SMART TECHNOLOGY FOR ACCIDENT DETECTION AND MONITORING SYSTEM USING IOT

Nagajothi V.
Student, Department of Computer Applications,
Nirmala College for Women, Coimbatore

Samritha. G
Student, Department of Computer Applications,
Nirmala College for Women, Coimbatore

.Ms. M. Muthumalathi
Assistant Professor, Department of Computer Applications,
Nirmala College for Women, Coimbatore

ABSTRACT

The Accident detection and Monitoring system is to improve the road safety facilities and rescue operation system. Nowadays road accidents are very high due to drunk and drive and speed driving. To identify these factors with an automated response, our system is required. In this paper we introduce the Automatic accident detection and Alert system. This alert system technology sends the message to the authorized person to send the ambulance in case of accident. The system includes a MEMs sensor, Alarm and GSM module. The sensor will detect whether the two wheeler is normal or is in improper position and it monitors the accident and give alarm to authorized person through MEMs sensor. We can easily sense the condition of the vehicle and GSM will send notification. This paper helps to monitoring and detecting the accident places and send the alarm and notifications to authorized person for reduce the death caused of human.

Keywords: IoT (Internet of Things) ,MEMS SENSOR, ARDUINO

INTRODUCTION

The Internet of Things (IoT) is the interconnection of uniquely identifiable embedded computing device within the existing Internet infrastructure. The development in technology is increasing high now a days. As the access to internet is getting easier, number of internet-based devices are also increasing exponentially. These developments are converting world into a smart and better . In this era, all beings are somehow dependent on the internet to fulfill our daily necessities. In a survey, 1.25 million peoples died due to road accident and where 15% is only from drink and driving. To find the location where accident occurred is a critical challenge for the hospital and police authority which results in loss of valuable lives. Internet of things is an environment of smart devices. Internet are always anywhere and anytime connected with each other while sending and receiving some data or information. This paper conveys the cause for accidents that is over speed, drink and drive, distracted minds, over stress, tensions, and due to mobile phones. The proposed system deals with the accident detection and alerting system and sends location of the accident place to concerned authorities. Thus it helps to save precious

lives. The interconnection of these embedded device is implemented in nearly all fields of automation enabling advanced applications like a smart grid. Thus, time taken for arrangement is reduced and the person is treated as soon as possible. There are many cases where an accident occurs during the night, then it would take hours for someone to find out and inform the authorities about it. In this project we describe about Accident detection and monitoring system. We are using GSM and MEMS sensor in our project. The MEMS sensor sense the condition of the vehicle and GSM send alarm and notification to the authorized person to send ambulance incase of Accident occurred. The message will be received using internet present in the circuit. The message will give the information of longitude and latitude value to the authorized person. Using the value position of the value can be estimated. Nearby hospitals send ambulance for the accident spot immediately. The proposed IoT based Accident detection and monitoring system is to reduce the loss of life due to accident and to reduce the time taken by the ambulance to reach the hospital.

LITERATURE REVIEW

In existing system Aishwarya S.R explained an IoT based vehicle accident prevention and tracking system for night drivers . This paper provides Eye Blink Monitoring System that give alerts during drowsiness. Sarika R. Gujar explained about advanced Embedded System of Vehicle Accident Detection and Tracking System. The main objective of the system is to detect the accident location and call emergency number. In existing system they used GPS and GSM module to trace the vehicle. In proposed system MEMS sensor is used to detect the vehicle condition and GSM is used to send alarm and notification to authorized person Shailesh Bhavthankar explained about Wireless System for Vehicle Accident Detection and Reporting using Accelerometer and GPS. In this paper, they used Accelerometer sensor to detect crash and GPS to provide the location of vehicle. In case of any accident, the system send automated message to the preprogrammed number such as family member or emergency medical services through GSM. In proposed system the vehicle is checked automatically whether it is in standing position or in fallen position. GSM send message to the authorized person if the accident occurred. The authorized person from the nearby hospital finds the accident place and send ambulance to the accident spot. Thus time taken for arrangements is reduced.

METHODOLOGY

1.Accident detection based on vehicle positioning
MEMS sensor detection. when the sensor is titled a difference in electrical potential is created by this suspended mass.
MEMS automatically sense the condition of the vehicle.

2. Accident Detection process
GSM module detection is to describe the protocols for second generation digital cellular networks used by mobile devices. GSM (Global system for mobile communication).
GSM sends alarm and notification to the authorized person to send ambulance incase of accident occurred.

