



WASTE CONTAINER TRACKING WITH BLE ID BEACONS AND SENSORS

INTRO

Economic growth, swelling consumption, full-scale industrialisation have inevitably resulted in increased municipal solid waste, especially in large urban areas with multi-million populations. Unfortunately, managing waste effectively and timely becomes one of the greatest challenges. Wireless [Bluetooth®](#) technology, combined with vehicle telematics, opens up new possibilities for waste management monitoring, making a major difference.

CHALLENGE

According to the [‘What a waste 2.0’](#) article published by The World Bank, the world generates over 2 billion tonnes of municipal solid waste annually, with at least 33% of that not managed in an environmentally safe manner. Even more, global solid waste generation is expected to grow to [3.40 billion tonnes](#) by 2050 (roughly 70% increase), more than double population growth over the same period.

Whether it's public litter bins, recycler containers, or household waste containers, the way society and relevant companies handle their waste products is becoming increasingly important. Note this - waste management is a labour-intensive business and the costs of transportation alone are between \$20-\$50 per tonne.

To optimise inventory management, make data-driven decisions and improve ROI, the waste management cycle and its assets, including various waste containers, should be appropriately **tracked and monitored** in real time. Forward-looking managers of the utility fleet grasp this simple concept - they have to know for sure if and when certain waste containers have been visited by the particular dustbin lorry; if and when a particular container has actually been emptied.

Also, they must have a way and data to optimise lorry routes and service schedules based on known locations of refuse containers, be aware of technical problems or breakdowns, and keep track of the assets for which they are responsible to serve. Thanks to Teltonika [EYE Beacon](#) and [EYE Sensor](#) models with smart features, wireless Bluetooth® technology and a wide range of [vehicle GPS tracker portfolio](#), there are ways to overcome these challenges achieving desirable results.

SOLUTION



How it works with EYE Beacon - because each one has a unique ID number transmitted over the air as a radio signal at configurable intervals, [FMB130](#) devices mounted in waste collection vehicles read, identify them and send this data as [iBeacon](#) or [Eddystone](#) profile, combined with its GNSS location details, to a server for analysis and reports.

Special software conveniently displays the location of all beacons (in other words, tagged containers) based on the proximity to the nearest Teltonika GPS tracker within Bluetooth® range, the time of arrival and the time spent near the containers. What's more, the smart tracking software feature called 'Proximity Events' allows managers to group waste containers according to the proximity to the lorry attribute if needed.

How it works with EYE Sensor - this accessory model not only transmits a unique identification number over the air but also has an accelerometer with some built-in functions that are convenient for this use case, such as 'Movement status and count' and 'Angle status'. We can use them to identify the waste containers, track and count their movements and tilt angle data altogether in one go. When a waste collection vehicle is nearby and sensors are within range of a Bluetooth® signal, the FMB130 tracker will register these events and transfer the data to a dedicated server, confirming the fact that containers have been moved, lifted, and emptied.

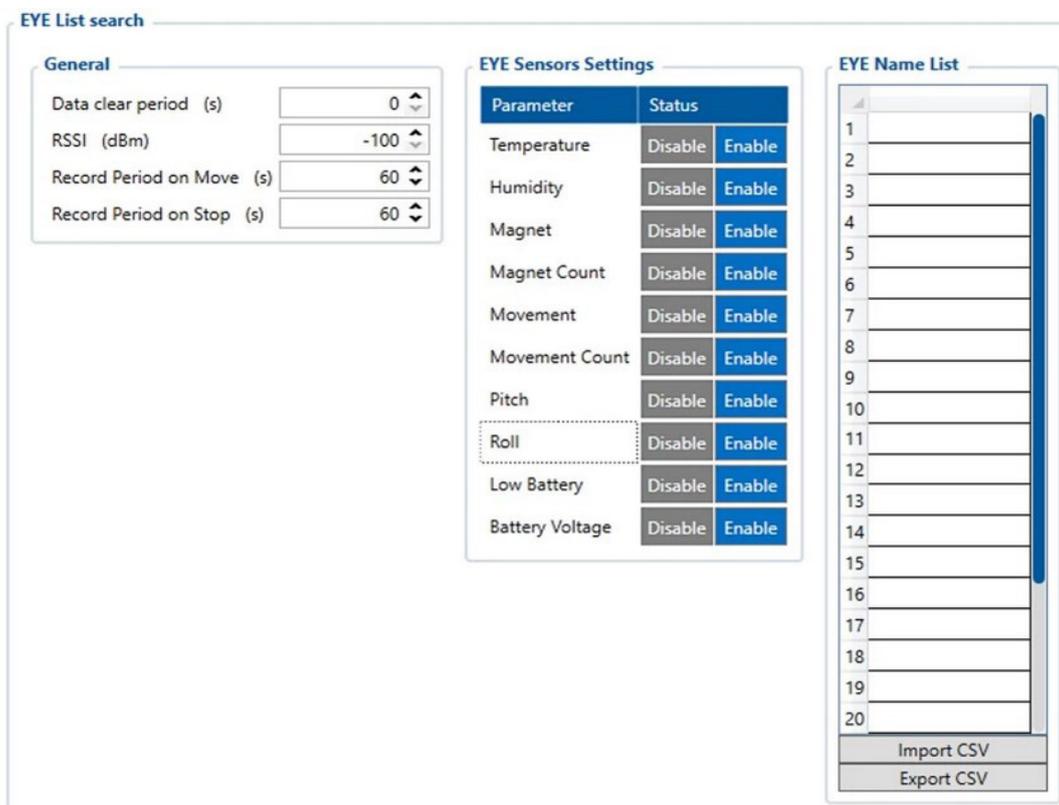
Because of that, all assets can be monitored in real-time this way notably improving the efficiency of routine operations, containers and fleet management. But here, in Teltonika, we go even further...

