



AUTOMATIC MESSAGE ALERT SYSTEM WITH GPS & GSM MODULE BASED USING IOT

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Abstract

A successful day can increase the cost of a crash. High-speed accidents can also occur, as the use of motorcycles and cars will increase due to work. This motivation can lead to accidents leading to the speed goal. There is a word about the machine that prevents quick judgment about the standard performance and performance of the car. Excessive speed, drunkenness, reckless driving, stress, and use of virtual devices are the causes of accidents. This race marks the fate of finding a race due to the employee's car being in poor condition. This adds a new element of fate detection and warning technology to the driver. If the hero loses control of the car, a twist of fate takes place. If the car turns, the gadget will send a message to the registered mobile phone. All GPS and GSM-based fate detection and recording, with resources to inform hospitals and their members, is specifically designed to save the many who will suffer the fate.

Keywords: Vehicle, Gyro Sensor, GSM Module, GPS Module, Smartphone, SMS notification, Raspberry Pi.

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I. INTRODUCTION

The Internet of Things (IOT) provides connections to complex devices, systems, and services that often go beyond the interface between devices (M2T) and include multiple protocols, names, and packets. Integration of these tools, including smart tools, can be applied to almost all areas of automation, thus supporting complex tasks such as smart grids. The term "IoT body" refers to devices such as implants for monitoring the heart, biochip transponders in farm animals, electric oysters at the seaside, and cars or corpses with sensors to aid in the search, and rescuers in fire situations. Remote control dryer using V and Wi-Fi.

In this venture, we describe an "AUTOMATIC MESSAGE ALERT SYSTEM WITH GPS & GSM MODULE BASED ON IOT". We are using Raspberry Pi in our IoT-based GSM module project. The vibration sensor in our project found a problem and affected the Raspberry Pi. GPS locates the faulty vehicle and returns information. This information can be sent to your WhatsApp phone and reach many people. Messages are assumed to be received via the aircraft's Internet connection. Longitude information and other information can be passed in messages.

These numbers can be used to estimate the vehicle's position. The modulation and demodulation functions of the modem are performed during transmission and reception, respectively.

II. LITERATURE REVIEW

Many researchers use their findings for accident research in this section where various strategies for accident and assistance are also discussed. While some systems still focus on taking steps to avoid collisions, most systems focus solely on the collision detection process. Methods for detecting and avoiding collisions are presented separately.

For example, RADAR lasers are used in many types of optical laser sensors, including instrumentation. The laser beam localizes the rear opening of moving objects and moving objects. However, these systems reduce the price if the distance between the vehicle and the object is more than one meter. Currently, different IoT devices are used to field traffic, and little support is given to decision-making models where failure is achieved. The system uses GPS, measuring devices, collision detection, and accident data to determine the situation and record vehicle control, record accident data, and communicate with

nearby emergency vehicles. Send rescue vehicles to the scene of the accident to bring assistance closer. Notice now. The main purpose of the technology is to find the accident in the first place so that the emergency services can intervene. Traffic accidents can be determined using detectors. The vehicle's location is reported by GPS and GSM devices. GPS, victim counters, and wireless systems to detect traffic accidents. All events are tracked using the device's speedometer and GPS to provide the vehicle's location. The technology only sends automated messages via GSM to a friend or a first aid program for immediate medical assistance in an emergency.

III. RELATED WORK

This document reviews the design of IoT-based vehicle accident detection and recovery tools. This detects the vehicle's problems and notifies the owner, nearby hospitals, and police at the crime scene via the web service. With the GSM/GPRS shield and the GPS shield, it is not difficult to advertise different internet users and their hardware. This article uses the change in the human condition as vehicle maintenance that addresses various issues and occasional clues. Hardware spoofing uses sensors and majors in the web server, which the web application uses to notify many users about electricity. The Internet of Things (IoT) for smart cities is made possible by the integration of numerous devices and systems around us. The Internet of Things will provide city residents with a wealth of information that can be used to provide entertainment, productivity, safety, and services.

