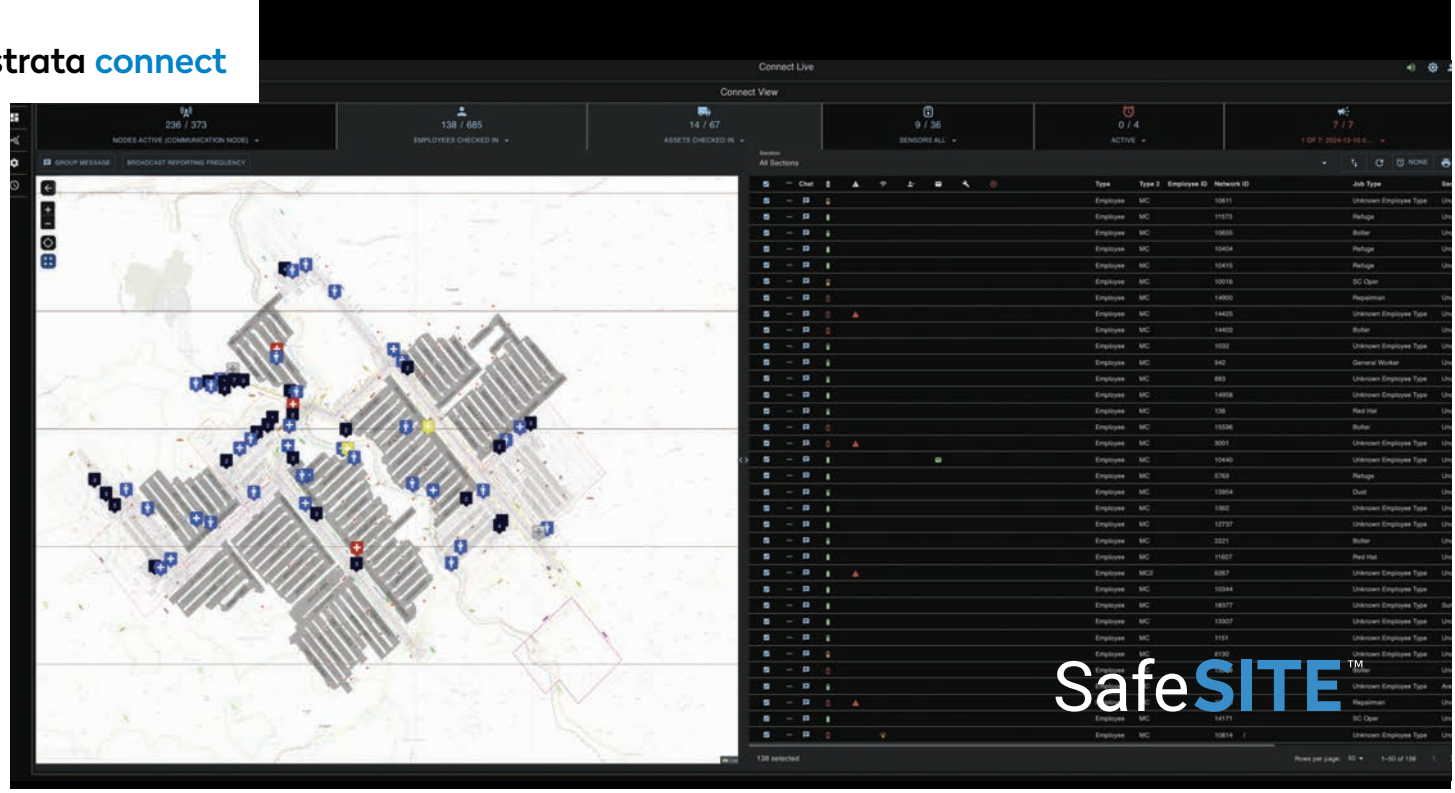

STRATA SAFESITE SOFTWARE PLATFORM

The Strata SafeSITE™ software platform is central to Strata's underground Connect technologies. It integrates all underground systems and data sources into a single user interface, facilitating communication, monitoring and interaction between underground and surface operations.

SafeSITE provides real-time insights and analysis and serves as a data log for reporting. Its multi-layered user interface includes centralised interactive maps for monitoring the underground, allowing system-level monitoring and the ability to zoom in on individual persons, devices, and equipment.

Systems integrated and managed through the Strata SafeSITE platform

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- Individual and broadcast messaging - wireless mesh
- Breadcrumb tracking of people and assets - wireless mesh
- Zonal tracking of people and assets - Bluetooth® or Wi-Fi tracking
- Gate-based, electronic tag-in/tag-out
- Atmospheric and gas monitoring with warning alarms – wireless mesh, Ethernet, PoE, and Wi-Fi-based sensors
- Belt Monitoring
- Instrumental monitoring and remote control
- Fan and ventilation system monitoring, control and automation
- Alarm modules for emergency management

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- HazardAVERT proximity detection reporting
- HazardAI proximity detection reporting

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STRATA WORLDWIDE

AMERICAS

8800 Roswell Road, Suite 145
Sandy Springs, GA 30350 USA
TF: +1 800-691-6601
T: +1 770-321-2500
info@strataworldwide.com

CANADA

Ontario
North Bay, Ontario Canada
Tel: (705) 978 2304

AUSTRALIA

Unit 3 / 52 Riverside Drive
Mayfield West, NSW 2304
T: +61 1300 054 469
info.au@strataworldwide.com

EUROPE

Ursulinenstr 35,
66111 Saarbrucken
Germany
T: +49 (0) 681 41095066
T: +49 (0)1 52 52075776
info@strataeurope.com

www.strataworldwide.com