SMART FEATURES FOR MAXIMUM EFFICIENCY

Among other advantages, both EYE Beacon and EYE Sensor have several smart features built into their firmware. Thanks to one of them - **'Filtering by name'** - and advanced Teltonika GPS device configuration functionality, it offers a wide range of settings and scenarios to meet the tracking needs of waste and recycling fleets.

The custom filtering feature allows to group and name assets by a specific attribute or property meaningful to business operations. This on-demand grouping provides greater clarity, precision, speed of operations, and helps to avoid pricey mistakes.

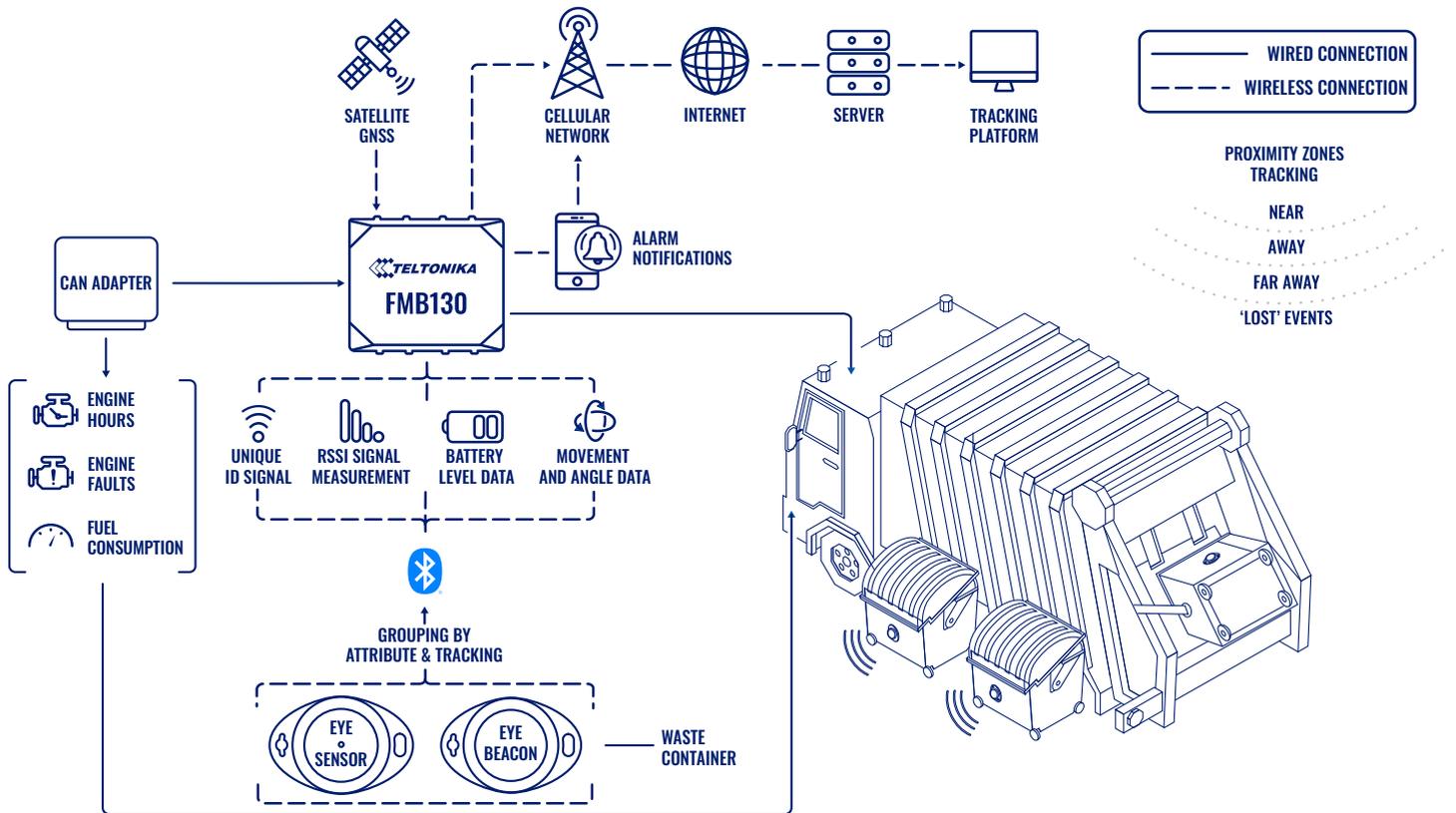
For instance, if EYE Sensors are being used, there are two ways, how to add and set up them in [Teltonika Configurator](#). The first one – the commonly used method by adding the [MAC address](#) of each sensor allowing to support up to 4 of them at a time per GPS tracker. The second one is the more innovative method by adding EYE Sensors only 'By Name'. Here, the vehicle tracker will gather data from each sensor based on its name, not MAC address. The latter method allows up to 100 devices to be scanned.



