



WirelessUnderground

ASSET UTILIZATION MANAGEMENT

❖ ONLINE MONITORING

Monitor and analyze the operation and performance of your underground mining assets in real time from your office on the surface or anywhere in the world.

❖ IMPROVE UNDERGROUND ASSET UTILIZATION

Locate as well as communicate with the idle mining assets as well as identify their performance and utilization from a control station on the surface.

ASSET MANAGEMENT & SAFETY SYSTEM For UNDERGROUND MINES

Production as well as the safety of the workers in Underground Mine is heavily dependent on the real-time visibility of mining equipments, workers and environment inside tunnels.

WirelessUnderground System is a *completely wireless and automatic system* for real-time tracking and sensing that is *devoid of any human intervention*

It offers

- **Real-time tracking of miners & mining equipment**
- **Real-time monitoring of utilization** of mining equipments

- **Real-time monitoring of underground environmental condition** i.e., emission of toxic gasses, humidity, temperature, wind velocity etc. inside the mine
- **Audible emergency warning signal** on detection of emission of toxic gases
- **Audible warning to prevent collision** between miners & mining vehicles
- **Audible warning to alert the miner** approaching unsafe areas
- **Single-click emergency messaging** by miners to control station on the surface

- **WirelessUnderground** Mining Solutions are based on PervCom's *five patent-pending proprietary technologies* that use the benefits of low-power IEEE 802.15.4 wireless mesh networking technologies overcoming the limitation of power-hungry WiFi based tracking systems.
- **WirelessUnderground** tracks equipments like SDL, Horizontal Longhole Drills, Scaling Machines, Load Haul Dump machines for their utilization over a period of time, and improve upon their performance in future based on the analysis of recorded data.
- **WirelessUnderground** monitors environmental condition by placing Wireless Sensors at different locations within the mine that automatically senses
 - Current temperature, humidity, wind direction-velocity
 - Poisonous gasses (e.g. Methane, Carbon Monoxide)
 - Thus, immediate automatic warning may be issued to ensure safety
 - Emergency situations can be handled efficiently & automatically
- **WirelessUnderground** ensures safety of the underground miners in case of a disaster strike; tracks the exact location of the trapped miners, sends emergency messages from the mine workers to control room. Also avoids possible collision scenario between mobile mining vehicles and the miners.

WIRELESS REAL-TIME LOCATION TRACKING



Each mining asset and worker can be viewed and tracked from a control room on the surface. Wherever they go, they can be watched in real time & elementary alert messages can be exchanged from control station to the workers/machine operators in the mine



ENSURING SAFETY

Improve the safety of the underground working environment by detecting sudden emission of toxic gasses and warn the workers located nearby. If a miner unknowingly approaches a hazardous area such as roof fall zone or gaseous zone, he will get an audible alert to stop his movement. If a miner comes in the vicinity of a mining vehicle, both miner and the vehicle will get audible alert to prevent impending collision.



ENSURING TRANSPARENCY

WirelessUnderground is completely automatic & requires no manual intervention. System generates automated reports on the asset utilization. User gets emergency notification even on cell phone.

Wireless Underground

