

ACCIDENT PREVENTION WITH BUILT-IN ALCOHOL DETECTION



Team Members

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Problem Identified(Local, National or Global)

An accident alerter is designed to provide timely alert and critical information about accidents or emergencies to relevant authorities or individuals.

Some of the reasons why we need an accident alerter is to :-

- ❑ Enhance public safety
- ❑ Minimize response time
- ❑ Road safety
- ❑ Prompt emergency response

Overall, this system contributes to reduce accidents and save lives.

Literature survey

S.No	Paper Title	Name of the Conference /Journal, Year	Proposed Concept
1.	Cloud-based Accident Detection and Notification System	2020 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS), 2020	Today's fast cars have powerful engines. Thus, fatal accidents are more likely. EMS must be fast and efficient to reduce these deaths. Accident Detection and Notification Systems speed emergency services. A robust Accident Detection and Notification System is the research goal
2	Alcohol Detection System to Reduce Drunk Driving	Melanie Anthony, Ruchi Varia, Arjun Kapadia, Mrinmoyee Mukherjee	Road accidents are rising rapidly as car numbers rise. Drunk driving causes most road accidents worldwide. This project aims to develop a system to identify the driver's alcohol consumption. The proposed approach prevents drunk driving and reduces accidents.

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3	IoT based Vehicle Monitoring With Accident Detection & Rescue System.	Abdul Kader, Mohammed & Eftekhar, Md. (2019 ICCIT)	Bangladesh is plagued by road accidents. Driver negligence causes these incidents. This study proposes an IoT-based system to monitor vehicle speed, harsh brakes, and rolling, which may be used to assess "quality of driving." The bus authorities will upload the parameters to a server every second to monitor the driver's performance, which will raise the driver's obligation to avoid dangerous driving. The buzzer will ring when the vehicle speed exceeds the safe determined threshold speed. The system has another button. If this button is pushed during an accident, the system will immediately send an SMS with the location to the right authorities. This technique speeds up rescue, reduces casualties, and saves many critical lives.

Proposed Methodology

- This project is divided into two parts – Prevention part and detection part.
- In the prevention part, we will be implementing an alcohol detection system and a seatbelt detection system. Only if there is no alcohol detected from the driver and the seatbelt is fastened, the car will be able to move from the relay module connected.
- In the detection phase, a vibration sensor is attached to work. If a crash occurs, the sensor will detect it, and which will in turn be notified by an SMS sent to a pre-specified number.
- In this way, we might be able to prevent any accidents that occur due to drunken driving, as well as detecting if the seatbelt is put on or not.
- And in case, if an accident occurs, the emergency services will be informed immediately.

