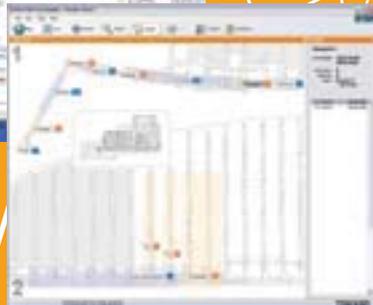
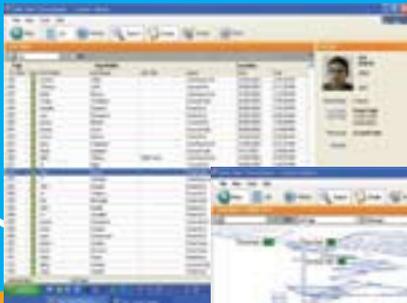


IMPACT

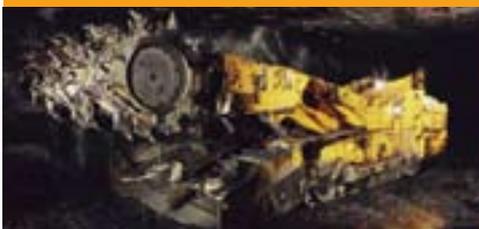
The FUTURE of mining communications

Personnel and Asset Tracking



Productivity & Safety through
Mine-Spec digital applications

Asset management
Personnel safety
Traffic management
Scalable system
Real time data



IMPACT

Personnel & Asset Tracking

The ImPact technology suite is designed to lead mining communications and digital infrastructure into the future. The ImPact tracking system has been specifically created for the mining industry to operate within the harsh environments encountered in all types of mining from underground to surface.

The ImPact tracking system is a cost-effective method of asset and personnel tracking, ensuring that the whereabouts of underground staff is always known, and that assets can be quickly located, particularly at shift changes.

Active RFID tags are carried by personnel or attached to assets such as vehicles and other implements. These tags are detected by strategically placed digital tag readers, typically installed at section entries, load points ore passes, draw points, and refuge bays. Location and movement data can be monitored and tracked, in real time, throughout the mine and presented in list format or as overlays on mine plans and maps.

The application software provides users with a customisable viewer and powerful sorting, filtering, and searching tools, with comprehensive logging and extensive report generating facilities.

The system can be expanded to drive signs, lights and sirens for access control, traffic management systems, electronic tag boards and diesel token management. The software can also be Integrated with automated mustering, ventilation and process control systems.

Features and Benefits

Applications

- Asset Location
- Movement Tracking
- Bottleneck Identification
- Traffic Management
- Access Control
- Electronic Tag Board Control
- Intelligent Ventilation Control

Identify and locate assets throughout the mine

*Improve management of mine assets.
Accurate reporting of location and cycle times.*

Viewable from any authenticated PC

*Simple set up with simple support and operation.
No client software or activeX required.*

AeroScout powered tracking engine

*Proven and robust solution from the industry leader in tracking.
Superior reliability.
Mine specific customisations.*

2.4GHz Wi-Fi tags

Superior range ensures reliable tag read.

Tags available integrated in Cap Lamps

*Tag is always with mining personnel and charged with lamp.
No tag loss.
Ensures PED text messages or other communications can be quickly directed to the person closest to the location of interest.*

Enables location aware diesel token management applications

Improved safety through accurate zone access control for personnel and vehicles.

Block light activation

Improved safety and efficiency through optimised vehicle movements.



Typical personnel & asset tracking system

The ImPact personnel and asset tracking solution enables accurate tracking, increased personnel safety and, should the situation arise, a vital aid to emergency management. The system uses active RFID tags attached to vehicles, assets and carried by personnel together with wireless access points to indicate movement and location within the mine.

The tags can be stand-alone or, for greater reliability and longevity, integrated in the Mine Site Technologies (MST) Integrated Communications Cap Lamp (ICCL). The tag's unique identification data is registered each time it passes a Wireless Access Point. This data is logged to the database and then displayed in the desired format, allowing the location to be known and tracked, at all times, throughout the mine. When using the optional web based viewer, location and movement data can be combined with user-defined rules to trigger a

desired action. The active tags use a 2.4GHz signal which propagates extremely well in an underground environment increasing the accuracy and reliability of tag reads.

The wireless points can be configured to work with a single radio for presence detection or with two radios and directional antennas to determine the direction of travel. The latter method allows accurate 'zone boundaries' to be established. As a safety measure, in the unlikely event that surface communications are lost, the wireless points have the ability to display tag read data on underground signs and store it in a cache to be replayed when the network link is restored.

The tracking solution can be integrated into other systems to provide diesel token monitoring, access and ventilation control, traffic management and automated mustering systems.

