

# Intelligent accident identification system using GPS, GSM modem

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**Abstract-**Recently technological and population development, the usage of vehicles are rapidly increasing and at the same time the occurrence accident is also increased. Hence, the value of human life is ignored. No one can prevent the accident, but can save their life by expediting the ambulance to the hospital in time. A new vivid scheme called Intelligent Transportation System (ITS) is introduced. The objective of this scheme is to minimize the delay caused by traffic congestion and to provide the smooth flow of emergency vehicles. The main server finds the nearest ambulance to the accident zone and sends the exact accident location to the emergency vehicle, it monitors the ambulance and provides the shortest path to the ambulance. This scheme is fully automated, thus it locates the accident spot accurately, provide the shortest path to reach the location and to the hospital in time.

**Keywords-**GSM, GPS, ARM PROCESSOR

## I. INTRODUCTION

Accident notification system by using GSM and GPS, the main purpose of this project is to find the site of the accident in any place and send message through GSM and GPS. Global System for Mobiles (GSM) technology is used to establish a cellular connection. GPS is used to trace the position of the vehicle. At present accidents are increasing significantly, this system facilitates to find accident place in remote areas and makes a hope in survival through the availability of ambulance or hospital as soon as possible. Circuit is designed using Proteus after completing the software implementation the hardware is to be implemented. There are many applications that can be used, such as in the detection of alcohol and in the car theft.

## II. LITERATURE REVIEW

There were some literatures which referred before starting the work to take a good idea and to check the possibilities of getting the needed results. D.Jadhav., 2013) have shown in his study about the automotive localization system using GPS and GSM services. The system permits localization of the automobile and transmitting the position to the owner on his mobile phone as a short message (SMS) at his request. This system is also provided with emergency switch which can be turned off through an SMS.

GSM short message service and sends location in the form of latitude and longitude.

Hurbert, et al. (2011) have shown in their study done about the position of the vehicle, the owner sends a request through a SMS. This is received by a GSM modem in the device and processed by the Spartan processor and the processor sends command to a GPS module in the device. The GPS module responds with coordinate's position of the vehicle. This position is sent to the user as a SMS to the user with date, time, latitude and longitude positions.

This literature has some weakness when consist air masses in the sky GPS will stop the work and do not send message and determine the location. Also some strengths, using an FPGA controlled system we can easily track any object or vehicle which ensures safety for vehicle owners and also lots of uses for public transport system.

The first literature study has done about the accident detection and send message using GPS and GSM modems. Second study designing vehicle tracking system using GPS. all the literatures found are good and gave information about the application, working principle, how to design the System and choose best program to design the circuit This gives us the ability to write the paper and also to design accident notification system.

## III. PROPOSED SYSTEM

### 3.1 Block Diagram of the System

The block diagram of the system is shown below. It shows the main working principle of the whole system of the Accident notification.

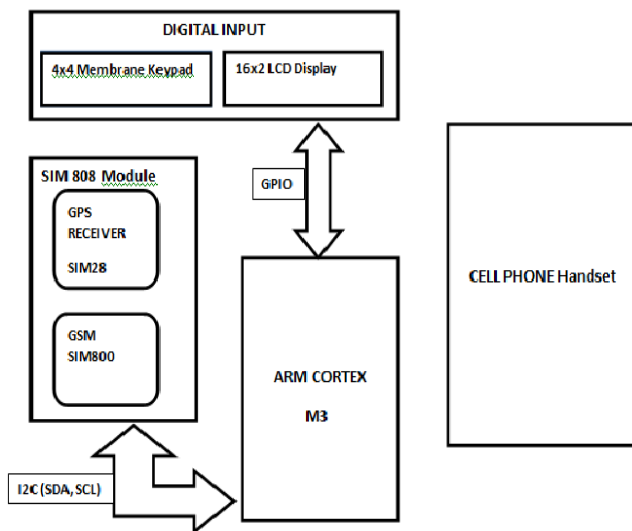


Figure1 : Block Diagram

### Working Principle of the whole System

The block diagram shows the working principle of the circuit upon the occurrence of accident. Limit switch or temperature sensor will be pressed automatically then sending a signal to microcontroller for activating GSM and GPS modems. initially GPS modem identify the location of an accident then sending messages through SMS by using GSM modems to mobile numbers such as, family members, friends, and police station, or any emergency number which is saved in the system.

### Working Principle of Individual Parts

This part of the paper is showing the main idea of the working principle of each component connected in the circuit to achieve the needed aim and objectives.

#### ARM Microcontroller

32-bit processor for low power ,cost-sensitive, real time embedded applications. the processor is highly configurable enabling a wide range of implementations for those requiring memory protection and powerful trace technology to cost sensitive devices requiring minimal area.

#### GPS Modem

Satellite based navigation uses Global Positioning System(GPS) to send and receive the radio signals that serves the user with the required information. GPS posse's twentyfour satellites that revolve orbit of earth in twelve hours,the ground stations and the receivers. The GPS receiver in the ground

station determines the location and distance accurately in all sough's weather without distortions are made easy with the satellite in orbit as a reference. GPS is used in laptop, mobile, airplane etc. The receiver uses the messages it receives to determine the transit time of each message and computes the distance to each satellite using the speed of light. Each of these distances and satellites' locations defines a sphere. The receiver is on the surface of each of these spheres when the distances and the satellites' locations are correct. These distances and satellites' locations are used to compute the location of the receiver using the navigation equations. This location is then displayed, perhaps with a moving map display or latitude and longitude.

