



## **Solutions for Underground Mining**

Collision Awareness and Staff/Vehicles Monitoring System



# RealTrac solutions for Underground Mining

Real Trac is famous for its *Collision Awareness System(CAS)* and *Staff/Vehicles Monitoring System*, which ensure:

1. Highly protected personnel
2. Minimal false alerts of CAS (thanks to precise technology +-1 Meter accuracy)
1. Comfort for customers (one tag for monitoring and CAS inbuilt into miner's headlight)



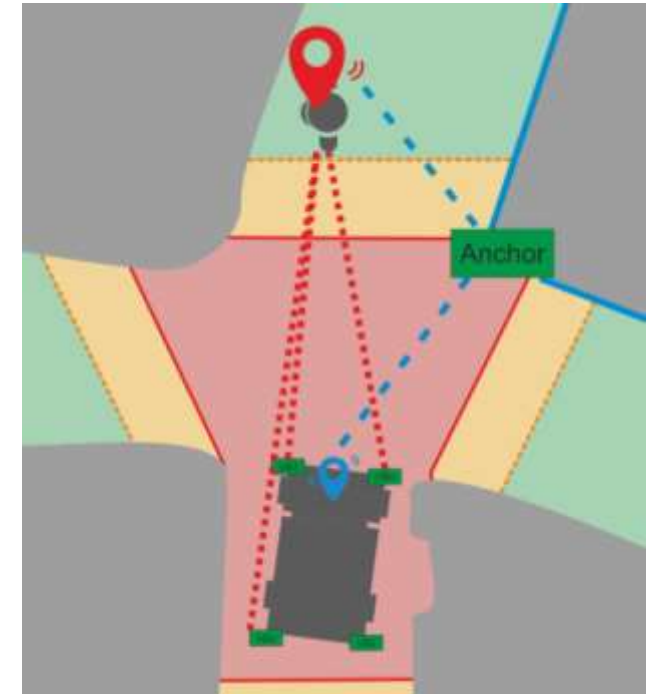
Collision awareness equipment for vehicle



Tag for personnel (1 tag for both CAS and monitoring system inbuilt into miner's headlight – no separate charging required)



Staff/vehicles monitoring system



CAS and monitoring with just one Tag

# Features of our Collision Awareness System

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1. Minimal false alerts due to unique technology:
  - fully configurable safety zones with various shapes, can be tailored to most type of vehicles
  - precise triangulation with UWB technology to monitor actual position of other tags/equipment around vehicles
2. Sense behind the corner
  - Thanks to special UHF technology staff/equipment can be seen even behind the corner
3. No Internet or server connection required
  - The product detects dangerous proximity and issues warnings independently from server or Internet connection.



IP67

# Collision Awareness System : content of equipment



Controller.



Outer antennas



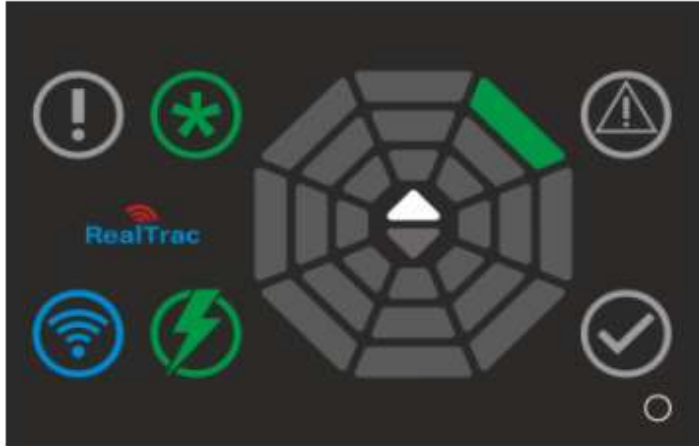
Display



Personnel Tag



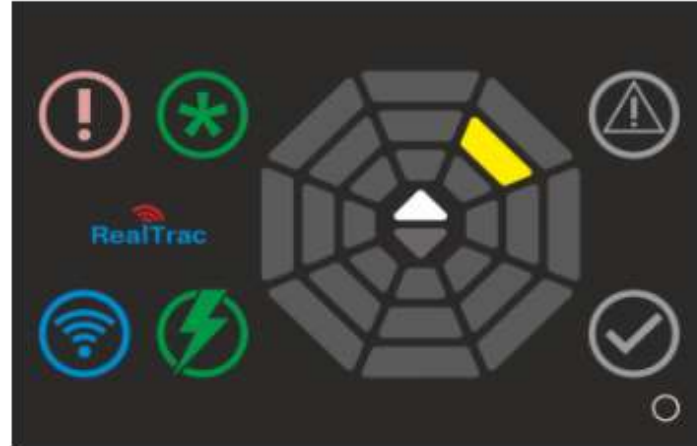
# Alert Concept of the Collision Awareness System



