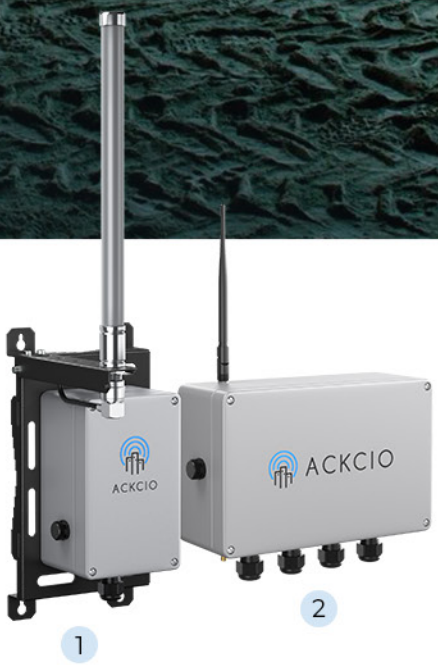
ACKCIO

CASE STUDY

AUTOMATED MONITORING

for an Innovative Underground Mine in Eastern Europe



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PROJECT TYPE: Underground Gold-Copper Mine

REGION: Eastern Europe

INDUSTRY: Mining

MAIN PRODUCT:

1. Ackcio Gateway (BEAM-GW),
2. Ackcio Analogue Nodes (BEAM-AN-S4)

CHALLENGE

A gold and copper mine in Eastern Europe comprises approximately 100 kilometres of underground tunnels whose structural integrity must be regularly monitored to ensure worker safety and manage risk.

“The challenge is taking readings,” says Rupert Birch, Vice President EMENA at Ramjack, a full-service technology implementation partner for the mining industry, which has provided the mine with leading-edge monitoring solutions for the past several years.

The mine’s former approach of having workers take manual readings with hand-held data loggers was time-consuming, inefficient, and potentially dangerous.

> **With every journey underground, there’s a risk involved. The fewer people you can have going underground, the better.**
>
> *— Rupert Birch*

And manual readings only provide a snapshot of what’s happening underground, elevating risk significantly, as geological forces could cause dangerous changes to tunnel safety and stability between readings. The mine, recognized as a leader in digital innovation, approached Ramjack to automate its geotechnical data collection by connecting sensors to its WiFi network.

SOLUTION

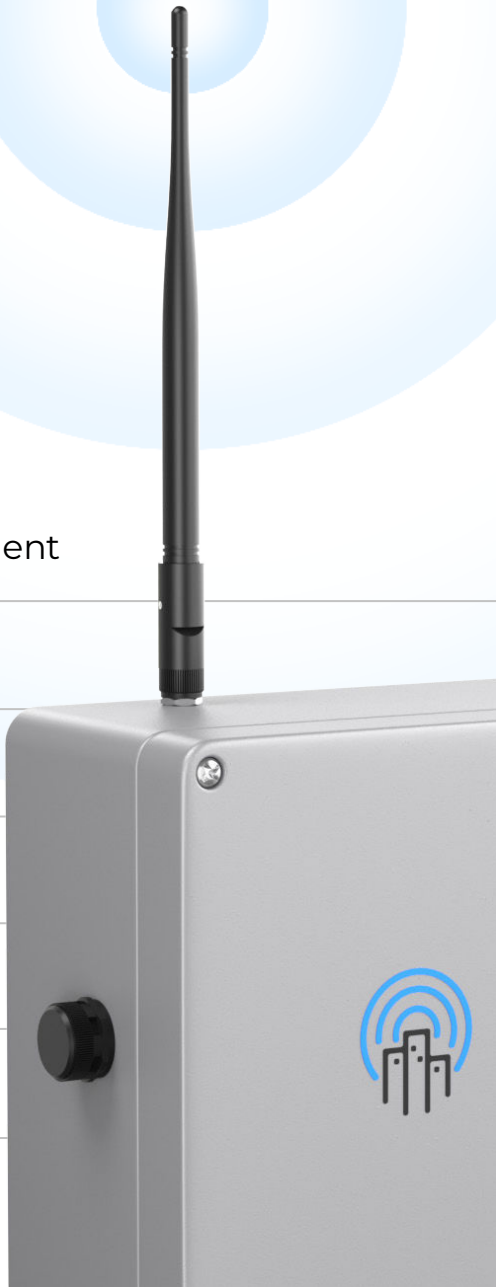
Ramjack chose the Ackcio Beam wireless data acquisition solution to overcome the mine's transmission challenges.

