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Accident Alert System Using IoT

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ABSTRACT

As technology has developed so has our methods of interacting with them. The system proposed during this paper is to detect the accident of user/person at anytime from anywhere in world. Accident threatens human lives more. Road accidents are common today. Accident Alert System (AAS) is utterly a completely unique research area. So as to avoid such collisions we've got designed the system called "Accident alert system using IoT".

This project presents localization system using GPS and SMS services. Many lives could have are saved if the desired attention was given at the time of need. With the assistance of this technique, the desired attention may be given to the victims by alerting the victim's members of family, colleagues and friends. This technique helps to locate the victim and track him down. If the vehicle is stolen or misplaced then the system helps us to seek out the vehicle using GPS. The placement of the victim is transmitted to the dear ones by using GSM technology. Together with the notification as a SMS, the location at which the accident is taken place is shared using the Google maps link. Various different technologies like GSM, GPS, and switch sensor have been used for designing such system. During this report, a number of this method are discussed and revived so as to focus on their advantages, disadvantages and future scope.

Accident alert system main aim is to rescuing people in accidents. Also tracking a vehicle just in case of any theft has become a tricky job. This method aims to alert the near and dear ones of the person within the vehicle about the accident to produce immediate treatment. During this system when a vehicle meets with and accident immediately impact sensor will detect the signal and send it to Arduino (atmega328p). Immediately microcontroller sends the signal to GPS module to convey the precise geographical location.

Keywords : GSM, GPS, Accident Alert System, IoT

I. INTRODUCTION

This vehicle tracking system takes input from GPS and sends it through the GSM module to desired mobile using mobile communication. Vehicle Tracking System is one in all the most important technological advancements to trace the activities of the vehicle and might detect the situation of accident victim. The protection system uses Global Positioning System GPS, to search out the situation of the

monitored or self-propelled vehicle and so uses microcontroller to send the situation and current speed on the mobile of the loved one and friends. At the receiving end they get a Google maps link are accustomed plot the Vehicle on a map. During this way the Vehicle owners are ready to track their vehicle on a real-time basis using things speak. Because of real-time tracking facility, vehicle tracking systems are getting increasingly popular among owners of pricy vehicles.

II. LITERATURE SURVEY

[1] MO.Sudharsana, Mr.N. KumarClash Avoidance at Hairpin Bends using IR sensor In this system, Arduino Uno is employed as a microcontroller. It also includes components like IR sensors and LEDs. It uses two IR sensors placed on the side of roads. These sensors are mutually exclusive and are connected to ATmega328P microcontrollers through wires. supported the output of sensors, the position of the vehicle is detected, which is provided as input tothe microcontroller. And then LEDs placed on side warn the drivers and thus controlling the movement of vehicles at the bend.

[2] R.Keerthika, S.Atchaya, M.Bharathi, K.Hamsaleka, C.Monika Road vehicle alerting and accident detection system using IOT

In this system, a vibration sensor is employed to detect an accident with an Arduino as a microcontroller. It also includes components like GSM module and GPS module. The vibration sensor and GPS module work together to offer data to Arduino, which successively sends the info to GSM module. It proposes to possess Bluetooth or Wi-Fi networks during a set of clusters across the street to identify the user by a novel MAC address to identify drivers from their Smartphone application. When the vibration sensor detects the accident, the GPS module works in sync with it and provides the Latitude and longitude details of the accident area. This data when sent to the GSM module, it sends to other drivers connected to Wi-Fi in a very 20-meterradius.

[3]T Kalyani, S Monika, B Naresh, MahendraVuchaAccident Detection and Alert System during this system, Arduino is that the heart of the system which helps in transferring the message to different devices within the system. Vibration sensors are going to be activated when the accident occurs and therefore the information is transferred to the registered Number through GSM module. Using GPS the placement will be sent through a tracking system to hide the geographical coordinates over the world. The accident may be detected by a vibration sensor which is employed as a serious module within the system. It may be extended by providing medication to the victims at the accident spot. By increasing the technology we will also avoid accidents by providing alerts systems which will stop the vehicle to beat the accidents.

