



Life Preservation System

The **Autonomous**
Solution for Precious
CargoSM





**Saving
Precious
CargoSM**

SINCE 1998, 1,000 + INFANTS AND CHILDREN HAVE DIED IN HOT CARS IN THE USA -- MORE THAN 3,200 WORLDWIDE.

THOUSANDS UPON THOUSANDS MORE SUFFERED LIFE ALTERING BRAIN INJURIES FROM HOT CAR HEAT STROKE.

Confidential Auto Guardian® 2021



Tens of Thousands
of Family Pets Met
a Similar Fate --
Left Unattended in
Hot Cars

Even on cloudy and mild
temperature days



Child and pet
deaths in hot
cars can be
PREVENTED
NOW.



The High-Risk Problem and Attempted 'Fixes'



The Problem:

- The greenhouse effect on a parked vehicle **accelerates cabin temperature**; in 10 minutes, on average, a 50% increase in interior temperature occurs. In 15 minutes, it is increased by 80%.
- Passengers trapped in stationary cars will experience extreme heat to the point of asphyxiation or heatstroke, which leads to life-changing brain injuries or death.
- Distracted drivers are the largest cause of these events.(54%) Intentional, purposeful abandonment – for quick errands or to discipline unruly kids (28%); or the curious who get in cars by themselves (17%) account for fatalities annually.

- The auto industry and safety awareness organizations' answer is 'prompts':

- Driver door chimes
- Key lock reminders
- Place a shoe on the back seat with the child