As a result, there is no need to reconfigure MAC addresses again in the Teltonika GPS tracker if sensors have been changed. It is sufficient to just type in the names respectively using the configurator tool, this way saving precious time avoiding mistakes. Teltonika beacons with intuitive Android/iOS mobile applications and configurable to customer needs can be promptly integrated into virtually any size fleet. EYE Beacons can be easy to install, deploy, and replaced if broken or stolen.

For the ultimate convenience and practicality, firmware updates and configuration changes of Teltonika vehicle trackers can be made using the [FOTA WEB](#) tool - the software solution, helping to save precious time and manage GPS devices remotely with maximum efficiency. Altogether, this contemporary tracking approach allows noticeably boost the efficiency of the waste management business, its reputation, profitability, and competitiveness. You can read more about the waste transport management use case [here](#).

TOPOLOGY



BENEFITS

- **Precise tracking of waste containers anytime, anywhere** - fleet management and dispatchers can monitor any container (or group) status in real-time around the globe. 100% accountability of everything important to the waste management business and fleet efficiency.
- **Unique and value-adding FM firmware features** – abundant smart and practical event scenarios helping to track, monitor, manage urban waste containers with outstanding efficiency.
- **Wireless and affordable** - Bluetooth® connectivity and handy Android/iOS mobile application ensure fast installation and setup, low interference, power consumption and is inexpensive. If damaged, lost or stolen, the Teltonika BLE accessory can be quickly replaced.
- **Effortless inclusion of Teltonika EYE Beacons and/or EYE Sensors** – adding tracking and monitoring functionalities easily and quickly for the current users of vehicle telematics solutions.
- **Improved company reputation, profitability, and competitiveness** - considerable cost savings because of data-driven decisions, optimised inventory management, theft detection and recovery will boost profits, improve cash flow and expansion opportunities.

WHY TELTONIKA?

To successfully resolve solid waste container tracking and monitoring challenges, we offer a remarkable combo from Teltonika – wireless BLE technology-based EYE Beacon, EYE Sensor, functional Android/iOS mobile apps for prompt configuration, scanning, debugging, and the most sophisticated GPS trackers to help waste management business succeed.

We are the right place to get all you need to succeed - the most abundant variety of top-quality certified GPS trackers, accessories, and solutions for any use case imaginable in vehicle telematics. From the company's founding over 25 years ago to today, Teltonika strong and growing team has produced 27 million IoT devices, helping thousands of customers and partners in over 160 countries around the world to succeed.

FEATURED PRODUCT

FMB130

RELATED PRODUCTS

FMC130, FMM130

RELATED ACCESSORIES

EYE BEACON, EYE SENSOR

