

Impact Sensing for Pedestrian Protection with Piezoelectric Flexible Conformable Composite Film Sensors

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Categories:

- Materials and Manufacturing
- Mechanical Engineering

Keywords:

- Automotive
- collision
- film
- Impact detection
- Piezoelectric
- Safety

Researchers at Purdue University have developed a piezoelectric sensor that can be mounted within the front bumper assembly of a vehicle that is capable of distinguishing between impacts with pedestrians and other obstructions to deploy a pedestrian protection system and activate emergency braking. This sensor system is made via roll-to-roll fabrication, making it a cost-effective solution to impact detection while also being easily applied to the unique geometries of vehicle bumpers. Applications of this technology include impact detection in the automotive sector and any other fields where identifying collisions with pedestrians is critical.

Technology Validation: This technology has been validated through simulated impacts of a human leg model and a small animal model. The system was able to distinguish between the two and have a total response time on the order of a few milliseconds.

Advantages:

Low cost

Roll-to-roll manufacturing

Can be integrated into existing bumper designs

Applications:

Impact Detection

Automotive safety

Pedestrian safety

People:

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Intellectual Property:

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