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Healthcare Services for Accident Identification Using GPS and GSM System.

B Pravalika^{1*}, and C Rajagopal².

¹UG Scholar, Department of Computer Science and Engineering, Saveetha University, Saveetha School of Engineering, Tamil Nadu, India.

²Assistant Professor (SG), Information Technology, Saveetha School of Engineering, Saveetha University, Chennai, India

ABSTRACT

As of late innovation and advancement of populace, the use of vehicles are quickly expanding. Regular individuals lose their lives in view of mishaps and poor crisis offices. Rate is the fundamental explanation behind mischances. These lives could have been spared if restorative offices are given at the correct time. Nobody can avert mischances; however can spare their lives by giving the treatment in time. The aim of this anticipates is discover the mischance spot at wherever and implying it to emergency vehicle through the GPS and GSM systems. Worldwide System for Mobiles (GSM) innovation is utilized to set up cell associations. GPS is utilized to follow the position of the vehicle. Sensors, for example, vibration, liquor and flame identifiers distinguish signal if there should arise an occurrence of mischance event and send the sign to the associated microcontroller. The controller thus works the hand-off to blow the airbag and naturally bolt the brakes. In the interim a message sends to the rescue vehicle and obliged individual to reach in most brief time conceivable.

Keywords: GPS; GSM; Vibration sensor; accelerometers (piezoelectric); SMS; Microcontroller; Alcohol Sensor

**Corresponding author*

INTRODUCTION

In today's world usage of vehicle is increased. This leads to increased traffic and resulting in a rise in road accidents. Due to this human life lost and also unavailable of emergency facilities. Complete accident prevention is unavoidable but at least repercussions can be reduced. Proposed system makes an effort to provide emergency facilities to the victims in time. The system integrates a single-board surrounded system that contains GPS and GSM connected with microcontroller. The entire set up is installed in the vehicle. Vibration sensor is used. It measures the vibration at the location it is placed. The sign is then contrasted and the standard qualities which further give the mishap of the auto, superfluous stun or vibration created by machines, tilt of the auto as for the world's pivot can be related to the level of increasing speed. Worldwide Positioning System (GPS) is utilized to distinguish the area of the vehicle. GSM is utilized to educate the careful vehicular area to the recorded numbers. Message will give longitude and scope values. From these qualities area of mischance can be resolved. GSM modem gives a two route correspondence by utilizing a simcard. Such a module works the same as a general telephone. Fundamental driver of mishaps and accidents are because of human mistakes. The principle purposes behind mischances are over speeding, plastered and driving, Distractions to driver, maintaining a strategic distance from security gears like safety belts and head protectors.

Related Works

The framework fuses 89S52 microcontroller, Alcohol sensor, vibration sensor, Global Positioning System (GPS), Global System for Communication (GSM). The vibration sensor chips away at the piezoelectric property of the precious stones and delivers an electric sign as it detects vibrations of the unit and gives the sign as contribution to the microcontroller. The controller examinations the sign with it's yield given to transfers. A transfer is an electrically worked switch. It is utilized where electrical separation is to be given amongst controlled and controlling system. In running condition the first hand-off is in ordinarily shut state and is associated with the auto's motor. It guarantees that the vehicle keeps running under the ordinary working condition. When a mishap is recognized, that is if the sensor signal values go amiss from as far as possible then microcontroller gives a dynamic high flag. The transfer's association gets opened and the motor will stop working, thus ceasing the auto. Another hand-off is associated with the air-bag and it is in ordinarily open state. The air compressor is enacted and airbag blows when the controller signal goes high. at each moment the present area of the vehicle is sent by the GPS's recipient to microcontroller. GSM makes an impression on beforehand coded numbers. GSM is associated with microcontroller with the mishap area subtle elements. MAX232 IC changes over signs from anRS-232 serial port to signals reasonable for use in TTL good advanced rationale circuits.

