If you don't know where it is, it's not an **asset**.

Real-Time Locating Systems (RTLS) are opening enormous possibilities for asset tracking. For the first time, companies in any sector can deploy cost-effective solutions for real-time location of thousands of assets at both indoor and outdoor sites, and turn this location data into business value. Cost-effective Bluetooth® tags and advanced positioning systems enable real-time tracking of almost any type of asset with extreme precision. Tracking precision can be tailored from simple present/not present monitoring to centimeter-level accuracy. Industry-standard Bluetooth technology ensures compatibility with almost any device, from miniature tracking tags to smart phones and Bluetooth-enabled industrial tools.

Boosting Operational Efficiency

Real-time asset tracking offers numerous ways of transforming logistics and manufacturing operations. From the aerospace industry to the healthcare sector, knowing where tools, materials and equipment are located can mean significant improvements to efficiency.

- ✅ **High Accuracy, Real Time Location**
- ✅ **Indoor or Outdoor Use**
- ✅ **Long Battery Lifetime**

Asset tracking solutions are transforming the **logistics** and **maintenance sectors.** For example, at airport hangars and other large-scale aerospace facilities, significant savings can be made by implementing a system that allows workers to find the right equipment for the job at hand from the wide array of equipment available with ease. This way the whole maintenance process does not need to grind to a halt just because a piece of specialised equipment has been misplaced. The same real-time tracking systems can also improve operational efficiency in other fields of logistics and maintenance, such as in warehouses and other maintenance facilities.

GPS-based asset tracking has been used with some success in these applications, but the technology is limited by the relatively high cost and limited battery life of GPS tags. By contrast, the latest Bluetooth tags consume very little energy, offering up to several years of battery life in continuous operation. Moreover, for

> " Many companies are taking a broader, asset-centric outlook in assessing opportunities for increased revenue generation, cost savings and optimization efficiencies.

Optimizing Supply Chain Visibility and Asset Tracking for Customer-Managed Inventory
Gartner Research 2018
gartner.com

reliable operation, GPS technology requires a clear view of the sky, which is often not possible in indoor facilities.

High-precision indoor tracking is also gaining ground with **healthcare providers**. A large hospital may have thousands of critically important individual assets ranging from patient beds to specialized medical devices. Real-time asset location and inventory management not only decreases time spent looking for equipment, but also brings cost savings by enabling facilities to offer the same level of service with a smaller inventory.

Improving operational efficiency becomes even more important for life-saving assets such as emergency crash carts. Once existing assets can be located in real time and deployed more effectively, hospitals can get the maximum benefit from all their existing equipment.

Quuppa

Improving Process Quality

When combined with high-speed wireless connectivity and other Industry 4.0 capabilities, real-time asset tracking can improve production quality in a wide range of applications. In large industrial plants, even a few minutes of time saved per job can add up to massive incremental cost savings. Additionally, production quality is improved through the reduction of human error in assembly tasks.

✅ **Ensuring Availability of Key Tools**

✅ **Interactive Tag Features**

✅ **Compatible with any Bluetooth Device**

Large-scale industrial facilities such as **automotive plants** and aerospace assembly facilities depend on having the right component in the right place at exactly the right time – along with the right tools for the job. Traditional workflows typically involve staff receiving a paper work order manually and then collecting the correct equipment for the task. Digitalization and real-time tracking can streamline this process significantly. Assembly staff can be equipped with mobile devices that show not only the task to be performed, but also the location of the needed tools, which may be fitted with separate location tags or connected to the system with the devices' built-in Bluetooth capabilities.

At the most basic level, a wayfinding application on a mobile device can guide the user to the approximate location of the tool. Last-meter location can be improved further by two-way communication with the tag or device that is being located. As the user approaches the tool to be picked up, the system can trigger a blinking LED on the tag to ensure that the correct asset is collected. This can reduce errors from selecting the wrong equipment or component. A button on the tag can be configured for any interactive function required by the system.

