Accident Detection and Indication of Public Vehicle Using GSM and GPS

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Abstract - Our life has been made easier by the rapid growth of technology and infrastructure. Technology's advent has also increased traffic hazards and road accidents are frequently occurring, resulting in huge loss of life and property due to poor emergency facilities. Many public vehicle drivers ignore vehicle engine maintenance from minor issues such as leaky fuel rains, supposedly replaceable vehicle brakes and electrical short - circuit connections. MQ-2 sensor detects smoke when smoke comes into contact with the sensor. If the vehicle has an accident in the form of a collision, then this system will detect it using accelerometer sensor and then Arduino will process all the input and automatically send SMS to registered number, police, ambulance. The vehicle location identified using GPS and GSM. These systems are constantly monitoring and reporting the status of a moving vehicle. This project concerns a system designed to automatically detect accidents and send alert to the registered number.

Key Words: GPS, GSM, Arduino Uno, Smoke Sensor, Accelerometer Sensor, Flame Sensor.

1.INTRODUCTION

The traffic hazards and accidents are increased due to the high number of vehicles on road, risk is also increased. Daily there are many news about accidents in newspapers and on television. As per research, many accidents are happened because of driving instead of faulty vehicles. In last ten years (2000-2010) it is found that accidents that involves the motorcycle is less than 10% which is better than it was in 1990-2000, but still its need to improve and some intervention to reduce the road accidents. By study of Virtanen et al it is found that 4.6% of fatalities in accidents can be saved or prevented if they get emergency service in time at the accident place. Many time it often that emergency services take too much time for arrive at the accident location and one of the main reason behind is that emergency calls about accident are often made by the nearby public or spectators of that accident. Many time there is no witness to the accidents and its leads to the serious situation like a death. For this problem there are many proposals are made, but they have some drawbacks. According to Alber Alexe and R. Exhilarative research, just using accelerometer sensor is not accurate to find accident condition, because some time it could be lead false alarm.

This paper or system proposes an accident detection system to send help messages and geographical coordinates with google map link of the location of accident with speed of a vehicle to nearby control station or hospital after detecting and verifying an accident had occurred. It anticipated that the control station will then send paramedic team to the location of an accident. It will result in reduced time to emergency services to arrive at the accident location.

2. LITERATURE SURVEY

This system utilizes piezo electronic sensor which detect automatically the occurrence of accident. Global Service for Mobile to help signals and Global Positioning System to locate the accidents location coordinates. Development time is also too high and it also increase cost of system.

The identification of vehicle accident vehicle theft and position gives the more advantage. For safety of vehicle drivers and also it has the high accuracy when compare to the other standard equipment. This system does not provide the live locating of accident vehicle.

The working of this system is, it required to press push button when accident will happen and in case of fire, fire sensor and smoke sensor will be activated. In this system there is push button is used, if the push button is not press during accident we can't get message alert.

3. EXISTING SYSTEM

It is a commonly found that people die unnoticed during accidents, especially during night time and Communication is possible only through telephone calls. There is no such system to inform the rescue forces about the accident when the driver is seriously injured. The existing system does not provide the live location of accident vehicle. When is accident happen the accident information is only sent through GSM, but it's not possible to locate accident spot.

4. PROBLEM STATEMENT

The unavailability of the precise methods for accident occurrence detection beside to a reliable locating tool with a quick reporting feature is the major problem under the research. The accidents are also increasing now days. Because of the delay in the arrival of ambulance to the accident location it causes the loss of human life. So, it is necessary to take the accident victim to the hospital as early as possible.

5. METHODOLOGY

The essentially required components for making the proposed system is showing in following figure. the whole picture of the main block diagram, are GPS, GSM etc. these parts are at the vehicle to process the information for sending the respective signal as per the algorithm developed. And at the receiver station for receiving the data from vehicle about accident occurrence .Then GSM module received accident coordinates form GPS module.

The main benefit of this system is to know about the accident position, can know the exact position of the vehicle by using its GPS module and if there accident exists then system can switch off the vehicle engine.
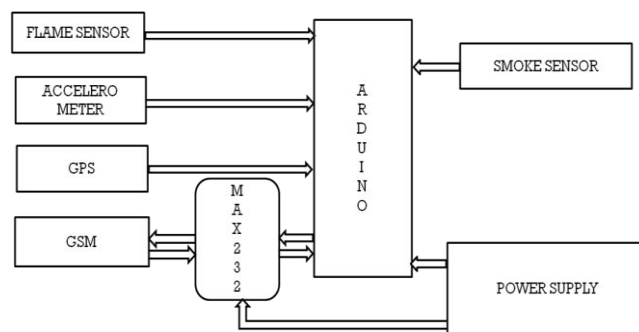

Figure: System Architecture

CONCLUSION

Speed is one of the accident's most important parts. GPS receiver has become a significant part of a vehicle nowadays. The GPS can also monitor the speed and detect an accident in addition to using it in other systems. It can send the accident location to the Register Service Center using a very cheap and popular GSM modem. Then press the Quill It button on the right to paraphrase it. It can also send the last speed information before the accident that will help to evaluate the accident's severity and can initiate a voice call. In addition to the automatic accident detection system, by pressing the Manual Detection button, the vehicle occupant will be able to manually send the accident situation.

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