It comprises three Ackcio Analogue Nodes (BEAM-AN-S4) monitoring three multi-point borehole extensometers located up to 150 metres from the mine's nearest access point. The battery-powered nodes transmit readings to two Ackcio Gateways (BEAM-GW)–and all without extra cabling or power supply. The Gateway then sends the data to the mine's WiFi network.

This solution relies upon Ackcio's patented, long-range wireless mesh communication system. Developed over years of research in the wireless networking field, it automatically mitigates common wireless problems, such as signal interference and blockage.

Benefits

- Communicates reliably in an underground environment
- Removes the need for manual data collection
- Reduces power consumption to ultra-low levels
- Eliminates cabling, power supply to nodes
- Offers remote adjustment of reading frequency
- Scales easily



RESULTS

- ✓ Remote, real-time data access
- ✓ Increased worker safety
- ✓ Improved risk management
- ✓ Complete understanding of rock movement

Since July 2021, the patented Ackcio Mesh technology is reliably transmitting real-time data from the mine's underground sensors to its WiFi network, eliminating the need for workers to go underground to take manual readings. It has also increased the mine's risk management, as its operators can monitor and respond to changing conditions in real-time.

"One of the benefits of using Ackcio is that you can change the number of readings or the time between readings, depending on your needs," Rupert says. "Having that flexibility is a definite plus."

Another benefit he notes is that Ackcio is product agnostic, integrating seamlessly with multiple technology sensors and software platforms to provide an end-to-end solution.

Now, with proof-of-concept from this successful pilot project in a challenging underground environment, Ramjack plans to work with the mine to expand the Ackcio system to up to 14 more sensor locations and over longer distances.

Along with Ackcio's technology, Rupert has been impressed by its service.

"Ackcio has been engaging, quick to react on issues, and responsive in shipping devices to us," he says. "We look forward to working with them on future mining projects."

TESTIMONIAL

Ackcio is bringing to the mass mining market the ability to collect data that previously would have been too difficult to access from a cost or infrastructure perspective. They are taking away that difficulty, and making it easier to get reliable, real-time data.

— Mike Jackson, President & CEO at Ramjack, shares his view on how Ackcio is transforming the mining industry.

RAMJACK Technology Solutions

ABOUT RAMJACK Ramjack Technology Solutions is a full-service system integrator, technology implementation partner and value-add reseller to the mining industry in Africa, Europe, the Middle East and Latin America. Through their custom service offering and partnerships with international technology manufacturers such as Ackcio, they provide real-time technology solutions and localized services that guarantee improvements in safety, productivity and effectiveness for open-pit and underground mines. Their products can help mine customers to monitor, manage and optimize anything that matters in real-time.

ACKCIO

ABOUT ACKCIO Ackcio builds reliable wireless data acquisition systems for industrial monitoring applications. The company automates monitoring processes and provides remote, intelligent data to enable increased safety and efficient risk management in mission-critical industries, including construction, infrastructure, mining, and rail. Ackcio's flagship solution, Ackcio Beam, is an industrial data acquisition platform that uses a patented long-range wireless mesh network to monitor sensors accurately and reliably in both above ground and underground environments. Ackcio is headquartered in Singapore and supports clients across the world. In 2021, the company was included in Forbes Asia's inaugural '100 to Watch', a list comprising small companies and startups on the rise across the Asia Pacific.

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