3. Action taken by the admin

After receiving the alarm and notification. The authorized person from the nearby hospital send ambulance to the accident place. Thus the time taken for arrangement is reduced and the person is treated as soon as possible.
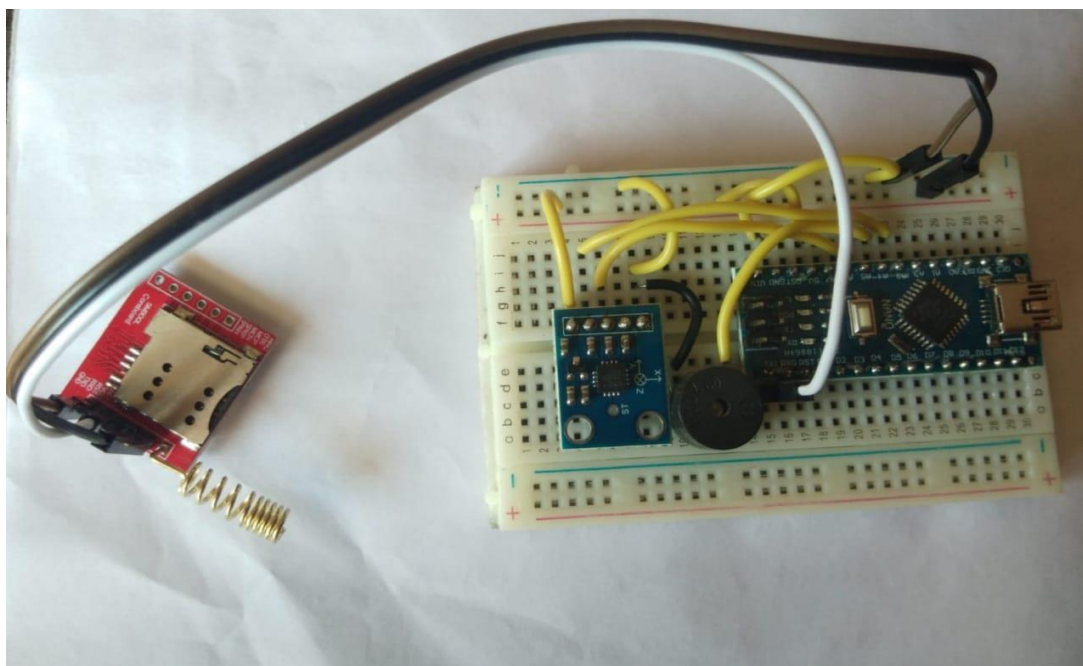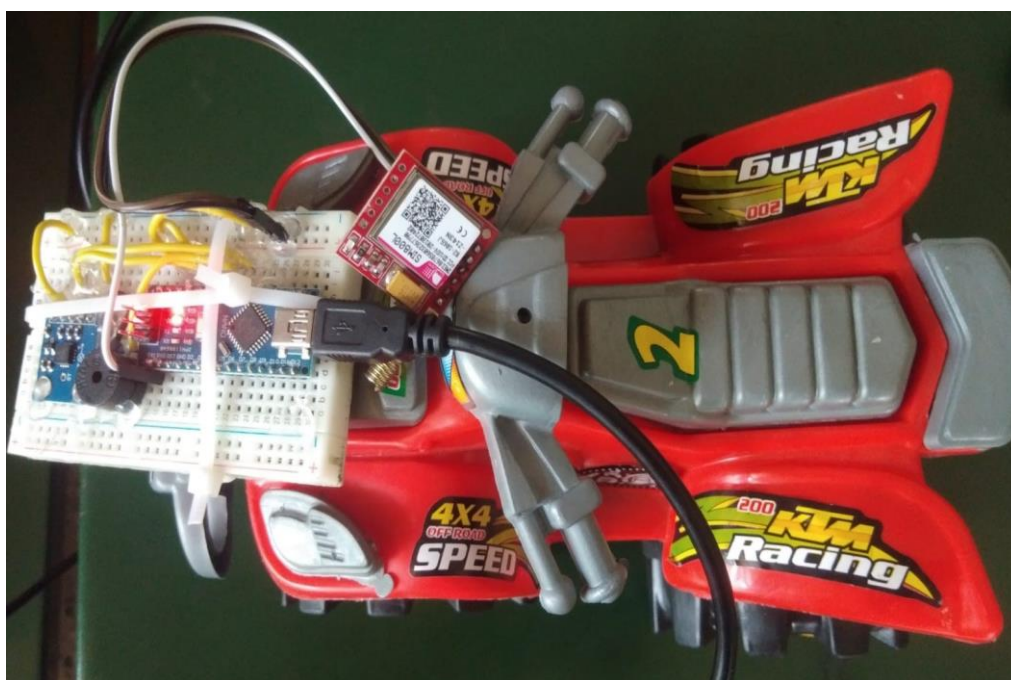
RESULT ANALYSIS

