

MANAGEMENT OF HEAVY-DUTY VEHICLES WITH BLE ACCESSORIES

INTRO

Emergency and utility fleets operating in urban environments often face challenges associated with various types of controlled obstacles in public spaces. This can lead to unwanted delays, inefficient responses, safety issues, etc. By addressing these concerns with smart and secure technology and Teltonika GPS trackers, city authorities and companies can improve the efficiency and transparency of their services.

CHALLENGE

In urban areas and public spaces with limited access, emergency and utility vehicle fleets face several challenges related to barriers, doors, lifts, gates, intercoms, and similar controlled objects in modern cities. In scenarios where rapid response is critical, such as medical emergencies, fires or security breaches, every second lost due to logistical barriers can have dire consequences.

Traditional methods of accessing locked or restricted areas often require manual intervention, be it physical keys, security guards or remote authorisation processes. These approaches introduce delays and vulnerabilities, including the risk of keys being misplaced, locks being tampered with, or communication failures with central control rooms.

That said, efficiency of service and timely response play a vital role in overcoming these challenges. Let's go through some of the key aspects of them.

Inefficient emergency response: Emergency services could face delays due to physical barriers and the need for manual intervention to gain access to restricted areas. This could lead to critical delays in situations where every second counts, potentially resulting in loss of life or more serious outcomes in emergencies.

Lack of data integrity and transparency: The reliability and transparency of data related to access control and management could be compromised. This could lead to mistrust among residents and stakeholders in the management of public services, and increase opportunities for fraud or manipulation of data.

Security vulnerabilities: Physical keys, remote controls or manual access controls can be lost, stolen or duplicated, compromising the security of restricted areas. Without the secure and encrypted nature of blockchain-based virtual keys, public spaces could be more vulnerable to unauthorized access, and potential security breaches.

To address the above, a public space management system based on [blockchain technology](#) – a universal communication standard for IoT devices - can be used. We believe this is the right way to create this type of service for smart cities all over the world.



SOLUTION

The solution involves the integration of one of Teltonika GPS trackers, blockchain technology, the dedicated mobile app, and smartphones to provide a seamless and secure method of admission control in various public spaces with limited access, such as housing estates, schools, office buildings, hospitals, etc. Here, for demonstration purposes, we choose the BASIC category GPS tracker [FMB920](#) with a special customised version of the firmware.

How it works - even though FMB920 is designed to be mounted on vehicles, here the GPS tracker must be connected to existing control mechanisms on gates or barriers. It is equipped with a SIM card that connects it to the cellular network, allowing remote communication and control.

FMB920 integration into blockchain ensures secure transactions and operations, as it can recognise and respond to commands issued by verified users on the network. Teltonika tracker provides the location coordinates of a specific barrier, acting as a bridge between the physical barrier and the digital control provided by the blockchain and a dedicated mobile app.

Platforms of blockchain technology, a universal communication standard for IoT devices, provide a secure and transparent platform for transactions and data exchange. It enables the issuing of virtual keys in the form of NFTs ([Non-Fungible Tokens](#)) to verified users. These virtual keys can perform actions, such as opening barriers, without the need for physical interaction or the presence of third-party security personnel. The inherent security features of the blockchain ensure that the keys cannot be duplicated or misused, as only authorised users can initiate and execute such transactions.

The dedicated mobile app is a user interface allowing individuals to interact with the system via smartphones. Users can open barriers remotely using the app, which communicates the command via the blockchain to the Teltonika device that controls the barrier. The app's functionality includes generating single-use keys for temporary access, which is particularly useful for guests or emergencies where immediate access is required without compromising security.

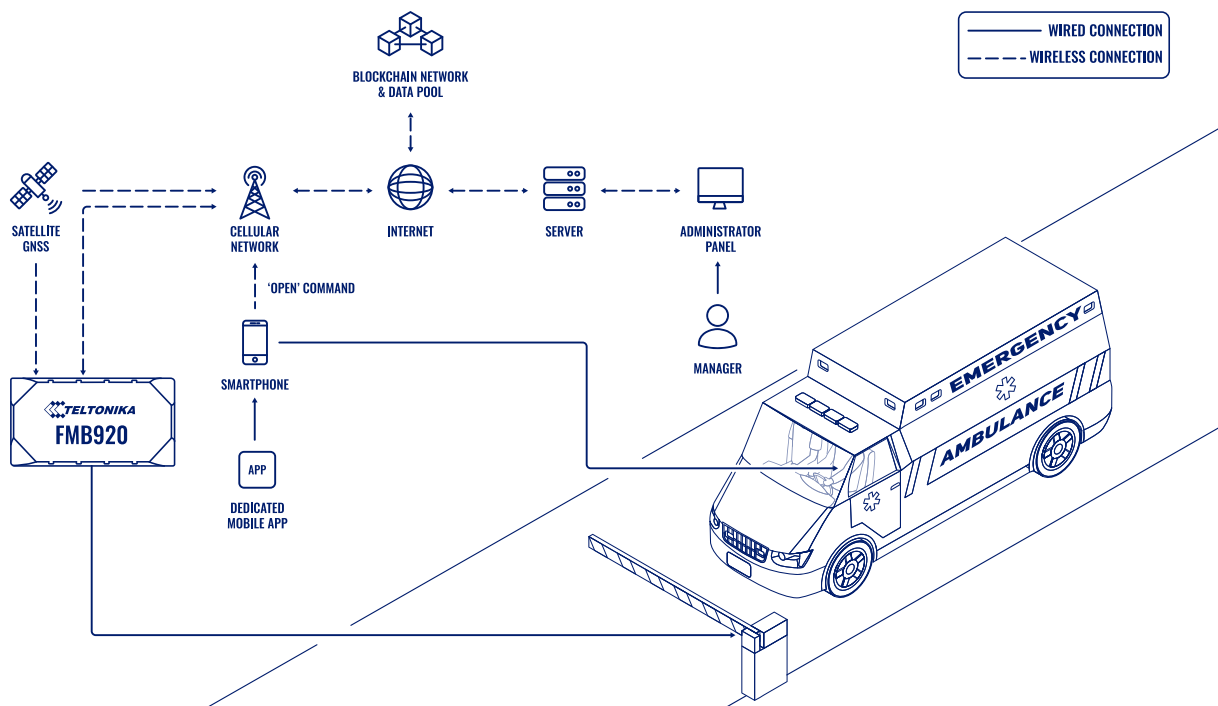
By approaching the barrier and selecting a point on the virtual map in the app, users (drivers, members of emergency and utility vehicle crew) can remotely open the selected barrier.