Belief in the smart city depends on processing large amounts of information about people throughout their lives. We describe a data management process key used to evaluate Smart City Frontiers research from a data-centric perspective to ensure consistency, interoperability, extensibility, and reusability of IoT-generated data for smart cities. In short, the information lifecycle of the smart city is based on information security and privacy and information management with reduced infrastructure support. That's why we learn more about the data security and privacy approach and introduce the communications and computing advances that make smart cities possible. We talk about technological developments that affect various aspects of the smart city, share the lessons we have learned, and identify gaps and research questions. People's lives are in danger and timely help is more important than help. That's why I proposed and

created such a goal to help protect people's lives in an emergency. Car crashes are a common cause of death today, and they can happen unexpectedly. The duration of the accident and the arrival of the ambulance to the scene of the accident are important for saving lives.

IV. BLOCK DIAGRAM

The following components are included in the block diagram of the suggested machine: a Raspberry Pi, a vibration sensor, a GPS modem, an L293D motor drive, a led, a buzzer, and a 12-volt DC power source.

Use the additional items mentioned earlier as the block diagram below.

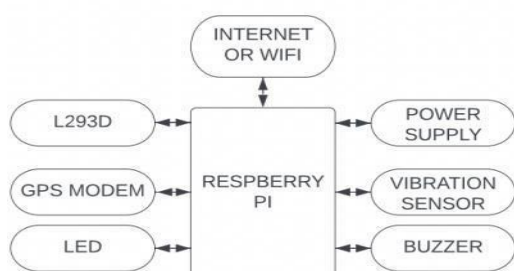


Figure 1: Block diagram

A. Raspberry Pi

Raspberry Pi is a credit card sized computer called Raspberry Pi. Broadcom BCM2835 System-on-Chip (SoC) for Raspberry Pi, 700MHz ARM1176JZFS processor, Video Core IV GPU with 256MB RAM (Model B and Model B), expandable up to 512MB. The Pi 2 Gen B has 1GB of RAM, double the memory of the previous generation and is up to 6x faster than the Pi 2 Model B. The only computer the size of a credit card is called the Raspberry Pi. The Broadcom BCM2835 System-on-Chip (SoC) for Raspberry Pi features a 700MHz ARM1176JZFS processor, Video Core IV GPU, and initially ships with 256MB RAM (Model B and Model B) upgraded to 512MB. The Pi 2 Gen B has 1GB of RAM, doubles the storage of the previous generation and is up to 6x faster than the Pi 2 Model B.



Figure 2: Raspberry Pi 4 Model B

B. Vibration Sensor

Despite technological advancements in vibration monitoring and evaluation equipment, the choice of sensors and the method in which they might be installed in a device continue to play crucial roles in determining the success of any monitoring program. Since the information provided about the system or unreliable, money saved by installing subpar sensors is not a wise investment.

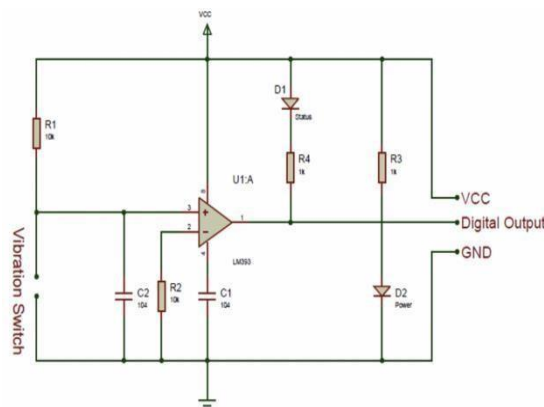


Figure 3: Circuit Diagram of Vibration sensor

C L293D Driver Motor

It works using the H-bridge concept. A circuit that allows voltage to flow in either direction is called an H-bridge. H- Bridge ICs are the best choice for driving DC motors, as we know that voltavants can rotate a motor either clockwise or counterclockwise by changing direction.

