AUTOMATED DRIVERS' TIME TRACKING AND IDENTIFICATION

INTRO

Despite the fast-developing technologies and countless time management software solutions, the old-fashioned paper timesheets remain widely spread among drivers in many countries and businesses around the world, causing havoc and misunderstandings. To address this issue and create an opportunity for the new market niches, Teltonika Telematics presents an automated time measuring using GPS tracker and 1-Wire technology.

CHALLENGE

It is a common practice in most of the businesses around the world to keep employees accountable by recording, tracking, and analysing their working hours one way or another. It could be hard copy timesheets, time logs, workforce management software solutions, clocking in/out machines, etc.

When it comes to the corporate fleet drivers and workers or contractors operating vehicles in construction, forestry, agriculture, healthcare, retail, manufacturing and similar industries, hard copy timesheets still are being widely used today. But this old-fashioned 'pen and paper' method has a few major drawbacks - members of staff may complete the daily procedure with a few days delay or forget to do so completely; writing errors, poorly readable hand-writing, inaccuracies or even dishonesty are quite common; paper sheets can be lost or given to a payroll department too late for the certain time accounting period. Overall, this old-school approach is a pretty time-consuming, inconvenient, and error-prone.

To address this considerable challenge and assist corporate fleet management to run a business smoothly and efficiently, Teltonika Telematics introduces a practical present-day solution - automated drivers' working hours measuring system utilising GPS trackers mounted on vehicles and relevant accessories for this matter.

SOLUTION

The method 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. Each and single one RFID card has a unique factory-programmed 64-bit identification number which is used for a driver's authentication and exact electronic date and time stamping. Alternatively, a portable stainless steel iButton (aka Dallas Key) can be used instead of an RFID card, but the operating principle remains the same. As an example, for this use case, we choose RFID. Here to say, 1-Wire RFID reader has to be mounted in a vehicle dashboard and connected to FM device.

Here is how it works - every mobile employee-driver is given a RFID card. When starting a shift, a person has to authenticate itself by bringing RFID card nearer to a 1-Wire RFID reader. If authentication is successful, the 'start of shift' event electronic date and time stamp will be generated and registered, an ignition starter engaged. A vehicle driving is authorised, and an employee is welcome to start his/her duties. Contrary, if the authentication fails, a car ignition starter will remain disconnected to prevent undesirable actions. When a shift has finished, and a driver is done for the day, the RFID card has to be touched to 1-Wire RFID reader again to generate 'end of shift' electronic stamp, and now vehicle ignition can be switched off for good. The same principle applies to lunch, tea or any other relevant breaks over the working hours.

It is worth mentioning, depending on company needs and project specifics, the driver's authentication can be enabled/disabled in tracker configuration settings section 'Features'. Also, various 'iButton Read Notification' scenarios can be set by activating one of the output controls DOUT 1, DOUT 2 and its duration (see the image below). For instance, the DOUT signal may be utilised to notify a driver that authentication is successful, and the access has been granted.

There is even more good news - an alternative time tracking method is available, quite straightforward and, of course, automated one using Teltonika tracker 'Ignition ON Counter' feature. This scenario counts the time spent with the switched-on ignition in the resolution of seconds (see the image below). Thus, by combining the feature with other vehicle tracking data (e.g. location, speed, geofencing), fleet managers and business owners can get pretty accurate working hours and activity reports to keep employees and drivers accounted. It is also known as **horometer** or hour meter.

Ignition On Counter

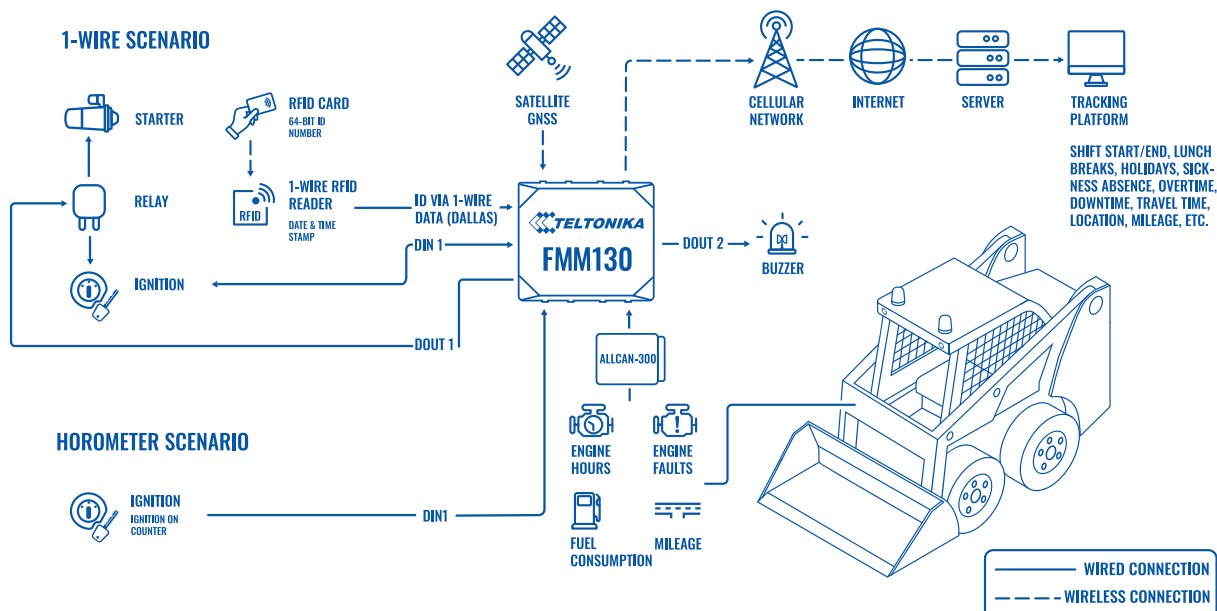| Ignition On Counter	
Disable	Enable
Ignition On Counter Value (s)	0
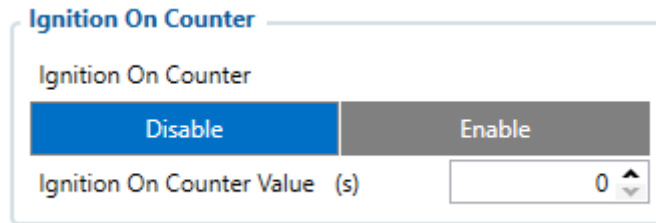
The key benefit of this scenario - its simplicity and low-cost installation. No extra accessories required, no holes to drill in a dashboard of every single vehicle, no lost ID cards. The feature is available in Teltonika basic firmware, starting from the version 03.27.XX and above.

