



Distinguishing between
Driver Monitoring Systems

Driver Monitoring Systems

The new Vehicle General Safety Regulation becomes mandatory from July 2024 and requires vehicle manufacturers to include a range of advanced driver assistant systems for all vehicles sold into the European market. Included in the list of requirements is a Driver Distraction and Attention Warning (DDAW), which is activated when drivers exhibit signs of drowsiness or fatigue.

The regulation states that the DDAW solution needs to detect and provide a warning when drivers reach a level of drowsiness which is equivalent to or above 8 on the Karolinska Sleepiness Scale (KSS).

In addition to DDAW, the regulations will also call for additional safety measurements such as Advanced Driver Distraction Warning Systems, which will be mandatory in new vehicle types (new vehicles introduced to the market such as electric buses and trucks) from 2024, and in all new vehicles from 2026 (current vehicle types built and registered after this date). Not all Driver Monitoring Systems (DMS) are created equal and can vary in terms of their design and efficacy.

Which Driver Monitoring Systems are most effective?

The two most recognised types of DMS are those that detect whether the drivers' hands are on the steering wheel and those that use cameras to measure drivers' cognitive attention.

Camera-based DMS



Sometimes known as 'awareness' DMS. Faces the driver and monitor their head and/or eye movement to detect where they are looking.

"Control" DMS



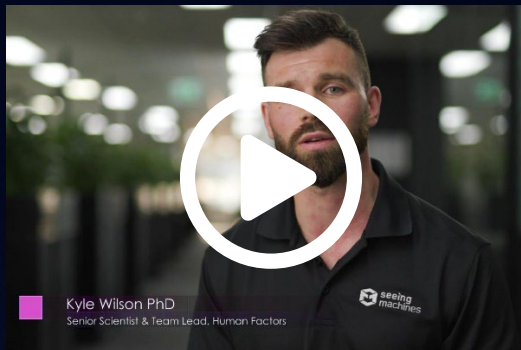
This DMS includes systems that detect vehicle behaviour and those that detect the presence of hands on the wheel.

While a hands-on-wheel control Driver Monitoring System approach may sound effective, it does have a few notable downsides.

Perhaps the most obvious of these is that a driver's hand on the wheel does not necessarily mean that they are fully engaged or paying attention to the road ahead. Additionally, torque sensors (commonly used in hands-on-wheel DMS) are very simple and easy to fool e.g. by jamming objects that act as a counter-weight into the steering wheel.

A camera-based monitoring solution can measure the drivers' visual attention and detect if the driver is looking at the road or is focusing their attention elsewhere.

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An important note on camera-based DMS

While it's now widely accepted that camera-based DMS offer the best way to support driver attention, there are also important differences among camera-based DMS.

A major difference is whether the system uses the driver's eye or head movements to determine gaze direction. A common misconception is that all camera-based DMS track eye movements to determine where they are looking when in fact, many DMS actually rely on head pose.

This can be an unreliable indicator, particularly when it comes to one of the most common and dangerous distractions when driving – using a mobile phone.

About Seeing Machines and how to contact us

Guardian by Seeing Machines is a market-leading driver fatigue and distraction technology, trusted by over 400 commercial transport and logistics organisations and their drivers globally.

Schedule a meeting today and discover how Seeing Machines can help you achieve compliance for DDAW systems in your new vehicles and add value for your customers.

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