

VEHICLE ACCIDENT LOCATION IDENTIFYING ALERT SYSTEM

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ABSTRACT :

This system designs the prototype of accident alert system which is mainly based on Arduino, GPS, GSM and MEMS Accelerometer. When an accident is occurred it is identified immediately and its location is transmitted to one or more subscribers of the system via GSM service. Then the location information can be displayed on the google map by the subscriber, in order to reach the scene of the accident faster and provide necessary medical services required. The communication between the web server and the hardware device is established via GSM shield and the location is traced via GPS shield.

Keywords : GSM , GPS , MEMS Accelerometer, Arduino

I. INTRODUCTION :

Now a-days there are a lot of accidents occurring on roads due to increased traffic and rash driving of the drivers. It is gloom to say that we are not even knowing where the accidents are occurring.

In many such situations neither the family members nor the ambulance nor the police authority is informed in time.

This results in delay of help reached to the person suffering from accident. So we came up with a project called "Vehicle Accident Location Identifying Alert System".

Here, whenever an accident occurs, with the help of GSM (Global System For Mobile Communications) and GPS (Global Positioning System) we are able to locate where the vehicle has been prone to accident and send an SMS regarding the vehicle state and location to the subscriber.

This Project "Vehicle Accident Location Identifying Alerting System" which is Based on IOT is designed to avoid such situations by detecting the exact location by tracing the accident spot and send the location immediately to the family members.

II. SCOPE AND OBJECTIVE :

In present scenario, we see many cases where people die on roads due to unnoticed road accidents and due to help not offered in time. This usually happens a lot in the night. This system overcomes the present scenario. When an accident occurs the accelerometer present in this system detects the sudden change in the vehicle movement and gets activated automatically and the buzzer tends to give alerting sounds. This system then locates the accident spot by tracking both the latitude and longitude using the Global Positioning System (GPS) and it will share the location and time to the subscriber through Global System For Mobile Communication (GSM).

It tracks the exact location and will immediately send an alerting message to one or more subscribers of the system through the GSM. All the process in this system takes place automatically without human intervention.

If the victim hadn't been harmed even after the accident the system can be set back to normal by pressing the reset switch provided in the system. Which in turn terminates from sending the alert message to the subscriber.

III. EXISTING SYSTEM :

When an accident occurs the information is only sent through GSM but there is no possibility to locate the spot where accident has occurred. Due to this reason many number of lives are being lost as required medical attention cannot be given to the needy person at the right time. So far we are able to communicate using GSM but unfortunately there is no innovation to evaluate on this basic problem. The only way of communication is done by contacting to the digital cellular connection. So this leads to uncertain number of accidents due to lack of exact location.

The main role of GSM in existing system is to send an message through the digital cellular connection whenever an accident had occurred manually. The existing system only applicable in the presence of the digital cellular connection and can't be operated and cannot be extended to the utmost level.

A. DRAWBACKS FOR EXISTING SYSTEM :

- Existing system can only be accessed through GSM but there is no scope to navigate the accident spot.

- The accident information can only be transmitted manually.
- Due to this many accidents are unnoticed and paying huge human loss.

IV. GSM :

GSM is a digital cellular communication system. Global System For Mobile Communications (GSM) is a technology used to establish wireless cellular connection between two or more devices.

It is used for transmitting mobile voice and data services.

GSM operates in the 900MHz and 1.8GHz bands GSM supports data transfer speeds of up to 9.6 kbps, allowing the transmission of basic data services such as SMS.

V. PROPOSED SYSTEM :

By taking the drawbacks of the existing system we proposed a new system with an elevation. This system presents an automatic accident detector and location identifier using MEMS Accelerometer, GPS and GSM where the accelerometer is used to detect the sudden change in the axis of the vehicle and this sudden change indicates that an accident has occurred while the buzzer gets activated with alerting sounds where the GPS tracks the location and GSM transmits the location information through an SMS. With the help of this system we can help immediately atleast to the person who has been met with an accident by tracing the location of the accident spot instantly.

If the victim hadn't been harmed even after the accident the system can be set back to normal by pressing the reset switch provided in the system. Which in turn terminates from sending the alert message to the subscriber.

When the vehicle is in motion and undergoes an accident, there might be chances where the power to the system might get disconnected and in such cases the secondary power source is activated which has been installed and power is supplied to the system instantly. So that the system runs continuously without any interruption.

A. **ADVANTAGES:**

- The sensor used is petite in size hence it can be kept in a secured place as it is not massive.
- The accident spot can be located via GPS without any delay.
- An immediate medication will be provided to the accident victims in the remote areas.
- As the project is based on IOT, it is unexceptional within itself and thus can be implemented as a safety system.

