



PREVENTION OF ACCIDENTS WITH TELTONIKA DSM SOLUTION

INTRO

Every road user needs to be aware that their behaviour and actions have a huge impact on their safety and the safety of others. Distraction is still the main cause of many road accidents resulting in serious injuries, fatalities, and cargo damage. Teltonika Telematics has developed a new DSM solution with visual monitoring capabilities to ensure driver concentration and self-control while driving.

CHALLENGE

Most people accept fatigue as a normal part of their busy lives. Tiredness rarely prevents us from carrying out our daily tasks, so we do not assume that it should stop us from driving. Unfortunately, driving while tired can be a fatal mistake. A tired person cannot function at their best; vision, judgement and reaction time are all impaired. If you experience these minor impairments while driving, you are much more likely to be involved in an accident or collision.

A driver does not necessarily have to fall asleep at the wheel to be injured or killed as a result of driver fatigue.) According to the [Driver Fatigue in European Road Transport Report \(2021\)](#), 24% of bus and coach drivers and 30% of lorry drivers said they had fallen asleep at the wheel at least once in the previous 12 months. 8% of bus and coach drivers and 11% of lorry drivers had fallen asleep over three times in the previous 12 months.

In addition, if a person is distracted by smoking or using a mobile phone while driving, they may not be able to concentrate on what is happening on the road. In 2021 alone, an estimated **19,800 people** will die in road accidents in the EU. Reducing these critical figures is vital for all of us. EU Transport Commissioner Adina Vălean said: "At the EU level, through funding, legislation and education, we will try to contribute to the 'safe system' of safer infrastructure, safer vehicles, safer road use and better post-crash care. But this is a shared responsibility with Member States, industry and road users. Every death and serious injury on our roads is preventable".

With this in mind, we strongly believe that DSM will help improve driver behaviour and provide all road users with a safer and less stressful journey.



SOLUTION

To increase road safety, we are proud to present the brand-new innovative driver safety monitoring solution - [Teltonika DSM](#). A dedicated windscreen mounted camera and special category GPS tracker [FMC650](#) combo, both connected via [RS232](#) serial port, provides robust drowsiness and distraction warning due to deep learning algorithm so it implements face recognition even at different vehicle environments like sunlight, night and driver's face wearing mask, hat, and sunglasses. It detects and calculates the head position (x, y, z), face direction (yaw, pitch, roll), and eye and mouth opening/closing.

Based on advanced technologies, Teltonika DSM has several built-in warning conditions: drowsiness, yawning, distraction, smoking, phone use, and unbuckled seatbelt. In addition, the DSM solution can recognise the driver's face and can store (a maximum of) 990 driver IDs and identify which driver is on board.

How it works - all of these integrated safety warning systems are designed to prevent potential road accidents. By offering advanced technologies that alert drivers, fleet managers can track and monitor various events. Teltonika DSM immediately alerts the driver with an audible warning. Once the camera detects alarming events inside the cabin, the FMC650 tracks them and sends the relevant data to the dedicated server for timely monitoring and further analysis. Fleet owners can obtain photo and video evidence for future investigations.

Of course, all driver actions have different levels of risk and can influence many causes of car accidents, but here we focus mainly on two key driver activities on the road - those they cannot control, such as falling asleep, and those they do on purpose - smoking or using a mobile phone, and so on. Let's look at each of these in more detail and see how DSM helps to address them.

Driver fatigue is widely recognised as a major risk factor that reduces road safety and poses a threat not only to the driver but to all road users. Because fatigue is defined in different ways, some drivers are unaware of its symptoms and may not even realise they are fatigued until an accident occurs. With this in mind, we would like to point out that DSM sends a voice warning if the driver closes his eyes for a certain period or if the driver closes his eyes again within 30 seconds. In addition, if the driver yawns twice for 3 seconds within 1 minute.

Driver conscious actions:

Seat belt. Failure to wear a seatbelt is the second biggest cause of death on the road, after speeding and before drunk driving. An [EU road safety study](#) concludes that measures to promote seat belt use could save up to 7,300

