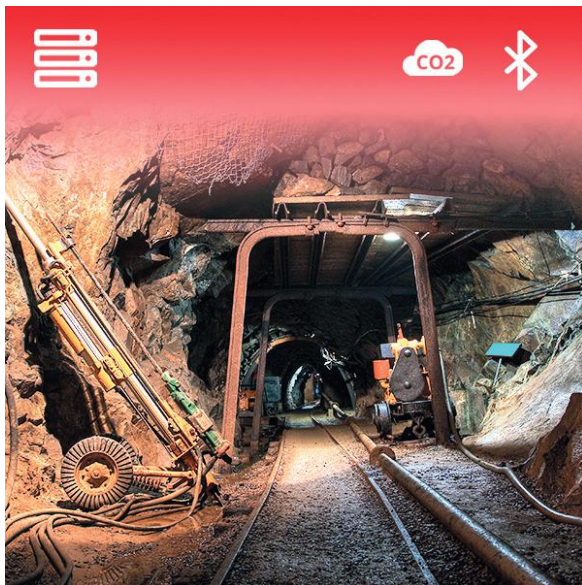# USE CASE

Positioning and Evacuation in the Mining Industry

AT A GLANCE

- server-side positioning in case of danger
- location overview in digital map
- monitoring of working conditions (CO_2 content)

PROBLEM DEFINITION

Especially in mining it is important to check the working conditions for their harmfulness to health and to design them safely. Because there are many different dangers waiting underground. One of the most dangerous is an excessively high CO_2 concentration in the air. The gas is odourless and tasteless and works in the body without warning.

SOLUTION

A solution for the implementation of employee tracking in the event of danger, combined with a system for monitoring working conditions, offers suitable measures for occupational safety and health management in mining.

In addition to position sensors, condition sensing sensors for gas detection and air quality monitoring can be installed in the tunnels. In this way, employees can be warned in good time and evacuated if harmful gases are emitted in the tunnel or if the quality of the air is impaired in any other way. If the CO_2 concentration in the air is too high, the miner can be quickly warned or located in an emergency.

A condition monitoring system permanently monitors the air quality and controls third-party systems as required in order to ensure consistently optimal working conditions.

TECHNICAL IMPLEMENTATION

infsoft Locator Nodes and infsoft Sensor Tags are installed throughout the tunnel. The sensor tags measure the CO_2 content in the environment and send the scan data via Bluetooth to the locator nodes. These then send the data to the infsoft LocAware platform®. In the Automation Engine, the status information is linked to conditions, so that management systems can automatically trigger actions such as increasing the supply of fresh air when limit values are exceeded.

Each employee is equipped with a Bluetooth Low Energy Beacon (BLE) in the form of an ISO card. The beacons send signals which are received by the infsoft Locator Nodes and forwarded to the infsoft LocAware platform®. In case of danger, the position can be determined here and displayed to security staff in an application.