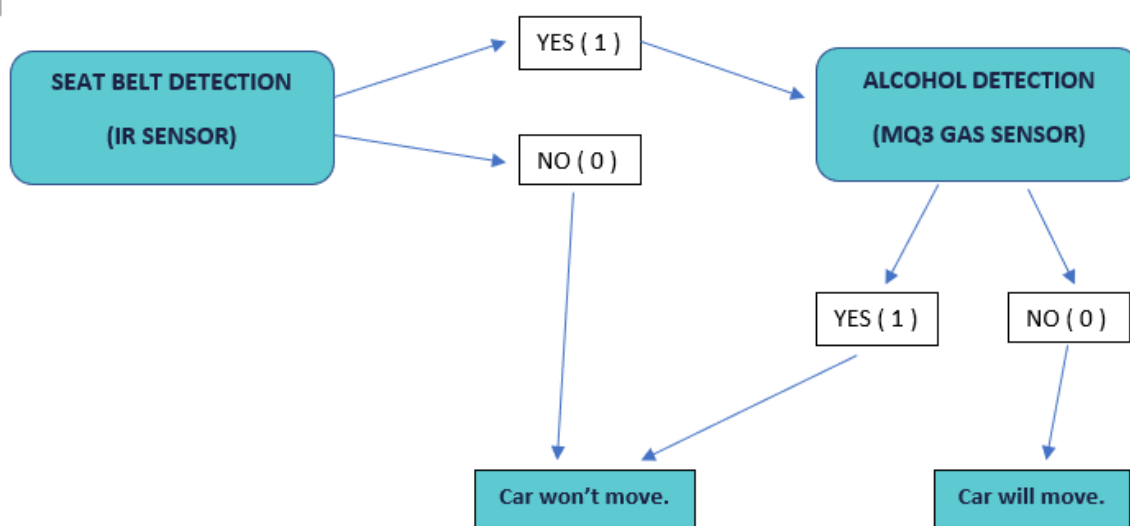
Objectives

- ❑ **1.To design** :A system where we can carry out both prevention and detection of accidents using various sensors
- ❑ **2. To simulate** :A prevention system and a detection system which comprises of seat belt detection, alcohol detection and a vibration sensor respectively. The prevention system is recorded using the IR Sensor and MQ3 Gas Sensor and the detection system works with the help of GSM and GPS module
- ❑ **3. To detect** :Any accidents caused and sends the location by SMS to a registered user.

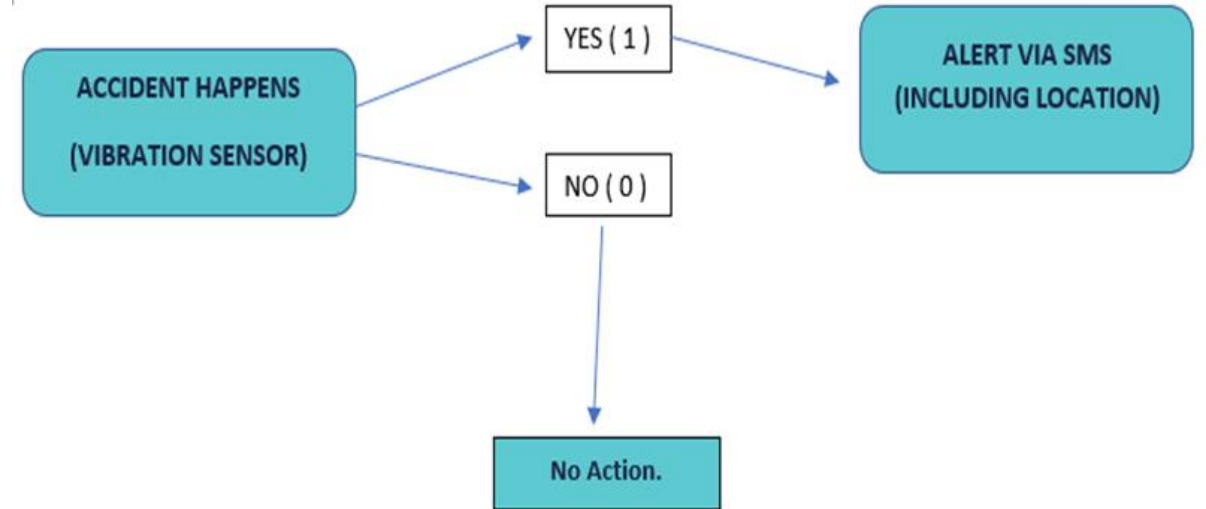
Abstract

- In terms of road traffic, India is one of the busiest nations in the world. Road safety has become a concern of the utmost importance for the people of the nation due to the sharp rise in the number of cars and the ruthlessly packed Indian highways.
- However, it only made up roughly 6% of all traffic incidents worldwide. Around 151 thousand people died in traffic accidents in India in 2018. The steadily growing number of vehicles may be one of the causes.
- Rash driving is a major factor contributing to the fast rising rate of traffic accidents. It is unquestionably necessary for drivers to drive more cautiously and to take safeguards for both their own safety and the protection of others, but this shift is a time taking process.
- This gave us the motivation to work on our project, the IoT Based Automatic Vehicle Accident and Rash Driving Alert System, which detects the possibility of an accident based on the over speeding of the car.

System Flow Diagram of the Proposed IoT Product



**SEATBELT AND ALCOHOL
DETECTION**



ACCIDENT DETECTION

Hardware and Software Details

- ▣ Arduino UNO
- ▣ GSM Module
- ▣ GPS Module
- ▣ MQ3 Gas Sensor
- ▣ Vibration Sensor Module
- ▣ 16x2 LCD
- ▣ Power Supply
- ▣ Connecting Wires
- ▣ IR Sensor
- ▣ Buzzer
- ▣ Relay Module