Quuppa RTLS

Use Case Guide for **Healthcare**

The healthcare industry is very innovative when it comes to improving the daily operations of healthcare facilities to make them more efficient and safer for patients and staff. While the expertise of dedicated healthcare professionals plays an indispensable role, the healthcare sector is constantly testing new breakthrough medicines and developing new life-saving procedures.

One of the technology solutions gaining momentum in the healthcare industry is Real-Time Locating Systems (RTLS), which provide a comprehensive set of tools that resonates with the core mission of healthcare: to heal, protect and comfort.

Saving Lives and Enhancing Productivity

Location-based solutions in healthcare offer a wide range of important benefits, from saving lives to improving patient care and user experience. By using location data, healthcare facilities can automate processes, make informed decisions and allocate resources to improve efficiency and reduce downtime. In addition, real-time information about the location and availability of equipment and staff can facilitate effective collaboration and rapid response to changing needs.

RTLS can save lives. Here's how:

- **Enforcing Hand Hygiene Compliance**
- **Staff Route Optimisation**
- **Paperless Work Orders**
- **Automatic Inventory**
- **Medication and Cold Chain Monitoring**
- **Catering Logistics**

Hospitals house a wide array of valuable clinical equipment, some of which are substantially expensive. Within the intricate operational framework of healthcare facilities, it occasionally happens that such equipment goes missing. Through **asset tracking**, location-based solutions can help staff locate critical equipment without delay using a mobile app so that valuable time that could be utilised treating the patient is not wasted searching for things. Savings in asset tracking are also evident in less expensive items, such as hospital beds, which are typically rented or purchased on an as-needed basis.

RTLS can help lighten the load of healthcare workers by **optimising their routes** at work. When asset tracking is implemented, staff can quickly locate the equipment and patients they need to reach and take the most direct route to them. This saves time and physical effort. Historical data can also be analysed to determine if inefficiencies in the hospital set-up and daily operations could be eliminated to make it easier for staff to get from task to task. On the surface, reducing the additional physical strain on staff caused by extra walking through the day seems like a small thing, but in the long run, it can be significant for staff wellbeing.

In addition to optimising routes, the ability to implement **paperless work orders** using RTLS solutions can make the daily lives of healthcare workers easier. Paperless work orders mean that when a doctor or nurse enters a room, they receive an alert on their mobile device informing them of what needs to be done, rather than manually checking charts and other documents. This is much less of a hassle for staff and makes them happier and more productive.

In addition to equipment, hospitals need to be well-stocked with different types of medicines. RTLS can provide time-saving solutions by automating inventory counting. This is particularly useful for **crash cart management**, replacing tedious counts throughout the day. Nurses can scan the cart with a mobile device and receive immediate feedback on whether everything that needs to be present is there. The system can also be set up to alert staff to upcoming expiry dates so that supplies can be ordered in time, and to measure environmental factors to ensure that temperature-sensitive medications are kept at a constant temperature.

In the U.S. alone,
Healthcare Associated Infections (HAIs)
are the cause of fatalities for

80,000
patients per year

WHO
World Health Organization
https://www.who.int/

Cold chain monitoring in healthcare uses technology to track temperature-sensitive medical products such as vaccines and medicines. This ensures that they remain at the correct temperature during transport and storage. By using RTLS, healthcare providers can see in real-time if products are at the right temperature to ensure they are safe and effective for patients. This helps to prevent waste and improve the overall quality of healthcare.

Location technology can help healthcare facilities monitor **how rooms are being used**. The information collected by RTLS can help healthcare facilities **improve their layout** by identifying underused rooms that can be repurposed or areas that need more space. This leads to better patient flow, increased efficiency and an overall better patient experience.

Meal distribution is a dedicated logistics operation within the hospital process chain. The right food must be delivered to the right patient within a specific time frame to ensure it remains warm/fresh until it reaches the patient. All these steps, from delivery to the wards to distribution to the patients' rooms, and the collection of used dishes, require precise planning with many different parties involved.

Safety

Security is always essential for extensive facilities like hospitals, where many people come and go daily. In the case of hospitals, this is compounded by the fact that they care for several vulnerable patients and have a whole range of equipment and medicines that could be dangerous in the wrong hands.

RTLS can improve safety. Here's how:

- **Enforcing Hand Hygiene Compliance**
- **Assistance Buttons**
- **Child Abduction Prevention**
- **Access Control**
- **Optimising and Monitoring Patient Safety**

One of the greatest examples of how RTLS can save lives is by using it to enforce compliance with good hand hygiene practices. Thousands of people die from infections contracted in healthcare facilities every day. Far too often, these infections are transferred from patient to patient via the staff because of inadequate hand hygiene.

