

Vehicle Tracking And Accident Alert System Using Microcontroller

Miss.Monali D. More

*Department. of Electronics & Telecommunication Engineering
Karmayogi Engineering College Shelave ,Pandharpur,India*

Miss.Shivani L.Lamkane

*Department. of Electronics & Telecommunication Engineering
Karmayogi Engineering College Shelave ,Pandharpur,India*

Miss.Prajakta b.Jadhav

*Assistant Professor,Dept.of Electronics & Telecommunication Engg.,Karmayogi Engineering .
College,Shelve,India*

Abstract: *This paper presents the development and implementation of “ vehicle tracking and accident alert system using microcontroller”. Initially the GPS continuously takes input data from the satellite and stores the latitude and longitude values in AT89s52 microcontroller's buffer. If we have to track the vehicle, we need to send a message to GSM device, by which it gets activated. It also gets activated by detecting accident on the shock sensor connected to vehicle and parallelly deactivates GPS with the help of relay .Once GSM gets activated it takes the last received latitude and longitude positions values from the buffer and sends a message to the particular number or laptop which is predefined in the program. Once message has been sent to the predefined device the GSM gets deactivated and GPS gets activated.*

Keywords: *GSM*

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I. INTRODUCTION

Vehicle tracking system main aim is to give Security to all vehicles. Accident alert system main aim is to rescuing people in accidents. This is improved security systems for vehicles. The latest like GPS are highly useful now days, this system enables the owner to observe and track his vehicle and find out vehicle movement and its past activities of vehicle. This new technology, popularly called vehicle Tracking Systems which created many wonders in the security of the vehicle. This hardware is fitted on to the vehicle in such a manner that it is not visible to anyone who is inside or outside of the vehicle. Thus it is used as a covert unit which continuously or by any interrupt to the system, sends the location data to the monitoring unit.

When the vehicle is stolen, the location data from tracking system can be used to find the location and can be informed to police for further action. Some Vehicle tracking System can even detect unauthorized movements of the vehicle and then alert the owner. This gives an edge over other pieces of technology for the same purpose. This accident alert system in it detects the accident and the location of the accident occurred and sends GPS coordinates to the specified mobile, computer etc.

This system is based on new technology, its main purpose is to detect an accident and alert to the control room, so the victim can find some help. It can detect accidents the intensity of the accident without any visual contact from control room. If this system is inserted in every vehicle then it is easy to understand how many vehicles are involved in a particular accident and how intense is it. So that the help from control room will be according to the control room. The present board designed has both vehicle tracking and accident alert systems, which make it more valuable and useful. This board alerts us from theft and on accident detection also.

Tracking in India is mainly used by transport systems, taxi companies, traffic operators. Taxi operators use this to estimate how far the vehicle is from a particular area and send this information to call centers and they can inform general public about the distance of the taxi location and time it takes tom come to them. Another use is for traffic police if this system is located in every vehicle they can estimate the traffic by looking on the map and if any accident is detected then they can route the traffic in to another way. This is how tracking is useful because India is one of busy traffic countries and this system can control many of the traffic problems.

II. BLOCK DIAGRAM

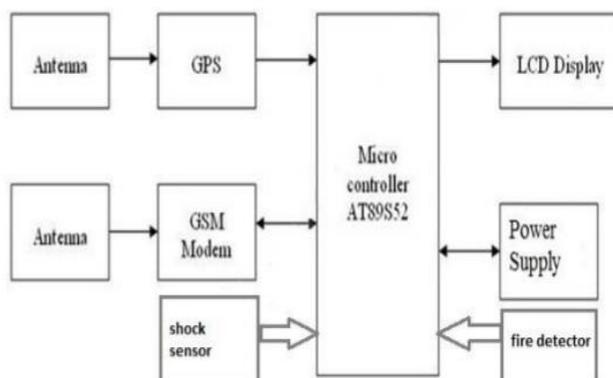


Figure . Block diagram of vehicle tracking and accident alert system using

Block Diagram Description:

Power supply: The system need regulated DC power supply to power the components and the power need to be regulated because, this component need stable power supply and at the certain limit.