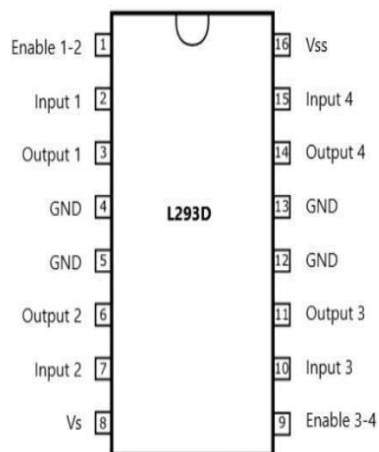


Figure 4: Pin Diagram of Driver motor L293D

C. GPS Device

The Global Positioning System (GPS) is a space-based Global Navigation Satellite System (GNSS) that provides accurate location and time in all conditions and times around the world. Receivers on the ground use GPS satellites as a reference to determine position. The similarity in size between a person and four satellites is a principle of navigation.

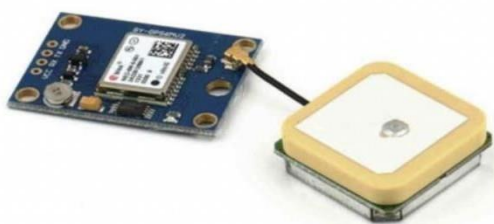


Figure 5: GPS Module

E Buzzer

A buzzer or beeper is a mechanical, electromechanical, or piezoelectric (short for piezoelectric) sound signaling device. Buzzers and beeps are often used for alarms involving mouse clicks or data entry, timers, training, and customer access confirmation.

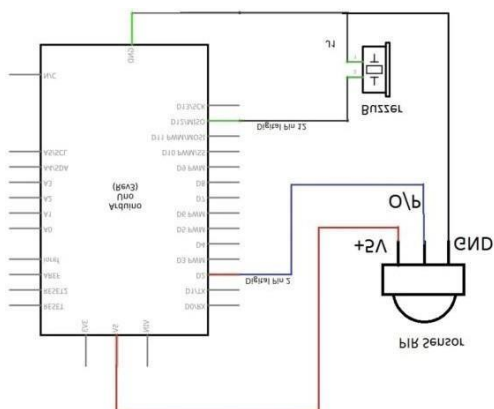


Figure 6: Buzzer attached with pin Diagram

V. WORKING OF THE SYSTEM

We are using Raspberry Pi 3 for this task. When the unit is turned on, the LED will illuminate to indicate that the power is on. The vibration sensor stops the Raspberry Pi when it detects a problem. GPS takes the position of overlapping vehicles and provides statistics. These statistics can be sent to many mobile phones via WhatsApp messages. This message can be obtained using net rewards. Longitude statistics and other figures will be given in this table. This information can be used to predict where the car will park. Retrieves the Raspberry Pi log file. Therefore, it responds to calls in the form of WhatsApp messages. In the circuit, LEDs are used to display the received data. The Raspberry Pi connects to the GPS modem over the internet and powers the device with an internal private network. Raspberry Pi connects to the internet by sending and receiving pins. Regardless of the data from the GPS analysis, an LED connected to a port on the Raspberry Pi indicates the availability of the current GPS modem

VI. SYSTEM PROCEDURE

A. Car Health monitoring

A tool that can be used to measure the health of a vehicle. Both internal and external systems have this structure. Car Health Checker Rack makes it easy to gauge car health by checking engine data, diagnostic codes, battery status, and working technical data.

B. Cloud Middleware

All frameworks and applications need to collect and process data available in the cloud. The cloud is a remote computer where you can easily store and retrieve data anytime from anywhere in the world. Tools for data analysis and incident prediction are available in the cloud. The data sent by the sensors is collected in the cloud and stored in the database. Databases created for IoT should be used for important facts. The device installed in the car constantly collects a lot of data from the sensors.

