

AN EFFICIENT VEHICLE ACCIDENT DETECTION USING SENSOR TECHNOLOGY

P.Kaliuga Lakshmi¹, C.Thangamani²,

Research scholar¹, Assistant Professor²,

P.K.R Arts College for Women, Gobichettipalayam.

ABSTRACT

World population has increased enormously in this time. Some growth of technology and objectives of this paper is to detect an accident. It is used to help the person who is suffering in helpless condition. In this situation there is a need to develop such system which should automatically inform to medical team. Now a day, more death is happening because of accidents. This paper is used to detect the accident by means of both vibration and MEMS (Micro Electro Mechanical System) or accelerometer and provide emergency facilities to road accidents. When a vehicle meets with an accident immediately vibration sensors detect the signal. MEMS sensor helps to send the signal to ARM controller. Microcontrollers send the alert message through GSM modem with location. If the person meets a small accident, driver

can inform attention is not required by terminating the message using switch. This is to avoid wasting the time of medical and police team.

INTRODUCTION

Now a day, number of deaths and injuries for traffic accidents are increasing rapidly. But travelling and driving is a essential part of life which cannot be avoided. Vehicles are able to communicate with each other in Vehicle to Vehicle (V2V) or with Vehicle to Road Communication (V2R). Some of the application vehicle networks are security distance warning, vehicle collision warning, map location, driverless vehicle etc.. most of the application need traffic speed and travel time calculation. This calculation helps to road way users to identify which routes to use. This calculation can be saved to analyze traffic speed and travel time for different

time interval. Speed based algorithm which seems to have false alarm when sudden brake are applied. In fact vehicle accidents are the most common cause of death more than cancer or heart attack. If you think about serious accident, it could change your life. So this paper helps to protect the people from the accident by the use of GSM, GPS, and MEMS etc...

HARDWARE IMPLEMENTATION TO DETECT ACCIDENT USING GSM, GPS AND MEMS

For every process you need some of the hardware implementation to give perfect solution for the application. In this paper, some of the hardware are very helpful for perfect processing. Automatic vehicle detection and messaging will be following these steps:

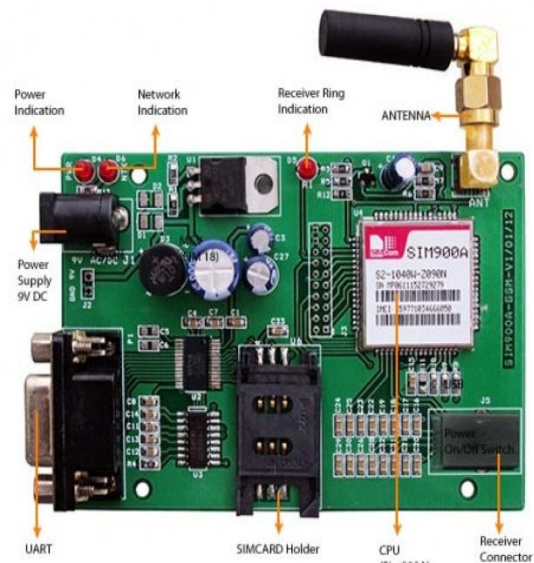


1. The GPS detect the position of the vehicle.
2. The vehicle positions send as message through GSM.

3. The phone number is pre saved.
4. Whenever an accident occurs, the message has been send to pre saved number.
5. The alarm helps to alert the driver before he/she meets the accident.

GSM

GSM (Global System for Mobile Communication) technology used to

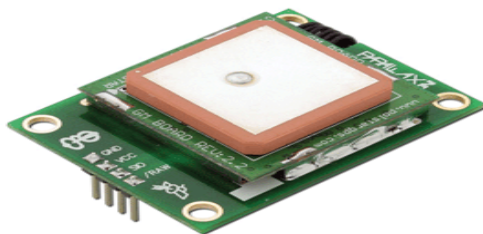


transmit message, pictures, voice message etc... GSM is a digital mobile system it widely used in part of the world. GSM uses a variation of time division multiple access (TDMA). Most widely used of the three digital wireless telephone technologies are (TDMA, GSM, and CDMA). It considers highly efficient communication through the

mobile which would be controlled from anywhere else. It is highly economic and less expensive. Here, GSM send the message to ambulance and police service etc.. GSM is not reliable. It is not work in places where there is no signal. This means, there is no any access to communication. To make it reliable, some algorithm was proposed. By the help of this, message will be easily send to the corresponding persons who are ready to help.

GPS

GPS is a satellite base navigation system it sends and receives radio signals. Receiver acquire this signals provide the information. Here, GPS is used in vehicle for tracking. GPS technology uses 24 satellites continuous orbiting the earth. GPS technology is used search and follows up GPS Satellite signals.



The speed of GPS is available according to the information. when an accident occur in any place the GPS System track the location

of the vehicle and sends the information to medical team, through GSM. It is the high performance low power satellite based model. It is a cost effective and it accurately detects the location.

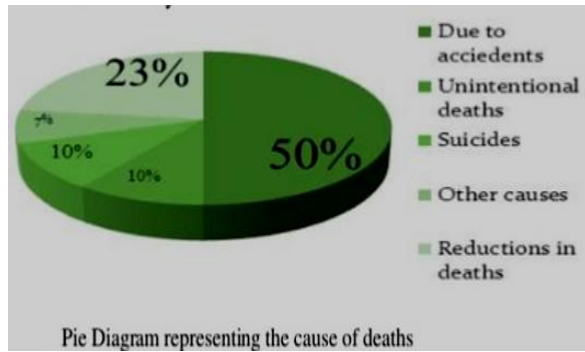
MEMS

MEMS (Micro Electro Mechanical System) sensor send electrical signal and it detect the accidental car roll over and it is given as the input of the controller for processing. When the input received, the message sends to medical team with the help of GSM. The location or geographical coordination when the vehicle is present are detect by the GPS.



RESULTS AND COMPARISONS

This paper gives different way of approach in the problem. The accident location can be located easily. Where detection of accident done by two sensors.



To recover from this problem some of the sensors like high blinking sensor, alcohol sensor etc... Are supporting to reduce the accident.

CONCLUSION

This paper present vehicle accident detection and alert system with SMS to the user defined mobile numbers. The platform of the system is MEMS, vibration sensor; GPS and GSM interfacing the alarm time to a large extend and locate the accident place.

This system can overcome the problem of lack of automated accident detection. The accident can be detected by vibration sensor and MEMS sensor which will give the accurate information. The accident detection helps to provide security to the vehicle. So this system making the world a much better and safe place to live.

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