Vehicle Accident Spotting and Rescue System using Internet of Things

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Abstract: *As we know today's world is approaching towards the increasing number of automobile users. This increase in number of users are causing to rapidly increase in number of accidents occurring in this real world. To recover from these accidents we came through this project which mainly consists of GPS, Arduino ,GSM, Accelerometer and ultrasonic Sensor.*

The key point of this project is Sensors and accelerometer will detect the vehicle position and Location coordinates will be spotted by the GPS, further Global sim module will deliver a text to a smart phone

***Key Words**: GPS, GSM, Ultrasonic Sensor, Arduino*

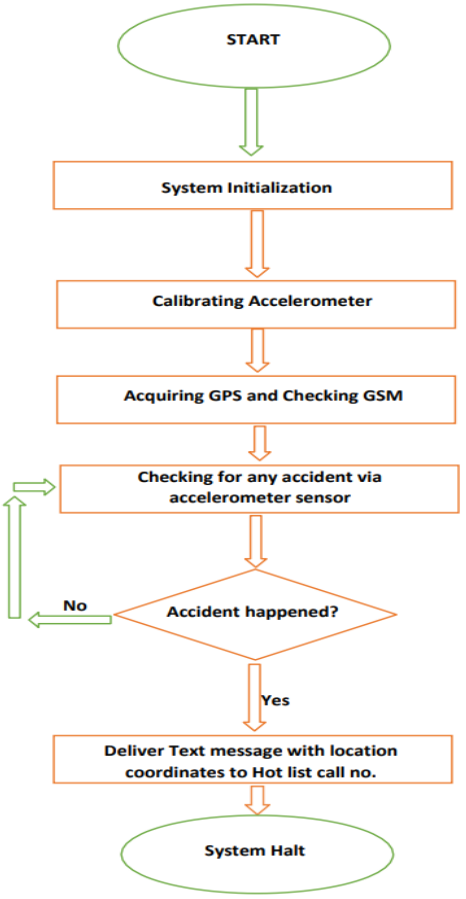
Introduction: Few days before I and my friend were reading about some facts regarding India and there we got a point in column having that India has about 1% of the global vehicle population but it has about 6% of the total global accidents and its increasing on day by day at a rapid rate. Though there are many reasons which cause death to these accident's victim but one of the major reason is the time delay between their accident and their Hospital Arrival so, to overcome this harsh problem we come up with an idea through this project by reducing this delay time by sending the accurate location of accident to nearest Police Station or hospitals.

Problem: Though there were few systems before which were getting to know about the occurrence of accidents via GSM but there was not any possibility for knowing the information where this accident had occurred but in present case we can get to know about the exact location via GPS and further the state of vehicle is determined by the other sensors.

Literature Review: In some bad weather condition or in Slummy area as well where it is very hard to know about the exact location if any accident happens. There was no any well and proved method by which that belonging can be rescued at that place where he or she is. But now by with the use of ultrasonic sensor and accelerometer we can find the condition of the vehicle and further the exact location tracked by GPS can be shared by the using GSM in message form to the nearest police station or care taker

Methodology:

Flowchart



Hardware Description:

1. GSM Module

GSM stands for Global Sim for mobile communication. These module uses the sim card which is use to make calls and text messages

Fig1. GSM Module

2. Arduino

An Arduino is a microcontroller which basically runs at TATAMEGA 328 P microcontroller processor It mainly consist of 14 digital pins and 6 analog pins.

An Arduino can be programmed acc to the use of IDE

i.e. (Integrated Development Environment)

Fig2. Arduino UNO

3. Accelerometer

An Accelerometer is an electromechanical equipment that is used for measuring the force caused by the gravity

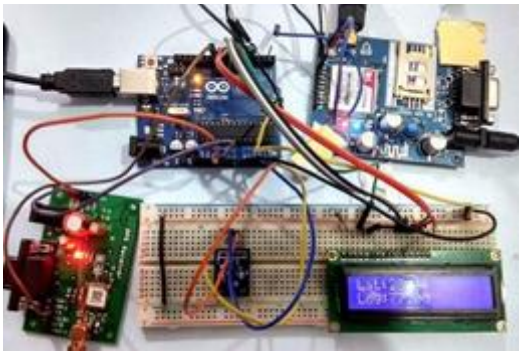
Fig3. Accelerometer

4. Ultrasonic Sensor

It is a device mainly used for calculating the distance between sensor and the aimed object .It basically uses the sound energy to detect the distance of the targeted object.