[4] SwethaBergonda, Sushmita and Prof.Savita SomaIoT Based Vehicle Accident Detection and Tracking System Using GPS Modem The vibration sensor is employed to sense the obstacle, so it sends an interrupt to RaspberryPi. The GPS receives the location of the vehicle that met with an accident and offers the data back. This information are going to be sent to a mobile number through a WhatsApp message. The Raspberry Pi interfaced to GPS modem via an online and L293D Motor Driver which allows the voltage to be flown in either direction. we are able to monitor the speed of the vehicle and might find the situation of the vehicle .Alert message to itinerant for remote information. Mobile number are often changed at any time. this method is interfaced with vehicle airbag system that prevent vehicle occupants from striking interior objects like the wheel or window.

III. METHODOLOGY

This Accident alert system would require there to be some variety of device and sensors on the vehicle that may be ready to detect the accident. The system also must access to current location of car (Bike) and current speed. One assumptions which will be made would be that the while having accident impact sensors should trigger and also the GSM device we've using should have internet connectivity.

Functional Requirement

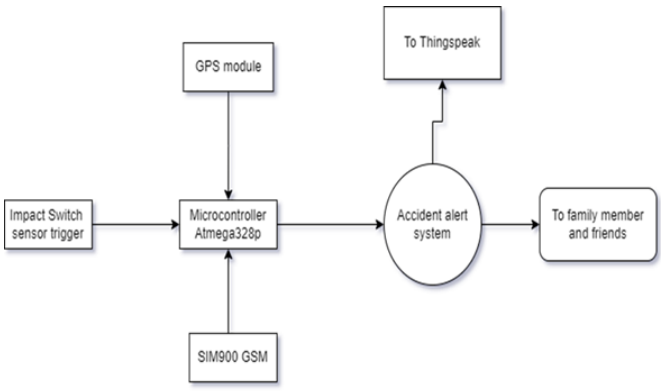
1. The Proposed system Alerts the relations or colleagues of person.
2. Impact sensors play the most role for creating the trigger alert.
3. this method also tracks the vehicle using GPS module.

Functional Requirement

1. Thingspeak is an IoT analytics platform service that enables you to aggregate, visualize and analyze live data streams within the cloud.
2. Using thingspeak we will send every second location data of auto to the cloud

Hardware Requirements

- Microcontroller Arduino-uno Atmega328p
- SIM900 GSM module
- GPS module
- Printed Circuit Board(PCB)
- GPS Antenna
- Impact switch sensor or push switch
- 12v adapter for power supply
- GSM sim Thingspeak



Tools and Technologies Used

1. Arduino atmega328p

ATmega328P could be a high performance yet low power consumption 8-bit AVR microcontroller that's able to achieve the foremost single clock cycle execution of 131 powerful instructions because of its advanced RISC architecture. It can commonly be found as a processor in Arduino boards like Arduino Fio and Arduino Uno.

2. SIM900 GSM module

ATmega328P could be a high performance yet low power consumption 8-bit AVR microcontroller that's able to achieve the foremost single clock cycle execution of 131 powerful instructions due to its advanced RISC architecture. It can commonly be found as a processor in Arduino boards like Arduino Fio and Arduino Uno.

3. GPS module

GPS is module that receives a specific location from a satellite. GPS may be a good method for locating a location when outdoors. Several GPS satellites will be utilized in the GPS module.

4. Push switch:

A push switch (button) may be a momentary or non-latching switch which causes a brief change within the state of an electric circuit only while the switch is physically actuated. An automatic mechanism (i.e. a spring) returns the switch to its default position immediately afterwards, restoring the initial circuit condition.

