

# Monitoring and Asset Tracking in the Healthcare Sector



## AT A GLANCE

- real-time localization of equipment & beds including condition monitoring
- real-time localization of staff & patients
- mobile emergency call via beacon wristband
- protection of areas due to automated door control



#### **PROBLEM DEFINITION**

A large clinical complex with several hundreds of thousands square meters has a lot of departments. Medical equipment (such as mobile X-ray machines or ECG devices) is frequently undetectable, either because the lending list is not up-to-date or because it is stolen or has been removed from the area by mistake. Bed management is another challenge many hospitals are facing. Disposition and localization of beds are often difficult to control and plan.

Furthermore, in clinics, medical emergencies of patients or threatening situations dealing with patients with aggression potential can occur at any time. In such cases, the nurse concerned is not always able to get help quickly enough. This also applies to patients moving freely within the building, who do not always manage to make themselves noticed in emergency situations.

The care sector is concerned with another problem: Demented people are often accommodated here, who must be prevented from leaving the facility unnoticed.

#### SOLUTION

The medical equipment and the hospital beds are tracked via indoor positioning. All employees have access to the position data via app or browser application. Information on the condition can also be registered (e.g. occupied, cleaned, damaged). If a medical device / bed should be prevented from leaving a certain area, an alarm is set for that case. Since each bed is identifiable, it can be registered at any time if a bed has been moved to a patient's room, the cleaning department or the workshop. Subtasks can be delegated to the cleaning and maintenance department.

To protect the hospital staff, employees are equipped with a Bluetooth transmitter, which can be used to trigger an alarm in emergency situations at the touch of a button. The location of the person concerned is immediately sent to colleagues and / or security personnel. This possibility of triggering a mobile emergency call can also be useful for patients moving freely within the building.

In the care sector, a tracking system ensures optimal protection and the freedom of movement of dementia patients. The patient can be denied access to certain areas by triggering an electric door lock. This also simplifies organizational processes in the facility.

### **TECHNICAL IMPLEMENTATION**

infsoft Locator Nodes are installed in the areas and at the doors to be monitored.

Bluetooth Low Energy (BLE) beacons are used to locate medical devices and beds. These battery-powered, disinfectant-proof hardware components are attached to the objects to be tracked. Positioning takes place via the network of evenly distributed infsoft Locator Nodes. The Locator Nodes receive the Bluetooth signals and transmit the data to the infsoft LocAware platform®, where the position is calculated and provided via web services. Using an app or a browser application, employees can see the location of medical devices and hospital beds with an accuracy of less than 5 meters on a map. A device management platform can be used to assign additional attributes to the beacons (e.g. device type, inventory number, technical characteristics), which may also be searched for.

Locator Nodes in combination with beacons ensure optimal protection of personnel and patients. Clinic staff can wear a Bluetooth transmitter in the form of a watch or bracelet. If a medical emergency or a dangerous situation occurs, an alarm can be triggered by pressing a button on the beacon. In this case, the beacon immediately transmits the position data of the person concerned to the infsoft Locator Node. Colleagues or security personnel receive the alarm message on their smartphone or pager and can react immediately.

Dementia patients can also carry a Bluetooth beacon, which is detected by a Locator Node within range. The Locator Nodes can not only detect the beacon, but can also control doors and alarms, thus delimiting or opening certain areas. In predefined protected areas, a demented patient entering the activation area of the Locator Node triggers an action, for example an electric door lock.

A beacon management tool allows for monitoring the battery status of all Bluetooth transmitters, facilitating maintenance.

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# infsoft GmbH

Ingolstädter Str. 13 85098 Großmehring Germany

#### Contact

Phone +49 8407 939 680 0 Fax +49 8407 939 680 12 contact@infsoft.com www.infsoft.com