

IEE's deployable hood sensor system Protecto™ supports new EU pedestrian protection regulation without compromising design freedom

Luxembourg, 18th June 2008 - As regulation on pedestrian protection tightens on a European and global scale, the need has arisen for reliable and flexible solutions. IEE has met this need by developing Protecto™, a deployable or "pop-up" hood system which supports regulation compliance but still allows for the necessary design freedom.

Since 2005, EU directive 2003/102/EC has set the safety requirements that motor vehicle manufacturers need to meet in order to reduce the severity of injuries suffered by pedestrians when hit by a vehicle. Due to feasibility issues related to the second phase of the directive, it was decided to replace this with a new regulation, which is based on the Global Technical Regulation (GTR) for pedestrian protection, and is expected to pass by autumn of this year at the latest.

This **new European regulation**, which was endorsed in European Parliament this afternoon, introduces more stringent criteria for tests performed on the bumper and hood area by the end of 2012. In order to comply with these requirements, the vehicle must provide a "crumple zone" under the hood to absorb the kinetic energy generated by the pedestrian's head impacting the hood. There are two possibilities to provide the necessary space between the hood and the hard components in the engine bay: either the vehicle is designed so that the physical layout already includes the necessary clearance, or the vehicle can be equipped with a deployable hood.

Pop-up hoods offer the perfect solution for design-critical vehicles, for which additional space requirements for design-based pedestrian protection are not acceptable. They prevent unfashionably high hoodlines and offer the necessary **flexibility and freedom for design differentiation**.

Pop-up hoods also have the **potential to score higher Euro NCAP ratings**. So far, vehicles with pop-up hood solutions have on average performed better in Euro NCAP hood tests than vehicles with a design solution. As Euro NCAP applies different test criteria than those stated in the new regulation, it will not suffice to merely meet legal requirements in order to receive a 3- or 4-star Euro NCAP pedestrian rating. Moreover, Euro NCAP will introduce a new assessment system in February 2009. There will probably be only one overall rating which will replace the current rating categories. This new overall rating would include the results of the single categories (incl. Pedestrian Protection).

IEE's solution, Protecto™, operates using a **sensor** placed in the front bumper that determines if the vehicle is colliding with an object or a person. In the event of a collision with a pedestrian, the deployable hood system will automatically engage within 45 milliseconds, lifting the hood up approximately 80 millimeters (roughly 3 inches). The risk of suffering serious injury is drastically reduced because the comparably "soft" hood deforms to absorb most of the impact. The sensor itself can recognize and classify an object in 10 to 15 milliseconds, while proprietary algorithms developed by IEE prevent the hood from inadvertently activating.

In extensive OEM test sequences and benchmarks, the Protecto™ sensor has been proven to be a **robust and reliable impact sensing device** with strong human-misuse discrimination capabilities. Moreover, a major share of the sensor integration and calibration can be achieved by simulation, therefore significantly reducing development time.

IEE is currently working together with some of the world's largest OEMs to finalize benchmark testing in preparation of **serial production**.

* Depending on the system structure, Protecto™ can achieve a reaction time of as little as 45 milliseconds.

About IEE

IEE S.A. is an innovative developer of specialized sensing systems. IEE was founded in 1989 and is headquartered in Luxembourg. The company has operations in the United States, Europe and Asia.

IEE is a global leader in automotive safety sensing systems for occupant detection and classification. In addition, we offer solutions for pedestrian protection and are developing sensing systems for advanced driver assistance applications and active safety systems. We also develop smart input devices for car interiors.

Our business unit LuSense develops and markets sensing solutions for medical equipment and consumer electronics such as cellular phones and MP3 players.

IEE is also entering into other markets such as Public & Commercial Infrastructure, Automation & Logistics and Medical & Healthcare with unique sensing solutions for people counting, luggage classification, parcel detection, patient surveillance, and much more.

IEE employs 1,400 people worldwide and operates manufacturing sites in Echternach (Luxembourg) and Langfang (China). IEE has technical centers in Contern (Luxembourg), Beijing (China), Michigan (USA), Seoul (South Korea) and Kosice (Slovakia), as well as a representative office in Tokyo (Japan).

26% of our workforce is engaged in R&D.

For more information, please visit www.iee.lu.

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