INTRO

Large present-day airports and air travel play a significant role in modern society. They facilitate trade, tourism, provide jobs, beneficial services, generate economic growth, complement country budgets. At the same, air transport is one of the riskiest and highly complex businesses. That is why comprehensive airport ground vehicles and assets tracking and monitoring are becoming not only an attractive option but a necessity.

CHALLENGE

The largest airports are the pacemaker of today's life, filled with thousands of passengers, staff members, contractors, and security personnel, special ground vehicles, shuttles, ground support equipment, and plenty of valuable assets. According to Airports Council International's (ACI) annual reports, the number of passengers has been served at the top 50 busiest airports worldwide is 44 to 110 million in the year 2019, and 15 to 44 million in 2020. To some extent, these airports are cities of their own reaching a market value of billions of US dollars.

As a business, airports have to consider and thoroughly think through their vehicles driving sustainability and equipment maintenance, capacity management, other transport hubs competition, enhancement of their safety and security, deal with the revenue challenges, reputation and the environmental impact. Within sizable buildings such as airports, managers and team leaders may spend a considerable amount of time managing and finding in real-time what they are looking for and accountable for - vehicle fleets, equipment, people, goods, and assets.

So to say, even the best staff training, drills, cameras and walkie talkies will not solve these challenges. Neither the old-fashioned ‘pen and paper’ methods causing errors, havoc, frequent misunderstandings or even dishonesty and time-consuming disputes. Even more, the COVID-19 pandemic is having significant implications on the aviation industry today and they have to be considered for sure.
Keeping all the above in mind, the Teltonika Telematics team has developed, manufactured, and thoroughly tested a practical telematics video solution designed to avoid collisions and accidents greatly helping corporate fleets with these significant issues. We call it Teltonika ADAS solution.

Hence, is there any way to overcome these obstacles and rip the benefits of vehicle telematics, GPS location and other relevant data tracking, Bluetooth technology, and positioning indoors to optimise business operations in airports? Yes, it is, and that is where Teltonika Telematics wide range of products portfolio and expertise come in very handy.

**SOLUTION**

To make it easier to grasp the concept, we structured the solution in three parts - ground vehicle and equipment tracking, indoor tracking solutions, and drivers and operators tracking. Let's go through them in more detail...

**Airport ground vehicles and ground support equipment tracking.** Large contemporary airports may utilise an impressive variety of them - pushback tugs, catering trucks, de-icing vehicles, snow-ploughing, -sweeping and -blowing vehicles, passenger boarding stairs, container loaders and transporters, water and refuelling trucks, fire brigade trucks, ‘follow me’ and other airport-service cars, apron and shuttle buses, dollies with cargo pallets and unit load devices, catering vehicles, etc. All of them have to be simultaneously tracked, monitored, maintained, and managed properly, timely, and safely.

To achieve that with minimum effort and maximum results, we use here PROFESSIONAL category Teltonika vehicle tracker **FMM640**. This is a comprehensive terminal for professional applications designed and manufactured for complex and the most demanding vehicle tracking solutions, where one GPS device can effectively perform multiple tasks, support various 3rd party devices to maximise fleet efficiency.

Thanks to an integrated FMS CAN Bus data (SAE J1939 protocol) and CAN Bus data (J1708 protocol) readings, abundant features including Bluetooth connectivity and usage scenarios set, the FMM640 model allows tracking sensible parameters of interest of all types of vehicles and equipment mentioned above (for instance, cargo pallets). Afterwards, the Teltonika GPS device sends the gathered data, combined with its GNSS location details, to a dedicated server for timely analysis, monitoring, and unbiased decision making based on actual data.
To mention a few parameters, it might be a truck or shuttle bus location coordinates, fuel consumption, fuel level, vehicle mileage and speed, engine faults notifications, seat belt status, headlight status, over speeding detection, excessive idling and/or crash detection, trip scenario, auto geofencing, etc.

The outcome? The major advantages are maximised airport ground fleet productivity, highly improved workers’ safety and discipline, optimised workflow, vehicle utilisation and preventive maintenance procedures, reduced downtime, waste of time and precious company recourses, etc. It helps to optimise important airport ground fleet-related routines, may significantly improve operational cost, business efficiency, and return on investment.

