

Press Release

FEV develops AI-supported driver monitoring system CogniSafe

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Aachen (Germany), January 2025 – FEV, a leading global innovation driver for the mobility of tomorrow, presents CogniSafe, a state-of-the-art Driver Monitoring System (DMS) that significantly increases road safety. The system uses advanced technologies such as deep learning and computer vision to monitor driver conditions such as distraction, fatigue and inattention in real time and under even the most challenging conditions.

“CogniSafe is a holistic, innovative system that uses a variety of sensors and combines them with artificial intelligence (AI) to precisely analyze driver behavior and alertness”, said Dr. Thomas Hülshorst, Group Vice President Intelligent Mobility & Software at FEV. In (semi-) autonomous vehicles in particular, legal safety requirements are increasing, and the driver must be able to intervene in any situation. “With our latest development, we are actively reducing accidents caused by human error. At over 90 percent, these make up the majority of all accidents,” said Hülshorst.

CogniSafe uses a combination of functions which are unique on the market and coordinate with each other. It uses a network of

cameras in the visible light and infrared spectrum to analyze driver behavior from different angles. On this basis, the system continuously tracks the driver's gaze, analyzes eye condition (percentage of eye closure, PERCLOS) and assesses head posture, providing further information on alertness, fatigue and drowsiness.

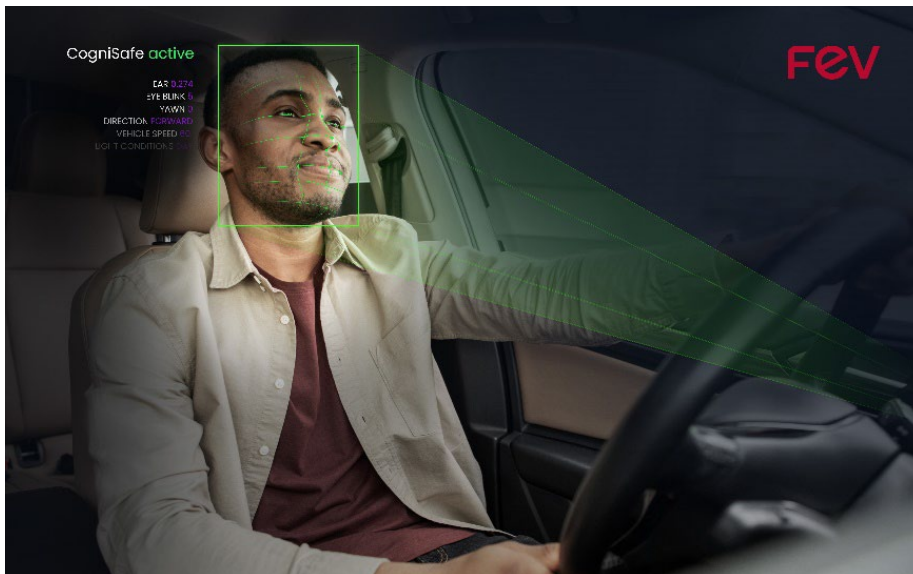
In addition, CogniSafe analyzes driver behavior regarding activities that could impair safety, such as texting on a cell phone, drinking while driving or adjusting controls in the vehicle. In this case, the system can inform the driver visually and acoustically and, if necessary, initiate active safety measures such as emergency braking or activate lane assistance.

AI plays a pivotal role in the functions of FEV's latest development. Convolutional Neural Networks (CNN) are used to perform precise real-time analyses that dynamically adapt to different drivers and environmental conditions, such as different lighting conditions, and continuously improve.

“The solution is also very interesting for target groups such as fleet operators or insurance companies, who have a strong interest in safe driving practices”, said Hülshorst.

When developing the DMS, FEV paid attention to ease of use. CogniSafe can be seamlessly integrated into existing driver assistance systems (ADAS/AD) and can also be integrated into cloud-based structures. The development is furthermore modularly expandable and can be adapted to future technologies and regulations.

Footage:



Caption: FEV's CogniSafe uses deep learning to monitor driver conditions, thereby increasing road safety. Source: FEV

About FEV

FEV has always pushed the limits.

FEV is a globally leading engineering provider in the automotive industry and internationally recognized leader of innovation across different sectors and industries. Professor Franz Pischinger laid the foundations by combining his background in academia and engineering with a great vision for continual progress. The company has supplied solutions and strategy consulting to the world's largest automotive OEMs and has supported customers through the entire transportation and mobility ecosystem.

As the world continues to evolve, so does FEV.

That's why FEV is unleashing its technological and strategic expertise into other areas, applying its forward thinking to the aerospace and energy sectors. Thanks to its software and system expertise, the company also leads the way making intelligent solutions available to everyone. FEV brings together the brightest minds from different backgrounds and specialties to find new solutions for both current and future challenges.

But FEV won't stop there.

Looking ahead, FEV continues to push the limits of innovation. With its highly qualified 7,000 employees at more than 40 locations globally, FEV imagines solutions that don't just meet today's needs but tomorrow's. Ultimately, FEV keeps evolving – to a better, cleaner future built on sustainable mobility, energy and software that drives everything. For the company's partners, its people and the world. [#FeelEvolution](#)