Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

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Presentation on Driver assistance systems (DAS)

Transmitted by the Government of Israel

Full reports mentioned below can be downloaded from:
https://www.dropbox.com/sh/f19a4zn7pbevqfc/AACocWb168kI1zpZD9EWjFPPa?dl=0

Mobileye is a technological leader in the area of software algorithms, system-on-chips and customer applications that are based on processing visual information for the market of driver assistance systems (DAS). Mobileye is the global leader in monocular vision-based DAS, providing functions such as Lane Departure Warning (LDW), Vehicle Detection, Forward Collision Warning (FCW), Headway Monitoring (HMW), Pedestrian and Bicycle Collision Warning (PCW), Intelligent High Beam Control (IHC), Traffic Sign Recognition (TSR), Blind Spot Detection and more. Mobileye technology keeps passengers safer on the roads, reduces the risks of traffic accidents, saves lives and has the potential to revolutionize the driving experience by enabling autonomous driving. Many of the world's leading automobile manufacturers rely on Mobileye technology to make their vehicles safer to drive, including Ford, Chrysler, GM, BMW, Volvo & Toyota. In addition to the built-in manufacturer option, Mobileye has also developed an Aftermarket version, which can be fitted to any vehicle.

According to the World Health Organization, approximately 1.24 million people die each year as a result of road traffic crashes. That is more than 2 deaths every minute. 50% of all road traffic deaths are amongst vulnerable road users, pedestrians, cyclists and motorcyclists. Between 20 to 50 million more people suffer non-fatal injuries, with many incurring a disability as a result of their injury. National estimates have illustrated that road traffic crashes cost countries between 1-3% of their gross national product.

According to The Virginia Transportation Research Council study conducted in 2005, nearly 80 percent of crashes and 65 percent of near-crashes involved some form of driver inattention within three seconds before the event. Primary causes of driver inattention are distracting activities, such as cell phone use, and drowsiness. In February of 2009, Swiss insurance firm AXA Winterthur conducted a study on the link between collisions and cases of whiplash, and reported the effect of an early warning (PowerPoint detailing report attached). They concluded that 1.5 seconds early warning can prevent 90% of rear end collisions, 2.0 seconds warning can prevent almost all crashes. The Mobileye system provides up to 2.7 seconds early warning before a collision.

According to the European Transport Safety Council report on the Road Safety Performance Index (Full report attached), in 2011, 4,254 people lost their lives in collisions involving heavy good vehicles. The largest share of those killed in those collisions are not the actual occupants of the vehicles. Unprotected road users amount to 28% of the road deaths recorded, 6% are riders of powered two-wheeled vehicles, 7% are cyclists and 15%

are pedestrians. The report further highlighted the acute problem of blind spots around nearside turning of heavy good vehicles for pedestrians and cyclists, due to the size and weight differential of heavy good vehicles.

In 2008, the Dutch Ministry of Transport, conducted a study using 2,400 trucks over a one year time period (Full report attached). The fitted 2,000 trucks with Advanced Driver Assistance Systems and the 400 remaining were used as a control group. Researches predicted that there would be fewer collisions in the vehicles with ADAS fitted, but still predicted there would be 11-13 collisions in these 2,000 vehicles, compared to a prediction of 4-5 in the 400 truck control group. After a year of driving and 77 million kilometers, the 400 truck control group did indeed have 5 collisions, where the 2,000 trucks fitted with ADAS did not have a single collision. According to the report, "…Participants also maintain their distance better, use their indicators more often and maintain their direction on the road more effectively. Furthermore, they also find the task of driving to be less demanding overall…" "The majority of participants in the pilot are satisfied with Mobileye. They find the system easy to use and believe that driving with both LDW and HMW is conducive to road safety. This is due to the fact that drivers' adapt their driving behavior (in a positive sense) in order to minimize the number of warnings…"

The Israeli Ministry of Finance commissioned an independent actuary report to look at the use of aftermarket ADAS systems on the roads in Israel, to research the effectiveness of Mobileye collision avoidance systems and to determine to what extent the Mobileye system reduces claims in which there was bodily injury (Full report attached). The actuarial report concluded the claim frequency of vehicles using Mobileye was 57.68% less than vehicles that did not use Mobileye.

The Mobileye system uses a single camera and a real-time image processor developed by Mobileye, and contains the following functions:

- Forward Collision Warning
- Headway Monitoring and Warning
- Urban Forward Collision warning
- Motorbike Collision Warning
- Pedestrian and Bicycle Collision Warning
- Lane Departure Warning
- Speed Limit Indicator
- Intelligent High-Beam Control
- Blind Spot Detection

Currently, Transport for London is trialing a new Mobileye system developed together with Cycle Safety Shield to be able to provide all the life saving technology of Mobileye forward facing, together with the pedestrian and bicycle capabilities of Mobileye for blind spot detection. Unlike other systems in the market, that alert whenever an object is passed, or passes the vehicle on the side, using the Mobileye technology, the system will only alert the driver if there is an imminent collision coming from a pedestrian or bicycle rider in their blind spot. http://www.bbc.com/news/uk-28599886 the test is currently being undertaken on London Buses, with the mind to mandate the system for all buses and heavy good vehicles utilizing the roads of London.

Today, we are working with fleets throughout the world, including fleets transporting dangerous goods, on a voluntary basis, to help drastically reduce the number of collisions in their fleet and to keep people safe on our roads. As time goes by and we see more and more legislative bodies begin to mandate certain capabilities as a prerequisite, we believe it is imperative that WP15 take a leading role in this development.

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