USE CASE

Process Optimization on a Construction Site

AT A GLANCE
- server-based component & staff tracking
- location overview on digital map
- monitoring of construction progress
PROBLEM DEFINITION

Construction projects are highly complex processes – there is a constant flow of deliveries and processes must be precisely coordinated and updated in case of delays. The successful management of a project depends heavily on how up-to-date the information is that the project or construction managers can access. If it is not clear who is carrying out which task and what material is on site and in what quantity, construction cannot proceed efficiently and according to schedule.

In addition, workers are exposed to many hazards during project realization. In emergency situations, the timely localization of employees is crucial in order to be able to evacuate them safely.

SOLUTION

A tracking system provides real-time information on the location of building materials and personnel (by zone), enabling a detailed monitoring of the construction progress. Site managers can ensure efficient planning and coordination of resources and make sure that projects are not over- or understaffed.

An overview of the number, location and, if required, condition of components and equipment helps to complete tasks efficiently and on time and to discover the lack of materials early. The use of condition sensors simplifies the monitoring of indoor climate values during construction drying. The detection of employee locations enables targeted, effective personnel deployment. It can be ensured that employees are only working in areas or taking over tasks for which they have sufficient training and authorization. In the event of an emergency which could require evacuation or a search and rescue operation, staff tracking contributes to increased personnel safety.

It is also possible to create daily reports for construction and project managers, which can be used as a basis for efficient process control.

TECHNICAL IMPLEMENTATION

The tracking system uses strategically placed infsoft Locator Nodes that detect Bluetooth Low Energy (BLE) beacons to locate personnel and components. The beacons are attached to the units/tools and carried by the employees (either in the safety helmet or integrated into the ISO card). infsoft Locator Nodes – connected to the power grid and the Internet – detect the Bluetooth signals emitted by the beacons.

infsoft Sensor Tags with integrated humidity and temperature sensors monitor the room climate and send the determined values via Bluetooth to the Locator Nodes. The Nodes transmit the position and sensor data to the infsoft LocAware platform®. Here, the data is intelligently processed and made available via web services.
For presence monitoring it is sufficient to install one Locator Node per zone. Since no mapping or calibration is required, the installation effort can be kept to a minimum. The tracking system works not only indoors, but also outdoors, e.g. in sections without a roof.

It is also possible to protect hazardous areas using the infsoft Automation Engine. If an employee's beacon is detected in one of these zones, an alarm is automatically triggered so that evacuation measures can be initiated.

All gathered data is linked in real time and can be evaluated at any time via the infsoft Analytics Engine.