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Iot Based Vehicle Accident Detection And Tracking System Using GPS Modem

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ABSTRACT

Transportation has great importance in daily life and its development has made many of our chores much easy. Also in human life vehicles are playing an important role in the day to day life while using vehicles there may unavoidable accidents occur so, this system may help the people to secure. The common reasons are the driver's mistake and late response from the emergency services. There is a need to have an effective road accident detection and information communication system in place to save injured persons. This project aims at finding the occurrence of an accident and reporting the location of the accident to the previously coated numbers. The form of latitude and longitude coordinates through SMS and google map link. The location spot is retrieved using the Global Positioning System which is a navigation system using a network of a satellite orbiting the earth.
In accident prevent system the purpose is to alert drowsy drivers in the act of driving. One of the causes of car accidents comes from the drowsiness of the driver. Therefore an experiment to calculate the level of drowsiness. A Raspberry Pi Camera and Raspberry Pi module which was able to calculate the level of drowsiness in drivers.

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I. INTRODUCTION

The Internet Of Things (IoT) is the interconnection of uniquely embedded computing devices within the existing Internet infrastructure. Typically, IoT offers advanced connectivity of devices, system, and services that goes beyond machine-to-machine communication (M2M) and covers a variety of protocols, domains, and applications. The term things in the IoT refers to a wide variety of devices such as heart monitoring implants, biochip transponders on farm animals, electric clams in coastal waters, automobiles with built-in sensors or field operation devices that assist fire-fighters in search and rescue. Current market examples include thermostat system and washer /dryers that utilize Wi-Fi for remote monitoring. The Internet Of Things(IoT) is a network of physical devices, vehicles, home appliances.

A survey report by World Health Organization highlights that every year more than 30000 people died due to road traffic accidents. Most of the time it has been observed that the death occurred in the road accident are due to the late arrival of the ambulance to the accident spot. In this project, a system is used that can automatically detect an accident in less amount of time and sends information about the accident to the user. These techniques use a smartphones, GPS, Raspberry pi and mobile applications. The geographical location of the accident spot is identified by GPS.

There are many car accidents are happened because of driver errors, inducting drunkness, fatigue and drowsiness. Statistically, drowsiness by drivers results in an estimated 1550 billion in monetary losses. In this project, the accident prevents the system are used for alerting to the driver.

II. LITERATURE REVIEW

The main aim of the project is to design and implement the IoT based vehicle accident detection and tracking system using GPS. Many other modalities are in various stages of development & assessment. Among this available tracking system proves one of the best traits. Now, the present scenario to operate a vehicle tracking is with receiving a message with longitude & latitude, but this is not detected in the location quickly.

To provide quickly security or help to the accident person and to make work easier, I will be taking the help of two different technologies Raspberry Pi and IoT.

III. PROPOSED SYSTEM

1. Problem Definition:

When the system is switched on, LED will be ON indicating the power is supplied to the circuit. The piezoelectric sensor senses the obstacle, & then it sends interrupt to ESP8266-12 microcontroller. The GPS receives the location of the vehicle that met with an accident & gives the information back.

This information will be sent to a mobile number trough online SMS service. & receive with HTTP communication protocol. The message will give the information of longitude & latitude values, with map location tracking link. Then easily find the position of the vehicle.

2. Scope of Work:

The project presented on automatic road accident detection techniques. These techniques include smartphones & GPS techniques, vehicular Wi-Fi microchips, and mobile applications. These systems aim to timely inform emergency services about the location of an accident.

Block Diagram:-

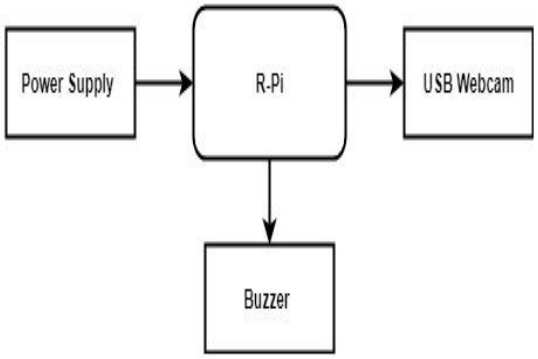

Fig.(1.1).Accident Prevent System.

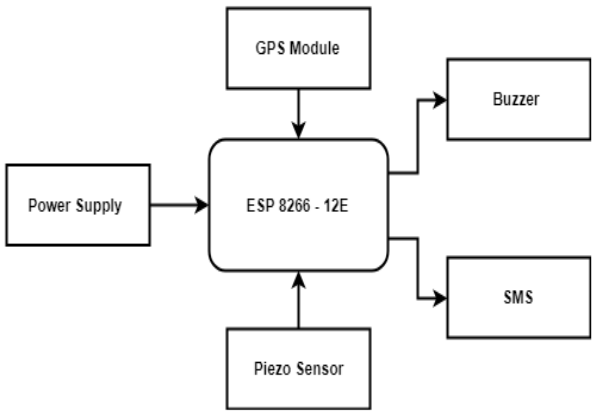

Fig.(1.2). Accident Detection System.

IV. OBJECTIVE

- The main purpose of this project is to sense some aspects of the surroundings using sensors and detect on the mobile phone with a small message which including the value of latitude and longitude and HTTP communication protocol using this information we can estimate the position of the vehicle.
- In this project we interface the sensor with ESP8266-12E Wi-Fi microchip with full TCP/IP stack & microcontroller capability.
- The main parts of this project are the sensor & GPS modem. We use to detect & tracking vehicle accident places where it occurred with the help of a GPS modem.
- The sensor is used for sensing the pressure from the accident vehicle which is helpful for running circuits.

V. FUTURE SCOPE

- Accident spot that makes the tracking easier.
- This system can be interfaced with a vehicle airbag system that prevents vehicle occupants from striking interior objects such as the steering wheel or window.
- This can also be developed by interconnecting a camera to the controller module that takes the photograph of the tracking easier.

VI. CONCLUSION

- To minimize the death & the severe conditions due to accident the GPS modem technologies are used where immediate action would take place by the alerting message to the author.
- The proposed system is developed to rescue accident victims as fast as possible.
- Application sends the accident message to the nearest control station as well as to the emergency number provided by the application user.

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