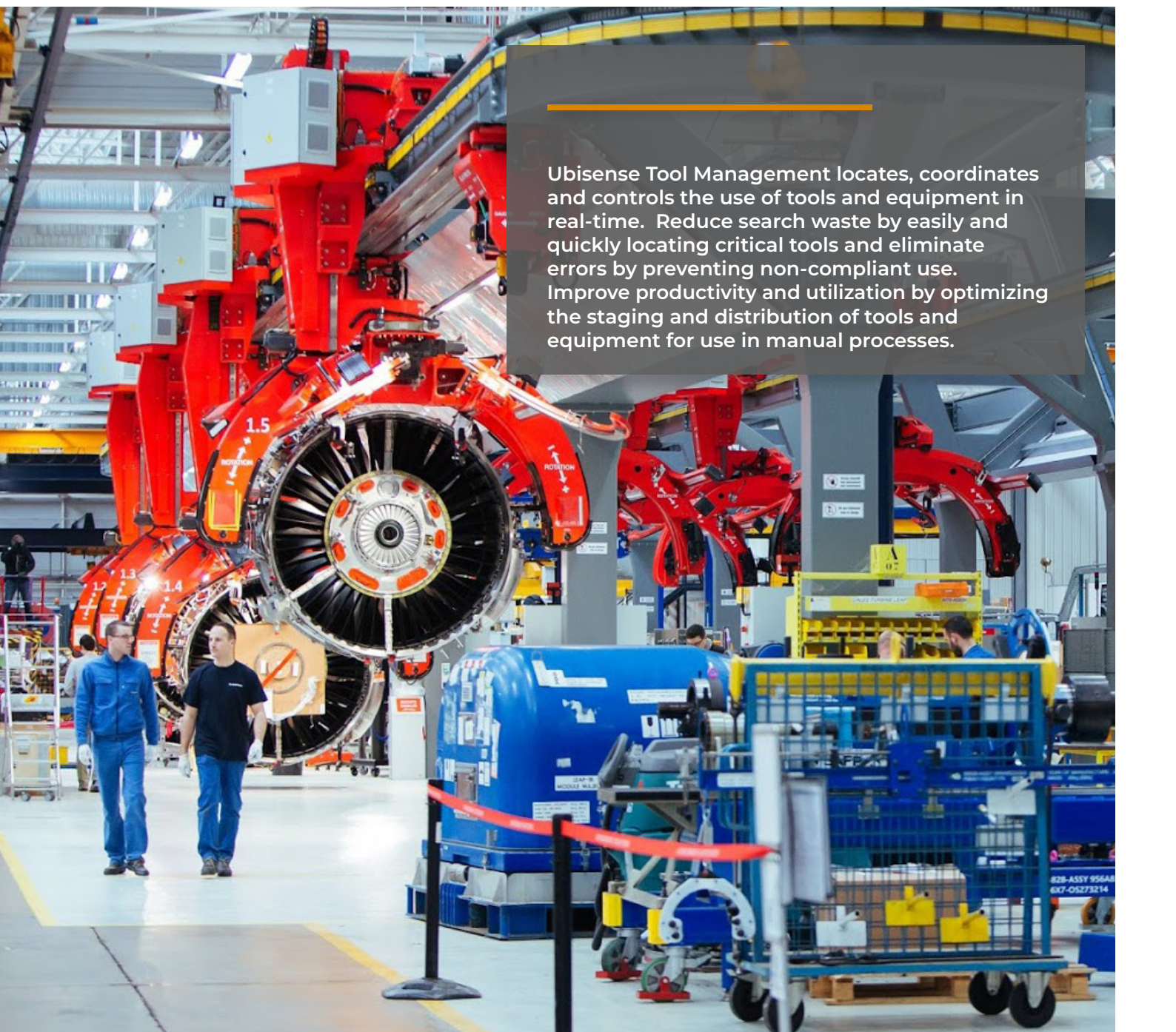


TOOL MANAGEMENT

Solution Brief

A large industrial factory floor with several red robotic arms in the background. In the foreground, there are blue metal carts and a red safety barrier. Two workers in blue uniforms are walking on the left side of the frame. The floor is polished and reflects the overhead lights.