#### GSM MODEM

A GSM modem (Global system for mobile communication) is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator .GSM modem used for sending and receiving SMS and MMS.

#### LCD DISPLAY

Liquid Crystal Display screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. LCDs are economical; easily programmable

#### ALGORITHM

Step 1= Start

Step 2= Request Number To Be Saved In Program.(Only One Time)

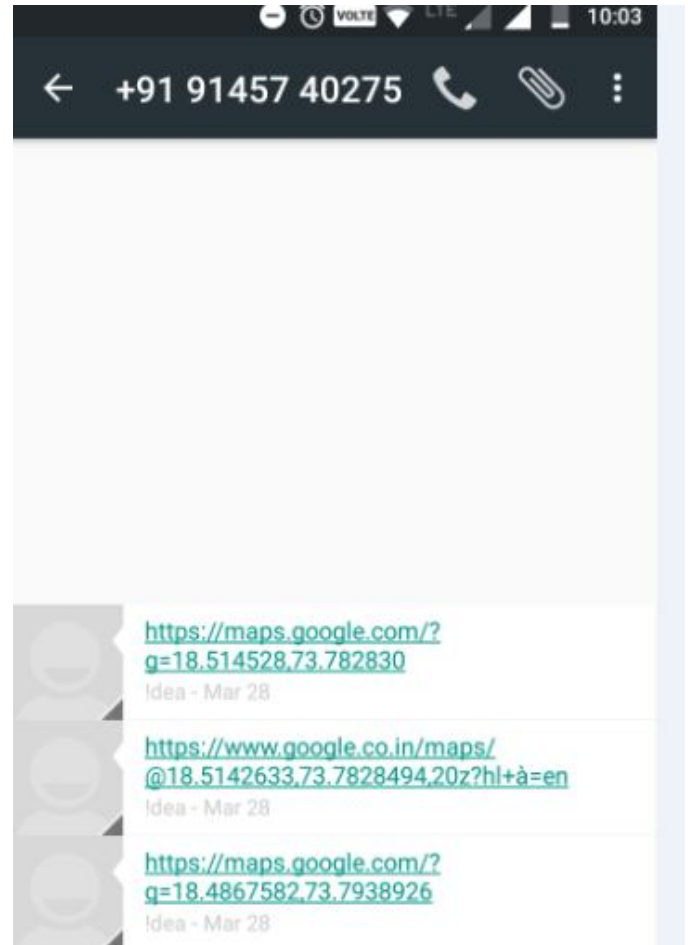
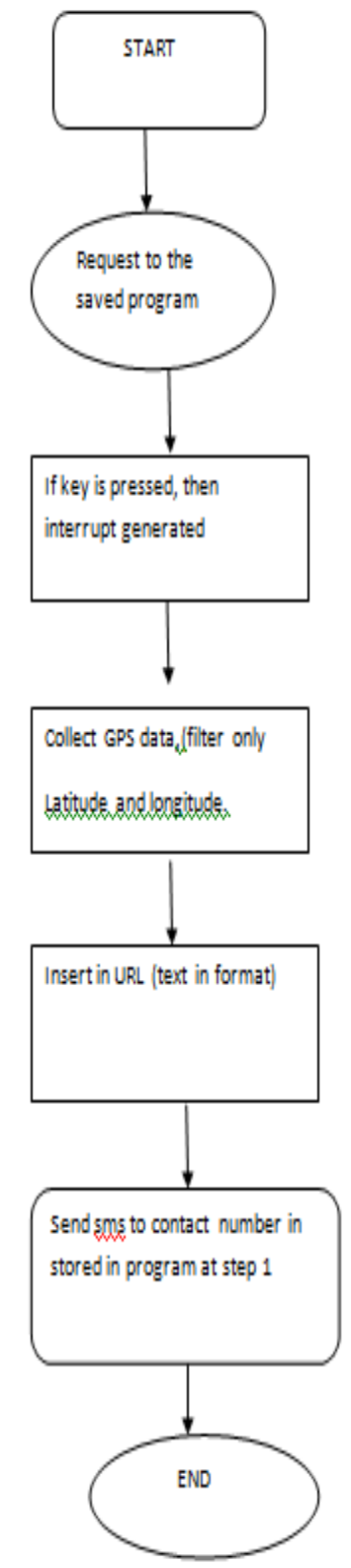
Step 3= Check If Key Is Pressed

Step 4= If Key Is Pressed , Then Interrupt Is Generated

Step 5= Collect Gps Data .(Filter Only Latitude And Longitude) Save In Array

#### IV. FLOWCHART

V. OUTPUT RESULT



REFERENCES

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The proposal of the paper is to find the shortest path in favor of ambulance..The priority of service to the ambulance follows the queuing methodologies through server communication. This ensures the reduced time lag between the accident spot and hospital.