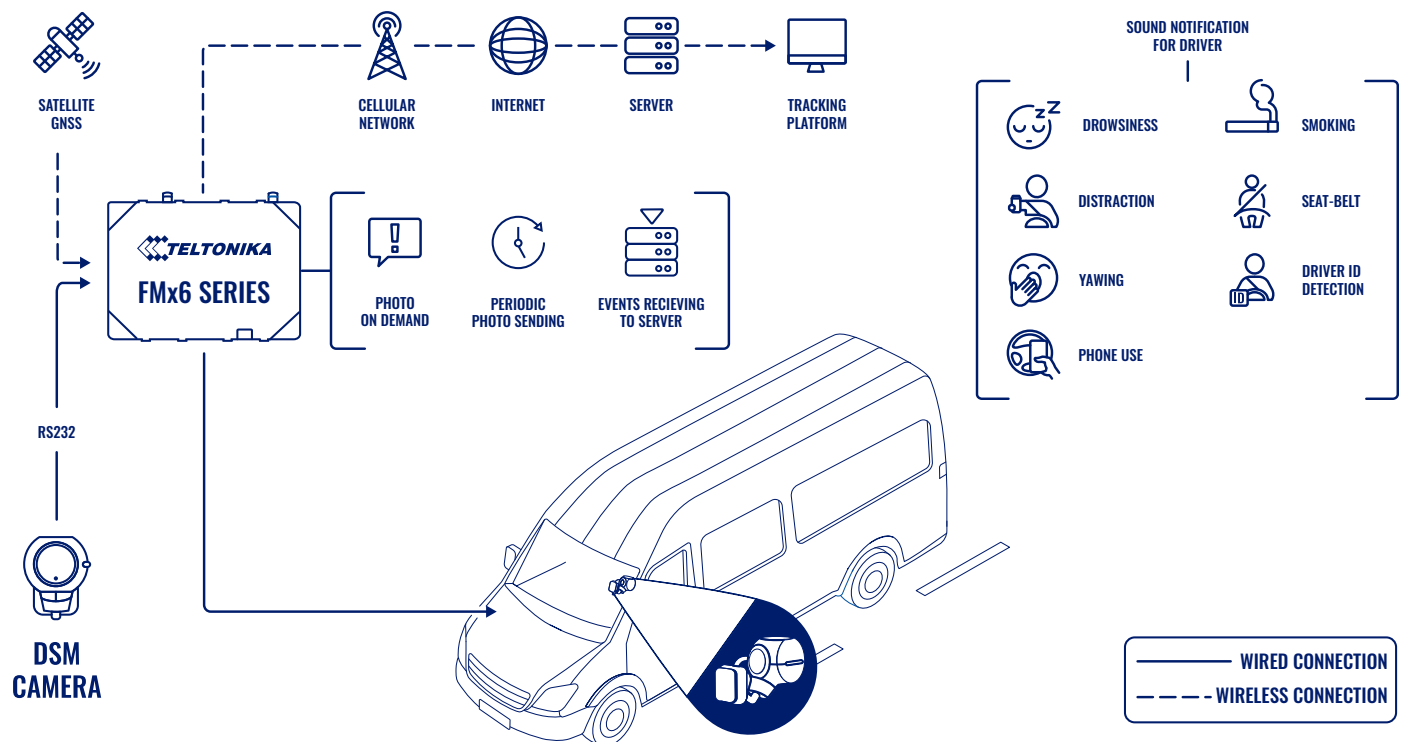
lives a year in the EU! Since 2006, seat belts have been compulsory in all vehicles throughout the EU. However, it is very important to use this escape among drivers and implement tools that will guide them to always use seat belts. Teltonika DSM solution will give a voice signal every time the driver doesn't fasten the seat belt while driving over 10 km/h.

Using a mobile phone. Driving safely requires your full attention. Using a mobile phone while driving is very dangerous because it takes the driver's attention away from driving. The main negative factor associated with using a mobile phone while driving, whether hands-free or hand-held, is the diversion of attention from driving to the conversation itself. Teltonika DSM solution warns the driver if he is talking on the phone for a certain period (every 30 seconds).

Smoking. It is not illegal to smoke and drive. However, many companies have their policies on this and most prohibit smoking in the car as it leads to distracted driving or inability to control the vehicle, which can lead to imprisonment. The DSM camera can detect and warn the driver if he smokes for a certain time (2-4 seconds intervals).

The fleet manager can analyse how often all these actions occur and how this affects the driver's safety while driving - all events of interest are sent to a dedicated server for timely and comprehensive analysis by the fleet manager. This ensures 100% accountability, detailed and solid evidence of driver behaviour on the road. With the DSM solution, this data can be used to motivate drivers and ensure a much safer, less distracted and more environmentally friendly journey.

TOPOLOGY



BENEFITS

- **Road accident prevention** - keeps drivers accountable, disciplined, and safe. Constant tracking and monitoring of vehicle events along with an appropriate motivation system will promote desirable driving habits and improve the company's reputation. It will help keep the driver's focus on the road, leading to a much safer and accident-free journey.

- **Instant and distinct notifications** – a driver will receive an audible alert via a camera displayed in front of him/her whenever an event is detected. This keeps the driver's mind on the road and hands on the wheel.
- **Automated, hassle-free driver and event tracking, recording, monitoring, notification, and management** – accurate and timely event data transfer to a dedicated fleet management server using DSM accessories and Teltonika GPS tracker features.
- **Improves road safety** and significantly reduces the risk of injury or death by preventing inappropriate behaviour and costly errors.
- **Comprehensive DSM solution functionality to meet the needs of corporate fleets** - flexible configuration for a project or business need, an impressive range of intelligent alerts and on-demand practical detections to optimise fleet management, reduce running costs, road accidents and fines, medical and insurance costs and significantly improve ROI.
- **Improves employee discipline, desirable vehicle usage habits, and work ethics** - constant tracking and monitoring of routine fleet driver events, combined with an appropriate motivation system in place, will improve the company's reputation, and optimise a workflow and its running costs.

WHY TELTONIKA?

Teltonika Telematics is at the forefront of vehicle safety, offering cutting-edge solutions, such as the Driver Safety Monitoring (DSM) system. This innovative technology demonstrates our commitment to improving road safety, and reducing accident rates. Our solutions are designed to not only meet but exceed current safety standards, demonstrating our commitment to leadership in vehicle telematics.

Over the years, Teltonika Telematics has established itself as a trusted name in the industry thanks to our continuous focus on reliability, user-friendliness and technological advancement. Our products are the result of rigorous research and development, ensuring that they meet the highest standards of quality and safety. When customers choose us, they are not just investing in a product; they are partnering with a leader in safety innovation, dedicated to saving lives on the road.

FEATURED PRODUCT

FMC650

RELATED PRODUCTS

FMB641, FMM650

RELATED ACCESSORIES

Teltonika DSM

