

IoT Approach for Vehicle Accident Detection, Reporting and Rescue System

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Abstract— Many intelligent and autonomous systems have been invented in recent years as a result of rapid technological advancement. Nowadays, people rely heavily on technologies that operate in an automated or semi-automated manner to make lives easier and more comfortable. So, this project will provide an optimum solution to this drawback As indicated by this task when a vehicle meets with a mishap quickly Vibration sensor is utilized to recognizes the mishap and furthermore send the data to the server. Arduino super regulator sends the alarm message through the IOT and GPS. Then, at that point, the vital move can be initiated in the wake of affirming the area at time. A real-time alert will be sent to the nearest police station and traffic control server. The closest emergency vehicle administration will likewise be informed of the mishap's area through the web. The whole framework will altogether work on the brief coordination of vital activities following a mishap. In the field of IoT, objects impart and trade data to offer high level clever types of assistance to clients.

I INTRODUCTION

The term IOT, or Internet of Things, refers to rising era. Today, the whole lot might be based totally on IOT, which is a network of physical objects that can be related and exchange messages without the want for human intervention. It has been formally defined as a "Information Infrastructure Society" because it has been utilized in a diffusion of mediums, which include Home Automation System, IOT home protection model, raspberry pi, home automation, and smart water metering. Thus, the physical object that can be given an IP address so as to permit information transmission over an IOT system by means of embedding it with electronic hardware which include sensors, Arduino software, and networking gear. Accidents are one of the leading causes of demise in rising towns, so having a twist of fate detection and tracking gadget in the region is essential. This gadget will make use of ultrasonic sensors. The sensor measures the distance between the motors and is positioned on the front side of the automobile. When the auto collides with another car, the engine shuts down automatically. As a result, no accidents can arise. The information is then dispatched to the server, where it is routed as a message to the rescue team. When used in this subject, the idea of IOT will result in people being saved. These gadgets will resource within the discount of site visitors accidents in cities. It can be used to

save humans at the best time. And additionally send the information to the rescue crew.

II ACKNOWLEDGMENT

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III HARDWARE

ARDUINO UNO

The Microcontroller used right here is an Arduino UNO. The UNO is a Microcontroller board based on ATMEGA 328P. The ATMEGA328P has 32kB of flash reminiscence for storing code. The board has 14 digital enter and output pins, 6 analog inputs, sixteen MHz quartz crystal, USB, an ICSP circuit and a reset button. The UNO may be programmed with the Arduino software.

SENSORS

A sensor is a device, module, device, or subsystem whose motive is to come across occasions or modifications depending upon transducer in its surroundings and ship the facts to different electronics, often a microcontroller. A sensor is always used with different electronics.

ESP8266 WIFI

The ESP8266 Arduino like-minded module is a low-price Wi-Fi chip with full TCP/IP capability, and the extraordinary element is this little board has a MCU (Micro Controller Unit) incorporated which gives the opportunity to manipulate I/O virtual pins via simple and nearly pseudo-code like programming language. This tool is produced by using Shanghai-based totally Chinese manufacturer, Espressif Systems.

GPS

GPS or Global Positioning System is a satellite navigation gadget that furnishes region and time statistics in all climate situations to the consumer. GPS is used for navigation in planes, ships, motors and trucks also. The system offers vital skills to military and civilian customers around the world. GPS provides continuous actual time, 3-dimensional positioning, navigation and timing worldwide.

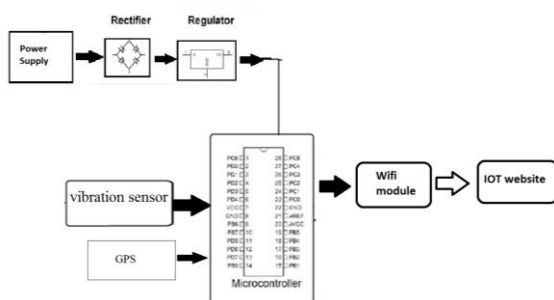


Fig 1 Hardware block diagram

IV EXISTING SYSTEM

There are few already created devices and products in market that are related to the research. Following are the few examples of the Existing systems/devices:-

- Time consuming and less effective:
- Most of these devices are very high in costly to be used and maintained.
- No real time detection
- Not suitable for Emergency situations.

