International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Accident identification and Rescue system

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A B S T R A C T

Transportation has extraordinary significance in our day to day routine and it's improvement has made a large number of our errands much simple. IoT based vehicle mishap identification framework utilizing GPS and WIFI has acquired consideration. At the point when mishap happens, this framework sends short message to WhatsApp of a portable number by means of Wi-Fi over web. Message will give longitude and scope values. From these qualities area of mishap not entirely set in stone.

Keywords: Raspberry Pi, GPS, Vibration Sensor, L293D Motor Driver, Wi-Fi, Python

1. INTRODUCTION

The Internet of Things (IoT) is the interconnection of interestingly recognizable installed figuring gadgets inside the current Internet foundation. Normally, IoT offers progressed network of gadgets, frameworks, and administrations that goes past machine-to-machine interchanges (M2M) and covers an assortment of conventions, spaces, and applications. The interconnection of these implanted gadgets (counting shrewd items), is executed in practically all fields of mechanization empowering progressed applications like a Smart Grid. The term things in the IoT alludes to a wide assortment of gadgets, for example, heart observing inserts, biochip transponders on livestock, electric mollusks in beach front waters, cars with worked in sensors, or field activity gadgets that help firemen in search and salvage. Current market models incorporate indoor regulator frameworks and washer/dryers that use Wi-Fi for remote checking.In this undertaking we depicts about "Accident identification and Rescue system". We are involving Raspberry pi in our undertaking. At the point when the framework is turned on, LED will be ON demonstrating that power is provided to the circuit. The vibration sensors that we are involving in our task sense the obstruction, and afterward it sends hinder to Raspberry Pi. The GPS gets the area of the vehicle that met with a mishap and gives the data back. This data will be shipped off a portable number through a WhatsApp message. This message will be gotten utilizing web present in the circuit. The message will give the data of longitude and scope values. Utilizing these qualities the place of the vehicle can be assessed. Modem performs regulation during transmission and performs demodulation during gathering.

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2. LITERATURE SURVEY

Numerous specialists did their examinations on accident identification framework. Aishwarya S.R expained an IoT based vehicle mishap counteraction and global positioning framework for night drivers .In this paper gives Eye Blink Monitoring System (EBM) that alarms the subject during condition of drowsiness.[1] Sadhana B have made sense of Smart protective cap canny wellbeing for motorcyclist utilizing raspberry pi and open CV. The thought is gotten subsequent to realizing that there is expanded number of deadly street mishaps throughout the long term. This task is intended to present wellbeing frameworks for the motorcyclist to wear the head protector properly.[2] Sarika R. Gujar made sense of cutting edge Embedded System of Vehicle Accident Detection and Tracking System. The principal objective of this framework is to initially identify the mishap area and require the crisis administrations. Vehicle mishap identification is conceivable with the assistance of sensors. A GPS and GSM module assists with following the vehicle. [3] Shailesh Bhavthankar made sense of Wireless System for Vehicle Accident Detection and Reporting utilizing Accelerometer and GPS. In this paper, Accelerometer sensor is utilized to distinguish crash and GPS give area of vehicle. In the event of any mishap, the framework send computerized message to the prearranged number, for example, relative or crisis clinical benefits by means of GSM. [4] Jagdish A.Patel made sense of Raspberry Pi based savvy home. This paper targets planning a fundamental home computerization application on Raspberry Pi through Interfacing camera as security reason and the calculation for the equivalent is executed in created in python climate which is the default programming climate given by Raspberry Pi.