Finally, smartphones play a crucial role in this system, serving as the device through which users interact with the dedicated app. Thanks to it, the rushing drivers can select the barrier they want to open on a virtual map, and the app communicates this command to the blockchain network, which then signals FMB920 tracker to open the chosen barrier.

This direct communication between the smartphone and the barrier mechanism, facilitated by GPS trackers and blockchain technology, allows a seamless, secure, and efficient way of access control. For example, an ambulance crew responding to an incident can open a barrier remotely using a smartphone without stopping and wasting valuable time, while saving the lives and health of people in need.

In summary, this solution combines the reliability and connectivity of the Teltonika FMB920 tracking device with the security and transparency of blockchain technology, and the accessibility of smartphones to create a sophisticated, efficient, and secure access control system suitable for smart city, business, or individual applications, as well as utility transport, and emergency services.

TOPOLOGY



BENEFITS

- **Enhanced security** - blockchain's immutable ledger ensures secure, tamper-proof data transactions for access control.
- **Efficient access management** - the system enables instant, remote operation of gates or barriers, which is critical for emergency response and utility fleets.
- **Scalability** - versatile and adaptable to different public spaces, urban areas, and fleet sizes to accommodate growth and varying operational needs.
- **Reduced operational costs** - automating access control minimises the need for manual supervision and physical keys.
- **Simplified restricted area management** - the system streamlines the process of managing access rights, reducing administrative workload and complexity.

SUCCESS STORY #1

To improve the quality of public services through the use of innovative technical solutions, such a project was implemented in one of the voivodeships in Poland. Specifically, it provides access to emergency services and medical transport in restricted public areas of the region. As the above, the solution is based on communication between a smartphone or tablet and barriers, gates, and intercoms equipped with FMB920 trackers, which open them at the request of an authorised user.

Thanks to the versatility of this approach, a dedicated mobile app integrated with existing security and access control systems from different manufacturers. It is fault-tolerant and meets the highest standards of protection against unwanted access, with a range of security features to prevent deliberate or accidental misuse. As a result of this, the app allows emergency responders to enter restricted areas without unnecessary stops by remotely opening barriers. It also has a significant advantage over existing ambulance sound systems and sirens, eliminating the inconvenience of noise around facilities where the peace and comfort of patients and residents are essential.

SUCCESS STORY #2

Access control at one of Poland's airports has been enhanced with the blockchain technology and the system described above. The chosen blockchain platform serves as a communication bus for various airport systems, streamlining communication and access management. Initially implemented in the non-commercial employee area, the system aims to test the feasibility of a unified communication platform, explore its potential, and increase the level of security for the airport's management system.

The airport prioritised the lowest possible barrier to entry to ensure ease of use for staff and system operators. Equipment was provided and installed at strategic points, user manuals were distributed and full implementation support was provided. As a result, the airport's goals were achieved - the effectiveness of the security system was improved, and supplier independence was also attained through the accessibility of the blockchain, allowing the airport to freely choose suppliers of access control systems and integrate various applications upon demand.

WHY TELTONIKA?

For successful management of heavy machinery fleets, we offer an indispensable combo – wireless Bluetooth® Low Energy EYE Sensors and EYE Beacons, iOS and Android apps and the high-standard vehicle GPS trackers that heavy-duty fleets and construction companies can significantly benefit from.

Our commitment to innovation and product quality results in solutions that are both practical and forward-thinking, ensuring that farms can maximise productivity while maintaining sustainability. Teltonika Telematics approach ensures that our customers stay ahead in a competitive farming market by utilising the best-in-class agricultural vehicle management solutions.

FEATURED PRODUCT

[FMB920](#)

