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Vehicle Accident And Alcohol Detection System

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Abstract
The project is mainly based when an accident occurs, there is a delay in rescuing the person and so by building an automated system to alert the emergency services and family members as soon as the occurrence of the accident. In this perspective, the proposed model integrates Arduino UNO, a GPS and GSM module. MEMS Accelerometer sensor catches the X and Y co-ordinates of the vehicle. Furthermore, 16x2 LCD is used to show messages, scope and longitude of the accident place and more over the Alcohol sensor which can be used for means of detecting impaired driving and triggering an alert in the event of an accident.
Keywords: Arduino UNO R3, GSM module, GPS module, accident detection, alerting family member, rescue of the person

Introduction:

India is a non-industrial nation with a gigantic populace of almost 135.26 centers. It has a generally associated street network for 5,897,671 km. Because of the thick populace and absence of mindfulness on traffic rules, the number of accidents are increasing every day. A lot of individuals are taking their final gasp due to the absence of crisis administration in the pinnacle time and furthermore because of clog in the street. If the accident happens in a populated place, by then they will manage emergency vehicles etc. and envision a situation wherein the mishap spot doesn't have any one bringing this point into endorsement. As life is the valuable to everybody, to lessen delay in the crisis administrations we have thought of a venture to caution the relatives at whatever point accident happens. With the issue of cars expanding, it has likewise expanded traffic risks and the street mishaps. The living of individuals is below elevated risk. Deficient accident detecting frameworks execution and different issues have gotten progressively unmistakable. A programmed notice model is used for vehicle accidents is presented in this venture. This model shows the plan and usage of the accident caution framework that is dependent on remote organization interchanges, which depend on Arduino, GPS and GSM. We have managed numerous assessment papers from IEEE journals related to our endeavor and referred to the utilization of the investigation papers under Existing structures and proposed another system which will robotize the mishap revelation measure and sends the admonition message to the family members demonstrating the particular territory of the spot of the mishap. The alcohol sensor - checks if the person has consumed alcohol or not and it is suitable for detecting alcohol concentration from driver's breath. It has high sensitivity and fast response time. It provides an analog output based on alcohol concentration. If a drunk driver tries to sit on a driver seat, then the alcohol sensor MQ3 blow the buzzer and unless the alcoholic person is replaced by a normal person, the vehicle wouldn't ignite. The approach that we have proposed in this paper basically focuses on three modules.
They are
1. Accident Detection
2. Location tracking of the vehicle.
3. Sending the alert messages to the family Members

Existing Method:

This project has been mainly designed in order to avoid accidents It can be utilized in special areas with sudden sharp & high curved roads. Because of the flexibility of the embedded system, this system is compatible to any type of vehicle and is affordable to common man.

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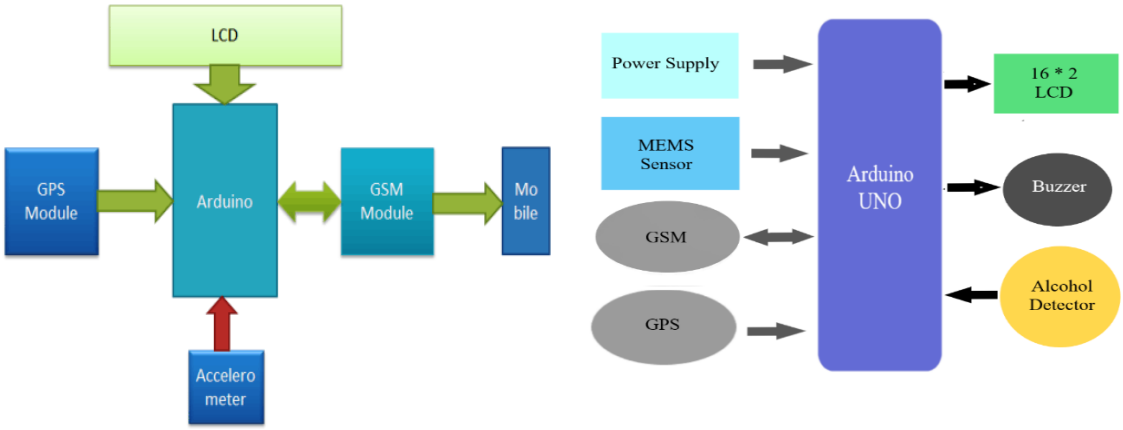
Proposed Method:
In order to preserve the life of the driver in all the conditions of the accident, we have proposed this vehicle alert system project using Arduino. In our model, we have used Arduino UNO R3 to integrate with a GPS GY6MV2 receiver and GSM module SIM 800L. MEMS Accelerometer will be capturing the X and Y axis co-ordinates of the vehicle and GSM SIM 800L sends a notification message to the registered contact number of the family members. The latitude and longitude of the vehicle is captured continuously by GPS module. Thus the person's life is saved in many dangerous situations and thus we can reduce the number of deaths due to the accidents.