Ubisense Tool Management locates, coordinates and controls the use of tools and equipment in real-time. Reduce search waste by easily and quickly locating critical tools and eliminate errors by preventing non-compliant use. Improve productivity and utilization by optimizing the staging and distribution of tools and equipment for use in manual processes.



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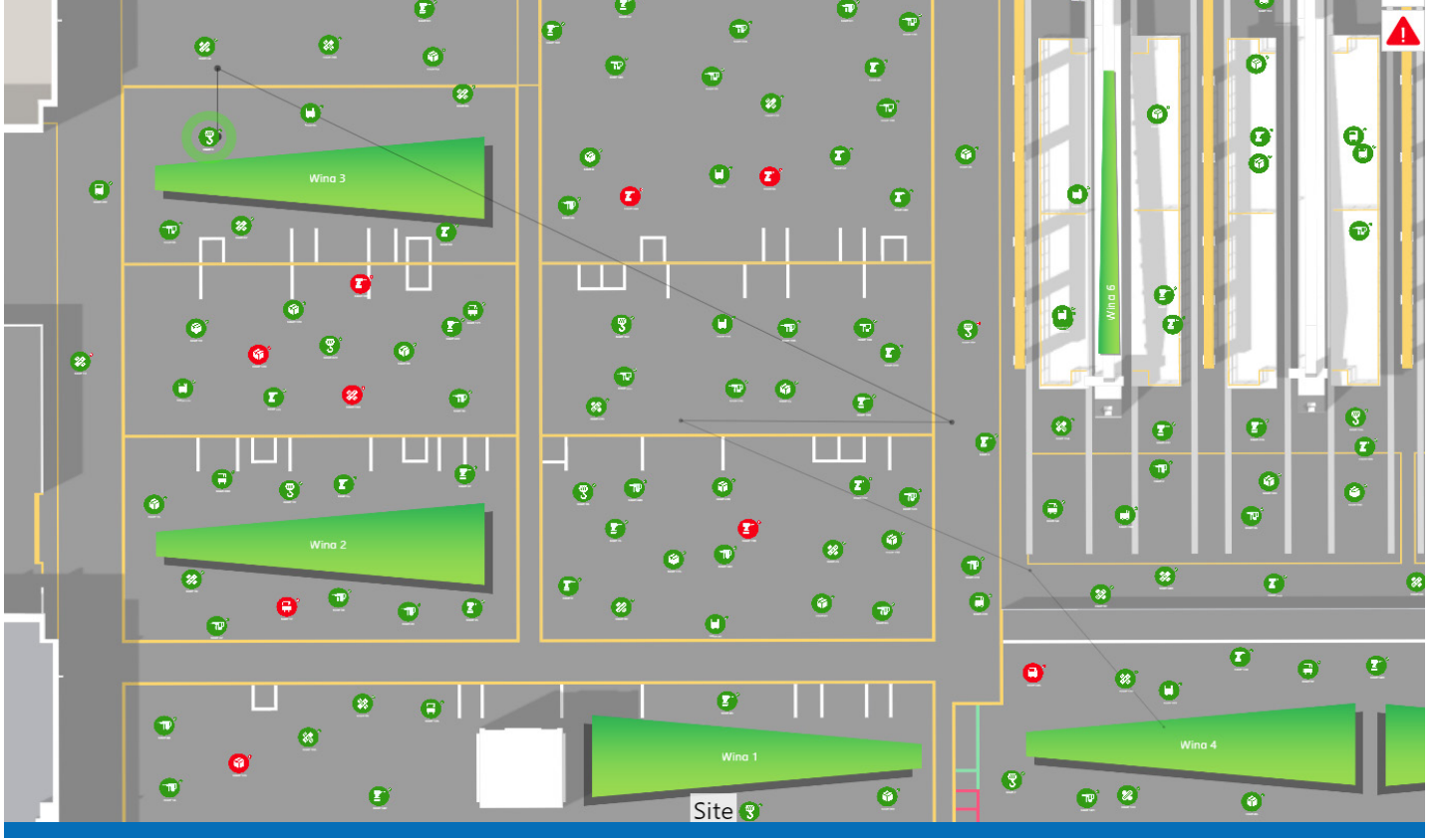
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The Challenge

Complex, manual processes depend on the availability of the right tools and equipment, in the right place at the right time. Often tools are staged incorrectly or not returned to storage areas, putting them at risk of being lost or damaged. The use of high-value shared equipment can be uncoordinated, and important calibration schedules missed.

