



# MINING

The benefits of implementing IoT within the mining sector are clear, however adoption has remained slow hindered by the environmental challenges of deployment. Initial attempts at digitalization saw the deployment of programmable logic controllers (PLCs) and supervisory control and data acquisition (SCADA) systems for monitoring and controlling however, this has proved ineffective due to the lack of interoperability and open standards. Additionally assets move, the environment changes and coupled with limited or unreliable connectivity especially in underground mine sites infrastructure has remained a problem. Wittra offers the perfect solution in a single technology deployment.

## TARGET APPLICATIONS

- Asset Tracking
- Environmental Monitoring e.g., Gases
- Waste Management / Cost Optimization
- Predictive Maintenance
- Equipment Utilization
- Workflow Automation

## TOP MINING CHALLENGES

- Infrastructure Implementation
- Underutilized Equipment
- Misplaced Assets – Lost Time
- Multi-level & Harsh Environment
- Remote locations struggle to pick up Cellular/GPS signals
- Ease of Deployment
- Site Safety and Security



## WITTRA IOT OUT OF THE BOX

Wittra IOT out of the box is a wireless sensor network kit with a cloud-based API that can be deployed on a site to monitor objects and assets. The ruggedized kit, enables users to Connect, Sense and Locate their assets in the toughest environments such as heavy industrial sites and areas of weak connectivity. The use of sub-GHz frequency bands provides long transmission range and enables the signal to penetrate dense building infrastructure. With pre-certified hardware, the kit is secure, easy to deploy and ready for field deployment.

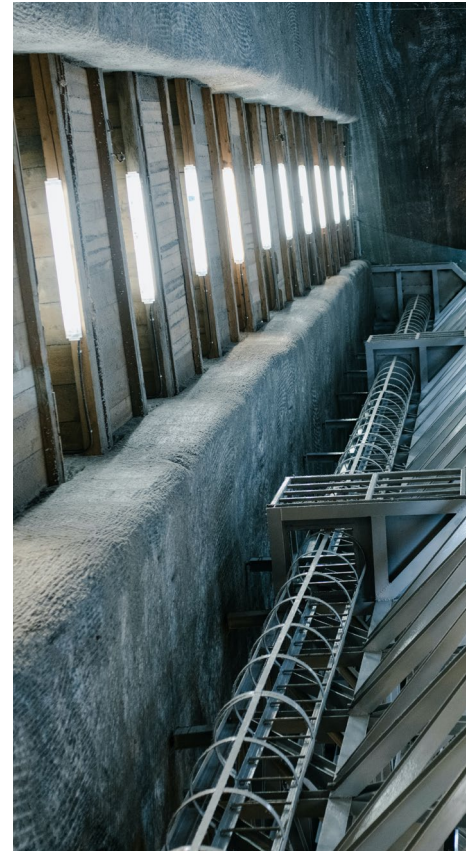
## THE WITTRA SOLUTION TO YOUR CHALLENGES?

Wittra offers the only solution to allow users to Connect, Sense and Locate their assets in the toughest environments or areas of weak connectivity in a single technology deployment. We accelerate and simplify IoT delivering predictable pricing and a predefined ROI.

## MINING SOLUTION OVERVIEW

Building an IoT solution with Wittra is child's play, simplifying complexity is a key element of the Wittra DNA. Wittra's pre-integrated, pre-tested and pre-secure Network Kits allow users to collect, communicate with and control their assets on day one. Our web portal simplifies device commissioning, and the network monitoring tools ensure ease of deployment; And together with our cooperation with several world leading platforms providers Wittra offer the simplest way to build end customer solutions, Month becomes days. Wittra overcomes connectivity issues, devices run in an IP-based 6LowPAN mesh radio network. Using sub-GHz radio bands Wittra provides long range and good penetration of structures with the option of a cellular backhaul.

- ✓ Accurate location and orientation, multi axis positioning down to 1 meter can operate in underground environments
- ✓ Predictive / Preventative maintenance through usage data and analytics
- ✓ Data for workflow planning /Automated equipment utilization reporting
- ✓ Heat-map generation for resource monitoring
- ✓ Reduce carbon footprint. Increased efficiencies generate cost savings
- ✓ Rugged for harsh environments
- ✓ Strong signal penetration strength
- ✓ Less hardware and lower implementation costs of deployment



## KEY BENEFITS

Wittra will help you reduce development and operational costs.

- ✓ Quick and easy application development cycle, weeks become days
- ✓ Future proof. Extend with click-on sensors
- ✓ Build comprehensive, cost-efficient, and competitive solutions
- ✓ Based on open standards for quick and easy interoperability
- ✓ Easy to install, integrate, support, and maintain
- ✓ True mesh eliminates radio black spots, giving total asset visibility in all environments
- ✓ Highly secure using TPM authentication chips in all devices

✓ Pre certified

✓ Ruggedized IP67

✓ Cloud API

✓ Plug and Play



## ABOUT WITTRA

Wittra Sweden AB develops innovative technologies and solutions within Internet of Things (IoT). Since its start in 2012, Wittra has been able to secure a substantial portfolio of intellectual property and rights linked to its innovations. The unique pre-integrated, pre-tested and pre-secure solutions allow users to collect, communicate and control their assets even in the toughest of environments.