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[ijirset@gmail.com](mailto:ijirset@gmail.com)

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# Implementation of Vehicle Assistance System using IOT

A.Bala Raju<sup>1</sup>, G.Ravi Kumar<sup>2</sup>

Assistant Professor, Department of ECE, Mahatma Gandhi Institute of Technology, Hyderabad, Telangana, India<sup>1</sup>

Assistant Professor, Department of ECE, Mahatma Gandhi Institute of Technology, Hyderabad, Telangana, India<sup>2</sup>

**ABSTRACT:** Automobiles has become the basic need of today’s world. . Increased usage of these, reporting the rise in the traffic density as well as the accidents. So security in travel is primary concern for everyone. In this paper, vehicle assistance system is developed using IoT which detects accident spot and an alert has been sent to the rescue team to provide the necessary medical assistance .The accelerometer sensors are used for detecting the vehicle crash and sends the information by using global system mobile communications (GSM) , to the required mobile number,police and hospital. This vehicle assistance system helps to reduce the loss of life due to accidents and also reduce the time taken by the ambulance to reach the hospital

**KEYWORDS:** Internet of Things(IoT), Arduino, vehicle assistance,GSM.

## 1. INTRODUCTION

The Internet of Things (IOT) is the interconnection of uniquely identifiable embedded computing devices within the existing Internet infrastructure. Typically, IOT offers advanced connectivity of devices, systems, and services that goes beyond machine-to-machine communications (M2M) and covers a variety of protocols, domains, and applications. The high demand of automobiles has also increased the traffic hazards and road accidents. Life of the people is under high risk. The delay in reaching of the ambulance to the accident location and hospital increases the chance of death of the victim. To overcome this problem our automatic ambulance rescue system comes to the rescue.To detect the accident there is accelerometer sensor present in the rescue system and the GSM module included sends messages about the location to the respective guardian and rescue team. With the help of accelerometer sensor signal, a severe accident due to an obstacle can be recognized. Microcontroller used, sends the alert message through the GSM module. So the emergency help team can trace the location immediately through GSM and action can be taken.

The prototype of the proposed system comprises two main components: the smartphone Android application and the web-based system. A smartphone application is built using Android Studio (3.3.1, Google & JetBrains, Mountain View, CA, United States). We use the Android application to access the smartphone accelerometer and microphone to provide data on the G-force and ambient noise, and to gain a pressure sensor value.

## II.METHODOLOGY

Arduino UNO, LCD display, GSM module, MEMS module, Ultra sonic Sensor are the various hardware components used to build the kit

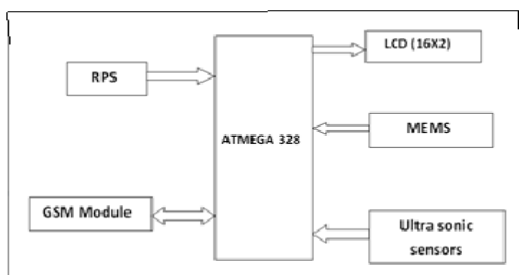


Figure 1.Block diagram

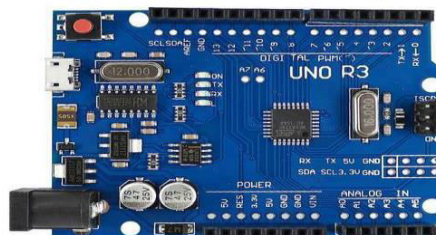


Figure 2.Arduino board

When the system is switched on, LED will be ON indicating that power is supplied to the circuit. The vibration sensors that we are using sense the obstacle, and then it sends interrupt to arduino. The GSM receives the location of the vehicle that met with an accident and gives the information back. This information will be sent to a mobile number through a message. This message will be received using internet present in the circuit. The message will give the information of longitude and latitude values. Using these values the position of the vehicle can be estimated. Modem performs modulation during transmission and performs demodulation during reception.

### III. EXPERIMENTAL RESULTS

Figure 3 shows the practical implementation of vehicle assistance system. If an accident occurs, this system will notify the owner and show the accident spot as well as the nearest hospital or police station and a way of nearest police station and can find nearest hospital using google map co-ordinates as shown in Figure 4.

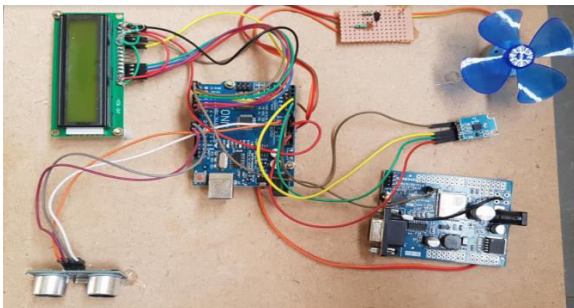


Figure 3: Inter connections of various components

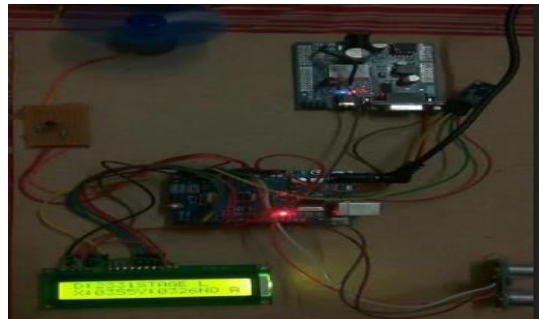


Figure 4: Output shown on LCD display

### IV. CONCLUSIONS

This device is capable of reading and collecting the required data and sends them securely to the database stored in server. This system can do tracking of a vehicle which have this device. Besides, if an accident occur this system can communicate nearest hospital and police station. Police station and hospital's authority can see the shortest route to reach the accident spot using this system which have a web application and mobile application. Web based real time data visualization makes this system more convenient to see all the data in a clean, formatted and user friendly way.

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