**PROBLEM: TRAGIC EVENTS –
CONTINUE UNABATED**

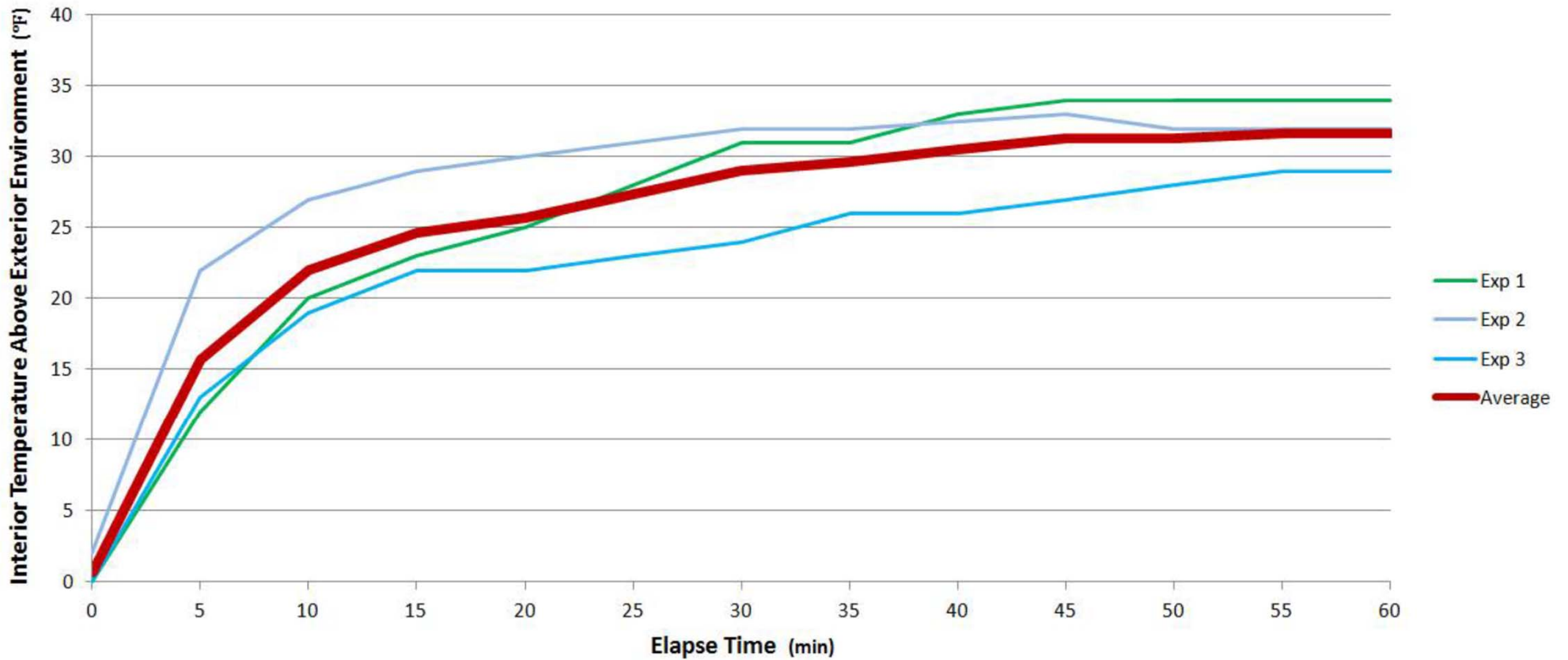




Vehicular heatstroke deaths and life-changing injuries to vulnerable passengers occur when left in vehicles by design or distraction.

What is the Solution to Stopping These Agonizing Events?

Vehicle Interior Temperature Under Direct Uninterrupted Solar Radiation in Mid-October, in New England



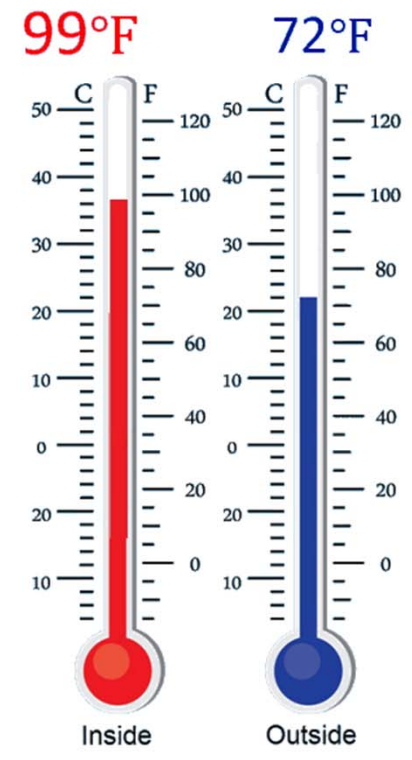
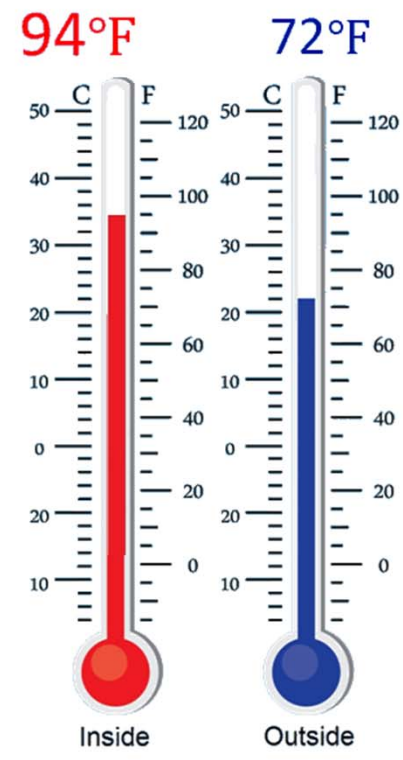
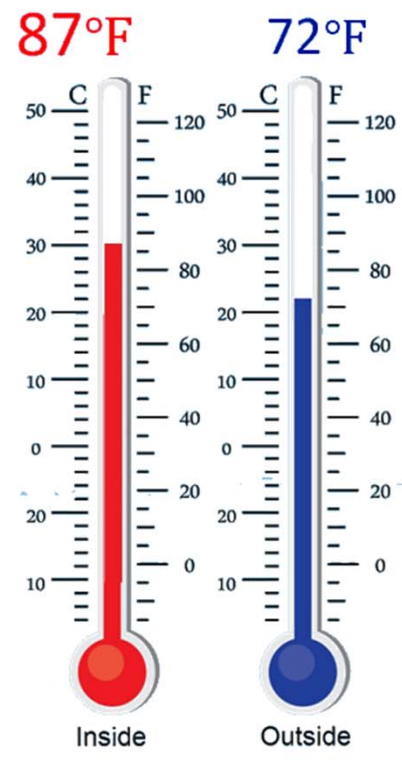
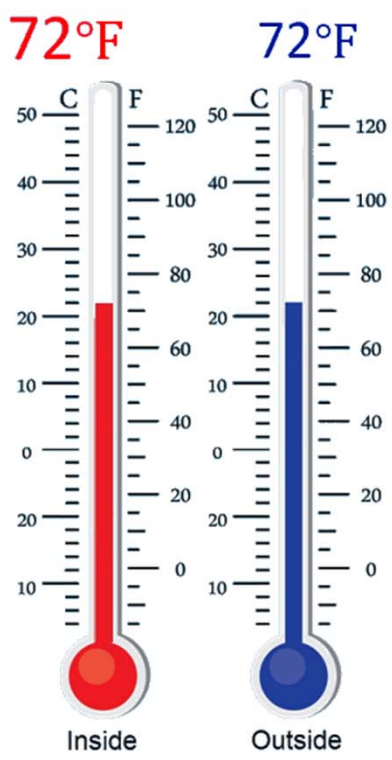
Time: 1:00pm
Time Elapse: 0 min
Temp $\Delta^{\circ}\text{F}$: 0

