



## REVIEW ARTICLE

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Ashish Manwatkar, Irfan Patil,  
Jayraj Tekale, Vinayak Kamble,  
Nikhil Gotur  
Indira College of Engineering,  
Pune  
[irfanpatil1993@gmail.com](mailto:irfanpatil1993@gmail.com)  
[jayrajtekale@gmail.com](mailto:jayrajtekale@gmail.com)  
[kamble.vinayak450@gmail.com](mailto:kamble.vinayak450@gmail.com)  
[nensonpatrick01@gmail.com](mailto:nensonpatrick01@gmail.com)



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users

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### Accident Locator using GPS and GSM Technology

Ashish Manwatkar, Irfan Patil, Jayraj Tekale, Vinayak Kamble, Nikhil Gotur  
Indira College of Engineering Pune.

#### ABSTRACT

In a large country like India there are many kind of places like hilly area plateaus and due to improper road facilities accidents are more and death rate due to this accidents are more. India faces the highest number of accidents and accidental fatalities in the world. The most or max number of accidents are reported from the transport sector for example road as well as railways. Some approximations claim that Indian roads alone accounted for approximately 105,000 accidental fatalities in 2011. This is almost 15 percent of the global road fatalities when India has just 1 percent of the total global vehicles. The incidents of accidental deaths have shown increasing trend during the decade of 2000-2010 with an increase of 50 percent in the year 2010.

Therefore to save lives and give immediate medical treatment to the victim we are designing an embedded system which is used for accident tracking and positioning of any vehicle by using Global Positioning System (GPS) and Global system for mobile communication (GSM)

**Keywords:** GPS (Global Positioning System), GSM (Global Service for Mobile Applications), SMS (Short Message Service), Micro controller.

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**INTRODUCTION**

**Definition:**

“Accident Locator and Reporting system using GPS and GSM Technology”.

The main important objective of the system is to provide security for the vehicle user and also detects the accident if occurred and informs the respective authority through wireless technologies such as GSM and GPS. Accident detection system is used to recognize the location of the accident and easily to reach the location.

Every second is valuable for the ambulance. The accident information system will get activated and message will be transmitted to respective authority. There is no loss of life due to the delay in the arrival of the ambulance. The purpose of the project is to find out the vehicle where it is and locate the vehicle by means of sending a message using a system which is placed inside of vehicle system Most of the times we may not be able to find accident location because we don't know where accident will take place. In order to give treatment for injured people, first we require to know where the accident happened through location tracking and sending a message to an authorized phone number.

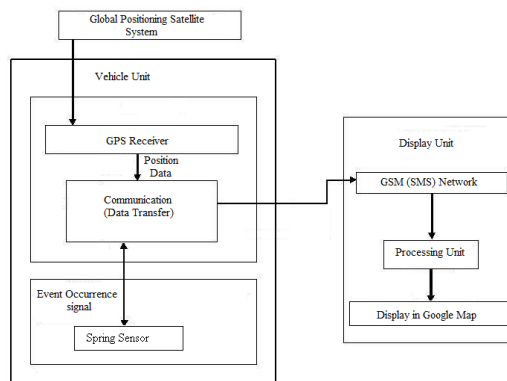
**Background:**

Our application system consists of five main units which coordinates with each other and makes sure that ambulance reaches the hospital without any delay. This system is divided into following units,

- Vehicle Unit
- Main Server
- Ambulance Unit
- Traffic Unit
- Hospital Unit

In the proposed system, vehicle unit installed in the vehicle that sense the accident has happen. If vehicle met an accident, immediately send the location of the accident to the main server. From the CU, a message is sent to the nearest ambulance. Control unit finds the shortest route to the accident place, ambulance, hospital. Also send this path to the ambulance and it transmitted the information to the traffic unit through RF communication. As well as using this information the control unit controls all the nodes in the path of the ambulance and make it on, which ensures that the ambulance reaches the hospital in time.

**Theoretical Model of the project:**



Our paper describes about the Detection of Accident spot using GPS and GSM technologies. We are using PIC16F72 micro-controller in our project. When the system is switched on, LED will be ON indicating that power is supplied to the circuit. When the vibration/spring sensor that we are using in our project sense any vibration, they send interrupt signal to micro-controller. After that, the GPS receiver is use to find the accident spot. Using these values the position of the vehicle can be estimated. GSM modem sends the message to an authorized mobile number. The message will give the information of longitude and latitude values. GSM modem is similar to mobile phone without any display, keypad, and speakers. It can send and receive messages and calls. The data will be sent to MAX-232 IC through RS-232 cable. MAX-232 synchronizes the baud rates of modem and micro-controller. It also converts RS-232 voltage levels to TTL voltage levels and vice versa.

**Research Directives :**

**Proposed algorithms:**

**1. DIJKSTRA'S ALGORITHM**

Dijkstra's algorithm is a graph search algorithm that solves the single-source shortest path problem for a graph with nonnegative edge path costs, producing a shortest path tree. This algorithm is used in routing and as a subroutine in other graph algorithms. For a given source vertex (node) in the graph, algorithm finds the path

with lowest cost (the shortest path) between that vertex and every other vertex. It can also be used for finding costs of shortest paths from a single vertex to a single destination vertex by stopping the algorithm once the shortest path to the destination vertex has been determined. Example: if the vertices of the graph represent cities and edge path costs represent driving distances between pairs of cities connected by a direct road, Dijkstra's algorithm used to find the shortest route between one city and all other cities. As a results, the shortest path first is widely used in network routing protocols, most notably IS-IS and OSPF(Open Shortest Path First).This is asymptotically the shortest known single-source shortest-path algorithm for arbitrary directed graphs with unbounded nonnegative weights.

#### **REFERENCES**

1. Wang wei, fan hanbo, traffic accident automatic detection and remote alarm device
2. M.Rajendra Prasad, P.Aswani "An automated traffic accident detection and alarm device" International Journal of Technological Exploration and Learning (IJTEL) Volume 1 Issue 1 (August 2012).
3. Ms. Sarika B. Kale, Gajanan P. Dhok "Embedded system for intelligent ambulance and traffic control management International Journal of Computer and Electronics research" Volume 2, Issue 2, April 2013.
4. Fengyuan Jia Hongyan Wang "A New Type of Automatic Alarming Device to Rescue Accident Injured in Time".
5. Sri Krishna Chaitanya Varma, Poornesh, Tarun Varma, Harsha "Automatic Vehicle Accident Detection and Messaging system using GPS and GSM Modems", International Journal of Scientific & Engineering Research, Volume 4, Issue 8, August-2013 ISSN 2229-5518