3. BLOCK DIAGRAM

The block outline of the proposed framework comprises of the accompanying parts: Raspberry Pi, vibration sensor, GPS Modem, L293D engine drive, drove, signal, power supply (12v DC).
The above parts are coordinated according to the block outline given in Fig 1
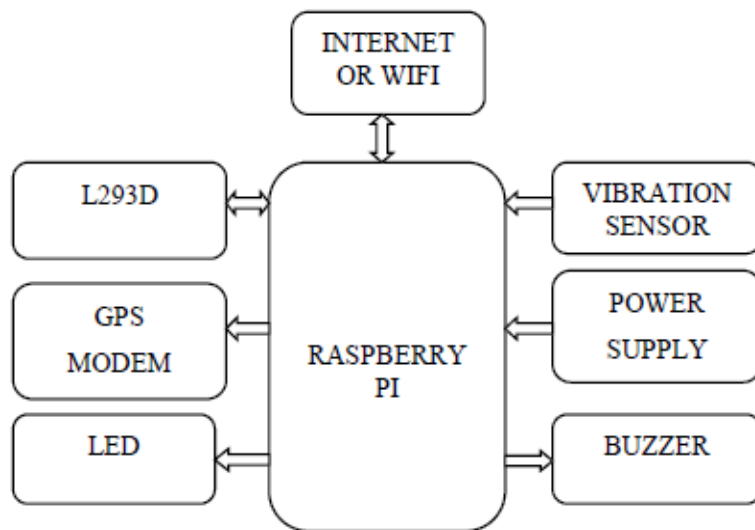

Fig 1: Block diagram of implemented system.

A. RASPBERRY PI
The Raspberry Pi is a Visa measured single-board PC. Raspberry Pi has a Broadcom BCM2835 framework on chip (SoC),which incorporates an ARM1176JZFS 700 MHz processor, Video Core IV GPU ,and was initially transported with 256 megabytes of RAM, later updated (Model B and Model B+) to 512 MB. Pi 2 Model B runs 6X Faster than the B+, and accompanies 1GB of RAM- - that is twofold how much RAM of the past model.
B. Vibration Sensor
Regardless of the advances made in vibration observing and examination gear, the choice of sensors and how they are mounted on a machine stay basic variables in deciding the progress of any checking program. Cash saved by introducing sub-par sensors is definitely not a judicious venture since the data gave about the machine of revenue frequently isn't exact or dependable.
C. L293D Motor Driver
It deals with the idea of H-span. H-span is a circuit which permits the voltage to be flown in one or the other course. As you probably are aware voltage need to adjust its course for having the option to turn the engine in clockwise or anticlockwise bearing, thus H-span IC are great for driving a DC engine.
D. GPS Device
The Global Positioning System (GPS) is a space based worldwide route satellite framework (GNSS) that gives dependable area and time development in all climate and times anyplace on the globe. The GPS satellites go about as a kind of perspective point from which recipients on the ground recognize their situation. The essential route standard depends on the estimation of pseudo reaches between the client and four satellites.
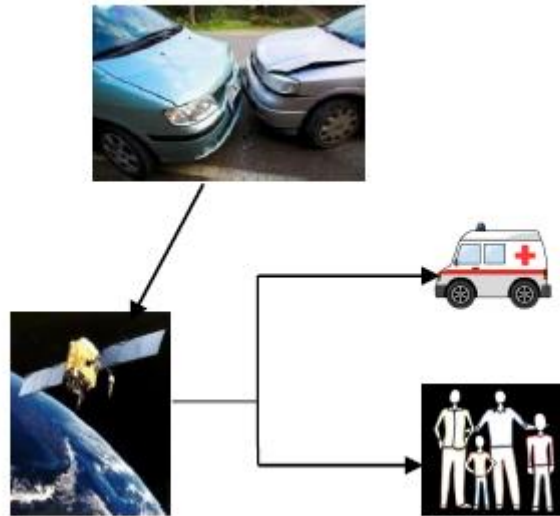
4. HARDWARE IMPLEMENTATION

Fig 2: hardware implementation of system.

A. WORKING PRINCIPLE

IN THIS TASK WE ARE UTILIZING A RASPBERRY PI3. AT THE POINT WHEN THE FRAMEWORK IS TURNED ON, LED WILL BE ON DEMONSTRATING THAT THE POWER IS PROVIDED TO THE CIRCUIT. AT THE POINT WHEN THE VIBRATION SENSOR DETECTS ANY HINDRANCE, THEY SEND HINDER TO RASPBERRY PI.