1:05pm
5 min
15

1:10pm
10 min
22

1:20pm
20 min
27

This chart is based on data obtained from our greenhouse effect experiments



Auto Guardian® Leaders



Clover Apelian, Co-Inventor, Auto Guardian® Life Presentation System. Clover has been a professional philanthropic consultant and capital fund-raising manager since 1970; certified by the Association of Fundraising Professionals (AFP) and the Association of Healthcare Philanthropy (AHP). She has worked in Central America, Western Europe and the United States.

Clover guides boards and staff managers to acquire capital for new facilities, upgraded, costly equipment or scholarships. She builds efficiencies into the non-profit organizations' business models which yield added success. Clients include the University of Miami School of Medicine and the Kennedy International School (Gstaad, CH). She is a graduate of Barry University.

The inspiration and motivation for this project came from the years spent raising capital and advocating for children, seniors and pets for a variety of organizations. Recognizing the extreme vulnerability of, especially, babies, children and pets in vehicular heatstroke tragic events, she turned that focus – ensuring survival of the victim – to development of this cutting-edge solution. *High Tech and Empathy (high touch) for the trapped passenger differentiate this system from all others.*

Lin Yu, PhD Co-Inventor, Auto Guardian® Life Presentation System. Dr. Yu is an accomplished senior IT professional with broad design, analysis and R&D project experiences in various industries; significant expertise in customer business requirement gathering, synthesis and analysis. He is a seasoned data architect and data modeler and has excellent analytical skills and solution provision: problem formulation and abstraction, concept development, prototype building, performance analysis and tuning, critical thinking; innovative techniques and solutions, patent writing and filing experiences; unique mathematics and computer science background.

He has worked for Bell Labs, Lucent Technologies; Fleet Bank, Stinger Technologies, LTD. His PhD is in Computer Science from the University of Albany. He is a member of Sigma Xi, ACM and SIGMOD. He holds three (3) US patents.

The challenge of creating a unique solution to save victims of vehicular heatstroke events was enthusiastically accepted. In addition to the AG patents, the exhaustive white paper informs those dedicated to vehicle safety for children and other vulnerable passengers.



