



CONSTRUCTION TOOL TRACKING WITH BLE BEACONS

INTRO

Construction is the most influential industry in any society, greatly contributing to the economic growth of a country and region. Tools are an integral part of the construction sector, and they have to be managed efficiently not only to avoid thefts but to keep projects profitable. Wireless technology combined with GPS tracking devices opens up new opportunities for construction site monitoring making a significant impact.

CHALLENGE

The harsh reality is that theft remains a major challenge on virtually every construction site in every country in the world. Materials (especially copper and timber), easily transported small tools and equipment, high-value power tools and heavy machinery continue to be attractive targets for thieves looking to make significant profits from these high-profit crimes.

For example, London Metropolitan Police [data show](#) that £17.5 million of tools were stolen in the year 2020 - almost £57 thousand a day in just one city alone. According to research by the [Federation of Master Builders](#), 51% of builders are victims of tool theft in the UK. Going further, in Canada theft of construction materials, equipment, and machinery is projected to cost roughly between [\\$300 million and \\$1 billion annually](#).

Moreover, a shortage of materials and tools due to price increases caused by the global [COVID-19 pandemic](#) has spiked even higher demand making them particularly tempting targets. The outcome - the situation is getting worse threatening construction businesses in already troublesome times.

Unfortunately, the traditional anti-theft methods - CCTV cameras, removing tool batteries, locking away smaller tools in specially enforced containers, strict internal company policies and hefty penalties require a considerable investment, or effort, or both but do not bring results business owners would expect and count for. Another challenge - site managers, supervisors, and foremen may spend (or waste) a considerable amount of precious time managing and finding in real-time what they are looking for and accountable for - labourers, goods, materials, and assets such as various tools, machinery, and equipment.

To make any business work as efficiently as possible and keep it competitive, it is common sense and reasonable practice to keep employees accountable and well-organised by tracking, monitoring and analysing their actions, assets given to them, working hours, etc. The old-school 'pen and paper' approach has proven to be ineffective, time-consuming, inconvenient, and error-prone.

Thanks to Teltonika Telematics wide range of product portfolio, wireless Bluetooth® technology and smart thinking, there are ways to overcome these obstacles hassle-free way with minimum effort and maximum results.

SOLUTION



Because vehicle GPS trackers and relevant accessories are already being widely used in the construction industry and large sites, we can conveniently utilise them for numerous assets tracking indoors and processes of interest optimisation too. For the sake of example, we choose the waterproof Teltonika model FMB202 with Bluetooth® connectivity feature and one of our products – EYE Beacon, a small ID ratio transmitter with a robust IP67 protection housing.

Bluetooth® connectivity is being used here because GPS signals often are not accurate enough to be practical indoors or in narrow streets and gaps as they diminish and scatter. Here to add, any Teltonika vehicle tracker supports up to 100 beacons at a time.

How it works - beacons repeatedly transmit signals unique to each of them, and Teltonika GPS devices read and identify every single one of them and their proximity to them. Afterwards, FM devices send this data as iBeacon or Eddystone profile, combined with its GNSS location details, to a server for analysis. Consequently, every item with an EYE Beacon attached to it will be tracked in real-time via any smart device with an internet connection.

For long-term tracking, beacons might be fixed with screws, or alternatively - with just regular duct tape from any stationery shop. Fast and easy to attach when they are needed, quick to remove, when they are not...

In this case, FMB202 trackers are permanently mounted on a ceiling or upper part of a wall in the construction site: on every floor work area, hallways, stairways, parking facilities, temporary materials storage locations and warehouses, service premises, welfare facilities, etc. and used as signal gateways, whether Bluetooth® LE ID beacons are attached to assets and people of interest. Alternatively, clients can also use their own mobile application to monitor ID beacons in the construction area.

