

# ► Transport and Logistics

A SPECIAL ADVERTISING REPORT

## Alarm bell sounds over killer fatigue

**W**INDING down the window, chugging on an energy drink or blasting the stereo are some of the techniques drivers use to combat fatigue.

While these may provide temporary stimulation, pulling over and having a rest is the only real solution.

Canberra-based technology company, Seeing Machines, has recently launched a system aimed at preventing drivers from falling asleep at the wheel by detecting signs of fatigue, and ultimately, microsleeps.

Those in the freight industry may be particularly familiar with the sinking eyelids and the three or so seconds of darkness which characterise a microsleep.

At best, all it comes to is a startled jolt. At worst, it ends with the driver veering off the side of the road, crashing into a tree or ploughing into other vehicles at full-speed.

According to Monash University Accident Research Centre statistics, heavy vehicles are involved in 10 per cent of accidents and 20 per cent of road fatalities, even though they only account for three per cent of registered vehicles.

Coupled with US National Highway Traffic Safety Administration estimates that 30-40 per cent of all large truck crashes are caused by drowsiness, it paints a disturbing picture of fatigue in the freight industry.

Initially targeting this sector, Seeing Machines' Driver State Centre (DSS) device sounds an alarm before a driver falls into a microsleep.

Research on its technology commenced at the Australian National University in 1997, largely funded by Volvo, the company's second-largest share-

holder. The first commercial version of the DSS, which was released mid last year, is comprised of a miniature dashboard camera, processing platform and speaker.

The camera automatically monitors the face of the driver, calculating eye closure and head orientation.

This information is analysed in the processing platform to determine the driver's level of fatigue and the amount of attention they are paying to the road.

Seeing Machines CEO, Nick Cerneaz, describes the typical scenario in which the DSS would be useful: "If you're cruising down the road and are going to have a microsleep event, an alarm will sound.

"Some may heed the warning and pull over, but others will push on. It could be bravado – people tend to think that they'll be OK and nothing will happen to them, but if you're still driving after the third warning, you're getting to the stage where you'll fall into a deeper and deeper sleep."

The DSS provides three warnings before it stops and simply continues to monitor the driver's behaviour. Mr Cerneaz says after three warnings, the ultimate responsibility to pull over rests with the driver.

The system can also be programmed to disengage cruise control after the third warning.

This way, if a driver has a microsleep, and an accident occurs, at least it will be at a lower velocity.

But a microsleep is the end point in a long chain of events which are related to the onset of fatigue.

Fleet and transport companies have the option to link the DSS driving data back to a central control room where the

company can monitor the conduct of their drivers. For example, when diligent and alert, truck drivers should be changing gears regularly to maximise performance according to road conditions. They should also be checking the mirrors every few seconds.

If it is found that they are not doing these checks and adjustments as often, it could be an indication that they're in the early stages of fatigue.

Mr Cerneaz says: "It provides a real-time measurement of what's going on in the cab. The controller can know that the driver of truck number 10 on the Hume Highway is getting tired and they can usually connect with the driver via phone or radio system."

Seeing Machines is yet to supply any Australian fleets with the DSS, but is currently rolling out the product to US company, Dycor Industries Inc, which has over 10,000 vehicles in its fleet.

As a new technology, it's not cheap (the DSS can cost up to tens of thousands depending on the system), but Mr Cerneaz says it makes commercial sense to companies which carry hazardous materials, expensive goods or can't afford to have their vehicles off the road.

It is expected to take a few more years before the product becomes available to private vehicle owners.

More prevalent is Optalert, a technology developed by Australian company, Sleep Diagnostics.

The system involves glasses which measure the speed of the wearer's upward blink. When a person is fatigued, the blink speed decreases, and the unit will then sound an alarm.

It is currently used by a number of Australian fleets, with BHP and Linfox its largest clients.



Life saver: The Seeing Machines' Driver State Centre device uses a camera that automatically monitors the face of the driver, calculating eye closure and head orientation