Internet of Things (IOT) Based Vehicle Monitoring System.

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Abstract:-With the advancement in Internet of things (IoT) almost every device can be monitored from web and produce data for various analyses. Recent reports show the ability of IoT in different applications like healthcare, industrial sector and government sectors. Our work is to make use of IoT for the vehicle condition monitoring i.e., with respect to various factors including temperature inside the engine cabin, vibrations caused to the vehicle from external sources, speed and location of the vehicle. All the above factors can play a major role in detection of accident. Which is further useful in safeguarding the victim? Our main aim is to save the lives of accident victims by sending the information regarding the accident to the concerned persons or systems. We make it possible by using different sensors and an MCU to process and send data to cloud. The sensors includes SW420 vibration detector for detecting the impact levels, ds18b20 temperature sensor for sensing the temperature, L80 GPS module for locating the vehicle, ESP8266 module for connecting the system with web and finally Adriano UNO microcontroller for processing .The results obtained shows the effectiveness of the system when compared to the other existing systems.

Keywords: Internet of Things (IOT), DS18B20, ESP8266, SW420, MCU's.

Fig. 1. Pie Chart Showing Reasons for Road Accidents.

I.   INTRODUCTION

All in all, the vehicle populace is developing at a quicker rate than the monetary development. World Health Organization (WHO) has uncovered in its first historically speaking worldwide status give an account of street security that more incredible street mishaps in India than anyplace else on the planet. In 2016, more than 5.5 lakh instances of street mishaps were enlisted and more than 3 lakh individuals confronted demise. No less than 22 individuals pass on consistently in street mishaps.
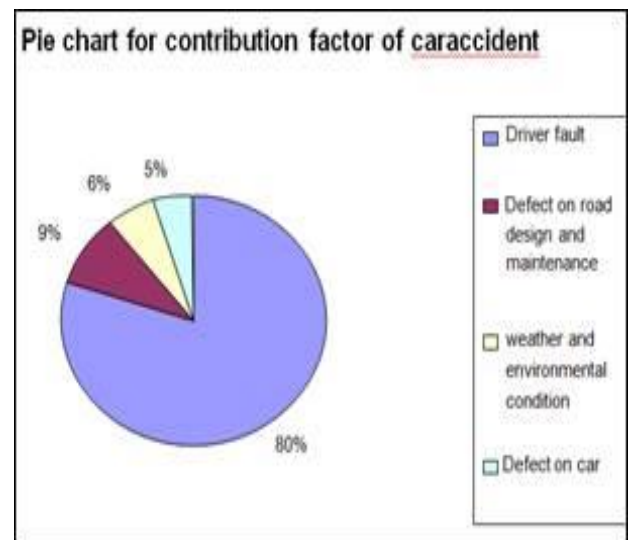
On the off chance that we watch the Fig-1 graph, the significant passing's created in street mishaps are because of driver blame which can be over speed, conveying explosives. Despite the fact that street transport security is an overall issue, India needs to enhance street wellbeing measures by guaranteeing appropriate reconnaissance of vehicles. This shows it is not just essential for everybody to take after specific guidelines however ought to be made responsible on the off chance that they don't take after the standards. In this way, the reconnaissance framework ought to guarantee that it takes note of everything about the vehicle and passes the data consequently.

II.   OVERVIEW

It decides the prerequisites of another framework and examine on item and asset necessity, which is required for the fruitful framework. The item prerequisite incorporates info and yield necessities it gives the needs in term of contribution to create the required yield. The asset

necessities characterize to sum things up about the product and equipment that are expected to accomplish the required usefulness.
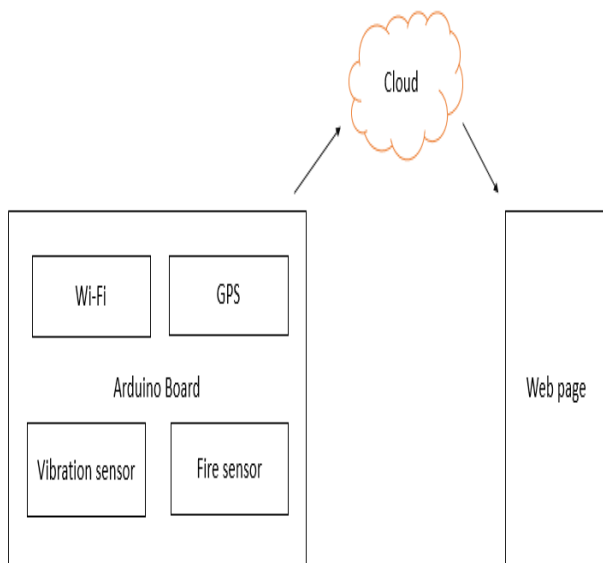

Fig. 2. Block Diagram.

