

SenseAhead™

SenseAhead is a combination 2D/3D sensing system that detects pedestrians, vehicles and objects in a vehicle's driving path, and provides crucial input for Autonomous Emergency Braking (AEB) and other driver assistance systems. The system aims to prevent accidents in urban areas, and also at night or when visibility is poor, scenarios under which pedestrian accidents predominantly happen.

Limitations of the current AEB systems

Just like our eyes, the 2D cameras that are currently a key component of most AEB systems have limitations. Their night-time vision is limited, as 2D performance decreases with lower light levels. Unlike human beings however, a single 2D camera is unable to perceive an environment as three-dimensional. This can impact on their ability to accurately judge how close the vehicle is to the objects surrounding it – a crucial parameter for an AEB.

The SenseAhead solution

IEE's SenseAhead offers a 3D component in addition to the current 2D, guaranteeing better performance by generating an accurate distance measurement at all times. It is aimed at improving the performance of AEB systems for pedestrian collision avoidance, particularly in poor lighting conditions. The 3D component delivers a distance image that can be matched with the 2D data, and it has its own illumination, allowing it to measure the distance to surrounding objects independently of the intensity of other light sources, such as vehicle headlights and streetlamps.



Sensor



Illumination unit

Key Advantages

- **5D technology.** SenseAhead combines the world of high-resolution video images with the world of distance data. By merging both types of information, a 5D sensing system is created.
- **Reliability.** SenseAhead offers excellent sensing performance at night and works independently of external light sources.
- **Application range.** In addition to its current AEB functions, the sensor is being developed to offer other advanced driver assistance functions, such as lane departure warning and speed sign recognition.

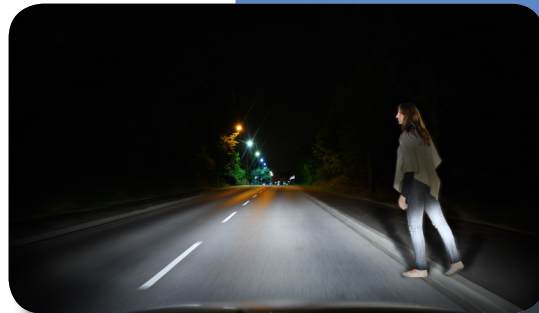


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Euro NCAP

AEB systems detecting other vehicles will become part of the Euro NCAP vehicle safety assessment from 2014 onwards. Euro NCAP will then integrate AEB Pedestrian systems into its rating from 2016 onwards, as an element contributing to the pedestrian protection performance score of the vehicle. Additional incentives will be introduced for lane departure warning and speed limit information.



Flexible options

IEE is planning on introducing two SenseAhead variants:

- **SenseAhead Compact** offers lane departure warning in addition to its AEB functions.
- **SenseAhead Plus** will have optional software packages including speed sign recognition, intelligent high-beam assistant, along with other sophisticated driver assistance functions.



About Us

IEE is an innovative developer of specialized sensing systems. Our sensing technologies are dedicated to the following markets: Automotive, Building Management & Security, and Medical, Health & Sports.

IEE was founded in 1989 and is headquartered in Luxembourg. We operate in Europe, the U.S. and Asia, and employ 1,600 people worldwide. More than 10% of our workforce is dedicated to Research & Development.

For more information, please visit www.iee.lu or send an e-mail to transportation@iee.lu