

Driver Monitoring Systems

On average, an estimated 5,808,272 car accidents occur each year in the U.S. according to data from the National Highway Traffic Safety Administration (NHTSA). The NHTSA also notes that over 90 percent of these crashes are caused, at least in part, by human error. This is not a new trend and is not likely to decrease considering the potential distractions inside and outside operating vehicles. A report from the Transportation Research Board however, indicates that the monitoring of driver behavior can have a positive effect on driver and fleet safety (Knipling et al., 2004).

Fleet managers and others responsible for supervising drivers can take steps to help limit distractions and improve the driving behaviors of their drivers (i.e. policies on use of cell phones, texting, etc.). Driver monitoring systems are one tool fleet managers may want to consider. These systems can be used to help identify potential “risky” behaviors for the purpose of mentoring and coaching drivers. The trucking industry and agencies that regulate it are the “drivers” behind these systems. Much of the technology discussed and being contemplated is an outgrowth of this industry.

What has been done to monitor/control driver behaviors?

Attempting to monitor and control driving behavior is nothing new. Fleet managers have done (and still may do) ride alongs to determine what their drivers do well and areas where improvements can be made. A drawback to ride is that the driver knows he/she is being evaluated and may not attempt risky behaviors that they might if no one was watching. To help overcome that, many fleets make use of unannounced follow alongs or road observations.

While driving on the highway, individuals may see vehicle signs asking “How’s my driving?” with a phone number for them to call. This is a method of monitoring driving behavior by having independent road observations. It involves persons calling in to make a report to a monitoring company, who will compile the information for their clients. Having independent feedback on driving behaviors is a positive, but the drawback to this method is that it is random and could suffer from a negative bias (persons only calling in when they see a driver do something they consider bad). It doesn’t necessarily help monitor all drivers on a regular basis.

The dangers of excessive vehicle speed (traveling too fast for conditions) are typically well documented. To help control vehicle speeds, organizations may make use of speed limiting technologies, commonly referred to as governors. These may be beneficial in limiting top speeds for vehicles that operate on open roads but often have little or no impact on vehicles traveling on roads where posted speed limits are below those of interstates. Governors are not monitoring systems but are an attempt to change driver behavior.

On-board Safety Systems

Technology has led to a number of tools that can be used to help monitor, coach and train drivers. These include:

- GPS Monitoring Systems
- Forward Collision Warning Systems (CWS)
- Lane Departure Warning Systems (LDWS)
- Roll Stability Control Systems (RSC)
- Combination Systems (monitoring driving metrics)
- On-board Video Monitoring

Do they help?

There are indications that on-board monitoring systems help reduce driving costs. The maintenance manager of a large EMS agency specified they had a 30 percent savings in maintenance costs after installing an on-board monitoring system. He attributed that to a reduction in emergency-type maneuvers while responding to emergencies along with “smoother” everyday driving.

A performance assessment of on-board monitoring systems for commercial motor vehicle drivers found that on-board monitoring helped to reduce high- and low-severity event rates. Additionally, the results indicated that, over time, the use of on-boarding systems may enhance the safety culture of an organization (Federal Motor Carrier Safety Administration, 2016).

Furthermore, on-board monitoring systems help improve driving behaviors. Drivers are more likely to avoid known risky behaviors if they know they are being monitored. Audible warnings can also help provide real time feedback to drivers to help them improve their driving behaviors.

How about the future?

What about cars and trucks that drive themselves? With the rapid changes in technology, it is a real possibility. Some cars park themselves now and crash avoidance systems have entered the consumer car market. Testing is being done on vehicle-to-vehicle, and vehicle-to-road communication systems that may allow vehicles to communicate with one another and to the road they are traveling. Would cars and trucks that drive themselves reduce accident rates?

Summary

Distracted driving and risky behaviors behind the wheel contribute to countless preventable accidents each year. Fleet managers have taken steps to help reduce the number of accidents. Today there are a number of technology-driven tools that may prove to be useful in avoiding a significant number of these accidents and may be worth investigating for your vehicle fleet.

References

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