PURDUE INNOVATES | Office of Technology Commercialization

VIP Harness - Senior Capstone

Pregnancy-safe automotive harness redistributes restraint away from the abdomen during crashes.

Studies have shown that vehicle accidents account for 83% of fetal mortality, and that 87% of pregnant women incorrectly position their seatbelts. The 3-point automotive seatbelt is ill-equipped to accommodate the comfort and safety needs of pregnant people. A senior design team at Purdue University has developed the Vehicle Injury Protection (V.I.P.) Harness to offer a solution that restrains the user by the upper chest and thighs to minimize impact to the abdomen in the event of an accident. The V.I.P. Harness is compatible with existing vehicles and can be easily installed over a seat and removed as needed. It is secured using the existing vehicle seatbelt and uses additional restraints to secure the passenger to the V.I.P. Harness. This technology has applications in the automotive accessory industry to make seatbelts safer and more inclusive for pregnant individuals.

Advantages

Restraints designed for pregnancy

Safer and more comfortable than 3-point seatbelt

Installs over regular front and back seats

Applications

Vehicle Safety

Automotive

Biomedical Engineering

Technology Validation:

In crash testing with an HIII5 female test dummy, the device was successful in tests of head injury criteria (HIC-36), neck injury risk, thoracic spine acceleration, and pelvic acceleration

TRL: 5

Technology ID
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Category
Automotive & Mobility
Tech/Micromobility & Smart Urban Infrastructure

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