ACCIDENT DETECTION AND SMART RESCUE SYSTEM

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Abstract: *Present days, the usage of vehicles increases rapidly so that the problems caused by vehicles also increases . The main reason for accidents is drunk and drive, high speed, not following the traffic rules, Using mobile while driving etc. Most cases the injured one is unable to take the treatment on time because no one knows about the accident and accident spot. Presently, there is such technology for accident detection. To overcome this we need one system to reduce the loss of life due to accidents and the time taken by the ambulance to reach the hospital. The aim of this project is to alert the nearby hospital about the accident and to provide the proper medication. The accelerometer which is present in the vehicle senses the tilt of the vehicle and heart beat sensor on driver's body senses the abnormality of the heart beat to know the seriousness of the accident. Then, the system will make decision to send information to mobile, connected to accelerometer and heart beat sensor, through Bluetooth. So, the mobile application which is in the mobile will send message to the friends and nearest hospital in order to rush the ambulance with real time tracking of accident spot by Google map.*

Key Words: **Arduino, GSM module, GPS module, Accelerometer, RF server**

I.INTRODUCTION

In this 21st century, the usage of vehicles is growing at a faster rate than the population growth and economic. The accidents and the rate of death also increasing at an alarming rate. Most of the times victim is unable to get the treatment on time , because no one know about the accident and accident spot. Thus comes the idea of alert system to overcome the accidents . The main objective is to control the accidents by providing the medications on time.

The proposed system has the capabilities of automatic detection and helps in providing the emergency services with precise location through SMS. The purpose this research is to design and implement an automated accident detection system and informed to the nearest medical centers.This accident detection system would help in reduce the emergency service time. And also provide other services like police department,medical emergency services, fire brigade .In this, we are using mobile to identify accidents and informed it to the nearest medical centers with precise location of accident. The system will inform to the registered mobile number through SMS service with real time tracking of accident spot on a google map.This help in keep track the location and rescue them as soon as possible.

II.LITERATURE SURVEY

Until, we don't have any technology for detecting the accidents. So many people loosing life by not getting treatment in time. Including that, so many people not willing to do help. And sometimes the ambulance may reach the spot lately. So we can avoid these by automatic accident detection technology.

III. PROPOSED SYSTEM

In this undertaking, we are trying to make an IOT based vehicle accident locating and alerting system through some segments like Global Positioning System(GPS), Global System for Mobile(GSM),Accelerometer, RF server etc. The working of proposed system is as below:

1. The proposed is divided into four units i.e. vehicle unit, control unit, ambulance unit, traffic junction unit. 2. The vehicle unit is helps to locate the accident location by GPS module and send to control unit by GSM module. 3. The control unit managing the database of all the hospitals. 4. Through GSM module the message is sent to the registered mobile number. 5.It contains the real time tracking of the accident spot. 6.The control unit send information to all the nearest hospitals ,in order to rush the ambulance.
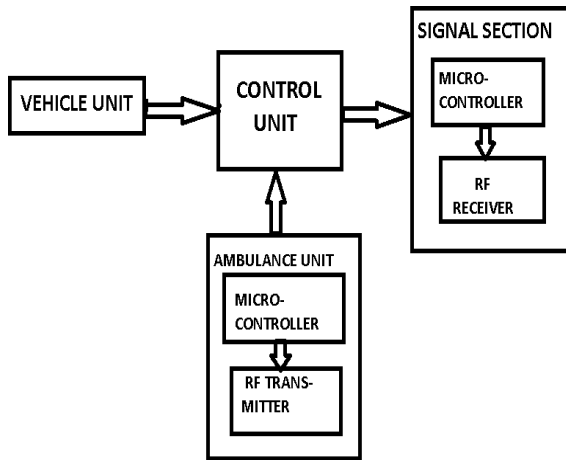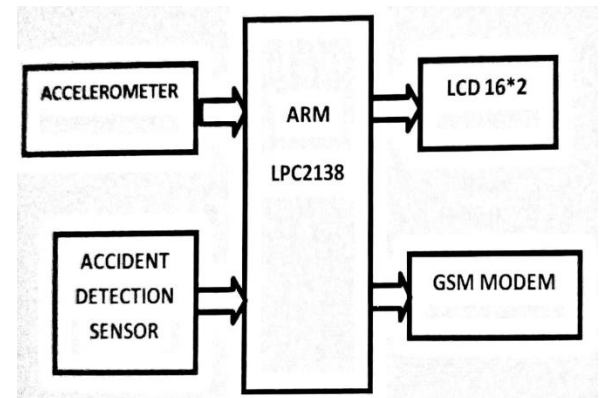
Fig : Block diagram of the system

IV.IMPLEMENTATION TECHNIQUES

To escape from accidents , We need one new system to avoid the accidents. That system receive information through sensors present in vehicle by automatic detection. A database contain main server init ,it contain all the information about all the hospitals nearest from the accident spot. A GPS and GSM module of the vehicle send the location to the main server so that nearest hospital will send the ambulance to the accident spot. Like this ,it helps in reduce the loss of life by reaching the hospital in time.

