Safe with Me Now: A Novel System to Prevent Vehicular Hyperthermia in Children

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In the past 20 years, over 700 children have died from vehicular hyperthermia. Preventative devices currently available on the market have many limitations, and are unable to detect when children are in danger up to 45% of the time. In this project, a reliable and cost effective system was invented to address the shortcomings of current devices. The system is composed of three parts: a main unit, a key fob, and a bystander car alarm. The main unit employs a force sensing resistor and a passive infrared sensor to determine if a child is present in a car. Through a Bluetooth module, it communicates with the key fob to determine the driver's proximity to the car. An audio alert is sent when a child is detected alone. If the driver does not respond within 4 minutes, the car alarm will sound to attract the attention of bystanders, ensuring the safety of the child. The prototype was installed in a car and tested under 32 scenarios. It detected the hazard every time, and sent key fob and/or car alarm warnings within a minute of confirmed danger detection. No false alarms were issued. This device is the only one on the market with the ability to detect if a child is alone in a car under all situations, and ensure the timely arrival of help through dual alarm channels. It is compact, easy to use, and costs under $60 to produce.

Awards Won:
International Council on Systems Engineering - INCOSE: Certificate of Honorable Mention