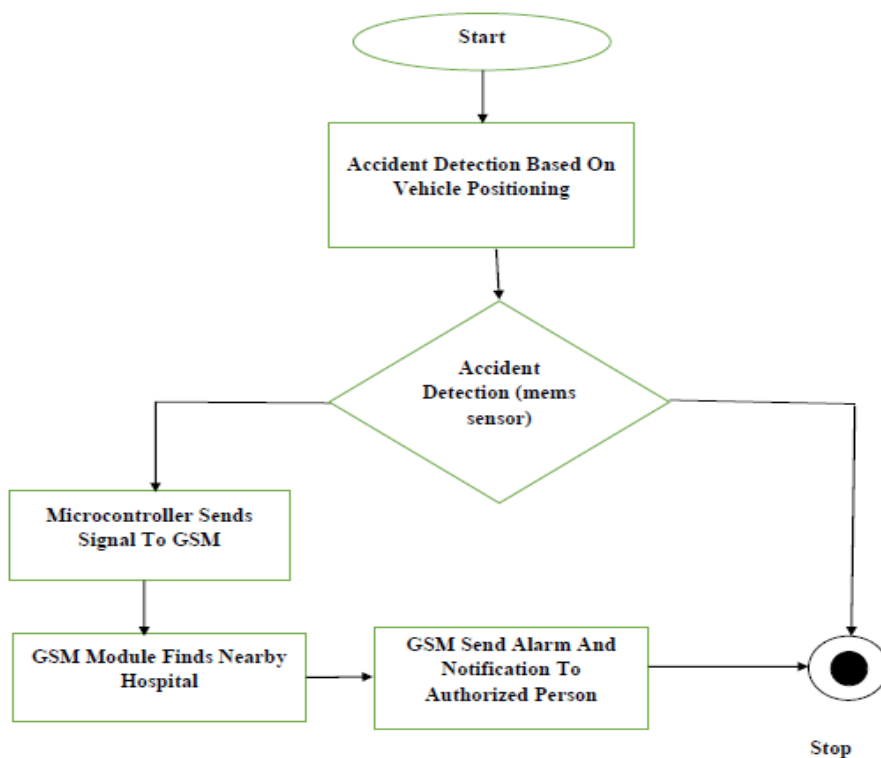Figure1 : Overall Prototype Model

Figure2 : MEMS Sensor Detection

Figure3 : Accident Occurred

FLOW CHART

CONCLUSION AND FUTURE WORK

In this system, we have proposed an IOT based Smart technology for accident detection and monitoring system using MEMS SENSOR and GSM modem. In recent days the occurrence of most of the accident is by motor bikes. The lack of treatment in the improper time is the major reason for many deaths. The major cause may be the late arrival of ambulance or no person at the place of accident to give information to the ambulance or family members. The proposed module sends information and notification to the authorized person to send ambulance to the accident place. Thus, the time taken for arrangement is reduced and the person is treated soon. The proposed system deals with accident detection. If the combined module will be implemented then the risk of road accident will be reduced. If a vehicle meets an accident the system can determine accident at the earliest based on information from several sensors mounted on the vehicle and provides the location details to the authorized persons. So, the person can be treated as soon as possible. All the data collected from the server can be used for processing in future to evaluate some results related to road accidents. By increasing the technology, we can also avoid accidents by providing alert system to stop the vehicle accidents.

REFERENCES

1. Aishwarya S.R, Ashish Rai, Chaitra, Prasanth M.A and Savitha S.C "An IoT based vehicle accident Prevention and tracking system for night drivers" (2015)
2. Sarika R. Gujar and Prof. A.R. Itkikar "Advanced embedded System of Vehicle accident Detection and Tracking System" (2015)
3. Simon monk, programming Arduino : Getting started with sketches, publisher: McGraw hill professional,2016 Edition.
4. Massimo Banzi, Michael Shiloh , Getting started with Arduino, 3rd edition, publisher ; Maker media , incorporated.
5. Shailesh Bhavthankar "wireless System for Vehicle accident detection and Reporting System using Accelerometer and GPS",vol.6,no.8 (2015).