The system is divided into four units. Four units are:

1)The vehicle unit.

2)The control unit.

3)The ambulance unit.

4)The traffic unit.

VEHICLEUNIT:
For this implementation, everyone have to install vehicle unit in their vehicles. Vehicle unit consists of Microcontroller along with GPS , GSM module, accelerometer and sensors .Global Positioning System(GPS) module helps to track the location (longitude and latitude) of accident spot and gives data to GSM. Global System for mobile communication (GSM) module helps to send information to the main server. Accelerometer(ADXL 335) helps to escape from accident by alerting the driver whenever the position deviates from normal.

Fig: Block diagram of vehicle unit

CONTROL UNIT:

The control unit get information from GPS and GSM module installed in vehicle unit. Control unit is heart of our system . Because ,Control unit contain the database of all the nearest hospitals in order to rush the ambulance to accident spot.
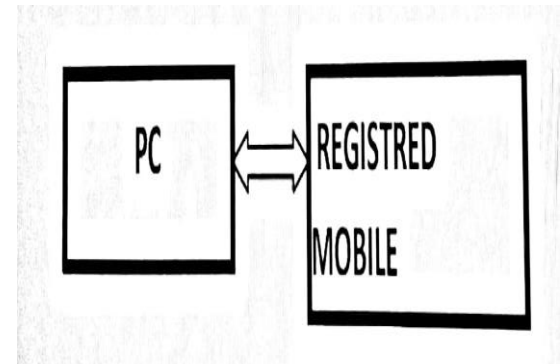

Fig :Block diagram of control unit

AMBULANCE UNIT: Ambulance unit get information from control unit .Ambulance unit rush the ambulance to the accident spot . On the way to hospital, ambulance unit do some vital parameters like pulse rate ,heat beat etc., and send that reports to that particular hospital. Sometimes it may delay for reaching hospital due to traffic. To overcome this time delay, by RF communications. Ambulance unit has RF transmitter and traffic unit contain RF receiver. So that RF transmitter Share information to RF receiver and helps in clearing the path without any traffic.
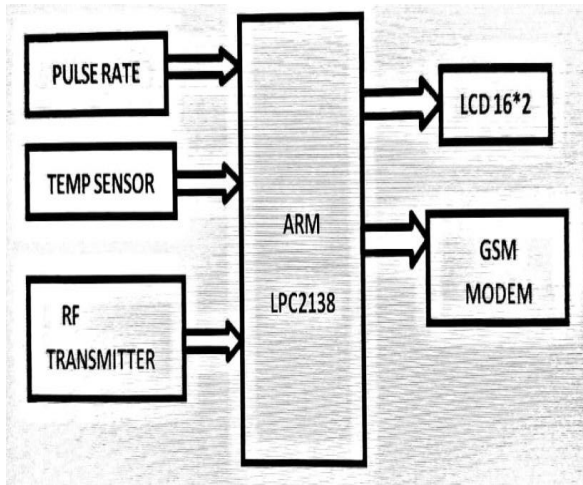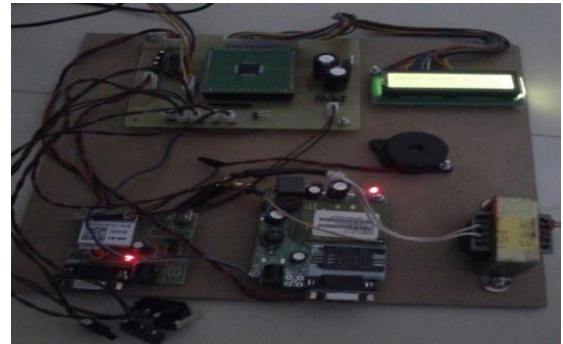
Fig: Block diagram of ambulance unit

TRAFFIC UNIT: The traffic lights turns automatically to green when it reaches near (approximately 100m)to the traffic lights and it is done by RF server.