VI. GPS :

Global Positioning System (GPS) technology is used to trace the location of any object and monitor them continuously using satellite signals.

Three satellite signals are necessary to locate the receiver in 3D space and fourth satellite is used for time accuracy. GPS will give the information of parameters like longitude, latitude and altitude.

The communication takes place between GPS transceiver and GPS satellite.

VII. ACCELEROMETER :

An accelerometer is a device that measures non-gravitational accelerations.

The former provides information on taps and other handset motions allowing the development of 'gesture' user interfaces while the latter provides information on the accelerometer orientation.

Accelerometers are used in tablet computers and digital cameras so that images on screens are always displayed upright. Also used in aero planes.

Using this we can measure tilt.

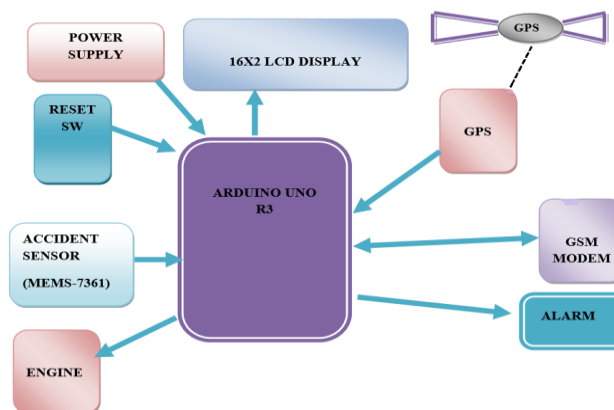


Fig 1: Block diagram

VIII. RESULT :

When the system detects an accident it sends an alerting SMS through GSM module. The message received by the subscriber is displayed in Google Maps which shows the exact location of accident and its details.

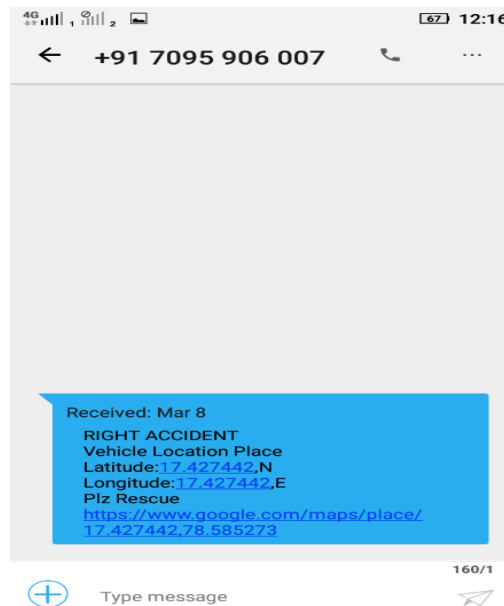


Fig 2: Alert SMS received by subscriber

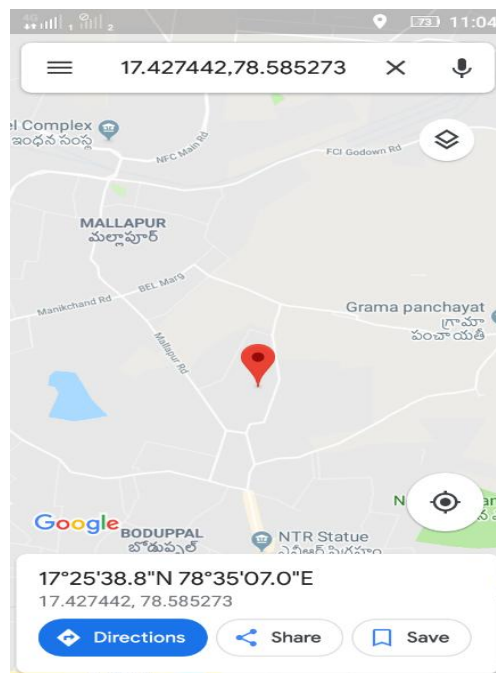


Fig 3 : Pinned location of accident displayed in google maps

IX. FUTURE SCOPE :

In some places where there is no provision of GSM network it is difficult for communication. The research work is going on for tracking the position of the vehicle even in dark clumsy areas where there is no network for receiving the signals.

X. CONCLUSION :

The advent of this project platform is based mainly on the GSM and GPS services along with MEMS Accelerometer. This system can overcome the problems that lack in existing system by detecting the exact location when an accident occurs and alerting the subscriber automatically. Main motto of the Vehicle Accident Alert System is to recognize the location of the accident spot without any delay.

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