ADAS SOLUTION FOR UNINTENTIONAL LANE DEPARTURE PREVENTION

INTRO

Professional drivers spend many hours on the roads. Although all countries have laws in place to prevent them from distracted driving and inappropriate behaviour behind the wheel, distractions remain a major cause of many accidents that result in serious injuries, casualties, and property loss. Keeping that in mind, we have developed a sophisticated video telematics warning solution actively helping corporate fleets with that.

CHALLENGE

According to IATSS research data, crashes due to lane departures are among the deadliest collision types. Only in the USA alone, Lane Departure Warning (LDW) could prevent 6% of crashes, 10% of injury crashes, 6% of fatal truck crashes, and 31% of fatal single-vehicle crashes. Even more, a system of this kind could prevent 297,000 road departure crashes every year. Overall, the situation in other countries is no better - globally, about 60% of road accident fatalities happen because of unintentional lane departure.

The most common and predominant reason for that is distracted driving, which is described as any activity that diverts attention from driving a vehicle. Sadly, many of us, professionals or amateurs, are quality of that a lot. Consider this - according to recently conducted a national survey among American drivers aiming to understand their habits, 52.5% of respondents reporting eating while driving, 23.6% texting, 11.7% taking photos, 6.5% applying makeup, and 3.4% drinking while driving. Even more, drivers are distracted by their phones at least 10% of their driving time.

The study conducted by Insurance Institute for Highway Safety in December 2020, found that **lane departure warning systems** decrease single-vehicle, sideswipe and head-on crashes by 11% and injury crashes of the same types by 21% for passenger vehicles. In short, these systems have proven to be effective in reducing traffic accidents, loss of assets and cargo, injuries and fatalities.

To address this major concern, assist fleet managers and drivers, the Teltonika Telematics team has developed and manufactured the ADAS solution – the sophisticated video telematics system designed to avoid collisions and accidents on roads.

SOLUTION

In this use case, we take advantage of the **Advanced Driver-Assistance System** (aka ADAS) – a comprehensive video telematics solution recently launched by Teltonika. It consists of a dedicated camera mounted on a vehicle windscreen and the SPECIAL category GPS tracker FMC125 combo, both connected via serial port RS-232. Also, it includes a notifications display located on a dashboard.

LANE DEPARTURE WARNING SYSTEMS DECREASE CRASHES BY 21%

Based on leading-edge technologies, Teltonika ADAS has several integrated warning systems: lane departure warning, forward collision avoidance warning, pedestrian collision, forward proximity, front vehicle start alarm, safety distance alert, speed limit recognition. We have specifically designed its smart feature set to avoid traffic accidents and collisions in the most effective way possible. For that reason, when managed correctly, the system can significantly improve drivers', cargo, and road users' safety, reduce injuries and fatalities.

How it works - the ADAS camera mounted on a windscreen constantly detects the alarming driving events in front of a vehicle. Teltonika FMC125 model tracks them and sends the relevant data to the dedicated server for timely monitoring, detailed analysis, and further reports. Most importantly, the **system notifies a driver immediately** via the display with a visual and sound alert of a likely upcoming danger or risky driving event.

Although Teltonika ADAS is a complete everyday use solution and there are many causes of road accidents, but we focus here on the main reasons causing most **lane departure collisions**. Let's go through some of them more closely and see how ADAS can prevent them.

The core principle of the LDW feature is this - it sends an instant visual and audio alert via a display to a driver when there is a vehicle lane deviation without signalling left or right event detected, thereby helping to avoid an accident or a collision with an oncoming car. If the vehicle turn signal has been activated before leaving a lane, the event will be ignored, assuming the intentional driver's action.
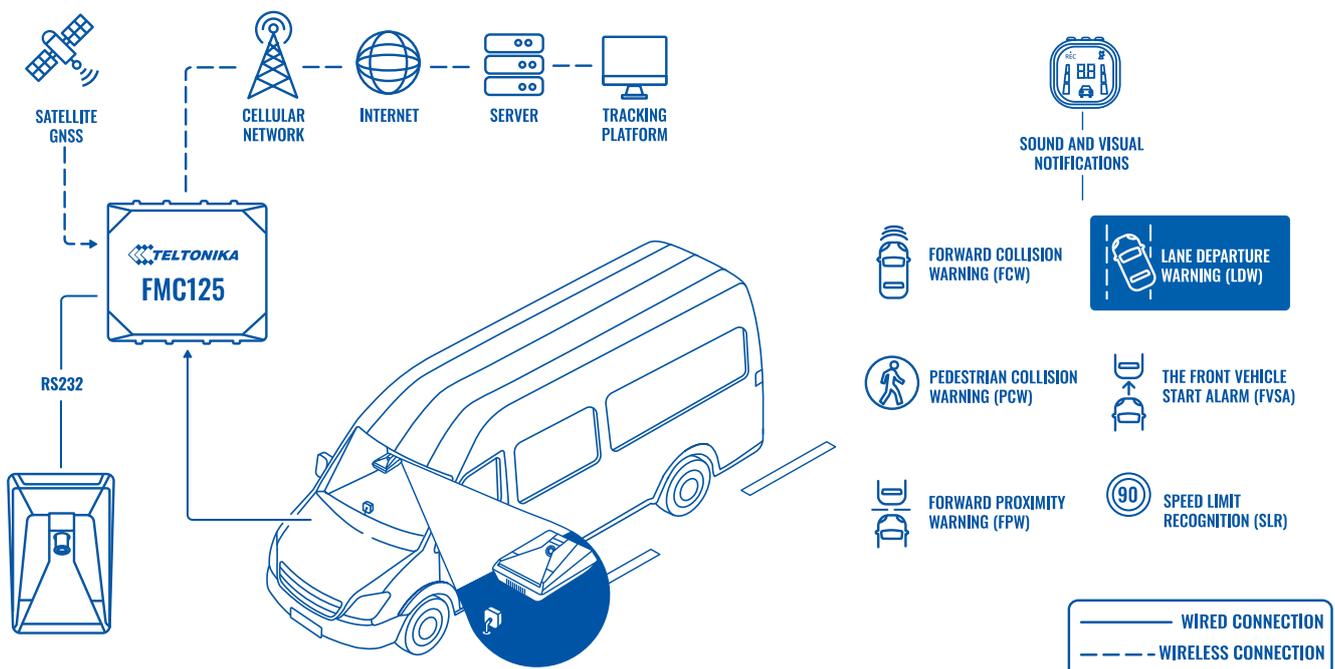
Mobile phone distractions. Talking on the phone, browsing and/or texting while driving leads drivers to shift focus on something else and take their eyes off the road. No doubt, the increased risk of a traffic accident here is obvious.