Thanks to GPS tracker extensive functionality, all required and relevant to a particular company data such as fleet vehicle locations, drivers' working hours, driving times, mileage, speed, fuel consumption, and so on will be tracked, registered, and sent to the dedicated server automatically for further monitoring, analysis, wage calculation, and reporting purposes.

Even more, if the same vehicle is being shared among a few drivers, such a solution allows tracking each of them individually, compute the relevant data, and measure their productivity (or any other key performance indicator) over the set period. As a result, all mobile workforce remains 100% accountable hassle-free way in a real-time with no paperwork, human errors, disputes, or delays surely improving business efficiency and profitability.

Based on Teltonika FM device and its accessories comprehensive data gathering and dedicated 3rd party software, the method allows to calculate automatically and precisely lunch break deductions, holidays, sickness absence, overtime, downtime, travel times to a project site, relevant expenses, allowances, evaluate employees discipline, etc. And, of course, authorised project and fleet managers can access this data via PC, tablet or smartphone what makes it even more practical and convenient.

TOPOLOGY

1-WIRE SCENARIO

STARTER

RFID CARD
64-BIT ID NUMBER

RELAY

1-WIRE RFID READER
DATE & TIME STAMP

ID VIA 1-WIRE DATA (DALLAS)

IGNITION

DIN 1

SATELLITE GNSS

CELLULAR NETWORK

INTERNET

SERVER

TRACKING PLATFORM

SHIFT START/END, LUNCH BREAKS, HOLIDAYS, SICK-NESS ABSENCE, OVERTIME, DOWNTIME, TRAVEL TIME, LOCATION, MILEAGE, ETC.

TELTONIKA FMM130

DOUT 2

BUZZER

DOUT 1

ALLCAN-300

HOROMETER SCENARIO

IGNITION
IGNITION ON COUNTER

DIN1

ENGINE HOURS

ENGINE FAULTS

FUEL CONSUMPTION

MILEAGE

WIRED CONNECTION

WIRELESS CONNECTION

BENEFITS

• **Automated hassle-free drivers' time tracking, monitoring, and management** - accurate and easy-to-use personnel clocking method utilising 1-Wire technology, relevant vehicle GPS trackers, and accessories. Available anytime and anywhere via PC, tablet, and smartphone.

• **100% accountability, no paperwork or HR administration overheads** - all-important to business time accounting data tracked, registered, and timely analysed in electronic format version. Drivers kept answerable, no more vehicle misuse, dishonestly, pricey errors or messy paper timesheets.

• **Boosts mobile workforce discipline, encourages desirable vehicle usage habits and work ethics -** constant fleet personnel routine tracking and monitoring in a combination with appropriate motivation system in place will optimise a workflow and its running cost for any size fleets and projects.

• **Keeps companies compliant to local tax laws and regulations** - if applicable, the required workflow reports can be timely generated and submitted to local authorities with a click of the button, thus avoiding tedious and time-consuming manual recordings, errors, penalties for inaccurate or delayed report filing.

• **Extensive Teltonika GPS tracker functionality to serve company needs** - flexible configuration, multiple usage scenarios and benefits, handy detections such as overspeeding, excessive idling, unplug, towing, crash help to compliment the time measurement use case and optimise fleet management, lower its running cost, and improve ROI.

WHY TELTONIKA?

Automated, efficient, accurate, and configurable remote workforce time measuring method and time tested 1-Wire technology combined with indisputable quality Teltonika devices will be highly beneficial for any fleet size companies and create the new business opportunities for Telematics Service Providers around the world.

Teltonika is the right place to get all you need to succeed - an impressive variety of certified GPS trackers, accessories, and solutions. Our over 20 years expertise and innovative approach, extensive global market knowledge, exemplary product 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

FMM130

RECOMMENDED PRODUCTS

1-Wire RFID Reader, FMB122, FMB125, FMB202, FMB204, FMB110, FMB120, FMB130, FMB140, FMB640