



140cm
120cm
100cm
80cm
60cm
40cm
20cm

3D Depth Sensing

Add a new dimension to active and passive safety

Through 3D depth sensing, we elevate the capabilities of our driver monitoring and interior sensing solutions. By providing a detailed 3D view of the cabin's interior, we can enhance both vehicle safety and the user experience.

Our CES 2025 demo showcases how this technology unlocks even more advanced in-cabin functions — beyond the two-dimensional.

3D depth sensing provides a deeper understanding of the status and position of each person, object, and surface within the vehicle. This level of detailed insight is crucial for meeting the requirements for adaptive restraint systems across various safety standards and car rating schemes, including FMVSS 208 and Euro NCAP.

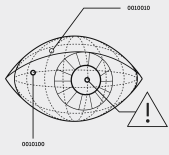
What is 3D Depth Sensing?

Using wide field-of-view cameras, Smart Eye's interior sensing technology captures detailed visual information about the entire vehicle cabin. By combining these 2D images with 3D depth sensing technology, such as indirect Time of Flight (iToF) and structured light technologies, we can generate highly accurate 3D representations of the vehicle's interior.

This allows us to precisely measure the distance between people, objects, and other surfaces within the cabin, offering a level accuracy and precision far superior to traditional 2D systems. This ensures more reliable detections and spatial estimations, reducing the likelihood of errors.

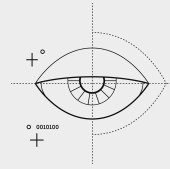
Safety Features Unlocked by 3D Depth Sensing

3D depth sensing supports various advanced in-cabin functions, such as:



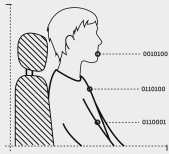
Advanced Body Position Analysis

Contributes to road safety by informing adaptive restraint systems for airbag deployment and pre-crash safety measures.



Dynamic Gesture Detection

Allows for intuitive user interaction with the vehicle's systems through gestures



Secure Driver Authentication

Offers reliable verification of the driver's identity for enhanced security.



Augmented Reality Heads-Up Display (AR HUD)

Enhances the driver's view with vital information displayed directly in their line of sight.

The Key Role of 3D Depth Sensing in New Safety Protocols

3D depth sensing technology has become important for enhancing adaptive restraint systems in vehicles. This also makes the technology a key factor for compliance with FMVSS 208 in the U.S. and upcoming updates in Euro NCAP ratings.

Adaptive restraint systems dynamically adjust seat belts and airbags according to the occupant's size and position. This makes them crucial for occupant protection during crashes.

By delivering precise information about the occupants and objects in the cabin, 3D depth sensing enables adaptive restraint systems to customize safety measures, like airbag deployment, for each occupant.

This technology aligns with FMVSS 208's requirements for adaptable crash protection systems. The integration of 3D depth sensing in adaptive restraint systems is also expected to be a key factor for achieving a high Euro NCAP safety rating, according to their 2026 protocols.