

Mobileye Technology Keeps ComfortDelGro Corporation Australia at the Forefront of Innovation



Industry

Public Transport

Technology Partners

FleetSafe
Mobileye

Need

A vision-based collision avoidance system to enhance safety of drivers, passengers and other road users

Benefits

- Reduce forward (or rear end) collision accidents
- Improve drivers' driving habits and maximise concentration
- Enhance safety of drivers, passengers and other road users

Investment in technology is essential to meet emerging challenges in public transport. CDC is proud to be the largest bus company in Australia to adopt Mobileye.



cdcbus.com.au



cdcvictoria.com.au

Leading bus operator ComfortDelgro Corporation Australia is a company where continuous innovation is seen as essential to better serve the communities and areas in which it operates. By constantly researching and implementing new initiatives, CDC NSW and CDC Victoria regularly improve their customers' experiences, from the provision of information through to high quality accessible vehicles with technological advances in comfort and reliability. Innovation offers the opportunity to meet emerging challenges in the public transport industry with solutions that take advantage of new developments and technologies.

One of those challenges is the increase in road usage and congestion, which raises the probability and risk of accidents for all vehicles. While CDC focuses on employing experienced drivers and providing ongoing training to reduce collision rates, an Advanced Driver Assistance System (ADAS) will provide an immediate benefit.

ADAS technology – created by Mobileye Vision Technologies – is cutting edge when it comes to increasing safety and reducing collisions. While Mobileye's usage is extensive worldwide, CDC is the largest bus company in Australia to adopt Mobileye's aftermarket solution.

In rolling out Mobileye's technology and as part of international company ComfortDelGro, CDC will benefit from the larger group's investment in and early adoption of the technology. Parent company ComfortDelGro is one of the largest land transport companies in the world, with headquarters in Singapore. SBS Transit, a sister company in Singapore, has already extensively trialled and implemented Mobileye technology, with 750 buses to be equipped in 2017.¹ This enables CDC to remain at the forefront of innovation by introducing a successful and known product to its fleets.

Mobileye: Auto safety

Mobileye is an Israeli company and was recently acquired by Intel.² The solution is a vision-based collision avoidance system that helps both seasoned and new drivers to keep an "extra eye" on the road by alerting the driver to potential accidents and cutting reaction times.

In appearance, the Mobileye system consists of a compact monocular high definition camera mounted on the windshield, which constantly monitors the road in front of the vehicle. This information is then displayed on a small dashboard device. In addition to visual alerts, the unit sounds an audio warning to assist the driver in preventing or mitigating a collision.

The alerts monitor four main areas: safe following distance; forward collision alert; lane departure without signalling; and pedestrian and cyclist collision warning.

“ We're pleased to invest in technology to enhance the safety of our drivers, passengers, and other road users in the communities that we serve ”

- SK Cheng, CEO of CDC NSW



The benefits of Mobileye

Alerts, particularly forward collision alerts, have been shown to deliver considerable benefits.

Alerts play such a significant role in the reduction in the number of forward collision (or rear end) accidents, that a study from Enke concluded that these types of accidents have the highest potential for reduction by driver warning systems.³ This reduction is achieved by cutting driver reaction times and enabling them to respond faster. Studies have shown that by reacting even 0.5 of a second earlier, more than 50 per cent of accidents can be avoided.⁴

Where the collision cannot be prevented, the use of forward collision alerts may result in reduced impact which can lessen the severity of any potential injuries. Research shows that forward collision accidents are usually low speed accidents and often lead to "whiplash" injuries, which have the potential to cause lifelong effects.⁴ Using forward collision technology

alerts, drivers braking just 0.5 of a second earlier will reduce the severity of whiplash and other injuries.⁵

Mobileye technology helps drivers improve their driving habits and maximise concentration. Alerting them to various hazards before they occur encourages better driving habits and, with ongoing use, changes behaviour to produce a safer, lower-risk driving environment. This is particularly effective as lapses in concentration are a leading factor in as many as 50-60 per cent of Australia's road accidents.⁶

Safer driving and a greater safety awareness help protect the lives and safety of drivers and passengers. This also extends to other road users, including pedestrians and cyclists, with the use of Mobileye's pedestrian monitor alert.

