

Protecting precious passengers from the heat

Each year, an average of 36 children die due to hyperthermia while left unattended in a vehicle. GHSP Inc. determined that a market existed for a device that could detect occupants and the heat level within a vehicle and alert the driver to danger before tragedy struck. The company sponsored a team to design an Occupant Detection and Warning system which would be



Above is the final prototype of the heat detection system.

utilized by automobile manufacturers. The team designed

and built a system that is passive until a hazardous state is realized (a temperature of 104° F). The passive thermal switch, which uses a bimetallic disk, passive infrared sensor, micro-controller and supporting circuitry integrated into an interior dome light, then emits a signal to the driver's key fob. This results in an alarm sounding, alerting the driver to impending danger to the occupant left in the vehicle. Since the system is small enough in size, it is able to be integrated into any vehicle without major modifications.

"... the multiple disciplined team ... took an idea we brought to the table and turned it into a functioning prototype on time, on budget, and did so largely as an independent team."

Dave Mitteer, Product Engineer, GHSP

Team members: Eric Jackson, Scott Melin, Kevin Bourgo, David Malek, Abhilash Singh, Ryan Van Zoest; Advisor: Professor Mahesh Gupta

Capstone Design provides students their first job, not their last class. Design teams help sponsoring companies and entrepreneurs address aggressive goals and tight budgets while providing a fresh perspective. With guidance from an advisory team, student teams apply their coursework to establish requirements, develop a viable design, and then build and validate the performance of a working prototype.

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