These challenges can lead to:

- Increased costs from inefficient use of equipment
- Poor quality from incorrect use of tools
- Wasted search time and loss or damage of critical assets



Quickly locate and manage all tools across the facility and automate alerts for critical events.

The Solution

Ubisense Tool Management creates a digital-twin of your environment, combining software defined work zones and the real-time tracking of mobile assets.

Pre-configured functionality includes:

- Maps and searches for real-time location of tools
- Automatic alerts for the incorrect or unauthorized use of equipment
- Detection of equipment roaming outside of allocated zones
- Graphical reports of historical equipment utilization
- Alerts and controls to adhere to calibration and maintenance schedules

The Outcomes

Ubisense is proud to work with leading organizations around the globe, helping improve the management of tools and equipment to deliver the following outcomes:

- Reduced capital and operational costs through better resource utilization
- Increased productivity and reduced process cycle time
- Prevention of critical equipment flight-risk or Foreign Object Damage (FOD)
- Elimination of search-time waste

Ubisense Tool Management Functionality

Ubisense Tool Management includes pre-configured SmartSpace® software and a real-time location system (RTLS) to track the precise location, movement and status of tools to provide the following core functionality.

• Digital map of your facility

- Digital browser-based map of your facility imported via drawing or CAD file.
- Standard map icons for displaying common spaces and tool types.
- Simple import/scale/orient functions for custom icons and photos of tools.

• Define assets and spaces

- Define different types of assets with related properties and representation icons (e.g. tool, equipment, container).
- Create virtual spaces in 3 dimensions based on pre-defined space types (workstation, store, buffer etc) plus a fixed number of user definable types.

• Connection with Location System data

- Connect and track any type of Location System data (Ultra-Wideband, Bluetooth Low Energy, WiFi, GPS, RFID, LPWA) to suit requirements.
- Process real time tag data including location, battery status and properties (temperature, accelerometer).

• Manual tag association

- Manually assign tags to assets via an easy-to-use web form, barcode scan or CSV import

• Authentication and User access

- Role based user access to SmartSpace web interface using Active Directory or local users

• Pre-configured alerts

- Pop-up alerts, email notifications and icon updates with tool property changes:
 - Not located ('Lost') with last known location
 - Enter or exit of defined zones (allowed or prohibited)
 - Asset nearing maintenance or calibration date
 - Asset due maintenance or calibration

• Pre-configured searches

- Locate and filter assets using pre-defined asset properties:
 - Asset ID
 - Type, category or sub-category
 - Location or program (in defined spaces)
 - Asset Maintenance ID or Calibration ID
 - Expired or near expired calibration date

- Expired or near expired maintenance date
- 'Non-moving' assets
- Tags by battery status
- Associated or non-associated tags by MAC address for FOD
- Display asset properties (picture, ID, type, reference, designation, zone, availability) in searches and text fields for users to enter comments related to assets.

• Standard reports (web reports)

- Real-time reports for displaying:
 - All associated and unassociated tags
 - All assets by type and space
 - All assets not located
 - All assets with maintenance date
 - All assets with calibration date
 - Inventory report
- Historical reports for displaying:
 - Location history per asset over time (trail of movement overlaid on digital map)
 - Location history of asset by defined spaces including dwell time

• Application and System Integration

- Facility to integrate with Tooling Database, Maintenance, and Calibration/metrology systems through CSV file, RDBMS integration or API

• Persistent logging in database

- Logging of asset movements (location) and properties changes
- Logging of alerts and notifications

