Automated Monitoring for an Innovative Underground Mine in Eastern Europe 2021

TFM, one of the world's largest copper and cobalt producers, realised additional $58M USD value in the first year of utilising Ramjack's rROC. The savings were a result of:

- Savings of $8M due to reduction in machine failure, maintenance costs, and improved availability in the first year of using the rROC
- The mine avoided lost production equal to $50M in the first year of using the rROC

Together, all of these benefits reduced the fleet's maintenance costs by $8M and added $50M back to their production outcome through secondary improvements.

CHALLENGE

Manual readings with hand-held data loggers were historically inefficient, time-consuming, and potentially dangerous.

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. 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.

PLAYERS

A gold and copper mine in Eastern Europe

RAMJACK Technology Solutions (RTS) – a specialized, systems integrator dedicated to operations technology for the mining industry in Africa, Europe, and the Middle East.

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

TECHNOLOGY

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

- The technology solution 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

- Reliable communication in an underground environment
- Eliminates the need for manual data collection
- Ultra-low power consumption
- No cabling, power supply needed for nodes
- Remotely adjust reading frequency
- Easy to scale

RESULTS

- 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.
- As the need occurs, the team has the flexibility to change the number of readings or the time between readings
- Because the product is agnostic, it has integrated seamlessly with multiple technology sensors and software platforms to provide an end-to-end solution.
- Next steps are to expand the Ackcio system in up to 14 more sensor locations and over longer distances.

RAMJACK Technology Solutions

Ask us a Question

CONTACT US

Find us at an Event

FIND US

Visit one of our Locations

VISIT US

Follow us in the News:

Subscribe to our Newsletter

Email Address

SUBSCRIBE

Privacy Policy