THE GPS GETS THE AREA OF THE VEHICLE THAT MET WITH A MISHAP AND GIVES THE DATA BACK. THIS DATA WILL BE SHIPPED OFF A VERSATILE NUMBER THROUGH WHATSAPP MESSAGE. THIS MESSAGE WILL BE GOTTEN UTILIZING WEB PRESENT IN THE CIRCUIT. THIS MESSAGE WILL GIVE THE DATA OF LONGITUDE AND SCOPE VALUES. UTILIZING THESE QUALITIES THE PLACE OF THE VEHICLE CAN BE ASSESSED. THE GOT INFORMATION IS GIVEN TO THE RASPBERRY PI. CORRESPONDINGLY IT GIVES AN AFFIRMATION AS A WHATSAPP MESSAGE TO THE CELL PHONE. DRIVEN UTILIZED IN THE CIRCUIT SHOWS THE GATHERING OF MESSAGES. THE RASPBERRY PI COMMUNICATED TO GPS MODEM THROUGH A WEB, WHERE THE GADGETS ARE ENACTED UTILIZING SELECT LINES INSIDE WORKED IN THE WEB. WEB IS INTERACTED TO RASPBERRY PI BY MEANS OF COMMUNICATE AND GET PIN.LED IS CONNECTED TO ANY PORTS OF RASPBERRY PI; IT IS UTILIZED TO SHOW THE ONGOING STATUS OF THE GPS MODEM, WHETHER INFORMATION IS BEING PERUSED FROM GPS.
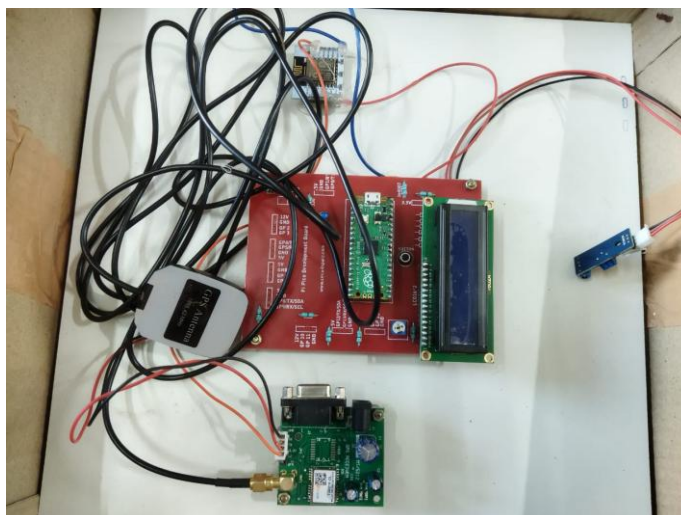

Fig 4: Working of the system.

5. ADVANTAGES

We can screen the speed of the vehicle.
• We can track down the area of the vehicle.
• Ready message to cell phone for distant data.
• Portable number can be changed whenever.

6. CONSTRAINTS:

➢ Costlier.
➢ Sending information not secure.
➢ This framework isn't appropriate for unfortunate organization association places.

7. APPLICATIONS:

➢ Car and transport vehicles.
➢ Security, remote checking and transportation and strategies.
➢ This framework additionally can be connected with vehicle alarming framework.

8.CONCLUSION:

The proposed framework involves the IoT for vehicle mishap discovery and disturbing the specialists with respect to mishaps, vehicle following utilizing GPS Modem. In this undertaking we have planned IoT based vehicle mishap recognition and global positioning framework utilizing GPS Modem. Consequently IoT can change the manner in which the framework connect and answer for the assortment of utilizations particularly in the event of traffic signal.

9. FUTURE SCOPE:

This framework can be connected with vehicle airbag framework that keeps vehicle inhabitants from striking inside articles, for example, the directing wheel or window. This can likewise be created by interconnecting a camera to the regulator module that snaps the picture of the mishap spot that makes the following more straightforward.

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