Fig : Block diagram of Traffic junction unit

V.RESULT

Thus, we can develop by coordinating all the four units. And for the main server we have to create a database with visual basic version 6.0 0n pc.

Fig : Vehicle unit and accident location displayed on the LCD

In the above, Figure shows the vehicle unit detect the location of the accident . And it is send to main server that contain the database of all the nearest medical centers in order to rush the ambulance to accident spot.
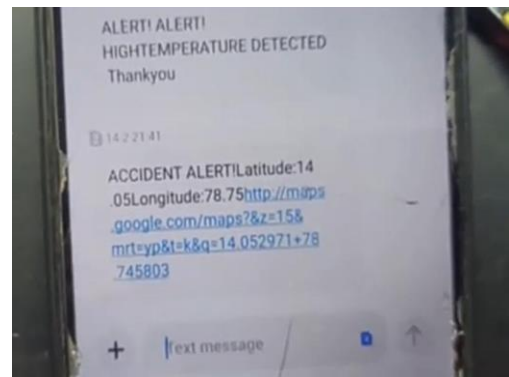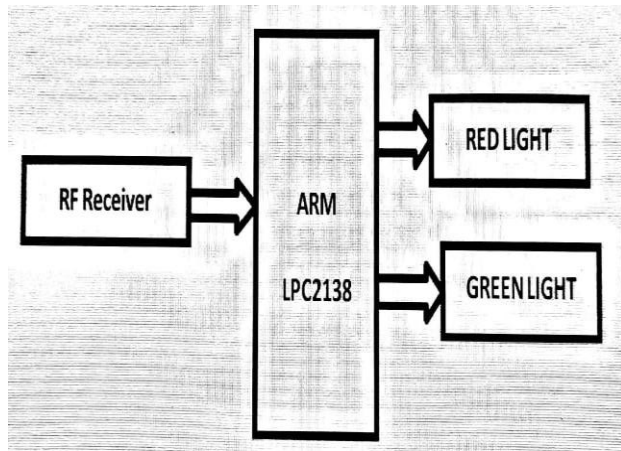

Fig: Control unit send information to nearby hospitals and registered mobile number
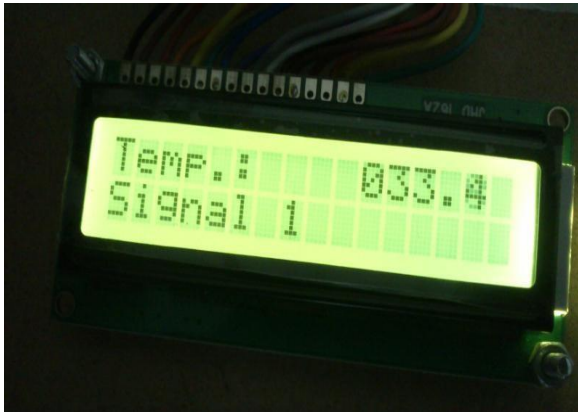
Fig: Vital parameters displayed on LCD

Ambulance unit do some vital parameters like pulse rate ,heat beat etc., and send that reports to that particular hospital.
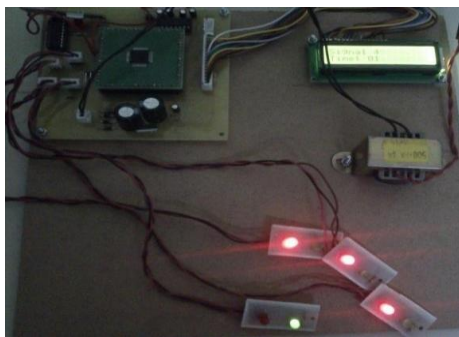

Fig : Traffic junction unit communicated through RF communications

VI. CONCLUSION

The system can detect the accident and conveys the seriousness of the patient and then alert the nearest medical assist center to provide emergency medical aid to patient . Accelerometer module is used to verify whether an accident had happened. Through the GSM which is present in the vehicle unit ,helps to send the information to all the nearest hospitals ,family and friends through a message. Accident detection and alert system are highly relevant in these days and this project aims at developing a low cost solution for the benefit of the society.

VII. FUTURE SCOPE

The proposed system deals with the detection of accidents but this can be extended by providing medication to the patient at the accident place itself. The rapidly increase of technology is providing the greater scope to overcome the accidents.

VIII. REFERENCES

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