



Eyeware and Melexis collaborate on 3D ToF sensor-based eye-tracking solutions for driver monitoring systems

Tessenderlo, Belgium, 17 March 2020 – Eyeware, the Swiss-based 3D eye-tracking technology company on a mission to bring attention-sensing solutions to multiple industries, and Melexis have joined forces to create an advanced driver monitoring system (DMS).

The DMS leverages Eyeware's attention-monitoring technology, which uses Melexis' new MLX75027 3D Time-of-Flight (ToF) sensors with VGA resolution, to enable robust eye gaze and head tracking for in-cabin driver monitoring, even in sunlight.

As a pioneer in the field of eye-tracking, [Eyeware](#) uses 3D Time-of-Flight cameras to overcome the limitations of infrared-based tracking technology. The company has developed its algorithms using proprietary strategies that are based on data-driven machine learning approaches, making it applicable in systems using low power, cost-effective and compact sensors.

“This collaboration demonstrates the robustness and wider range of head movement that can be achieved using ToF technology, compared with current driver monitoring systems,” said Gualtiero Bagnuoli, Product Marketing Manager, Melexis. “Melexis' [MLX75027 3D Time-of-Flight sensor with VGA resolution](#), used in the demonstrator, employs a high modulation frequency (20-100MHz) to drive the IR illumination. Along with the patented pixel design, this means the sensor is almost completely unaffected by light, resulting in robust and reliable operation under changing conditions, such as sunset.”

The range data provided by the 3D Time-of-Flight sensor is used to further enhance the reliability of the head and gaze tracking capabilities of the system, enabling it to monitor a very wide range of head movement. The VGA 3D ToF sensor requires a minimal footprint, allowing it to be easily integrated into the rear-view mirror assembly.

“Although the resolution of the 3D Time-of-Flight sensor is lower than current driver monitoring system cameras, the DMS needs just one MLX75027 VGA 3D ToF sensor to track both driver and passenger,” explained Bagnuoli.

Kenneth Funes, CEO and co-founder, Eyeware, added: “We can localize eyes well, even under low resolution settings or under large head movements.

Our technology also operates in a multiuser environment, to monitor car interiors with multiple passengers. This latest demonstrator shows our technology is very robust, coping well with changing lighting conditions. Eyeware is bringing these unique traits to the DMS market to make 3D eye tracking a reliable and competitive technology to be considered.”