INFORMATICS INSTITUTE OF TECHNOLOGY

INFORMATICS INSTITUTE OF TECHNOLOGY
In Collaboration with
UNIVERSITY OF WESTMINSTER

IOT-Based Vehicular Heat Stroke Prevention System

A Project Proposal by
A.V.A Nehan Pavindya Vidanaarachchi

Supervised by
Miss. Vishmi Embuldeniya

Submitted in partial fulfilment of the requirements for the
BEng (Hons) Software Engineering Degree Department of Computing at University of Westminster

April 2025

Abstract

The rising incidents of vehicular heat stroke, mainly with children and pets, demand the need for immediate proactive safety measures inside vehicle environments. This project presents an idea of an IoT-based Vehicular Heat Stroke Prevention System that will continuously monitor critical environmental parameters such as temperature, humidity, and CO_2 levels inside vehicles. Environmental risk is continually analysed in real time by sensor data, cloud analytics, and predictive modelling. Instant alerts are triggered to caregivers via a mobile app. With the use of integrated GPS functionality, location can be pinpointed with great accuracy, allowing rapid responses in emergent situations. This solution overcomes the limitation of current practice in safety, which relies on manual inspections and simple alarm systems by providing a scalable automated approach with limited human error. Complemented by machine learning algorithms that analyse the historical data for further development of the predictive capability of the system, the project makes use of multisensor fusion with adaptive thresholds for customized alerts, according to user preference. The system sends notifications via secure and reliable communication protocols. IoT public health contribution, developing in-vehicle safety by monitoring coupled with addressing crucial research gaps such as predictive analytics, real-time data fusion, and integration of emergency response. With a strong and user-friendly interface, complete with scalable architecture, this system takes the bar to a whole new level for vehicular safety and is meant to aid in reducing the incidents of heat strokes by safeguarding the most vulnerable passengers in real time.

Subject Descriptors

- Internet of Things (IoT)
- Environmental Monitoring
- Vehicle Safety
- Real-time Data Processing
- Public Health

Keywords

IoT, Vehicular Heat Stroke Prevention, Real-time Monitoring, Temperature and Humidity Sensors, Predictive Analytics, Cloud Computing, Mobile Alerts, Passenger Safety, Multi-sensor Fusion, Emergency Response Integration