**Application of IoT and Artificial Intelligence in
Road Safety**

**Alternative Title:**

 [An IoT based Intelligent Transport and Road Safety System](https://ieeexplore.ieee.org/document/9744248/)

**Aim:**

 This paper explores the advancement of the Internet of Things (IoT) and Machine Learning in the field of Road Safety and accident prevention with a state of the art review of various techniques adopted for implementing an intelligent road Safety System.

**Abstract**:

 The safety system can be updated on a real-time basis which can help to create a smart, intelligent, and highly efficient Road Safety system. Artificial Intelligence (AI) is applied to enhance the technology further for detecting the driver's behavior like drowsiness with the help of real-time camera feed or high- resolution images. Though the paper provides a good insight into the application of IoT and Machine vision in the smart Road safety system, certain limitations are highlighted. Additionally, the role detecting the condition of roads and bridges using ultrasonic, safety belt consisting of an inbuilt heartbeat sensor, which collects vehicle data like - GPS location, If the driver is drunk, then vehicle ignition will not start until the driver is not changed. In case the car is already in driving condition, then the system alerts the driver using a buzzer, gas and alcohol sensor also detecting the readings and alert driver, if rick is presence in the vehicles. It collects information using a variety of sensors and an onboard camera. The collected data can then be uploaded to a central server

**Existing System:**

The existing system monitoring the vehicles manually and alcoholic checking are done by the manual process, traffic cameras are streaming the live video and finding the accident location manual process.

**Proposed System:**

 In this proposed system using Ai camera and controller using for detecting driver drowsiness and then using advanced functions for road safety in procedures in machine vision process, GPS, gas and alcohol sensors are used to preventing the vehicles and ultrasonic is used to finding the roads and bridges damages for road maintenance service quicker. Then in built seat belt heart sensor helps to find driver health and esp8266 is connected with IoT.

**Advantages:**

* IoT and Machine Learning can greatly assist people in preventing road accidents. These technologies will help develop a smart, efficient, and intelligent traffic system
* we can also perform pothole detection
* One of the major reasons that contribute to fatal accidents is human behavior and their negligence to follow the traffic rules. IoT can play a proactive role in helping drivers adopt safety rules. With the help of IoT, the traffic management system gets updated with real-time data, thus increasing the efficiency of the safety system. With the help of Machine Learning and IoT, we can judge the driver's behavior

**Diagram:**

 GPS

 LCD display

 Esp8266

 IoT

 Cloud

 Max30102

 Power supply

 Ultrasonic sensor

 Alcohol sensor

 Gas sensor

 Arduino uno

 Maixduino

 Ai controller

 Ai camera

**Requirements:**

**Hardware Requirements:**

* **Maixduino**
* **Arduino uno**
* **Ultrasonic**
* **Lcd or O led**
* **Buzzer**
* **Alcohol sensor**
* **Gas sensor**
* **Push button**
* **Max30102**
* **Esp 8266**
* **GPS**
* **Power supply board**

**Software Requirements:**

* **Language: c, c++**
* **Compiler: Arduino IDE, K-flash , Maixpy IDE**