

Cohda Mining Locate: Positioning System

Mine operators seek localization features to enhance operations on their sites.

Given the challenges of limited GPS signal availability underground, localization through V2X communication offers crucial capabilities to improve safety, efficiency, and overall productivity in underground mines.

Cohda Mining's Locate Positioning Service accurately determines the positions of mining vehicles, equipment, and personnel within the underground environment.

The Cohda Mining Locate Positioning Service is composed of 2 parts:

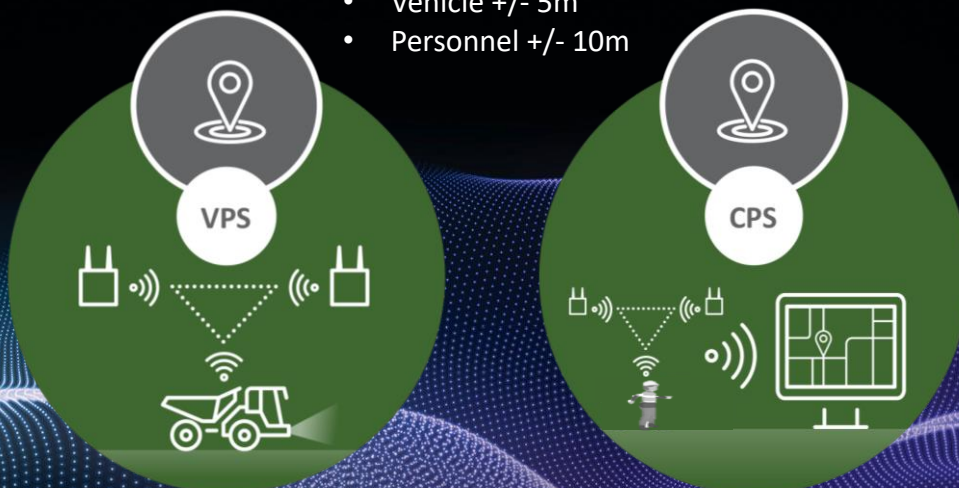
- Vehicle Positioning Service (VPS) for localization of vehicles
- Central Positioning Service (CPS) for localization of personnel and other positioning services

This real time locating system provides an overarching range of benefits around the mine sites, with some of the most important as:

- A map base situational awareness for vehicle operators
- Operation tracking of vehicles equipment and personnel for superintendents and managers
- Localizations and visualization of vehicle Interaction
- Production Tracking
- Incident analysis

Positioning Systems Performance

- Vehicle +/- 5m
- Personnel +/- 10m



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Vehicle Positioning Service (VPS)

VPS is a real-time positioning system operating within mapped tunnel networks with infrastructure equipped with Cohda Wireless Infrastructure Road-Side Units (XBU-I) and Vehicles equipped with On-Board Units (XBU-V) devices.

This system achieves a position accuracy of +/- 5m, relevant to the length of an average underground mining vehicle.

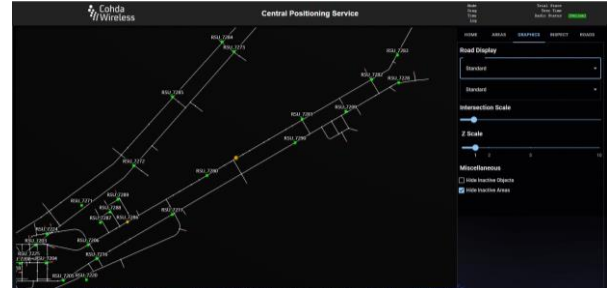
The system takes the unique ranging techniques of the XBU-V (vehicle), tapping into the capabilities of the XBU-I (infrastructure) to triangulate and update vehicle positions accurately along the mapped tunnel. It also uses the Inertial Measurement Unit (IMU) to track vehicle rotation.

Central Positioning Service (CPS)

CPS operates as a positioning service on the Central Site Server (CSS) utilizing network of XBU-I units. It generates, collects, processes, and publishes positioning data of both vehicle and personnel using V2X capable cap-lamps.

The data is made accessible through Cohda's web-based CPS visualizer for visual monitoring and also via a MQTT services for integration with other systems.

CPS achieves a position accuracy of +/- 10m for personnel, meeting operational needs.



The Cohda Mining Locate Positioning System includes:

- On-Board unit hardware XBU-V and Infrastructure Unit (XBU-I) including Mining specific firmware
- Annual maintenance
- Annual warranty (if extension requested)
- Cap Lamp scanner
- Cap Lamp management tool
- Engineering services for specific configuration & testing/verification support

Hardware

Designed for use underground mining, our XBU-I and XBU-V products are ruggedized for the harshest conditions.



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