As part of the implementation, the Mobileye system in CDC buses has been adjusted to acclimatise to local roads and improve the user experience, while improving safety.

" Australian roads are becoming increasingly congested and we are taking a step towards the future of transportation technology. Mobileye technology is an investment towards safer roads and safety is our primary focus. "

- Nick Yap, CEO of CDC Victoria



Rollout of Mobileye across Australia

The implementation of Mobileye technology will take place simultaneously in Victoria and NSW. CDC Victoria will adopt the technology in its fleet of 392 buses in Victoria, while CDC NSW will implement Mobileye in 623 buses in NSW.

Strong commitment to innovation

The public transport industry is constantly evolving and changing, and companies must be innovative to adapt and succeed. Adoption of proven and transformative technologies, such as Mobileye, ensures that CDC is at the forefront of innovation. In this way, the organisation maintains its commitment to excellence in providing essential bus transport services across the community.

Global adoption and success

Today, there are over 15 million vehicles worldwide equipped with Mobileye technology, and its success is being confirmed across the globe.

Organisations using Mobileye in their fleets have experienced significant reductions in the number of collisions. An Indian rental car company, ZoomCar, found that, "in the first five weeks of the rollout, Mobileye reduced ZoomCar's accident rate by an astonishing 78 per cent"⁷, while Transportes TEV in Colombia achieved a reduction in collisions by 70 per cent.⁸

According to an actuarial study of 9,891 vehicles, conducted on behalf of the Insurance Commissioner at Israel's Ministry of Finance, it was revealed that claim frequency was reduced by 45 per cent for privately owned passenger cars with Mobileye technology installed, compared with vehicles without the system.⁹

Improvements in driver behaviour have also been noted. Testing of approximately 300 buses with Mobileye collision avoidance systems by the Research Institute of Highway of the Chinese Ministry of Transport showed that per 100 kilometers drivers achieved reductions in forward collision warnings by 27 per cent, lane departure warnings by 26 per cent and headway monitoring warnings by 39 per cent. Overall there was a 21-35 per cent decrease in the average risk ratio of drivers.¹⁰

Mobileye technology is integrated into over 300 new car models from the world's leading auto manufacturers including Ford, Honda, BMW, Volkswagen, Volvo, Audi, Nissan, Renault, General Motors and more.

In Australia, the technology is used predominantly in the car industry in select manufacturers and on trucks such as Coles' fleet of online delivery trucks.

A trial of Mobileye is also being conducted by the New South Wales Centre for Road Safety, which is part of Transport for NSW, to measure its effectiveness in reducing crashes. The results will help determine whether the technology is implemented in the NSW state vehicle fleet in the future.¹¹



¹ "SBS Transit Continues to Invest in Technology to Increase Bus Captains Competency", Press Release, May 2016

² "Mobileye and Intel Join Forces", *The Economist*, Mar 2017

³ Sinzig B. "Forward Collision Accidents: The (Swiss) Insurance Company Perspective", Accident Research, Feb 2009

⁴ Sinzig B. "Forward Collision Accidents: The (Swiss) Insurance Company Perspective", Accident Research, Feb 2009

⁵ Blower D. "Assessment of the Effectiveness of Advances Collision Avoidance Technologies", The University of Michigan, Transportation Research Institute, Jan 2014

⁶ According to Professor David Logan, Senior Research Fellow, Monash University Accident Research Centre (MUARC), Interview with Channel Ten News, May 2013

⁷ <http://www.mobileye.com/en-uk/2017/02/01/mobileye-customer-profile-zoomcar/>

⁸ <http://www.mobileye.com/en-uk/2017/04/27/mobileye-customer-profile-sab-miller/>

⁹ Shachar R. "Actuarial Research on the Effectiveness of Collision Avoidance Systems FCW (Forward Collision Warning) and LDW (Lane Departure Warning)", Research Paper, Ron Actuarial Intelligence Ltd, 2014

¹⁰ "China: Mobileye and MoT Release Results of Truck and Bus ADAS Tests", *Car Safety News*, May 2016

¹¹ <http://roadsafety.transport.nsw.gov.au/research/roadsafetytechnology/cats/fleetcat.htm>