A. Hardware Requirements

- Arduino UNO Board.
- ESP8266 Wi-Fi Module.
- DS18B20 Fire Sensor.
- SW420 Vibration Sensor.
- L80 GPS Module.

B. Software Requirements

- Arduino IDE (Integrated Development Environment)

III. PROJECT DESCRIPTION

A. Working with L80 GPS

L80 GPS module with an inserted fix radio wire (15mmx15mmx4mm) and LNA brings elite of MTK situating motor to the modern applications. It can accomplish the business' most elevated amount of affectability, exactness and TTFF with the least power utilization in a little impression without lead bundle. With 66 look stations and 22 synchronous following stations, it secures and tracks satellites in the most brief time even at indoor flag level. The installed streak memory gives ability to clients to store some helpful route information and takes into consideration future updates.

B. Ds18b20 Temperature Sensor

This sensor is known as a One-Wire advanced temperature sensor. The one-wire alludes to the route in which you converse with the sensor and get data from it. This "family" of sensors uses a particular convention for how you get data from it. This implies we require some extraordinary libraries to add to the ways our Particle gadget can connect with sensors.

- One-Wire library
- Dallas Temperature control library

You'll have to download both from GitHub and duplicate the .cop and .h records from the firmware organizer to your venture envelope.

The sensor itself is truly simple to wire up. You'll notice is has three pins - one for power, one for ground and one for information (we read from this). We wire the computerized flag stick to an advanced stick on the Particle board.

C. Vibration Detection

The Vibration module in view of the vibration sensor SW-420 and Comparator LM393 to identify if there is any vibration that past the edge. The edge can be balanced by the on-board potentiometer.

At the point when this no vibration, this module yield rationale LOW the flag demonstrates LED light, and the other way around.

D. DESP 8266 Working

ESP8266 is a great, ease Wi-Fi module appropriate for adding Wi-Fi usefulness to a current microcontroller extend by means of a UART serial association. The module can even be reinvented to go about as an independent Wi-Fi associated device–just include control!

The component rundown is noteworthy and incorporates:

- 802.11 B/G/N Convention
- Wi-Fi Direct (P2P), delicate AP

E. Building Graphical User Interface (GUI)

There are three steps involved in building a Visual Basic application:

1. Draw the user interface

2. Assign properties to controls

3. Attach code to controls.

IV. OUTPUT

S.No	Date & Time	Latitude	Longitude	Speed	Vibration	Temperature
1	2015-05-20 00:33	13.23564	80.46423	45	0	35
2	2015-05-20 00:34	13.23564	80.46423	45	0	35
3	2015-05-20 00:35	13.23564	80.46423	45	0	35
4	2015-05-20 00:36	13.23564	80.46423	45	0	35
5	2015-05-20 00:37	13.23564	80.46423	45	0	35

Table 1: Output of Project.

The above showing the results from webpage which were taken from different sensors. The output is monitored continuously, giving the date and time along with location and other necessary values.

V. CONCLUSION

This venture demonstrates the new procedures utilizing GSM module, DS18B20 temperature sensor, SW420 vibration sensor and UNO board. In this procedure the weariness will be identified quickly and general traps the occasion's driver and outsider. Through the proposed extend, a clever vehicle framework for mischance recognition and improving the world a much and safe place to live. The underneath is where mischance has jumped out at the vehicle and this guide is created itself and shows the area of the casualty for protecting reason.
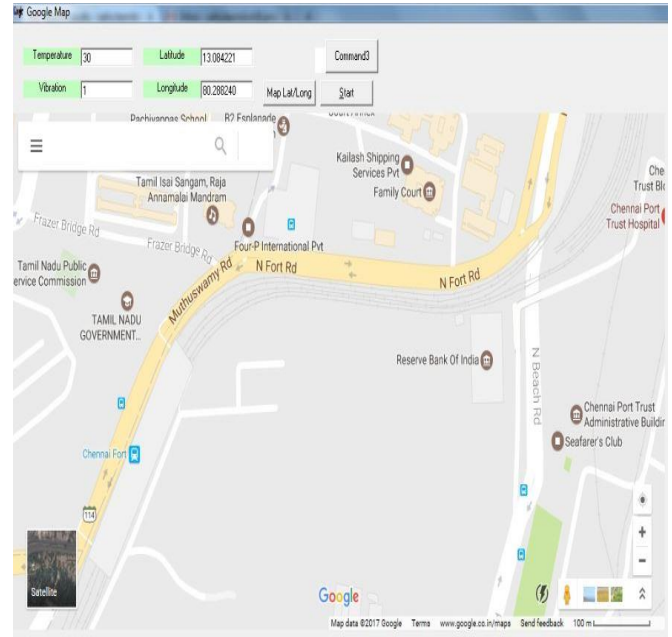

Fig. 3. Map Showing Accident Location.

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