C. Last Authority

The panel and application are provided to hospitals and police to help unfortunate people find their information and location. Use of the unfortunate event can also be transmitted through the air, so hospitals and emergency departments can act immediately.

VII. SOFTWARE REQUIREMENTS

A. Arduino IDE

IDE (Integrated Development Environment), which is the full name of Arduino IDE, is developed by the Arduino company and is used in the Arduino forum. It is available for Windows, Linux, and macOS operating systems. Java became the language used to create it. Thanks to the Arduino IDE, the Arduino forums are now available in C and C++. On October 18, 2019, the Arduino Pro IDE was released for alpha testing. It has new features and is the latest version of Arduino IDE. Arduino boards are usually designed using a controller and a microprocessor. These boards are a collection of virtual and analog input/output (I/O) pins that can be connected to various expansion boards. Forums use single or double threads. Arduino is a cross-platform program with an integrated development environment (IDE).

B. Python

Python is a unified, high-level, object-oriented, interactive programming language. In addition to being used as text or stickers to reinforce existing information, it is suitable for mass rapid growth by providing rich information such as dynamic

input and dynamic linking. Easy-to-learn Python syntax ensures correctness and reduces application maintenance costs. Python supports packages and modules, supports functional modularity, and supports code reuse. Today, the Python interpreter and large libraries are free and available in source or binary form on all popular systems.

C. Raspberry pi

In the UK, the Raspberry Pi Foundation and Broadcom may produce a series of small computers called the Raspberry Pi. Raspberry Pi's mission is first to facilitate computer science teaching in universities and underdeveloped countries.

VIII. DATA FLOW DIAGRAM

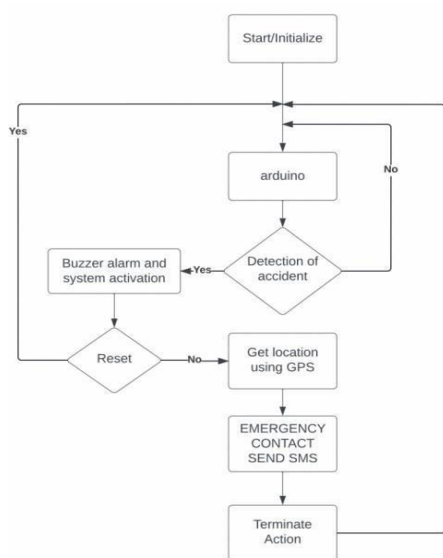


Figure 6: Data flow diagram of step by step in the proper mode

First, the system will boot up and start the Arduino. If the Arduino detects an event, it will alarm; reset if false; otherwise, call emergency services and share your location with them using the GPS in your car; finally stopped.

IX. ADVANTAGES

We can find the car, and if there is an accident, maybe that place will be given to emergency services to save the victim's life. Emergency patients will receive a notification. With a simple application and OTP, it will be possible to change the phone number at any time.

X. LIMITATIONS

This technology is very expensive to develop and needs a very good network to work well and transmit data accurately.

XI. CONCLUSION AND FUTURE SCOPE

If the combination model is applied, the sources and consequences of traffic accidents will change significantly. State-of-the-art VANET is one of the best ways to communicate on the road using different standards and methods. So when the cars hit the road, they will exchange the information needed to analyze the situation. Since the driver of the car receives this information, he can walk carefully and carefully on the road. In the event of a car accident, the system can use information from various sensors installed in the vehicle to determine the situation as soon as possible and provide information about the situation to rescue organizations every few minutes so they can provide medical care to survivors., and save their lives. What the technology will do in the long run is install a camera module in the car that takes pictures during the event and sends them to the server. All data collected from the server will be used in future large-scale studies to evaluate the various consequences of car crashes.

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