Indoor tracking. Here we discuss further indoor positioning, tracking and navigation in airports specifically for Teltonika GPS trackers in a combination with Bluetooth Low Energy beacons, small ID radio transmitters. They repeatedly transmit signals unique to each of them and GPS devices read and identify every one of them. Bluetooth connectivity is 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.

For the sake of the example here, we choose the ADVANCED category Teltonika FMM130 model. In this case, these GPS devices are permanently mounted on a ceiling or upper part of a wall in airport premises and terminals, baggage handling areas, building hallways, stairways, parking facilities, etc. and used as signal gateways, whether BLE ID beacons are attached to assets and people of interest.

Teltonika GPS trackers support up to 100 beacons at a time and each of them will continuously work, depending on the model, around 2 to 10 years on a single battery. Possibilities and benefits are remarkable - airport hand trolleys and wheelchairs tracking, various items tracking on container loaders and luggage transporters, staff personal transporters, tracking of expensive tools in the hangars and workshops, coordination of security, contractors or any other workforces, etc. Learn more about how it works here.

The key advantages - way better organised operational, administrative procedures and utilisation of premises, reduced search times, theft protection and management of airport, personnel and passenger assets, increased people’s safety and timing accuracy, considerable cost savings, improved customer service and reputation.
Automated drivers’ and operators’ identification and time tracking. To address this considerable challenge and assist airport management to run a business smoothly and efficiently, we suggest a practical present-day solution - automated drivers’ identification and working hours measuring system utilising GPS trackers mounted on ground vehicles and relevant accessories for this matter.

The approach is based on the 1-Wire communication bus system combining contactless Radio-frequency identification (RFID) card, 1-Wire RFID reader, and Teltonika GPS tracker model compatible with 1-Wire communication (in this case - FMM640). Each and single one RFID card has a unique factory-programmed 64-bit identification number which is used for a driver’s (or operator’s and maintenance personnel) authentication and the exact electronic date and time stamp. 1-Wire RFID reader has to be mounted in a vehicle dashboard and connected to a GPS tracking device. Learn more about how it works here.

Here to add, based on comprehensive data gathering and dedicated 3rd party software, the method allows not only unquestionable identification but to calculate automatically and precisely lunch break deductions, holidays, sickness absence, overtime, downtime, travel times to a project site, relevant expenses, allowances, evaluate workforce discipline, etc.

TOPOLOGY
BENEFITS

- **Smooth airport operations and outstanding efficiency** - 100% accountability of everything important to the business - ground vehicles, equipment, goods, valuable assets, processes, patterns, and personnel actions are being tracked, monitored, and optimised.
- **Remarkable Teltonika GPS tracker FMx640 series functionality to serve airport fleet needs** - built-in CAN Bus data reading feature, flexible configuration, thorough I/O set, multiple usage scenarios, and plentiful benefits to optimise ground vehicles management, lower its running cost, and improve ROI.
- **Automated hassle-free drivers' and operators' time tracking, monitoring, and management** - accurate and easy-to-use personnel including drivers clocking method utilising 1-Wire technology, relevant vehicle GPS trackers, and accessories. Data are accessible anytime and anywhere via PC, tablet, and smartphone.
- **It boosts workforce discipline, desirable vehicle and equipment usage habits, and work ethics** - constant airport fleet drivers' routine events tracking and monitoring in a combination with an appropriate motivation system in place will improve company reputation, optimise a workflow and its running cost.
- **Customisable solutions for every project and premises** to get the maximum value out of it. For instance, BLE ID beacon signal strength and data transmitting intervals can be configured to exact project application needs and used in, practically, any form and size buildings.

WHY TELTONIKA?

For airport ground fleet, personnel time management, indoor assets tracking and monitoring solutions, we offer time-tested easy-to-install hardware and firmware combo - Bluetooth LE technology-based ID beacons, handy accessories and reliable Teltonika vehicle GPS trackers. Extensive feature sets, multiple usage scenarios bring plentiful benefits and help to optimise business operations, lower their running cost, improve airport competitiveness and ROI.

Our over 23 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

FMM640

RECOMMENDED PRODUCTS

FMC130, FMC640, FMM130, FMU130, FMB640, FMB130

RECOMMENDED ACCESSORIES

BLUE COIN ID, BLUE PUCK ID, 1-WIRE RFID READER