

Automatic Accident Detection and Ambulance Rescue System

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Abstract: Everyone uses his own vehicle for travelling and as there is a development in close areas of the cities. Road accidents in cities and as well as in village areas have increased to a level due to developments which is uncertain. Road accidents and traffic are one of the major problems in cities. There is no technology in current times for detection of accident. Also due to reaching of ambulance to spot of accident location because of delay and traffic in between accident spot and chances of death of victim increases. To reduce loss of life or save life of person due to accidents and reduce the time taken by ambulance to reach to hospital, there is a need of system which needs to come into force in our daily lives. To overcome drawback of existing system we need to implement new system in such a way that there is an automatic detection of accident by sensors in the vehicle. A GPS module in the vehicle will send the location of the accident to main server which will notify and send an ambulance from a nearest hospital in the vicinity to the accident spot. Also with this system there would be control of traffic lights which can come in the path of the ambulance using RF communication by the ambulance driver. This will reduce time of ambulance to reach the hospital. This system is fully automated, as it finds the accident spot, controls the traffic lights, helping by saving life of patients to reach the hospital in time. This system can help in reducing the loss of lives of human which happen by the accidents.

Keywords: Traffic; Sensor system; Ambulance; GPS; GSM; Controller

I. INTRODUCTION

Nowadays Wireless Sensor Networks (WSN) can be used in various areas like military, home automation, health care monitoring, security and safety etc. This system automatically detects location of the vehicle accident with the help of various sensors. Sensor detects the accident location of the vehicle accident GPS module and then transforms the message to the main server. This system is used when person needs medical treatment not for the accident case but for other emergencies. Such a system is helpful for providing very fast medical treatment to victim of vehicle.

II. PROBLEM DEFINITION

Nowadays, as the population is increasing day by day the number of vehicle are also increased and this has raised incidents in number of accidents. Due to increase in accidents loss of life is there due to the delay in reaching of ambulance to area where accident has occurred. This system is of great use to ambulance if the traffic signals on the way to hospital are open. As there is lot of traffic due to the number of vehicles, this has caused a problem for ambulance in reaching the spot on time.

Also, there is not a single system today in vehicle which can detect the accident automatically and notify the nearby hospital about it.

III. OBJECTIVE

The main objective behind this is to minimize the time gap between the occurrence of accident and time required for giving ambulance to reach at the location of accident for giving treatment to the victim. When accident takes place lot of time is wasted for searching the location of accident, such a time our system work faster and avoid the loss of life due to time delay.

Our project based on four main modules:

1. Sensor
2. Controller
3. Hospital
4. Ambulance

Sensor acts as a trigger that senses the location of the accident place and sends notification to the main controller. Controller is a database where information about hospital and ambulance is stored. The controller sends request to hospital and when message is received at hospital then it sends response from sensor to ambulance with GPS location for tracing the location where accident has occurred.

IV. PROPOSED SYSTEM

To overcome the problem of existing system we will implement new system in which there is automatic detection of accident. A sensor, GPS, Android hardware unit fitted in the vehicle detects the accident.

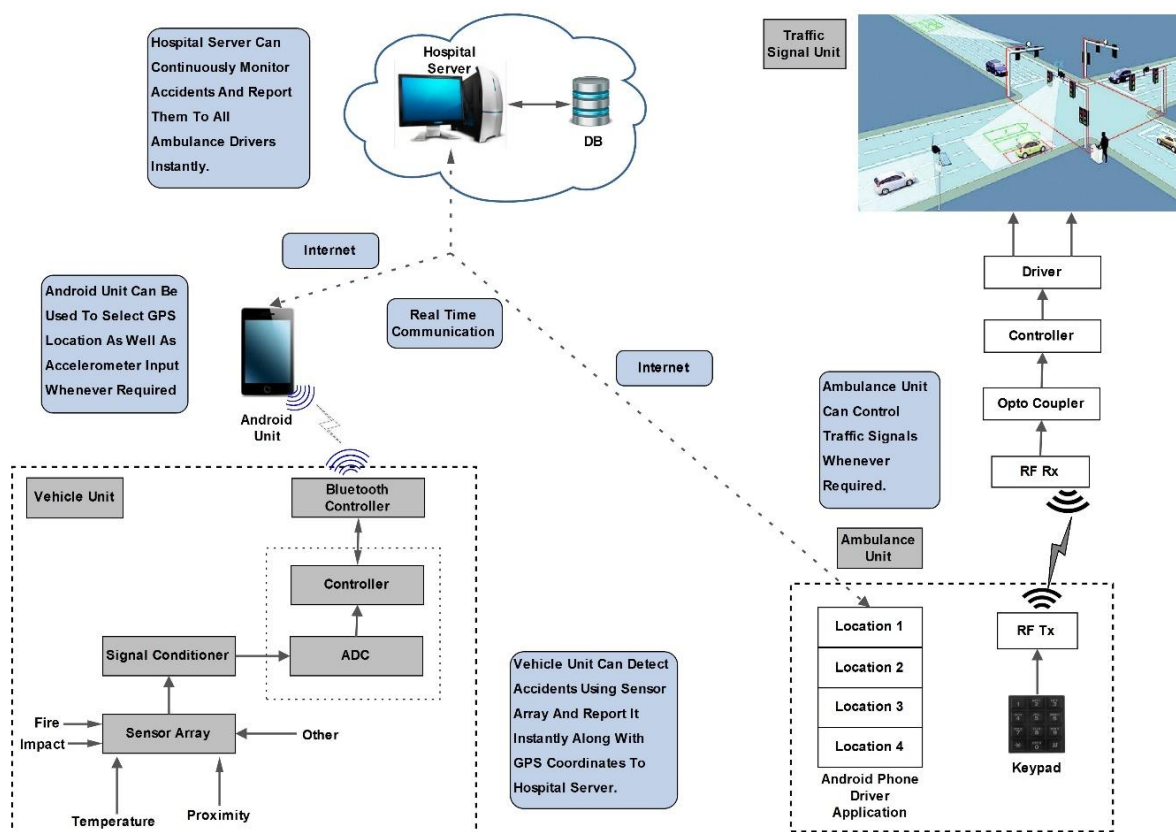


Figure 1: System Architecture

The accident is detected by the sensors when the values of the sensors reach above the set threshold values. As soon as the values of sensors spikes above the set value the alert message is sent with the accident location to the main server unit by the android hardware which is fixed in the car unit, which is connected with main the main server which houses the database of all the nearby hospitals and ambulance. The alert message is sent to all the nearby ambulances and out of all the ambulances, the one whose driver is free accepts the request of hospital on his android device and with the available location on his device he goes to the accident spot choosing the path accordingly and ideally he should be able to cross all the traffic junctions without waiting. The ambulance is guided to the location by the GPS location from hospital server through android device. The ambulance unit has controller unit installed in the vehicle which can control the traffic signal once the ambulance is in 100 meters range of the signal and it can sense the coming signal and can change the signal if it's not open. Wireless technologies used for information transferring.

V. CONCLUSION

This system can detect the location of accident spot automatically & accurately, and realizing the automation of information transmission. Consequently, it will save the people form wasting their time in searching of location and lives of the victims of accident. The experiment proved that

this system can automatically detect accidents and information to the main controller is sent relatively and the traffic unit is also controlled by the ambulance unit in order to reach the accident spot in time and from accident spot to hospital without delay. Such functions can be useful for “help” and “safety”, of humans and society.

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