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Iot Based Automatic vehicle accident Detection Using Modern Technique

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Abstract :The concept of car crash detection is not new and the automotive industry has made great strides in optimizing the technology. This paper is an attempt to contribute to this emerging field. Here we are trying to run into an accident via the accelerometer. This makes it easier to identify the environment, and if the values of the x, y, and z parameters exceed the defined values, the situation is set correctly and the code that triggers the written intimacy and SMS alarms is executed. will be Here, including the location of the accident risk zone, send it to a nearby toll booth for help. With this method, the location of the accident can be easily determined and information about the location of the accident can be sent via GPS to an emergency call center for assistance.

Introduction

In recent years, the automotive industry around the world has made great strides in its production. It can be concluded that with the advancement of technology, the production rate of vehicles is increasing and at the same time the accident rate is also increasing. Traffic accidents pose a high risk to human lives. Our country does not have the best emergency facilities. In this paper, we propose an automatic detection and warning system for automobile accidents. The system helps detect accidents in a very short period of time, essentially seconds, and messages the emergency center with basic information, including the time and location of the precious lives. If no one is injured and no assistance is required, a switch on the device can be used to stop sending messages. The message is sent through the GSM module and the location of the accident is determined using the GPS module. With the help of accelerometers, accidents can be detected accurately. The rollover angle of the car can also be known by the accelerometer via a message. This application provides the best solution in the most practical way to bad emergency facilities designed for traffic accidents.

Accident Survey

Car accidents are every driver's worst nightmare. Unfortunately, they are also common. Today, an estimated accident. Alert messages help locate locations so that medical services can be delivered in a timely manner, saving

1.3 million people die in car crashes each year, about 3,287 deaths per day. Each year, an additional 20 million to 50 million people are injured or disabled in car accidents. Viewing crash trends can help you gather important information and help you avoid potential accidents and injuries. Nearly 27% of all deaths in India are without medical attention, according to 2013 civil registry data released by the Census Bureau. Accidental death rates showed an increasing trend from 2003 to 2012, increasing by 51.8%. In 2022, a total of 6,94,982 deaths and 4,444 deaths were reported nationwide.

System Architecture

An overview of incident detection and monitoring systems is very helpful in detecting incidents and

monitoring incidents. Whether to use vibration sensors and memory to detect accidents. By using mems, if the car is hit, we can immediately send a signal to the microcontroller. GSM and GPS send information to the server . It is designed around a heart rate sensor in the event of an accident and can send notifications to rescue teams. This helps rescue teams measure your existing heart rate range and automatically update it on the website. Ultrasonic sensors are used to measure the distance between vehicles and automatically reduce vehicle speed. A gas sensor is used to measure the oxygen level inside the car in which the accident occurred. Oxygen levels were then updated on the website. If a minor accident does not affect the interior of the vehicle, information cannot be sent to the hospital through the switch.

Arduino Mega

ATmega1280 is based on the Arduino Mega microcontroller. It has 54-pin digital input/output pins, 15-pin analog inputs, 4UART hardware serial ports, and a 16MHz crystal oscillator. Supports microcontrollers. Simply plug it into your computer with a USB cable, or power it up with an AC-DC adapter or battery to get started. Design a compatible Mega Arduino using the Arduino Duemilanove or Diecimila.

Heartbeat Sensor

The heart rate sensor consists of a very bright red LED and a photodetector. The LED needs to be super bright as the maximum light needs to be dispersed on the finger and captured by the detector. Now, when the heart pumps a lot of blood through the blood vessels, it can be reached by the detector and is a little more opaque through the fingers. The detector signal changes with each heartbeat. This fluctuation is converted into an electrical impulse. This signal is amplified and triggered by an amplifier that outputs a +5V logic level signal. A blinking LED with each heartbeat indicates the output of the pulse.

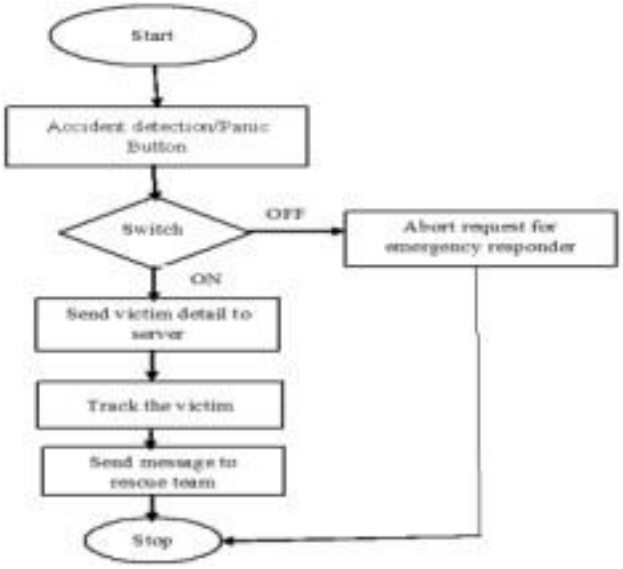
Gps Module

Global Positioning System (GPS) is a satellite-based navigation system consisting of at least 24 satellites. GPS works anywhere in the world, in any weather, 24 hours a day, with no subscriptions or setup fees.

Gas Sensor

A gas sensor measures the gas concentration in the surroundings. A gas sensor interacts with a gas and measures its concentration. Each gas has a unique breakdown voltage. H. Ionizing electric field. Sensors identify gasses by measuring these voltages. Gas concentration can be determined by measuring the current discharge in the device.

Flowchart



Conclusion

This system offers a design with the advantages of low cost, portability, and small size. It consists of an accelerometer, GPS, GSM and an interface that reduces the risk of accidents. It also overcomes many problems with automatic accident scene detection systems. As a result, finding a location as quickly as possible takes less time, the person can receive treatment sooner, and many lives are saved as a result. A major motto of the accident systems project is to reduce the likelihood of casualties from such accidents. This device invention is much more useful for accidents that occur in deserted areas or at night. This system will play an important role in our daily life in the future.

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