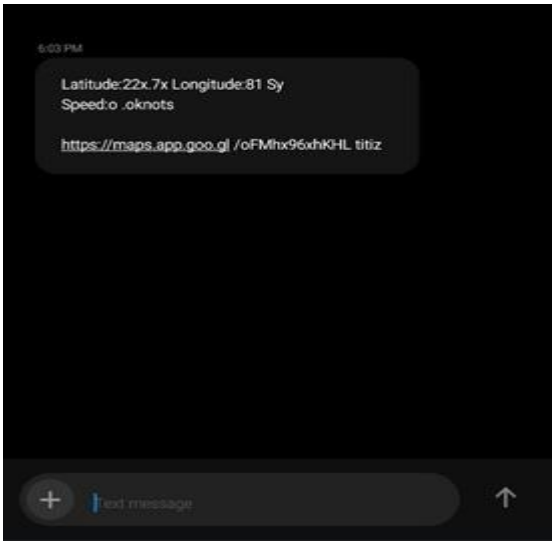
Fig4. Ultrasonic Sensor

Hardware Assembly

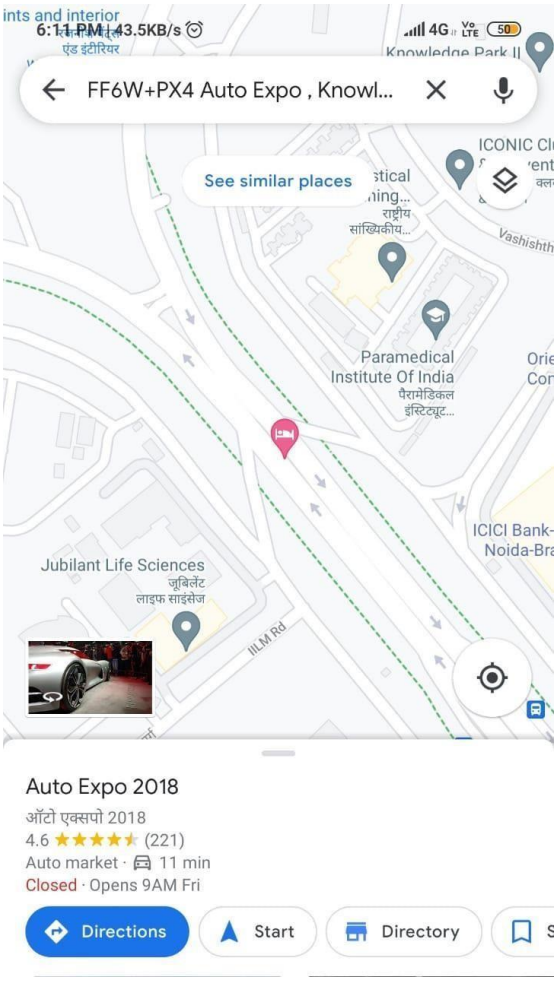


Result

As this device use to deliver the text message and exact location coordinates if any accident occurs, here we have shown an image below for better understanding (demo image).



Picture 1



Picture 2

The above two picture (picture 1 & picture 2) are showing how this system works.

Picture 1 showing a text message has been deliver to a recipient

Picture 2 showing a location being shown by Google Map

Future Scope

As we knew from above that this project is based on IOT but still it can only be used for detection of accidents and sending the text messages to the respective Hot number but by further modifications via adding more sensors we can spot other activities like Temperature issues, anticollision and short circuit in vehicle etc.

Merits

System is much reliable

Easy to implement

Less complicated

Fast response Time

Less costly

Conclusions

As we know in India number of accidents are increasing day by day, in this case we can implement this project for making heavy reduce in this growing trend of accidents.

This project is mainly designed to reduce the number of death victims by reducing the time delay between reaching hospital from accidental spot point. Here we are sending the accurate position of spot with google map link which can be really very helpful for making this task accomplished

References

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