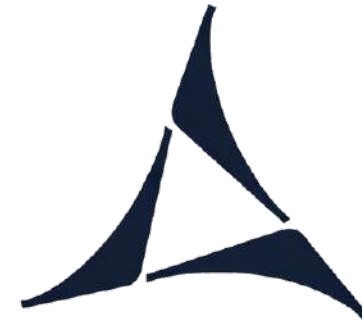




REAL-TIME INDOOR TRACKING SYSTEM FOR INDUSTRY

Enhance operational safety, control, and efficiency by enabling real-time tracking of personnel and equipment involved in production processes within industrial manufacturing environments.



TRACEONIX



Real-Time Indoor Tracking System for Industry

How do you effectively track assets such as personnel, equipment and forklifts involved in industrial production areas? How do you effectively optimize the workforce and task processes in these areas? Are you able to control the movements of assets such as personnel, vehicles and equipment and vehicle-vehicle, vehicle-pedestrian interactions in these environments, which include moving assets in a large number of different structures, and in terms of safety? Do you know exactly where your employees are in the environment in case of an emergency? The TRACEONIX indoor positioning system provides solutions for these and similar problems by enabling real-time monitoring of personnel, equipment, forklifts and vehicles in indoor areas such as an industrial production area where GPS technology is not active and there are harsh environmental conditions. In this solution process, the TRACEONIX indoor positioning system takes into account needs such as cost, coverage area, positioning accuracy and offers the most suitable and efficient system with its intelligent algorithms, allowing the use of different technologies together or separately.



Areas of Usage



Personnel Tracking

TRACEONIX enhances both safety and operational efficiency by enabling real-time monitoring of employees across industrial facilities. Through continuous tracking of personnel locations, managers gain instant visibility to optimize workflows, prevent delays, and respond rapidly to incidents. The system strengthens regulatory compliance, coordination, and overall workforce protection.



Object Tracking

TRACEONIX enables continuous monitoring of machinery, equipment, and materials throughout production. Real-time visibility prevents losses, reduces downtime, and improves resource utilization. Tracking interdepartmental movements enhances efficiency and cost-effectiveness.



Forklift Tracking and Optimization

TRACEONIX provides full visibility of forklift and vehicle movements, enabling inefficiencies to be identified and routes optimized. Analysis of historical and real-time data minimizes waiting times, reduces fuel consumption, and prevents collisions, facilitating safer, faster, and more efficient material handling operations.



Security Check

TRACEONIX enhances workplace safety through intelligent area monitoring and automated alerts. Virtual zones and geofences restrict access to hazardous areas and trigger alarms upon boundary breaches. This proactive system prevents accidents, ensures regulatory compliance, and maintains continuous situational awareness across the facility.



Emergency Management

TRACEONIX enhances emergency response through real-time tracking and SOS alerts. By instantly locating personnel and vehicles, it enables faster evacuations and effective coordination. Delivering critical situational data and reducing response times, TRACEONIX strengthens workplace safety and crisis readiness.

