Vidya Pratishthan's

Kamalnayan Bajaj Institute of Engineering & Technology, Baramati

Department of Electronics & Telecommunication Engineering

Academic Year: 2020-21

Project Synopsis

Group No. - 38

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Project Domain: Embedded system

1. **Title of Project: Accident Detection Alert System Using Arduino**
2. **Introduction of Project:**

At present, the rate of accidents has been increased. Due to employment, the use of various vehicles has been increased and so the accidents take place , one of its cause is over speed. People are going under risk of over speed. As there is unavailibilty of advanced techniques, the rate of death of victims in accidents aren't decreasing. In order to reduce the same, this introduces an optimum solution.

Automatic alert system for vehicle accidents is introduced here, the main objective is to control the death of victims in accidents by sending a message to the registered mobile using wireless communications technique. When an accident occurs at a place, the message is sent to the registered mobile through GSM module in a less time so that immediate help can be provided.

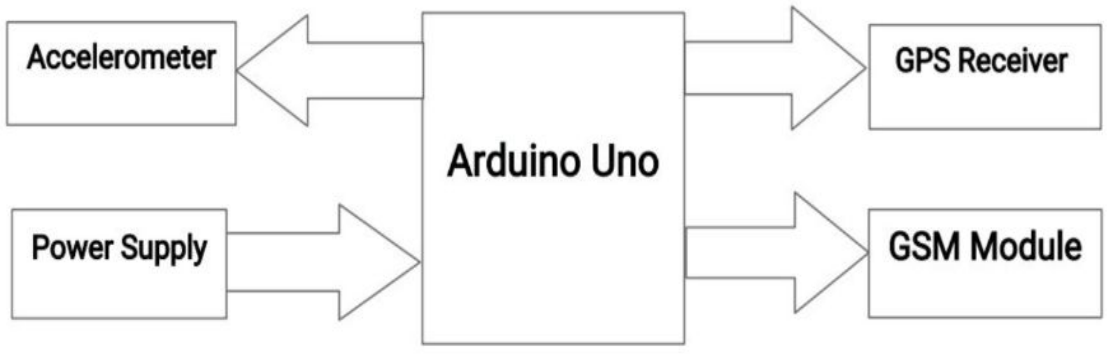

Figure : Block diagram of Accident Detection Alert System Using Arduino

3. Review of Research and Development in the subject:

1.Nicky Kattukkaran ,Mithun Haridas,"intelligent Accident Detection and Alert System for Emergency Medical Assistance" - This system uses accelerometer to detect the sudden change in position of vehicle and heartbeat sensor to check heartbeat of user's body to detect the accident and location.

2.Rachita Shettar ,Sandeep Dabhade, Basavaraj Viraktamath , Amit Dalal , Varsha B Vannur, "Design and Development of Accident Prevention and Control System" - this system uses accelerometer to detect the sudden change in position of vehicle and alcohol sensor which will detect the level of alcohol and prevent the accidents.

3.Fizzah Bhatti, Munam Ali Shah, [...], and Saif Ul Islam ,"A Novel Internet of Things-Enabled Accident Detection and Reporting System for Smart City Environments" - The proposed system immediately detects the location of an accident and calculates the nearest hospital and sends an emergency request for assistance to the required hospital department. This system takes the decision on the basis of data received from smartphone sensors, detecting information about the vehicle status.

4. Objectives:

Accident detection alert system is based on a new technology, its main purpose is to detect an accident and send an alert to the control room, hospital and blood bank so that victim can get some help. It can detect accidents by the intensity and without making any visual contact from the control room.

5. Methodology:

Sometimes during accident the vehicle hits the other vehicle and it passes away without stopping. Victims in accident die due to lack of medical help. To overcome these drawbacks,here we've proposed the method in the accident detection and rescue system.

When an accident occurs at a place, accelerometer will sense the vibrations and sudden change in axes of vehicle and give message to arduino. the alert message will sent to the registered mobile with the location of accident through GSM module in less time. Location of accident is sent in the form of Google Map link, derived from latitude and longitude from GPS module.

There are 2 switches present :

1.SOS switch

2.Reset switch

SOS switch triggers the buzzer if anyone needs help immediately or if the person is feeling sick. Reset button is also provided in order to terminate the sending of a message in rare case where there is no causality, this can save the precious time of the ambulance and control room.

6. Development Tools:

1. Arduino Uno
2. GSM model (SIM900A)
3. GPS model (NEO6M)
4. Accelerometer (ADXL335)
5. Connecting wires
6. Battery 8V
7. Vero board
8. Power supply 12v, 1Amp

7. References:

1 . Tanushree Dalai, " Emergency Alert and Service for Automotives for India ", International Journal of Advanced Trends in Computer Science and Engineering (IJATCSE), Mysore, India, Vol.2, No.5, Pages: 08-12 (2013) Special Issue of ICETCSE **2013.**

2 . Purva Javale, Shalmali Gadgil, Chinmay Bhargave, Yogesh Kharwandikar , Vaishali Nandedkar, "Accident Detection and Surveillance System using Wireless Technologies", IOSR Journal of Computer Engineering (IOSR-JCE), pp 38-43, Volume 16, Issue 2, March-April 2014.

3 . Manuel Fogue, Piedad Garrido, Francisco J. Martinez, Juan-Carlos Cano, Carlos T. Calafate, and Pietro Manzoni, " Automatic Accident Detection: Assistance Through Communication Technologies and Vehicles", IEEE Vehicular Technology Magazine, pp 90-100, Volume7, Issue 3 September 2012

Signature of Guide:

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