

How Eye-Tracking-Technology can support driving safety instructors at their training

The objective of the **German Road Safety Council (DVR)** is to support the measures that aim at improving traffic safety of all road users. Focuses are questions of the human behavior, automotive technology, infrastructure, traffic law, traffic observation and of the traffic medicine. DVR co-ordinates all wide range of activities of its members, develops programmes and continuously adapts them to new challenges and new research findings. One of DVR's pivotal tasks is that of bundling the efforts of all parties involved in road safety in order to achieve joint and efficient action (co-ordinating function). DVR strongly supports positions aiming to save lives and avoid severe injuries and does so particularly when dealing with representatives from politics, the social sectors, the media, as well as institutions at Federal or European level, and other national and international institutions.

PROBLEM DEFINITION

In Germany there are around 1,800 driving safety instructors, all of whom are required to undergo ongoing training. Therefore, many of them opt to attend the German Road Safety Council (DVR)'s annual certified training seminars. It is often the case that the instructors, who are often primarily employed as driver's ed teachers, are working with outdated traffic safety knowledge. In an effort to provide the instructors attending its seminars with the most up-to-date infor-

mation and feedback on their own gaze behavior, the DVR will incorporate eye-tracking software into its upcoming vocational training programs.

WHY ERGONEERS?

While the DVR has used an Ergoneers eye-tracking device for several years with great satisfaction, the scene camera's resolution was no longer state-of-the-art. After consulting with Ergoneers, DVR quickly came to the conclusion that the latest eye tracker, the Dikablis Professional, offered a fully revamped platform with Ergoneers' proven quality. In addition, D-Lab, a measurement and analysis software, will in future offer the ability to link a wider set of driving performance data to the eye-tracking data, such as those recorded by the vehicle's CAN Bus interface.

SOLUTION

The DVR's intention was to make the eye-tracking system available both within simulators and for real-time use in vehicles. To that end, it was necessary to ensure that the eye-tracking system did not limit the wearer's field of vision and that it could be used in all weather conditions. For these reasons, the DVR opted for the Dikablis Professional eye tracker. The tracker works as follows: the data gathered by the eye-tracker are trans-

mitted via cable to the D-Lab computer, allowing the study director to follow the driver's gaze behavior in real-time, in full HD quality. Additional "markers" are placed along the vehicle's dashboard, which automatically detect and calculate the number of times the driver's gaze falls upon "areas of interests", such as driving conditions, the mirrors and other displays in the vehicle. The markers also make it possible to compare data between the study's various participants. In addition, videos depicting unusual driving conditions are exported directly from Ergoneers' measurement and analysis software to be used for training purposes. The plan is to record additional data, for instance driving performance data, which can be read in real-time from a vehicle's CAN-Bus interface, in order to provide a more complete picture of the situation.

"We have always been impressed by the Dikablis eye tracker and Ergoneers' service," says Jürgen Bente, Head of the DVR's Driving Training Program. "The full HD videos are especially helpful for providing driving safety training, as they offer a detailed data analysis. We were particularly impressed with the excellent eye tracking results after the first round of testing. Even in extremely sunny conditions we never saw any data corruption as a result of the bright rays. It was also important for us that Ergoneers' software offered not only eye tracking data, but also a way for us to include further sensors and channels."

ABOUT ERGONEERS

Ergoneers GmbH was founded in 2005 as a spin-off from the faculty of Ergonomics at the Technical University of Munich. Today the company has a worldwide presence through three offices in Manching (Germany), Geretsried (Germany) and Portland (USA) and through global sales partners; serving the Transportation / Automotive, Market Research & Usability, Science and Sports / Biomechanics application areas.

In addition to development, manufacturing and distribution of measurement & analysis systems for behavioral research and optimization of human-machine-interaction, Ergoneers also offers comprehensive expertise in each phase of your study.

Our product portfolio primarily comprises of the 360-degree solution - D-Lab; an extensive software platform for capturing and analyzing human behavior. With its different software modules you can synchronously measure and analyze eye-tracking, data stream, video, audio, physiology and CAN-Bus data. With the Dikablis Eye-Tracking system, Ergoneers provides the best hardware for professional Eye-Tracking studies in real or virtual environments.