Block Diagram:



Software Used:
This project is implemented using Arduino IDE.

Hardware Used:
Arduino UNO, Power Supply, MEMS Sensor, GSM, GPS, LCD, MQ3 Sensor.

Working of Prototype:
In order to preserve the life of the driver in all the conditions of the accident, we have proposed this vehicle alert system project using Arduino. In our model, we have used Arduino UNO R3 to integrate with a GPS GY6MV2 receiver and GSM module SIM 800L. GSM SIM 800L sends a notification message to the registered contact number of the family members as well as for respective emergency services also. The latitude and longitude of the vehicle is captured continuously by GPS module. MEMS Sensor will be capturing the X and Y axis co-ordinates of the vehicle. In case if the accident is minor and don't require family member get notified and ask for emergency services. Thus the

person's life is saved in many dangerous situations and thus we can reduce the number of deaths due to the accidents. Alcohol Detector is used to sense the alcohol level in the air such that there is no forward step to proceed. This is mainly used to stop the accidents occurred during drunk and drive such type of accidents.

Results:

Fig: Vibration Alert

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The proposed system is the development of an alert system by interfacing with sensors. fig 8 shows the connections with modules. When the vehicle involves with any accident, then the LCD displays as vibration occurred. At the point when our vehicle is hit by another vehicle then it is supposed to be accident.

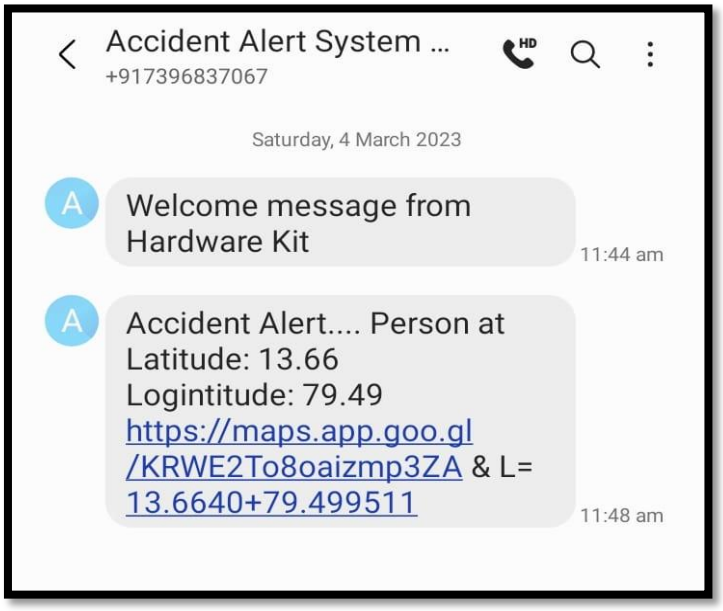
X and Y coordinates of our vehicle

Fig: X and Y Coordinates

and if MEMSX>300 and MEMSX 370 MEMSY>370 and MEMSY<300 finishes up as accident occurred.

Longitude and Latitude coordinates shows up as float latitude = 17.550157 and float longitude 78.399368.

Fig: Latitude and Longitude



This project is a prototype and has included many features. The project placed in fig above is very difficult to handle. In the next version of the prototype, the components will be reduced and will be made as small as possible, so that the user won't find any difficulty in real-time execution.

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Conclusion:

The popularity for vehicles has likewise expanded traffic risks and street mishaps. Life of individuals is at high danger. To decrease the number of accidents, we have proposed this system which will send an alert message to the family members of the person who is met with an accident by using GSM module and we have setup a GPS modem which will sense the location of the accident place. We have used MEMS Accelerometer ADXL335 to detect the change of axes whenever our vehicle is hit by another vehicle. By capturing the values of X&Y axes, MEMS Sensor detects the type of accident occurred. By using alcohol Sensor detects whether the person is drunk or not. To avoid the drunk and drive accidents.

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