SMART FEATURES INCLUDED

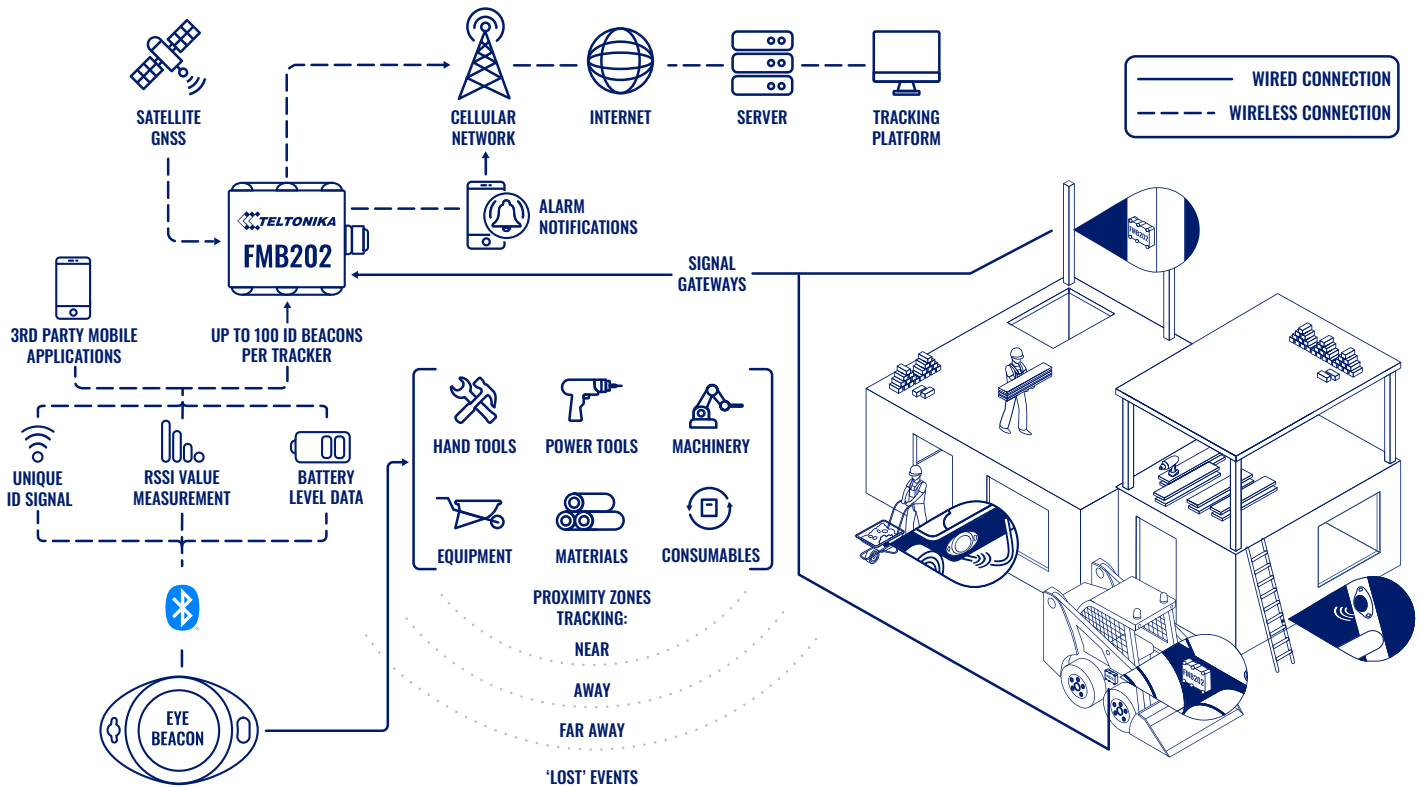
To bring maximum value, the EYE Beacon has two handy features to be considered - 'Proximity Event' and 'Filtering by Name'. For the 'Proximity Event' option, a vehicle tracker can generate asset proximity events depending on Bluetooth® signal strength received from beacons. This allows pretty accurately determining each moving beacon (so, the tool of interest) locations grouped into 'Near', 'Away' zones.

As a result, lists of tracked tools in each zone can be generated or specific event notifications can be initiated. For instance, if an item has left all trackable zones (aka 'Lost' event), a relevant GPS device will register this fact and determine the exact time of the event, helping to investigate the matter further.

The custom filtering feature 'Filtering by Name' allows to group and name assets by a specific attribute or property meaningful to business operations (e.g., hand tools, power tools, machinery, equipment, crates with consumables, pallets with materials) or track only one listed valuables group with ID beacons attached and ignore others if there are some around. It is especially convenient if there are many subcontractors on site. In closing, these smart event scenarios help to sort, monitor, manage, and optimise construction site asset utilisation with supreme efficiency.

The result? Maximised workforce accountability and productivity, highly improved workers' safety and discipline, optimised workflow, assets - tools, equipment, materials, consumables, and machinery - utilisation, minimised waste of company recourses, etc. At the same time, thefts on site are being prevented or significantly reduced or spotted in the process, giving enough time to take appropriate actions. All this together will noticeably boost project profitability, business reputation, competitiveness, and ROI.

TOPOLOGY



BENEFITS

- **Accurate, here and now, tracking of construction tools** - site managers and foremen can monitor any asset of interest location in real-time via smart devices with an internet connection 24/7/365. 100% accountability of everything important to the contractor business and project efficiency.
- **Construction site theft prevention** - tools, equipment, materials, and machinery thefts are being prevented or significantly reduced or spotted in the process, giving enough time to take appropriate actions.
- **Value-adding smart EYE Beacon features** - 'Proximity Event' and 'Filtering by Name' practical event scenarios help to sort, monitor, manage, and optimise construction site asset utilisation with supreme efficiency.
- **Customisable settings for every site and project** - to get the maximum value out of it, Teltonika BLE ID beacon signal strength and data transmitting intervals can be configured to exact business needs.
- **It boosts workforce discipline and appropriate tools usage habits** - constant labourer routine events tracking and monitoring in combination with the right motivation system in place will improve the company's reputation, optimise a workflow and its running cost.
- **Wireless and affordable** - Bluetooth® connectivity ensures fast installation and setup, low interference, power consumption and is inexpensive. If damaged, lost or stolen, the Teltonika EYE Beacons can be quickly replaced.

WHY TELTONIKA?

To successfully resolve construction tools, equipment, materials, and machinery tracking challenges and prevent their thefts, we offer an indispensable combo from Teltonika Telematics – wireless Bluetooth® technology-based ID beacons with smart features, functional Android/iOS mobile apps for prompt configuration, scanning, debugging, and the most sophisticated GPS trackers to help contractor businesses succeed.

Our over 25 years of expertise and innovative approach, extensive global market knowledge, exemplary product range and quality, state-of-the-art production facilities with automated [robotic assembly lines](#), Quality Management System Certification [ISO 9001](#) and customer support meeting your expectations give us a competitive edge and make Teltonika Telematics a business partner of choice.

FEATURED PRODUCT

FMB202

RELATED PRODUCTS

FMB225, FMB230, FMC225, FMC230, FMM230, FMB204

RELATED ACCESSORIES

EYE BEACON, EYE SENSOR