AT89S52: We are going to use microcontroller of 8051 family. A microcontroller is the heart of the proposed embedded system. It is the powerful microcontroller which provides a highly flexible and effective solution to many embedded control applications.

GSM modem: GSM abbreviates global system for mobile communication, this is a second generation (2G) mobile network. In our project the device is used for transmitting data. The data from GPS is transmitted to given mobile through this GSM itself.

GPS: In our project it plays main role and it is the main source of the latitude and longitude of the vehicle to know the accident occurred location, or even for theft tracking of the vehicle .

Shock sensor: The sensor used to detect accident is shock sensor. This is single stage shock sensor, It detects any hard impact acted on it . The output from sensor after impact will be +5v and connected to INT (pin 12) of processor.

LCD display: It nothing but Liquid crystal display, we use 16*2 crystal display to show message for users.

Fire Detector: It is used to detect any spark or fire inside the vehicle.

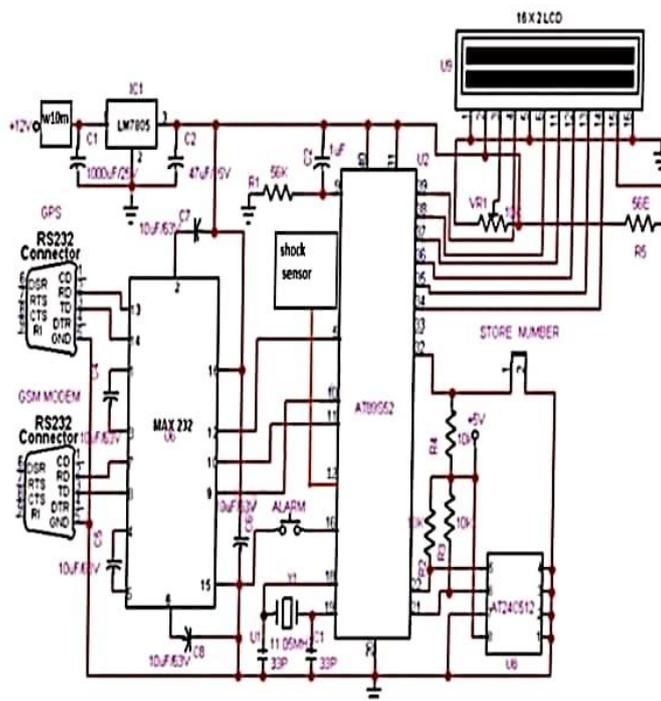
III. WORKING PRINCIPAL

1. Vehicle tracking system working

This system takes input from GPS and which goes into rs232. This Rs232 sends data into max232 and it converts the data format and sends it to the Rx (receiver pin) of microcontroller and this microcontroller stores this data in USART buffer and the data stored is sent again through Tx pin into max232 this max 232 sends the data into GSM via rs232. This is how vehicle tracking works using GSM and GPS. The lcd interfaced to the microcontroller also shows the display of the coordinates. This lcd display is only used to know the working condition of the vehicle tracking system.

2. Accident alert system working

Accident in the sense it could be collision of two vehicles or fire accident inside the vehicle. These shock sensors are attached to the car on all sides of the vehicle and they all are connected to the OR gate .OR gate is used because to detect at least one sensor is high .the output from the or gate is connected to the interrupt pin of microcontroller and whenever this pin 12 is high the micro controller sends the message about the accident



IV. CIRCUIT DIAGRAM

Figure .Circuit diagram of vehicle tracking and accident alert system using microcontroller

V .Applications:

The applications for this project are in military, navigation, automobiles, aircrafts, fleet management, remote monitoring, remote control, security systems, tele services, etc.

- Fleet monitoring
- Vehicle scheduling
- Route monitoring
- Driver monitoring
- Accident analysis
- Geo-fencing geo-coding

V. CONCLUSION:

Vehicle tracking system makes better fleet management and which in turn brings large profits. Better scheduling or route planning can enable you handle larger jobs loads within a particular time. Main motto of the accident alert system project is to decrease the chances of losing life in such accident which we can't stop from occurring. Whenever accident is alerted the paramedics are reached to the particular location to increase the chances of life

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