Bluetooth Locators can also work as IoT gateways that enable sensor data to be passed to the system along with location information. This can be particularly relevant for ensuring process quality of e.g. temperature-critical products or devices. In such applications, either a specialised tag that includes a temperature sensor can be used to track the assets or an existing Bluetooth-enabled device including a temperature sensor can be integrated into the system to transmit the data.

Real-time asset tracking can be used to improve business processes that span the entire logistics chain. The loading and horizontal transportation of shipping containers at **ports and terminals** can be streamlined considerably with RTLS technology. Location data can be used to optimize the route-finding of container handling equipment and road trucks at the site. Moreover, by equipping both the outgoing loading facility and the customer's warehouse with cost-effective Bluetooth Locators, billing can be initiated automatically once the tagged items have been delivered to the customer.

Enhancing User Experience

Instant visibility on the location of products and assets can enable better user experiences for both workers and customers. When integrated with smart tools and IoT-enabled production processes, real-time asset tracking can improve job satisfaction while reducing the potential for errors on the job.

✅ **Optimised Route-Finding**

✅ **Improved Work Conditions**

✅ **Interactive Guidance**

In almost any type of production environment, RTLS can help workers do their jobs more efficiently and comfortably. Thanks to optimised route-finding and instant visibility on the location of the needed assets, forklift drivers at warehouses enjoy smoother and faster navigation during their workday. Real-time tracking saves nurses the need for trips around the hospital to find misplaced equipment, giving more time for patient care tasks and improving job satisfaction.

In **retail stores**, customers may wish to opt into real-time location on their mobile devices or smart shopping carts. This saves time in finding the right products, while enabling advanced analytics for optimizing people flow and product placement in the store.

Quuppa

In automotive assembly solutions, positioning can be used to monitor the process and support the assembly staff in their job. By tracking the location of Bluetooth-enabled smart power tools the worker can easily find the right tool, be guided interactively through the job (e.g. the tool can measure and record the torque applied to each fastener) to reduce human error and know that they have completed the task correctly. This can significantly reduce job stress and improve the user experience of workers.

Security & Theft Prevention

RFID solutions have a long history in shoplifting prevention. The latest Bluetooth-based RTLS solutions enable new cost-effective ways of tracking and securing assets at any point in the logistics chain.

✅ **Protection of Valuable Assets**

✅ **Support for Motion Sensors & GPS**

✅ **Enhanced Customer Service**

Retail stores require multiple levels of security and theft prevention systems, but solutions also need to be economical, simple to operate, unobtrusive to customers and easily scalable. In addition to traditional shop exit monitoring, real-time tracking systems can be used to tag valuable products and in-store assets at several different levels.

Geofencing solutions can raise an alarm if an asset leaves a designated area, or if it is not taken to the checkout counter via the expected route. For example, a built-in accelerometer on the tag can be used to signal if a product is picked up. In addition to shoplifting protection, this function opens possibilities for improving customer service by automatically signaling to staff that a customer may be interested in purchasing the product.

Precise real-time tracking is a cost-effective way to prevent loss of store assets such as shopping carts. An alarm can be triggered if carts are taken outside the parking areas of the store, or smart shopping carts can be equipped with automatic wheel locking if stolen. In addition to providing cost savings due to reduced theft, real-time asset tracking helps staff locate and collect carts from parking facilities and other areas of the store.

Bluetooth-based location solutions can be used for efficient theft prevention and monitoring for goods in transport. A single Locator beacon fitted in a truck or shipping container can be used for presence monitoring of high-value assets in the shipment. If the asset is removed prematurely, the system can raise an alarm, or the location where the item was taken can be pinpointed from GPS information in the vehicle data system. In this scenario, the Locator can serve as the IoT data gateway for the solution.

Cost-effective Bluetooth technology is enabling a host of new applications that go beyond what traditional GPS-based solutions can provide today. The above examples are only some of the new ways in which Real-Time Locating Systems are being used to improve productivity, efficiency and security in a wide range of industries.

Quuppa