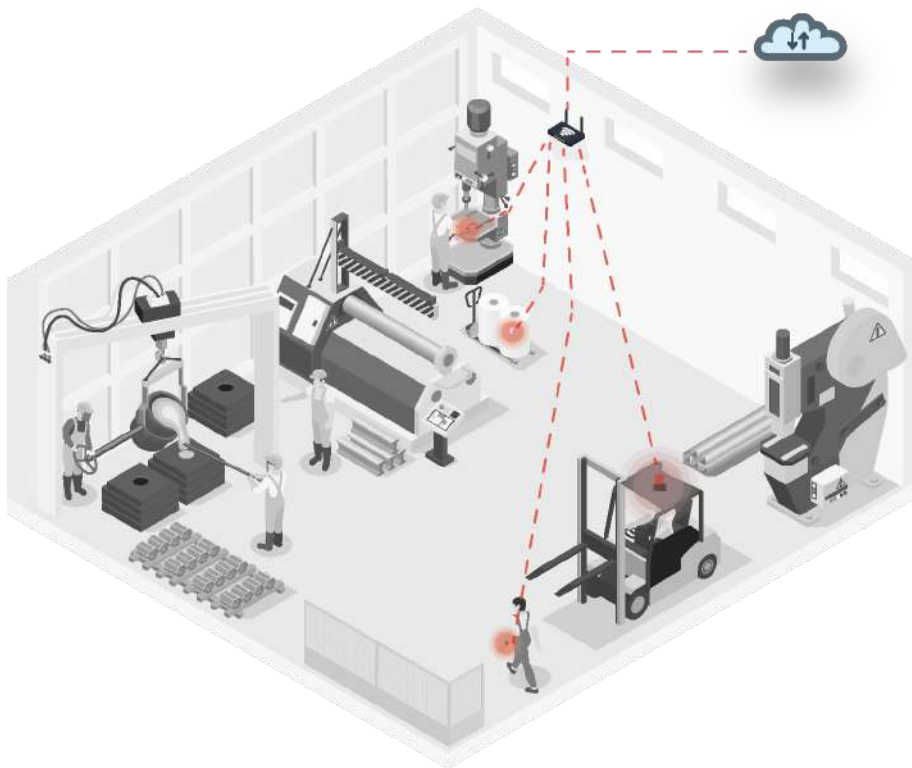


Vehicle Pedestrian Safety

TRACEONIX reduces collision risks between vehicles and personnel in high-traffic areas. Proximity detection provides visual or auditory alerts, instantly notifying operators of unsafe distances. This real-time awareness enables safer movement, improved visibility, and a more secure industrial environment.

How Does It Work?

In industrial production environments, the TRACEONIX indoor positioning system tracks mobile assets by attaching tags that emit signals to the assets to be monitored, while receivers are installed at fixed locations to capture these signals. This creates a network of fixed receivers and mobile tags. Signals from the tags are transmitted via the network to a location server, which calculates the positions of the mobile assets using the signal data and visualizes them on a map. This process is repeated at regular intervals to provide real-time location tracking.



Basic Features

Installation

- Minimum infrastructure requirement
- One flexible infrastructure that is scalable and suitable for the future business case

Positioning

- Cost-effective positioning with BLE technology
- Location detection with high accuracy with UWB

Mapping

- Real-time location tracking
- Real-time visibility of asset (personnel, object) locations

Virtual Zone

- Creation of descriptive virtual zones within the environment

Emergency Management

- Real-time notification of emergency situations

Analytics

- Rich customizable reports for requirements (heat map, asset movement analysis, etc.) and screens



Indoor Positioning Solution

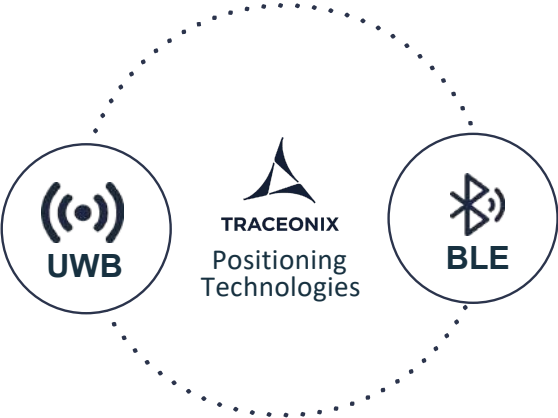
The TRACEONIX indoor positioning system is designed to meet diverse requirements such as cost and accuracy, allowing technologies like Ultra-Wideband (UWB) and Bluetooth Low Energy (BLE) to be used independently or together depending on the environment. By leveraging each technology's strengths, the system provides an adaptable, dynamic tracking infrastructure capable of efficiently addressing current and future needs. For instance, in industrial settings, BLE may be used where high precision is not critical, while UWB is preferred in machine-intensive zones requiring accuracy. This ensures the most cost-effective solution for varying conditions and requirements.

TRACEONIX Indoor Positioning System Based on BLE Technology

- Low power consumption
- Low cost
- 3-5m positioning accuracy

TRACEONIX Indoor Positioning System Based on UWB Technology

- High cost hardware elements
- High positioning accuracy (80cm)
- Resistance to environmental and other signal interference



System Components

The TRACEONIX indoor positioning system provides professional, real-time positioning for all indoor environments by leveraging intelligent algorithms and the combined or independent use of BLE and UWB technologies. In this context, TRACEONIX indoor

Tag

These devices attach to mobile assets (personnel, equipment, vehicles) to track their movements within the environment.

Gateway

These devices are installed at fixed points in the environment, collect tag signals specific to their designated locations, and transmit them to the location server.

Location Server

It processes the collected signal data for tasks such as position calculation, visualization, and analysis. It is the software component of the system.

BLE System Components



UWB System Components