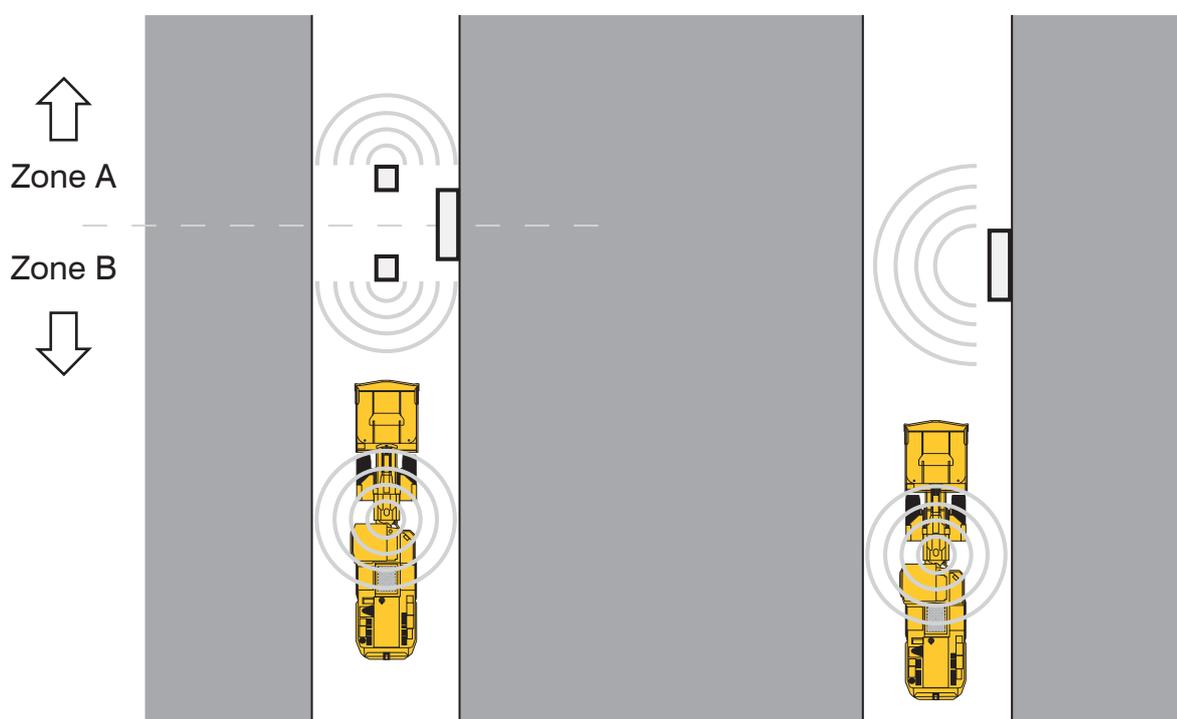


Fig1. Zone boundaries. The left-hand example shows a truck moving from Zone B to Zone A. The truck will be detected by the directional antenna at the edge of Zone B, followed by the antenna at the edge of Zone A, giving a direction to movement. The right-hand image shows presence detection, whereby the truck is detected as having passed the antenna.

Tracking viewer



- Operates on standard platforms (NT/2000, XP, TCP/IP)
- Web based viewer available
- Basic viewer available which can be upgraded when additional functionality required
- Multiple view styles
- Export to Ms SQL7/2000 or MySQL 3.21
- Low minimum system requirement.
- User customisable display
- Scalable system
- Can be linked to access control systems

Tag board viewer



- Customisable display
- Easy and rapid identification of personnel and vehicles

Zone display unit



- Diesel token management tracks maximum permissible number of vehicles
- Location data can drive block lights or traffic control

Active RFID tags



- Self contained tags with IS certification
- Available as an integrated option with MST's Cap Lamp
- Replaceable battery
- Transmits: unique ID, battery level and checksum data
- 60m - 120m range

IMPACT

The FUTURE of mining communications

Network Infrastructure

- Takes your LAN underground cost effectively
- Forms the foundation of the ImPact portfolio
- Enables remote monitoring and control of equipment
- Allows easy and modular design of underground networks
 - Facilitates wireless data communications and VoIP
 - Reads Wi-Fi tags to support location aware application
- Rugged IP66 housing designed for the mine environment



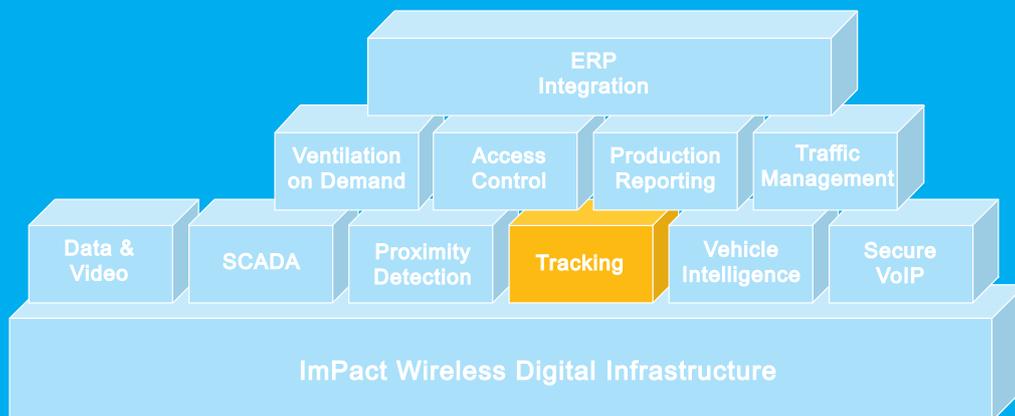
Vehicle Intelligence Platform

- View vehicle diagnostics in real-time
 - Payload data in real-time
 - Acquire vehicle location data
- Report productivity information with greater accuracy
- Integrate with leading manufacturers' equipment (Such as Caterpillar etc)
 - Compliments your existing Mine Site Technologies Ethernet system



Proximity Detection

- Reduce risks in personnel / vehicle interactions
 - Minimise communications to control room
 - Notify operators instantly in-cab



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Mine Site Technologies Pty Limited reserves the right to make changes to the specifications and information contained in this brochure at any time and without notice.
Photo of Atlas Copco Equipment, Joy Mining & Komatsu. MST-TRK0309