V PROPOSED SYSTEM

This program was having developed a prototype that is a smart device that can be worn by any individual on their vehicle. After implementation, the device will start sending the current latitudinal and longitudinal co-ordinates .The aim of this system is to be able to detect the occurrence of an accident and subsequently send a message with the GPS location to the victim's emergency contacts, and notify the Ambulance and hospital services simultaneously.

VI DATA FLOW DIAGRAM

Framework configuration is the most common way of arranging another framework or to supplant the current framework. Essentially, framework configuration resembles the plan for building, it determines every one of the highlights that are to be in the completed item. Framework configuration stage follows framework investigation stage. Configuration is worried about distinguishing capacities, information streams among those capacities, keeping a record of the plan choices and giving an outline the execution stage. Configuration is the extension between framework investigation and framework execution. Some of the essential fundamental concepts involved in the design of application software are: Abstraction, Modularity, and Verification.

An information stream chart is graphical device used to depict and break down development of information through a framework. These are the focal apparatus and the premise from which different parts are created. The change of information from contribution to yield, through handled, might be depicted legitimately and autonomously of actual parts related with the framework. These are known as the legitimate information stream graphs. The actual information stream outlines show the real executes and development of information between individuals, divisions and workstations. A full depiction of a framework really comprises of a bunch of information stream graphs. The improvement of DFD'S s done in a few levels.

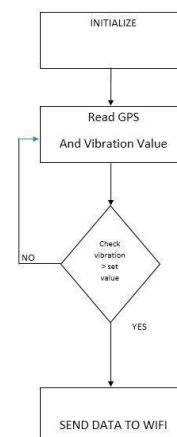


Fig 2 Transmission data flow diagram

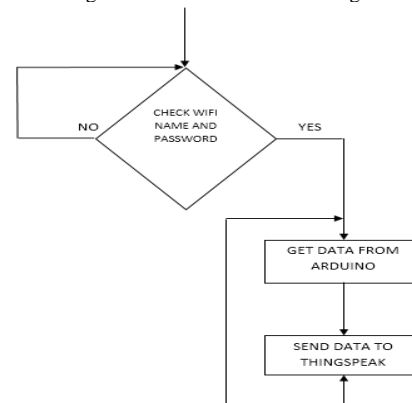


Fig 3 Receiver data flow diagram

VII TESTING METHODOLOGY

System testing is the stage before system implementation where the system is made error free and all the needed modifications are made. The framework was tried with test information and fundamental remedies to the framework were completed. Every one of the reports were actually looked at by the client and supported. The framework was extremely easy to understand with online assistance to help the client any place vital.

VIII LITRATURE SURVEY

The literature review of this project report is a section showing the various analyzes and developments performed in the area of interest, taking into account various project parameters and project scope, and already published results. This is the most important part of this report as it gives direction in this development area. It helps to set goals for the analysis and provide a description of the problem.

IX IMPLEMENTATION

Step 1: Install Blynk (legacy) app to the device.
Step 2: Connect to the wifi and turn on the hotspot
Step 3: Then login to the app.
Step 4: The home screen of the app will appear.
Step 5: Now change the map and customize the app by filling your credentials.
Step 6: After filling the credentials all the nearby services in map will be displayed.
Step 7: Now you can monitor every action or accident on the phone through the app.
Step 8: If there is any accidents near your locality you'll get a notification saying "Accident detected" and it shows the correct location.

X CONCLUSION

The system provides the layout which has the blessings of low price, portability and small length. It includes accelerometer sensor, GPS and IOT, interfacing which reduces the coincidence. It also triumph over numerous issues of automatic machine for twist of fate place detection. Consequently, it reduce the time for looking the vicinity as soon as viable the character can dealt with right away it results in keep many lives. Main motto of the accident system undertaking is to decrease the probabilities of casualties in such twist of fate. This tool invention is a good deal extra beneficial for the injuries befall in abandoned locations and those taking place at night time. This gadget will play an vital role in day to day lifestyles in future.

XI FUTURE CHANGES

Warning emergency contacts can help raise awareness of the situation. Due to the availability of inexpensive sensors, the actual mounting work is significantly less than for other designs. In future work plan is to actually implement the system and collect the results. By adopting an accident prevention approach instead of accident detection, the system can be further improvised.

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