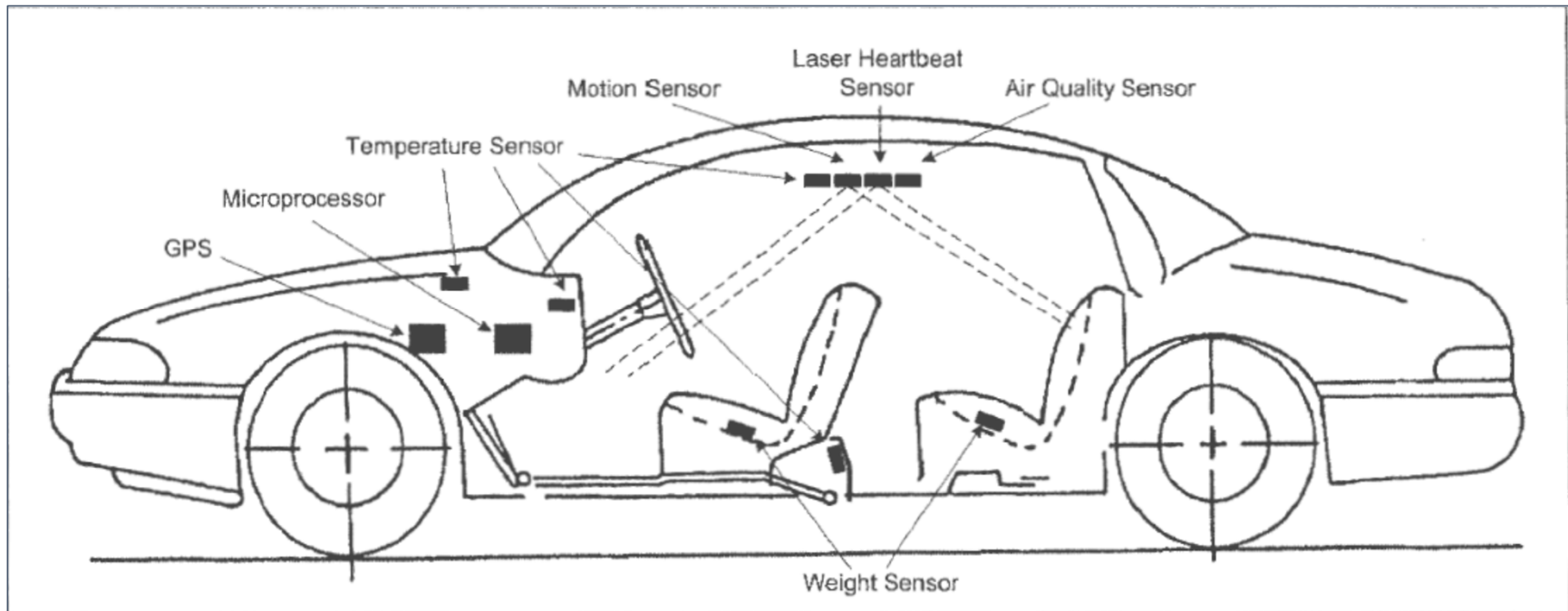


The Auto Guardian[®] System

- Autonomous. Saves Lives
- Intervenes in Greenhouse Effect
- Cannot be disabled or removed
- Calls for EPS Rescue
- **RESULT:** Tragic vehicular heatstroke events inflicted on a child or a beloved family pet are avoided.

The Solution!

