Ubisense

Automotive

Case Study

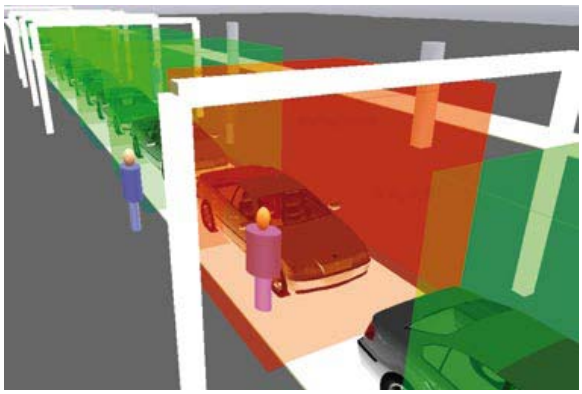
The Challenge
Automation of Car Assembly

In production line assembly, cars on computer-assisted process systems (power screwdriver systems, testing systems and pick-to-light systems) are often still identified by scanning the car ID manually using a barcode scanner. The corresponding assembly order is then automatically loaded to the process system to be carried out. Scanning manually is both laborious (many tens of thousands of times every day) and error-prone. The aim is to enable the cars to be identified and assigned to the process system fully automatically. The assembly order – unique to the car and the process system - should be loaded reliably, in real-time and without manual interaction.

The Solution
Continuous Location of Cars and Tools

Solution Description

The solution is based on the Ubisense Real-Time Location System to track cars and tools with high resolution. The assignment of a process system (e.g. power screwdriver) to an individual car is made by evaluating the spatial relationship between the system component and the car in real time. The manual scanning process can be entirely dispensed with: the trigger by which the assembly order is loaded to the relevant system is the entry of the tool or test component into one of the zones assigned to the car.



Process Description

In the car factory, around 1000 vehicles are assembled simultaneously and worked on using 150 power screwdrivers.

- Each power screwdriver is associated with one active tag. The power screwdriver ID is assigned to this tag.
- Each car on the assembly line also is associated with an active tag. The tag is positioned on top of the engine compartment. The tag ID is assigned to the car ID and to the car type fully automatically.
- A spatial zone is automatically assigned to the car, in accordance with its type.
- Cars and power screwdrivers are continuously located with high spatial resolution (30 cm) and up to 0.1 seconds temporal resolution.
- When the power screwdriver 123.4 approaches car 4711, i.e. the power screwdriver is in the vicinity of the car, the assembly order for this car is loaded to the power screwdriver.
- The same interface can be used for controlling the power screwdriver as is used to scan the barcode.
- Manual intervention by the assembly

About Ubisense

Ubisense is the world leader in Precise Real Time Location Systems, tracking unlimited numbers of people and objects in any space of any size. With unmatched 15cm 3D tracking accuracy and high reliability, its acclaimed open standards technology platform gives enterprises the power to bring visibility and control to previously intractable business processes. Together Ubisense consulting and its partners, such as IBM, Atlas Copco, Lockheed Martin and Raytheon deliver geospatial and RTLS systems, pioneering innovation whilst reducing costs, gaining competitive advantage and improving safety for companies across all vertical markets. With over 400 customers worldwide including BMW, Caterpillar, DHL, Duke Energy, Deutsche Telekom, US Army; Ubisense is revolutionising industries today. Visit www.ubisense.net

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