• Optional Functionality

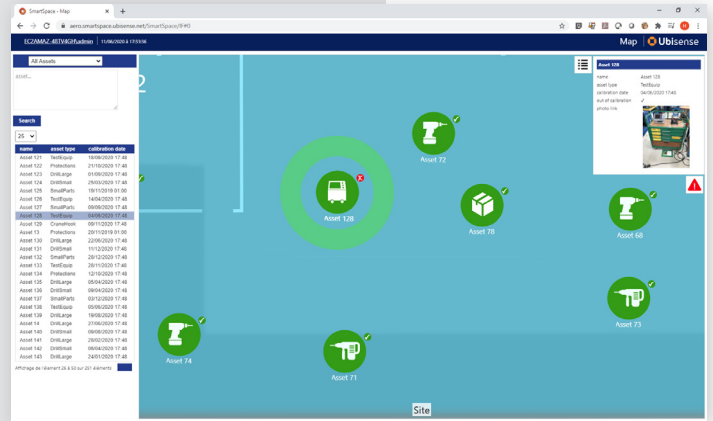
- Custom reports and dashboards
- Advanced IT
 - High availability setup (Failover and Dataset replication)
 - Test and production environments (property transfer)
 - Health monitoring
- Additional SmartSpace solutions:
 - Process monitoring
 - Production Logistics monitoring
 - Inbound Logistics monitoring

Locating Tools

Complex, manual processes depend on the availability of the right tools and equipment, in the right place at the right time. Often tools are staged incorrectly or not returned to storage areas, putting them at risk of being lost or damaged.

Ubisense Tool Management reduces search time and helps coordinate the correct staging of equipment.

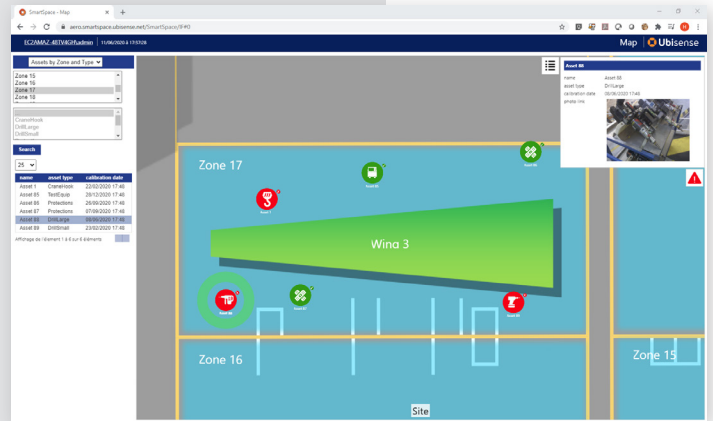
- Quickly find tools on a digital map of your facility
- Create searches based on real-time tool location and status



Track Tool Status and Usage

The use of high-value shared equipment can be uncoordinated causing increased costs and errors from inefficient or incorrect use of equipment.

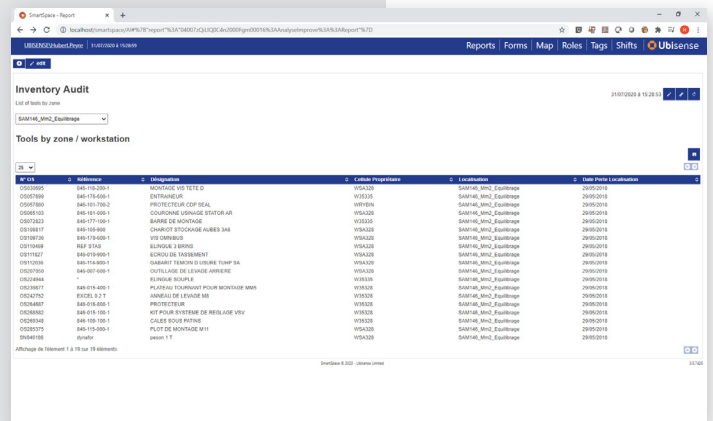
Ubisense Tool Management can ensure important maintenance and calibration schedules are met and tools are staged and used correctly, improving quality and utilization.