Fatigue and drowsiness. Drowsy driving is the dangerous combination of driving and sleepiness or fatigue. Here to add, drowsy driving is a major concern for many professional drivers worldwide. And here is why - it makes a person less able to pay attention to the road, slows down a reaction time if he/she has to brake or steer suddenly, affects the ability to make adequate and timely decisions behind the wheel. Thanks to the ADAS LDW feature, the drifting from the lane event will be timely detected and tracked, a driver will be warned helping to avoid the costly outcome.

Eating and/or drinking while driving. Sadly, it is a pretty common habit too, and might have pricey or even tragic consequences for road users and drivers. Consider this - while eating, a driver's reaction speed is lowered by 44%; while drinking - by 22%. To make it worse, according to survey data conducted by ExxonMobil, over 70% of drivers admitted to eating behind the wheel, and over 83% - to drinking beverages while driving. As before, if an inadequate or risky driving event occurs because of the distractions mentioned above, it will be detected by the ADAS helping the driver to regain focus and get the vehicle under control in time.

To sum up, the brand new Teltonika ADAS solution assures the fullest accountability, detailed and undisputable evidence of driver's behaviour on the road. Rest assured, it helps properly and timely to deal with the most widespread unwanted habits and the risk-increasing factors mentioned above, saves people's lives, company assets, resources, and reputation. Teltonika GPS tracker FMC125 firmware updates and configuration changes can be made remotely using the recently renewed FOTA WEB tool too. It is a powerful software solution helping to manage GPS devices swiftly and efficiently.

TOPOLOGY

SATELLITE GNSS

CELLULAR NETWORK

INTERNET

SERVER

TRACKING PLATFORM

SOUND AND VISUAL NOTIFICATIONS

FMC125

RS232

FORWARD COLLISION WARNING (FCW)

LANE DEPARTURE WARNING (LDW)

PEDESTRIAN COLLISION WARNING (PCW)

THE FRONT VEHICLE START ALARM (FVSA)

FORWARD PROXIMITY WARNING (FPW)

SPEED LIMIT RECOGNITION (SLR)

WIRED CONNECTION

WIRELESS CONNECTION

BENEFITS

- **Instant and distinct LDW notifications** - a driver will get a visual and sound alert via a dedicated display conveniently placed on a dashboard whenever an event of drifting from the own lane is detected.
- **Fewer traffic disruptions, accidents and collision rates** - LDW system continuously and faultlessly detects driver's behaviour preventing vehicle drifting from the lane, thereby helping to avoid pricey errors on the road.
- **It keeps drivers accountable, disciplined, and safe -** constant vehicle events tracking and monitoring along with an appropriate motivation system will promote desirable driving habits and improve company reputation.
- **Hassle-free automated drivers' and events tracking, monitoring, notifying, and management -** an accurate and timely events data transfer to a dedicated server for analysis by fleet management utilising Teltonika ADAS accessory and FMC125 tracker features.
- **Extensive ADAS solution functionality to serve corporate fleet needs** - flexible configuration for a project or business needs, an impressive set of smart warning systems and handy detections on demand to optimise fleet management, lower its running cost, traffic accidents and fines, medical and insurance expenses, and significantly improve ROI.

WHY TELTONIKA?

With the newly launched Teltonika ADAS, we offer a highly sophisticated vehicle telematics solution ensuring smart and automated drivers' tracking, recording, notifying, monitoring, and efficient fleet management. Rest assured, it meets the most demanding needs that currently exist in a market, makes roads a safer place to be and saves people's lives around the world.

From the start of the company 23 years ago until today, Teltonika 1,700 strong and growing team has manufactured 15.5 million IoT devices, helped to succeed thousands of customers and partners worldwide. We are the right place to get all you need to succeed - an impressive variety of certified GPS devices and software tools for any use case imaginable in vehicle telematics. Our innovative approach, extensive global market knowledge, state-of-the-art production facilities with automated robotic assembly lines and customer support meeting your expectations give us a competitive edge and make Teltonika Telematics a business partner of choice.

FEATURED PRODUCT

FMC125

RECOMMENDED ACCESSORIES

ADAS