



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> <b>Tristan Brown</b>	<b>Project Number</b>  34540
<b>Project Title</b> <b>Infant Sensing Integrated System</b>	
<b>Objectives/Goals</b> The goal of my project was to design and install a pressure sensor in an existing infant car seat and integrate this system with a vehicle, which will reduce the occurrence of an infant being left alone in a locked car. <b>Abstract</b> <b>Methods/Materials</b> I made the following assumptions: 1. The car is equipped with Bluetooth (standard feature in most cars). 2. A smartphone app will be developed to alert the caregiver to the child left behind if the paired phone is greater than 50 yards from the Infant Sensing Integrated System (I.S.I.S) / Dont Leave Me system. 3. The Bluetooth on the phone will be forced on if the system is activated by the depression of the pressure switch. 4. The cars Bluetooth will enable the cars horn to be sounded in the event of an alert. I acquired the following components: a. Iteaduino Bluetooth microcontroller to be used as my motherboard; b. Electronic push button to simulate my car seat pressure switch; c. Electronic magnetic switch to simulate a car door switch; d. Electronic relay assembly; e. Siren to simulate a cars horn; f. Associated connecting cables. 2. The push button, magnetic switch and relay assembly are plugged into the digital input/output terminals (D8-10) on the microcontroller. 3. The relay is programmed to close the normally opened (NO) contacts and sound the siren if the push button (pressure switch) remains active and the magnetic switch (door switch) is opened. 4. The microcontroller is programmed using a PC and the Arduino Integrated Development Environment application to read a high and low value for the devices. The program code was standard from the manufacturer and only required consolidation for multiple components. Testing was broken up into three major phases: 1: Component Testing; 2: Integrated Testing; 3: Final Testing. <b>Results</b> The system worked as designed, alerting the caregiver to the presence of the infant in the seat, except when the sensor was placed in the small of the back. <b>Conclusions/Discussion</b> My conclusion is this system will reduce the number of infants left alone in vehicles.	
<b>Summary Statement</b> This project is designed to prevent heat related infant deaths as a result of being left accidentally in a locked vehicle.	
<b>Help Received</b> My dad helped me write the computer code.	