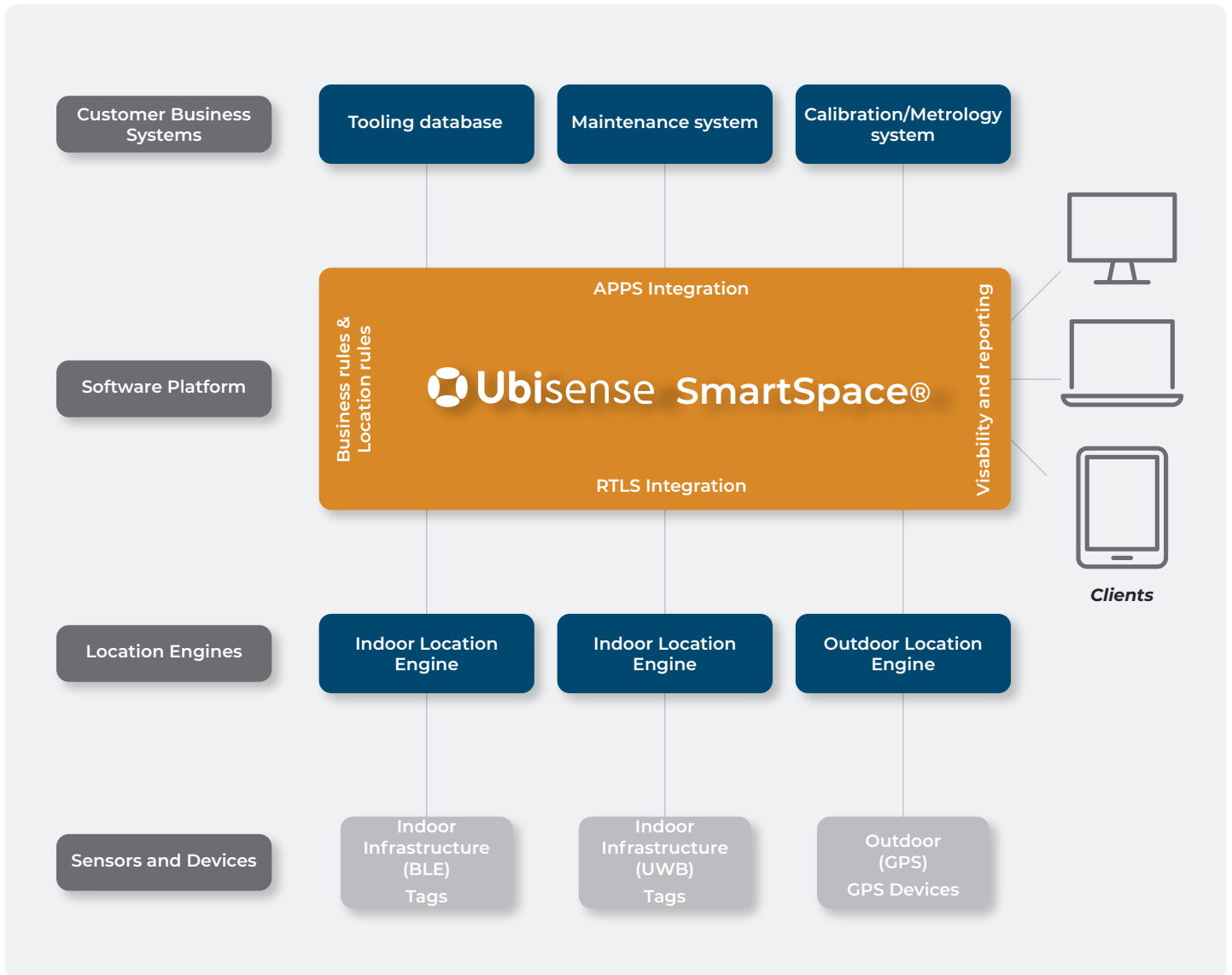
Automated Tool Audits

Ubisense Tool Management can streamline and error proof the check-in, check-out procedures for tools and ensure operations are protected against **Foreign Object Damage (FOD)**.

- Error proof tools with automated tool check-in, check-out based on real-time location of tools in storage areas
- Easily and quickly complete end-of-shift tool audits by taking a real-time inventory of the location of equipment on the shop floor or in storage
- Set alerts for potential **FOD** based on misplaced or missing tools



Solution Architecture



Ubisense SmartSpace takes any location sensor data, including Ultra-Wideband, Bluetooth Low-Energy and GPS, and integrates with existing tooling, maintenance and calibration systems to provide insight and control via any browser-enabled device.



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