**“Alert” zone**

**Display reaction (inside cabin):** green light

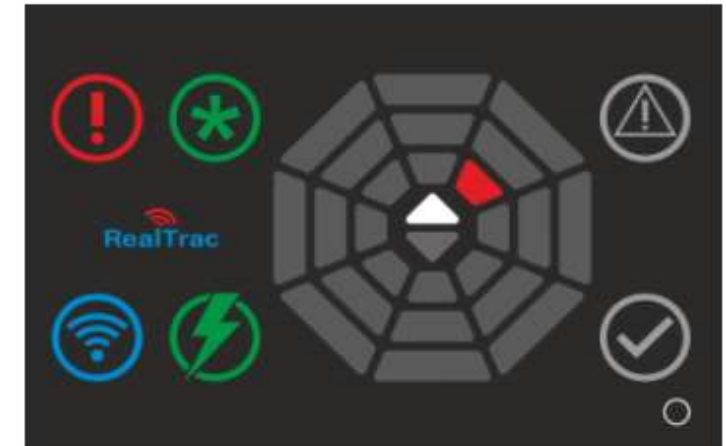
**Tag reaction:** discrete vibration and LED signal



**“Danger” zone**

**Display reaction (inside cabin):** yellow light and sound  
**Vehicle reaction (possible option):** strobe light and blinking yellow marker lights outside of a vehicle

**Tag reaction:** repeating vibration, LED signal and sound



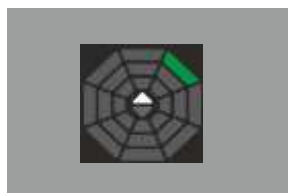
**“Emergency” zone**

**Display reaction (inside cabin):** red light and sound  
**Vehicle reaction (possible option):** emergency strobe lights and car siren/horn outside of a vehicle

**Tag reaction:** continuous vibration and sound

## 7 types of alerting:

Display light



Display sound



Tag sound



Tag vibration



Tag light



Vehicle sound (option)



Vehicle light (option)



# Features of Staff/Vehicles Monitoring System

## 1. Mix of zonal and precise positioning with one tag:

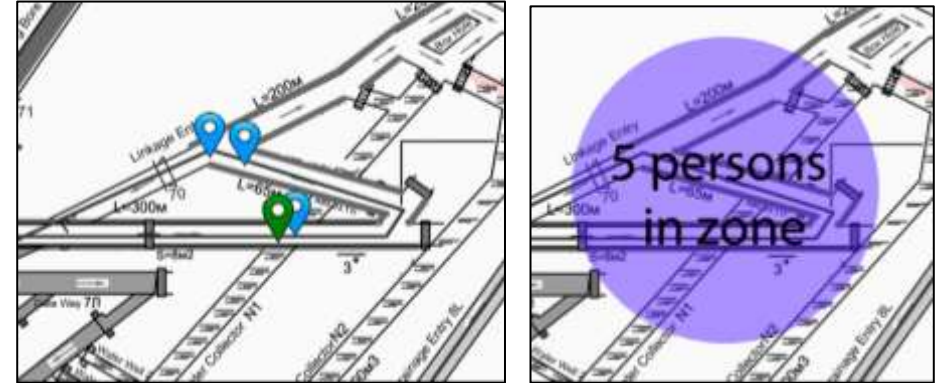
- zone positioning - 30-50m accuracy
- precise positioning – accuracy better than 1m

## 2. Mix of underground and open pit monitoring:

- With our system you can keep on monitoring your staff and equipment even when they move from open pit to indoor thanks to the mix of different radio technologies inside one tag

## 3. Simple integration with actual management systems through API:

- analytical reports (time spent in different zones, equipment tracking & utilization, etc.)
- alerts to control room (danger zone violation, etc.)
- tracking personnel and vehicles on site map in real-time, or on-demand



Mix of zonal and precise positioning



Mix of underground and open pit monitoring

# About Real Trac



**RealTrac**

7'000+ units deployed  
in mining

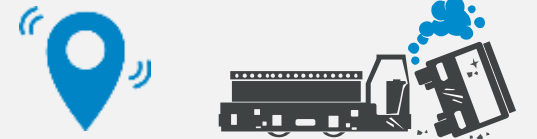


12+ mines use RealTrac  
positioning, collision  
avoidance, and other  
equipment



Local Support Teams

- Latin America
- Europe
- South Africa
- Russia
- etc.



RealTrac is famous for:

- Collision Awareness (vehicle to vehicle, vehicle to person)
- Outdoor and indoor person/vehicle/equipment positioning (zone and precise)

Some RealTrac customers:



## RealTrac International

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Switzerland, Lugano

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## RealTrac Technologies

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