5. Thingspeak:

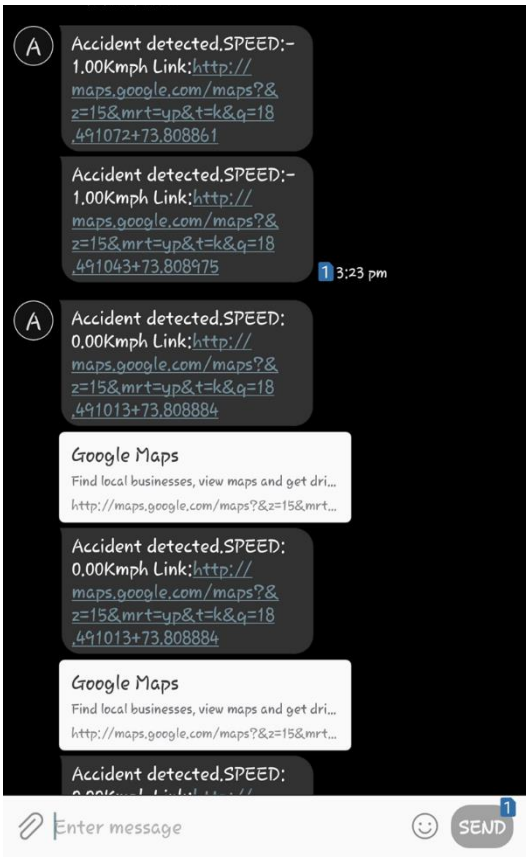
ThingSpeak is an IoT analytics platform service that permits you to aggregate, visualize and analyze live data streams within the cloud. ThingSpeak provides instant visualizations of information posted by your devices to ThingSpeak.

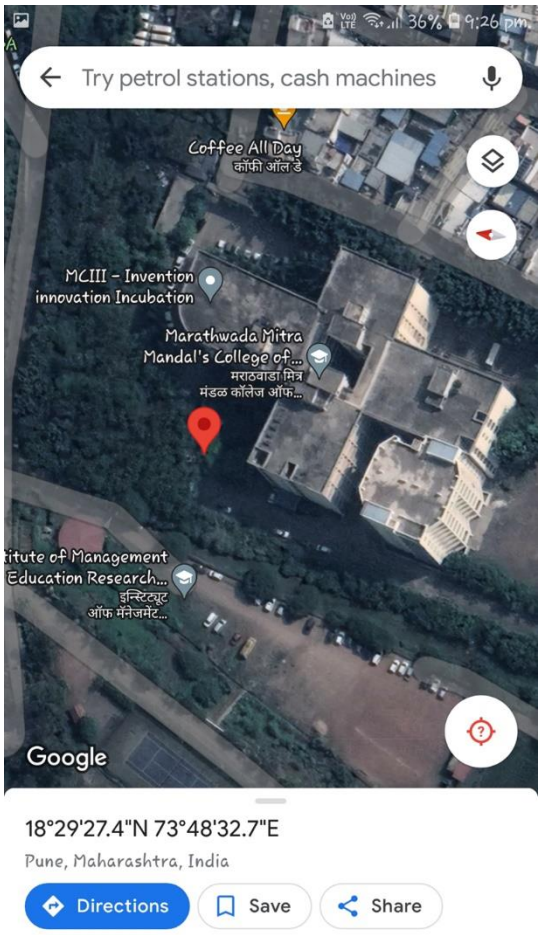
Outcomes

1) Road accidents are the key threat to human lives. Speed is that the key factor accountable for many of the accidents. Therefore, there's a desire to manage all the accidents.

2) the first Outcome behind this project is to alert the relations or colleagues of one that is riding the bike.
3) And track stolen vehicle using GPS module and Sending current Location data to cloud using Thingspeak.

Screenshots





IV. CONCLUSION

The proposed system utilizes the IoT for vehicle accident discovery and disturbing the specialists regarding accidents, vehicle following utilizing GPS Modem. In this task we have planned IoT based accident alert system and following system utilizing GPS Modem. Hence IoT can revolutionize the way the framework connect and respond for the assortment of uses particularly in the event of accident and stolen vehicle.

V. Future Work

The proposed system deals with the alerting of the accidents. But this can be extended by providing medication to the victims at the accident spot. By increasing the technology we can also avoid accidents by providing alerts systems that can stop the vehicle to overcome the accidents.

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