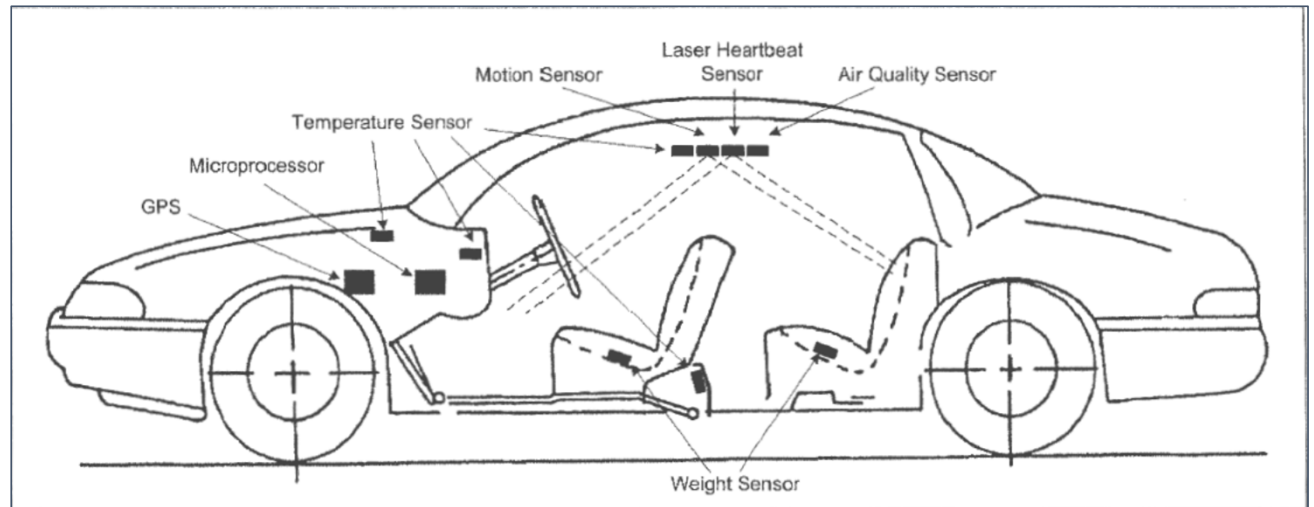
- For children, vulnerable people and family pets trapped in hot cars, Auto Guardian® is the embedded **patented solution** to prevent needless heatstroke deaths and injuries.
- **How:** when a vulnerable infant or pet is left in a hot vehicle AUTO GUARDIAN® **detects** the danger and sustains life / safe cabin via a processor and takes actions to modify the dangerous environment within the vehicle until rescue.
- **What:** the patent is an algorithm designed to access available sensors such as:
 - The engine, window, HVAC, alarm, GPS call for help
- **Costs and risk are minimal; only in-use hardware is required.**



AUTO GUARDIAN® UTILIZES EXISTING SENSORS

- AUTO GUARDIAN® IS AN ALGORITHM ... FULLY AUTONOMOUS, TEMPLATE BASED
- INEXPENSIVE TO PRODUCE - CAN NOT BE DISCONNECTED OR DISMANTLED
- WORKS WITH ANY AND ALL VEHICLE MAKES AND MODELS
- REQUIRES NO ADDITIONAL HARDWARE
- UTILIZES EXISTING SENSORS; NO ADDITIONAL NEEDED
- PRESENTS NO ADDITIONAL RISK TO THE MANUFACTURER