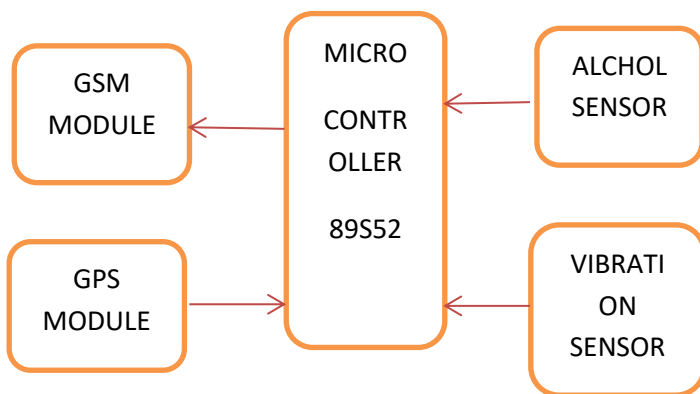


Fig 1 Steps Process

Vibration sensor

It produces a noisy beep when some person tries to break the entryway on the other hand window. The alert stops naturally following three minutes. The circuit utilizes a piezoelectric component as the vibration sensor. It abuses the piezoelectric property of the piezo electric precious stones. The piezoelectric impact might be immediate piezoelectric impact in which the electric charge creates as a consequence of the mechanical stressor or roundabout piezoelectric impact (Converse piezoelectric impact) in which a mechanical constrain, for example, vibration creates because of the utilization of an electric field.

Global System for Mobile Communication

Most advanced cell systems make utilization of the GSM innovation for correspondence purposes. In the undertaking we utilize RS232 module made by rhydoLABZ. It uses SIMCOM Make SIM900 Quad-band. The different frequencies on which the modem works are 850 MHz, 900 MHz, 1800 MHz and 1900 MHz's It can be specifically associated with PC Serial Port as it has inbuilt RS232 Level converter hardware. The modem works in Auto band mode with the beginning baud rate fixed. AT orders can be utilized for setting different baud rates ranging from 960-11520. This GSM/GPRS RS232 modem is having an inside available TCP/IP stack can be used to give web network of the modem utilizing GPRS. It can be utilized both for DATA, SMS exchanges. Notwithstanding the standard AT orders, GSM Modems likewise bolster a broadened set of AT charges which are helpful for reading, editing SMS messages, checking the charging status and level of battery charge. It likewise encourages capacities, for example, control of telephone directory entries, SIM Phonebook management, and maintenance of a constant clock. Other favorable circumstances are little size and effectiveness to use as module GSM modem.

Global Positioning System

The System (GPS Global Positioning) is a navigational framework that uses a system of 24-32 satellites to decide the precise position of any item on earth. The satellites are situated in circles around an elevation of 12,000 miles from the earth surface. The satellites send microwave signals which are accumulated by GPS collectors. The assembled information is used to understand the detachment using velocity and time.

Microcontroller

The microcontroller being utilized here is AT89S52 .It has a place with the 8051 mc family. It is a 40 pin gadget. Each of the 8051 microcontrollers have 4 I/O ports each containing 8 bits which can be designed as inputs or yields. As needs be, altogether of 32 information/yield pins empowering the microcontroller to be associated with fringe gadgets are accessible for use. Pin setup, i.e. whether it is to be designed as an info (1) or a yield (0), relies on upon its rationale state, to arrange a microcontroller pin as an information, it is important to apply a rationale one (1) to suitable port. For this situation, voltage level on fitting pin will be 5V (just like the case with any TTL info).

