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Blyott Case Study
RSL10-based Beacon with Indoor Localization Tracks Essential Hospital Equipment

Summary

Application	Location	Contracting Agency/Customer	Deployment	ON Semiconductor Products Used
Hospital Equipment Tracking, Indoor Localization, IoT Asset Management	Belgium	Blyott AZ Maria Middaleres	Real-Time Healthcare Mobile Asset, Patient, and Environmental Monitoring Platform	RSL10 SIP System-in-Package, Bluetooth® 5 Certified

Overview

While hospitals are often overcrowded currently, they also team with overwhelmed healthcare workers. At the same time, it is a challenge to keep track of medical and non-medical assets, staff, and patients. Indoor localization is required to determine the exact position of every piece of equipment down to a room. Accurately tracking each patient in real-time and the condition of the asset or patient and their environment could be transformative for healthcare providers. Also, such a system could aid in contact tracing.

Gery Pollet, CEO Blyott, noted, "While talking to many hospitals, we discovered that indoor localization is nothing new and something they need. This is not widely implemented due to high costs and complexity." Blyott offers healthcare organizations an Internet of Things (IoT) solution providing advanced monitoring of assets, people, and processes with data insights. By solving these vexing problems for healthcare workers, it enables them to improve patient care. Blyott employs quarter-sized *Bluetooth*® Low Energy protocol enabled beacons tracked by gateway devices tagged to assets, including patients and portable medical equipment. Their cloud-based platform offers tracking maps, analytics, and key performance indicators via HIPAA-complaint mobile app and web-based interfaces.

Challenge

Blyott needed to design their solution to solve the problem of overstressed healthcare staff track and monitor their inventory of assets, staff, and patients while providing actionable insight to healthcare providers. The solution needed to provide the following:

- **Locating** – real-time indoor localization of assets and persons, patient flows, inventory, and theft prevention, among other features.
- **Learning** – a machine learning system providing insight into more accurate localization, asset utilization, predictive maintenance, and, of course, the IoMT.

At the same time, the solution must be cost-efficient and plug-and-play capable of connecting directly into Wi-Fi® or Bluetooth network connectivity, supporting open standards, and being sterilizable up to 150 degrees Celsius.
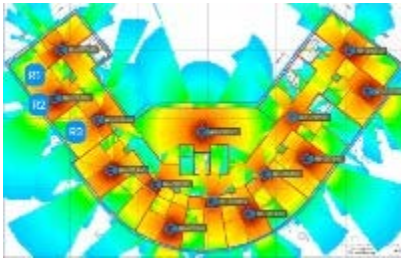
Solution

Tatwah, an ON Semiconductor® technology partner, equipped Blyott with an ON Semiconductor Bluetooth Low Energy solution that provides extended battery life – the RSL10 System-in-Package (SiP). Blyott selected Tatwah's RSL10-based beacons due to their small form-factor, ultra-low-power capabilities, and the ability of the IP67 tags to meet the stringent sterilization requirements.

Blyott's solution brings together several technological trends ubiquitous Bluetooth through Wi-Fi access points with built-in Bluetooth LE support, small, inexpensive Bluetooth LE sensors with long battery life, the Internet of Medical Things (IoMT) through wireless (bio) sensors for live monitoring, and scalable cloud computing. The solution consists of four components: Bluetooth sensor, Bluetooth locator, a cloud-based platform, and customer-accessible web and mobile applications with APIs to connect with client-based platforms.

Result

The affordable RSL10 Bluetooth Low Energy-enabled MCU-based tags provided the perfect solution, featuring long battery life in a small form-factor with waterproof IP67 protection that healthcare facilities like AZ Maria Middaleres (AZMM), a 600-bed acute-care hospital in Ghent, Belgium, critically require from an asset management solution. "At Maria Middelares, but in fact at every hospital, a lot of assets are used. Medical devices, non-medical are used, but sometimes the…staff can't find them, so a lot of time is spent. We were already looking, for a couple of years, for a good solution, a simple solution," confirmed Peter Dierickx, IT & Director of Facilities at AZMM.

The Blyott solution typically results in the prevention of inventory hoarding and theft with a savings of 10-20% of the annual medical assets budget and staff efficiency gains – a nurse can typically spend up to an hour a day searching for equipment. Cost savings and efficiency gains for a hospital are hundreds of thousands of dollars per year.

IoT technology like Blyott provides healthcare facilities the ability to digitize objects and provide real-time, actionable data and insights, thus transforming their asset management. Location-based technologies determine the precise location of assets and patients while sensors monitor the assets' condition and environment. Actionable insights grant healthcare providers significant time savings that allow greater focus on patient care and outcomes. On the positive impact of implementing the Blyott solution at AZMM, Jana Bovyn (project engineer) succinctly stated, "This way [our staff] save a tremendous amount of time, which they can use for what really matters, namely patient care."

The RSL10 Bluetooth Low Energy Radio Software Development Kit facilitates the rapid design and development of smart healthcare devices that bring intelligence to the vital work of improving patient outcomes. IoT application development accelerated with the RSL10 offers optimization of system size and battery life, featuring the industry's lowest power consumption with advanced, multiprotocol wireless capabilities. Intelligent healthcare IoT designers can take advantage of the simplicity of the RSL10-based SDK to bring their solutions to market quicker and help enhance people's lives.

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