SOS

An accident alarm system

Introduction

The Rapid growth of technology and infrastructure has made our lives easier. The advent of technology has also increased the traffic hazards and the road accidents take place frequently which causes huge loss of life and property because of the poor emergency facilities. Our project will provide an optimum solution to this drawback.

According to this project when a vehicle meets with an accident:-

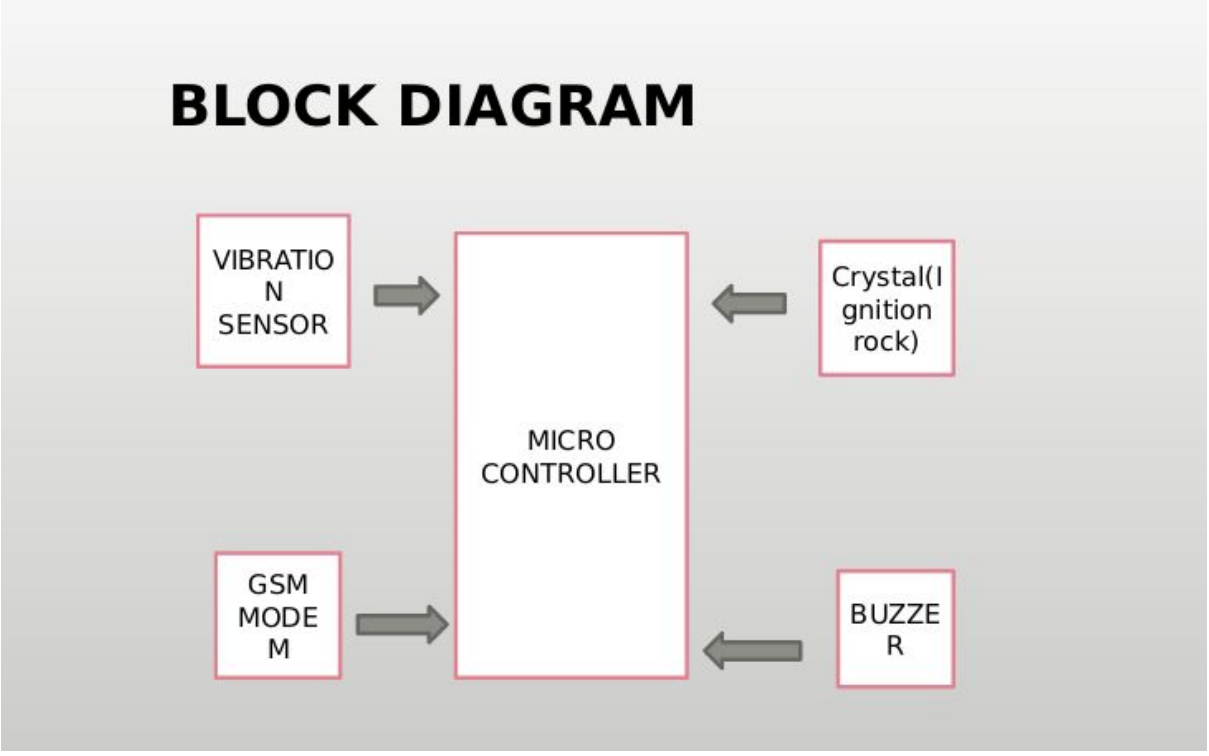
1) immediately Vibration sensor will detect the signal or if a car rolls over.
2) And, Micro electro mechanical system (MEMS) sensor will detect the signal and sends it to ARM controller.
3) Microcontroller sends the alert message through the GSM MODEM including the location to contacts stored in the microcontroller unit of the system.

Hardware Components

- Crystal
- Reset
- EEPROM
- Power generator
- Shock sensor
- Micro-controller

Methodology

■ The prototype model of an automatic vehicle accident detection and messaging using GSM and GPS modem using ARM7 working will be made in the following steps:
■ Complete layout of the whole set up will be drawn in form of a block diagram.
■ A piezoelectric sensor will first sense the occurrence of an accident and give its output to the microcontroller.
■ The GPS detects the latitude and longitudinal position of a vehicle.
■ The latitudes and longitude position of the vehicle is sent as message through the
GSM.
■ The phone number is pre-saved in the EEPROM.
■ Whenever an accident has occurred the position is detected and a message has been sent to the pre-saved number



Implementation components:

1. GSM

GSM is used as a media which is used to control and monitor the transformer load from anywhere by sending a message. It has its own deterministic character. Thereby, here GSM is used to monitor and control the DC motor, Stepper motor, Temperature sensor and Solid State Relay by sending a message through GSM modem. Hence no need to waste time by manual operation and transportation. Hence it is considered as highly efficient communication through the mobile which will be useful in industrial controls, automobiles, and appliances which would be controlled from anywhere else. It is also highly economic and less expensive; hence GSM is preferred most for this mode of controlling.

2. GPS

GPS is used in vehicles for both tracking and navigation. Tracking systems enable a base station to keep track of the vehicles without the intervention of the driver where, as navigation system helps the driver to reach the destination. Whether navigation system or tracking system, the architecture is more or less similar. When an accident occurred in any place then GPS system tracks the position of the vehicle and sends the information to the particular person through GSM by alerting the person through SMS or by a call.

ADVANTAGES

- Easy to operate
- Sophisticated security.
- Simple and Reliable Design.
- Isolates both GSM and GPS signal

APPLICATIONS

■ Fleet Management:
When managing a fleet of vehicles, knowing the real-time location of all drivers allows management to meet customer needs more efficiently. Whether it is delivery, service or other multi-vehicle enterprises, drivers now only need a mobile phone with telephony or Internet connection to be inexpensively tracked by and dispatched efficiently.

■ Asset Tracking:
Companies needing to track valuable assets for insurance or other monitoring purposes can now plot the real-time asset location on a map and closely monitor movement and operating status.

■ Field Sales:
Mobile sales professionals can access real-time locations. For example, in unfamiliar areas, they can locate themselves as well as customers and prospects, get driving directions and add nearby last-minute appointments to itineraries. Benefits include increased productivity, reduced driving time and increased time spent with customers and prospects.

■ Transit Tracking:
This is the temporary tracking of assets or cargos from one point to another. Users will ensure that the assets do not stop on route or do a U-Turn in order to ensure the security of the assets.

CONCLUSION

■ This project presents vehicle accident detection and alert system with SMS to the user defined mobile numbers. The GPS tracking and GSM

alert based algorithm is designed and implemented with LPC2148 MCU in embedded system domain.

■ The proposed Vehicle accident detection system can track geographical information automatically and sends an alert SMS regarding accident. ROM is interfaced to store the mobile numbers permanently. This made the project more user-friendly and reliable. The proposed method is verified to be highly beneficial for the automotive industry.