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RTLS can play a critical role in promoting and enforcing **good hand hygiene**. The technology enables monitoring and notification of doctors and nurses to ensure consistent hand washing between patients, thereby reducing the transfer of infections.

RTLS can make hospitals and other healthcare facilities safer by providing both staff and patients with devices with a **call button**. With a call button, a patient can call for help if their condition changes and they need medical attention. Similarly, if a staff member feels they need backup, they can call for help with a simple push of a button. Here, too, RTLS support is much more effective, as the responders can immediately see where the person in need is and make their way to them without delay.

Location-based services can also be used for **access control** to ensure that people without authorisation do not have access to certain areas. This is usually done by adding tags to staff ID badges or key cards. The system can then automatically let authorised people in, while people without authorisation remain locked out. RTLS is particularly well suited to this type of use case because there is no delay in response. This means that as soon as, e.g., the authorised doctor arrives at the locked door, it is unlocked, and they can enter.

Without a doubt, RTLS provides an additional layer of **protection against child abduction**. RTLS can be configured to trigger an alarm if a child is taken near or outside of designated areas or exits without proper authorisation, immediately alerting staff to the potential risk.

HAIs cost society
$ 28bn
per year

NCBI
National Center for Biotechnology Information
https://www.ncbi.nlm.nih.gov

In many medical emergencies, time is of the essence. Location-based systems can be set up to alert clinicians and nurses to **respond faster** to patients needing medical attention. For example, if hospital wristbands are fitted with tags that can measure static location and motion, the staff could be alerted as soon as a patient falls or tries to get out of bed against doctor recommendations.

Another use of RTLS for keeping patients and staff safe is **quarantine monitoring**. Using location data, the system can monitor whether quarantine conditions are being adhered to and send alerts to the relevant parties if patients leave quarantine. This can be an effective measure for preventing the spread of infectious diseases as action can be taken early.

Improving User and Customer Experience

Hospitals are usually quite hectic and sometimes stressful places. It is vital to make sure that patients can be confident that they will receive quality care in an environment that protects them and keeps them safe. At the same time, dedicated staff wants to ensure that patients are safe and visitors have the assurance that their loved ones are well cared for, even if they cannot be present.

RTLS can improve user experience. Here's how:

- **Reducing Waiting Times**
- **Less Invasive Patient Monitoring**
- **Visitor Navigation**
- **Legal Compliance**

RTLS can significantly improve not only staff conditions but also the experience of patients and hospital visitors. Often, **Emergency Room (ER) patients** are admitted into care based on the severity of their injuries rather than the order in which they arrive. RTLS can help staff **track how long** individual patients have been waiting and ensure that someone checks up on them from time to time to ensure that their condition has not deteriorated. The same system can also be used to locate the patient when it is their turn to see the a clinician if they have wandered away from the waiting room. In addition to better care, the system also helps hospitals track that they are meeting service-level agreements (SLA).

RTLS can also be used to improve the user experience for **patients in care homes**. A typical challenge is that while patients are not allowed to roam freely for their own safety, we do not want to lock them up in a prison either. Many alternative solutions, such as cameras, feel like an invasion of patient privacy. RTLS offers a less invasive solution. Patients can receive **wristbands with tags**, allowing location-based systems to track them. The tags can even be configured for access control to ensure that patients cannot enter areas that are not safe for them. This solution gives patients more freedom of movement while still keeping them safe.

The system can **guide visitors** to where they need to go. Navigation aids can be displayed directly on the user's mobile device or through custom signs shown on screens when the user reaches a certain point. Finding loved ones quickly and easily can help ease at least a little of the tension often associated with hospital visits.

RTLS can also be an effective way for hospitals to **monitor their operations**. Most hospitals have patient promises, such as how often staff check on patients and how often they receive medical care. This is especially true when patients are in critical condition or have various mental illnesses. If an incident occurs and these patient obligations have not been met, hospitals can face significant lawsuits. RTLS can be used as safeguard as they can provide reports proving compliance, i.e. that the clinician or nurse visited the patient as agreed.

RTLS can provide a range of monitoring solutions for healthcare. These solutions can be implemented through the same infrastructure, allowing healthcare facilities to extend the solution as their needs change and even making it possible to react faster to unexpected health challenges.