High Tech
AND High
Touch with
Life-Saving
Impact



Auto Guardian: The Vigilant Sentinel to Protect Precious Life



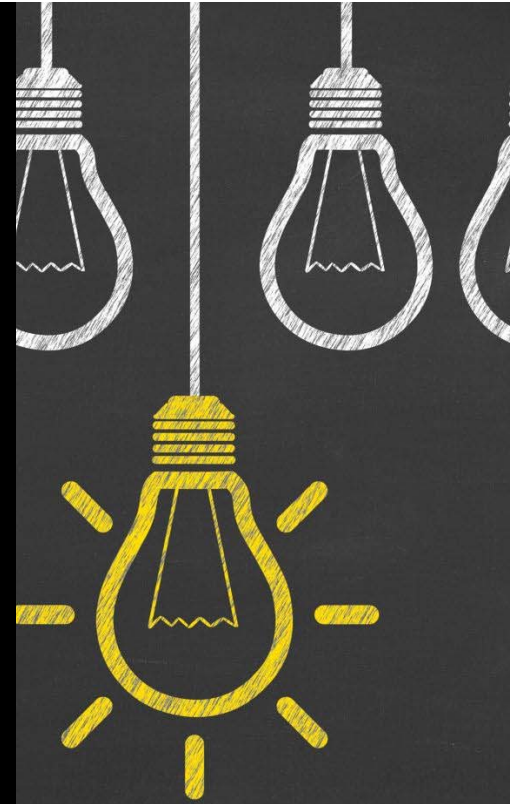
Market Potential: The World

- There is no competitor in the market with this process.
- All passenger vehicles need this!
- School buses & day care vans
- Lyft, Uber and others need this device
- Auto buyers want safety for their passengers, like airbags an unseen GUARDIAN is always protecting them!



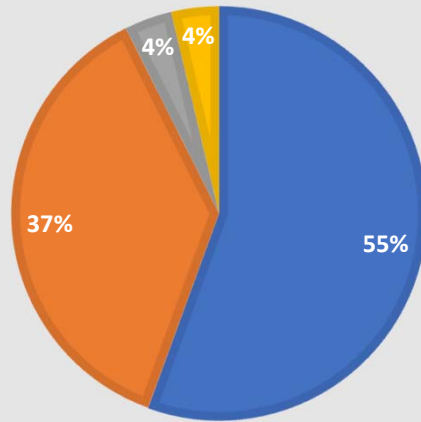
First to Market First in Class Innovative Solution

Auto Guardian's unique algorithm stands alone in the vehicular heatstroke prevention sector.



POTENTIAL

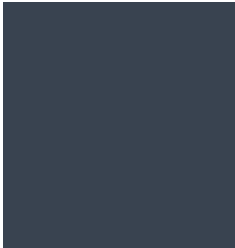
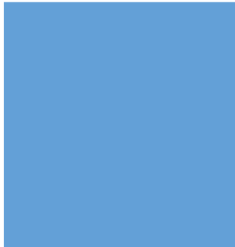
- New Cars Annually Sold
- On the Road Year One
- Company Vehicles
- Ride Share Vehicles



Financials

- Cars Sold in the U.S. Annually 15,000,000
 - Auto Guardian in 10% of these vehicles: 1.5M annually
- Current Vehicles on the U.S. roads today > 100M
 - Auto Guardian in 10% of these vehicles: 10M year one
- Interested parties Lives Saved: 1,000's per year - **PRICELESS**

Interested parties are invited to discuss patent purchase, assignment or other relationship.



Contact Information

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Appendix

- Sensor Matrix; OSU Capstone Study, August 2019
 - Produced by: Mechanical and Aerospace Engineering Students ME4901.02
- Link to Full Capstone Study
- Link to US Patent for Auto Guardian®

Sensor Matrix – The Ohio State University Capstone Study (2019)

	Passive IR Sensor	Ultrasonic Sensor	Camera Based Sensor	Radar Sensor
What is it looking for?	Temperature difference	Movement (larger than heartbeat)	Images – Facial recognition	Return frequency response
Other Uses in Vehicles	Night Vision	Blind Spot Detection	Back up camera	Lane assist, blind-spot warning
Can it stand alone?	No	No	Yes	Yes
Accuracy	Good within temperature range	Good within distance range	Good	Good
Source of Error	Other heat sources	Other things move inside the car	Can give false positives	Noises from outside of the vehicle
Shortages	Cannot detect human at high temperature	Cannot detect small movements like heartbeat and breath	Security concerns	
Price	\$10	\$10-\$100	\$200	\$40
Sensor Fusion Possible?	Yes	Yes	Yes	Yes
Compatible Technologies	Weight sensor, door sensor	Weight sensor, door sensor	Weight sensor, door sensor	Weight sensor, door sensor
Point of Failure	Cabin temperature at or above human body temperature	Lack of large movements	Obstructed View	

Result: Sensors Only Sense

The Ohio State University Full Capstone Study

[Capstone Study Link](#)

United States Patent for Auto Guardian®

[United States Patent: 10603980](#)