Flowchart

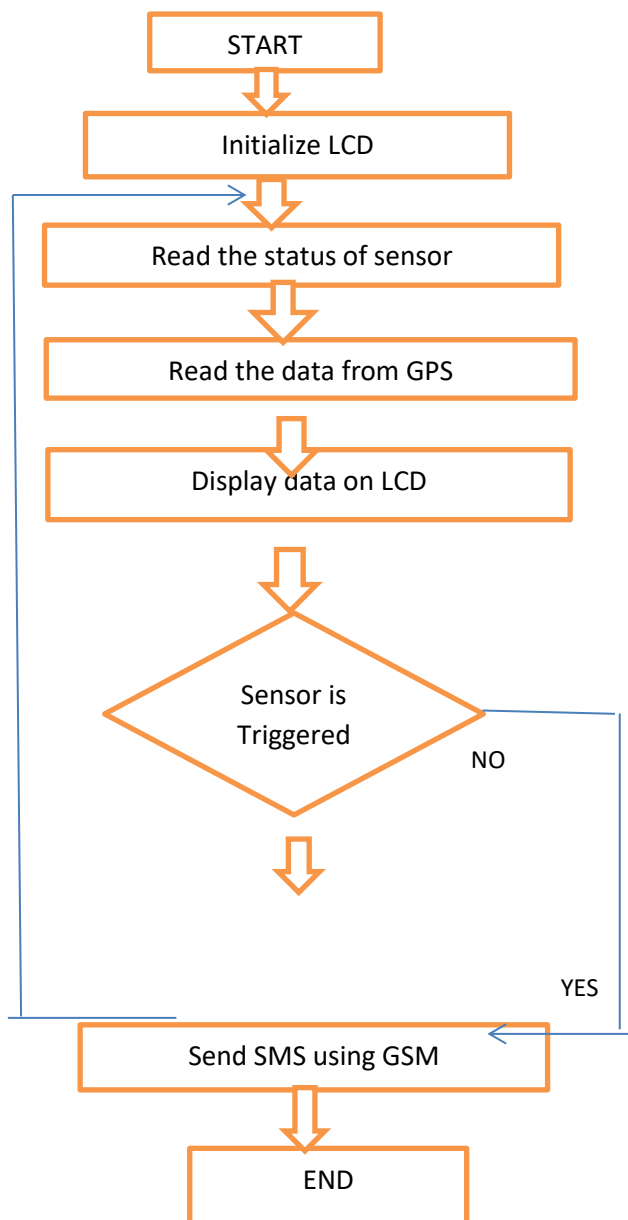


Fig 2 Flow Steps

Importance Works

Ashish Kushwaha et al. in [1] have proposed GPS and GSM Based Accident Alarm System. The reason for this work is to discover the vehicle mischance area by method for communicating something specific utilizing a framework which is set inside the vehicle system. Author has utilized get together programming for better precision alongside GPS and GSM. In this project, whenever a vehicle meets with a mischance quickly vibration sensor will distinguish the sign and send it to the microcontroller. Microcontroller sends the ready message through the GSM to an approved portable no. A substitute condition can be permitted by squeezing a change, with a specific end goal to interfere with the stream of sending the message if there should be an occurrence of no loss.

Hu Jian-ming, Li Jie, Li Guang-Hui et al. in [2] proposed a stolen vehicle recovery system. The system ensured increased safety and credibility. It used C8051F120 microcontroller and a vibration sensor. The owner of the vehicle gets the information about the vehicle position at exact intervals through GSM. C. Prabha et al. in [3] have exhibited Automatic Automobile Accident Recognition and Messaging System Spending GSM and GPS. In this project an accelerometer can be utilized as a part of an auto alert application so that hazardous driving can be distinguished. This paper is valuable in distinguishing the mischance definitely by method for both vibration sensor and Micro electro Mechanical framework (MEMS) or accelerometer. In this anticipate GPS is utilized for following the position of the vehicle, GSM, ARM controller is utilized for sparing the portable number in the EEPROM and sending the message to it when a mishap has happened. T. Krishna Kishore et al. in [4] emphasized on a framework that is financially savvy furthermore teaches the cutting edge web office for organizing purposes. Linux working framework has been utilized alongside General Packet Radio Service (GPRS). Advancements incorporate more correct ID of the vehicle area at all times, data exchange facilitation, and flexibility from programming checking. NiravThakor et al. in [5] have displayed Automatic Vehicle Accident Detection System Based on ARM &GPS. The framework distinguishes the vehicle mischance with the assistance of vibration sensor or MEMS sensor. GPS module caught the area of vehicle mishap and a message is transmitted with the assistance of GSM modem, which contains the co-ordinates values. One more office is likewise given which can be exceptionally helpful amid the basic times. On the off chance that a man requires help because of different reasons like having manifestations of heart attack. In such a circumstance he should simply press a solitary switch gave in the framework. By squeezing this switch a communication is diffused by the GSM module to the private which contains the area of auto furnished by GPS with the data of the USER.

CONCLUSION

This project gives a design which has many profits like low cost, portability, small size. The microcontroller is used by this system in conjunction with vibration and alcohol sensor, GPS and GSM interfacing which decreases the panic time to a large level and gives the location of accident accurately. It can also overwhelm the problem of lack of automatic system for the detection of the site of accident. As a result, the time for detecting the site is reduced and the person can be preserved as quickly as possible which will save many lives. As per the above survey, the scope of the work can be listed as follows. A wireless webcam can be added in this for capturing the images which will help in providing driver's assistance. This can likewise be bettered by locking every one of the brakes naturally in the event of accident. Mostly in mischances, it gets to be not kidding as the drivers lose control and neglect to stop the vehicle. In such cases, the vibration sensor will be activated due to the vibrations gotten furthermore prepared by the processor. The processor must be connected to the gadgets which can bolt the brakes when activated. With this change, we can stop the vehicle and can debilitate the effect of the mischance. This framework can likewise be used in armada management, food services, traffic infringement caases, rental vehicle administrations and so forth.

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