

Web Of Things Based On Vehicle Checking And Vehicular Emergency System

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Abstract: Advances in advances and accessibility of affordable open source equipment frameworks are setting another pattern in framework structuring. Utilization of innovations like Internet of Things (IoT) or Web of Things can facilitate the procedure of information gathering and investigation. The fundamental target of the paper is to portray a framework which can screen or track the area and vehicle parameters of various test vehicles from an incorporated spot for innovative work purposes and to store information of testing parameters of those vehicles on the server for further examination and records. Framework configuration will be summed up for observing diverse parameters like Location, Vehicle speed, Engine compartment temperature, Fuel utilization and some more. Proposed framework utilizes Open source controller and GPS/GSM/GPRS module for information exchange application.

Keywords— IoT; Vehicle Monitoring; Arduino; GPS/GSM/GPRS technology

1. INTRODUCTION

Vehicle following/checking framework is getting higher significance in present day period. Advances in advances like Internet of Things (IoT), Ubiquitous registering and accessibility of conservative Open source equipment frameworks, is setting another pattern in framework plan. Checking of test vehicles is a fundamental movement for the Research and Development group of a car organization which causes them to roll out required improvements in vehicle parts or configuration, contingent upon perceptions and consequences of the test vehicle. Keeping up records for test vehicles physically needs time and labor. Some of the time keeping records physically for numerous vehicles can wind up unpredictable and troublesome for information investigation and

correlation think about.

Utilization of advances like Internet of Things (IoT) can facilitate the procedure of information gathering and examination. The Internet of things is only systems administration of physical gadgets, vehicles or some other associated gadgets with hardware, programming, sensors, arrange network which empowers these gadgets to gather and trade information. IoT enables items to be detected or potentially controlled remotely crosswise over existing system foundation. "Things" in the IoT can allude to wide assortment of gadgets. These gadgets gather helpful information utilizing different innovations and after that speak with different gadgets.

2. OBJECTIVE

The framework is intended for testing of vehicles which will help innovative work group in car businesses for structure approval of the vehicles. Proto vehicles need to experience distinctive tests as indicated by car measures including indoor and open air testing. These tests are vital for consistent upgrades and configuration change of the vehicles. The proposed framework will be utilized for outside testing of vehicles. Table I gives open air tests performed on vehicle and individual vehicle parameters to be watched. The Internet of things (IOT) is the between systems administration of physical gadgets, vehicles, structures, and different things installed with hardware, programming, sensors, actuators, and system availability which empower these items to gather and exchange data.

The IOT enables items to be detected or controlled remotely across existing system infrastructure creating open doors for more straightforward of the physical world into computer-based systems and resulting in improved efficiency, accuracy and economic benefit in addition to reduced human intervention. Only IOT can connect physical world to the web. The IOT is more than internet connected consumer gadgets. Sooner or later every IT organization will need to create a framework to support it. Energy companies already use networked sensors to measure vibrations in turbines. They feed that data through the network to computing systems that analyses it to predict when machines will need maintenance and when they will fail. Jet engine manufacturers embed sensors that

measure temperature, pressure, and other conditions to improve their products..

Outdoor tests performed on vehicle	Observed vehicle parameters
Speedometer and odometer calibration	Vehicle speed, Vehicle location coordinates
Average fuel consumption	Fuel level, Distance travelled
Temperature mapping	Engine compartment temperature
Endurance running	Vehicle location, Vehicle speed, Engine temperature, Fuel level

TABLE I. OUTDOOR TESTS PERFORMED ON VEHICLE

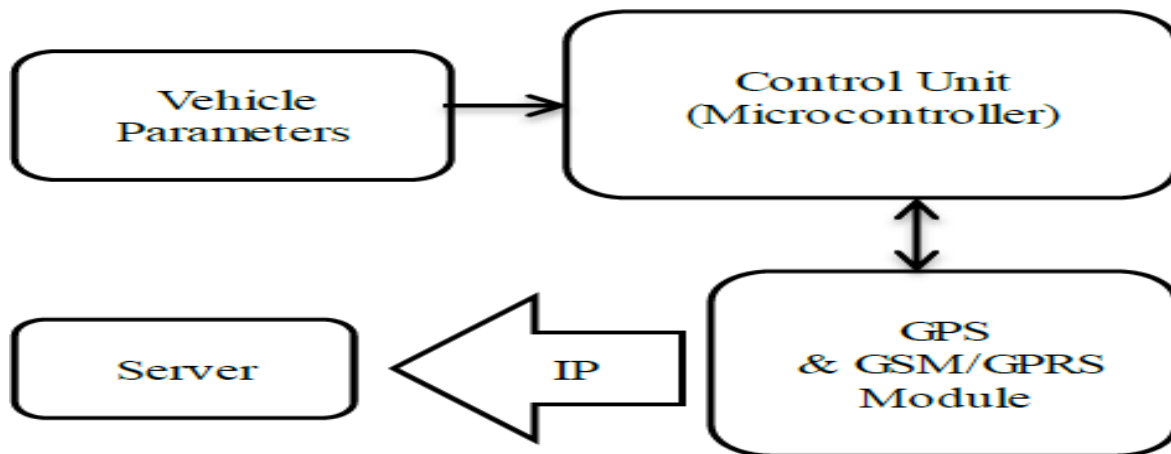


Fig. 1. Proposed system for vehicle tracking/monitoring

3. WORK DONE

Numerous specialists have added to the advancement of Intelligent Transportation System (ITS) for different applications like Vehicle position following frameworks, Vehicle against robbery following frameworks, Bus Tracking framework [2][5], Logistics the board framework [4] and Fleet administration frameworks, SMS based vehicle following framework to exchange the scope and longitude

from GPS and car information to end frameworks [3]. A great deal of research has likewise been done on Web-based vehicle following framework, where the scope and longitude are transmitted to the server through HTTP conventions. A few analysts have additionally created Open source stage for GPS following [1]. As innovation progresses, specialists are investigating Internet of Things (IoT) for vehicle following, where the framework has a GPS to decide the present area of the vehicle.

Investigation of these frameworks gave the essential structure of the framework. Joining GPS, GPRS, information obtaining and IoT to have a database of testing vehicle for innovative work reason for existing is the primary target of this paper.

4. METHODOLOGY

Proposed framework principally comprises of a microcontroller and GPS + GPRS module. Vehicle parameters and area facilitates from GPS module are bolstered to the controller. Controller exchanges this information to server with the assistance of GSM/GPRS innovation. Sim808 module is utilized for GPS and GSM/GPRS availability alongside Arduino controller. Commonplace vehicle parameters checked are vehicle area, vehicle speed,

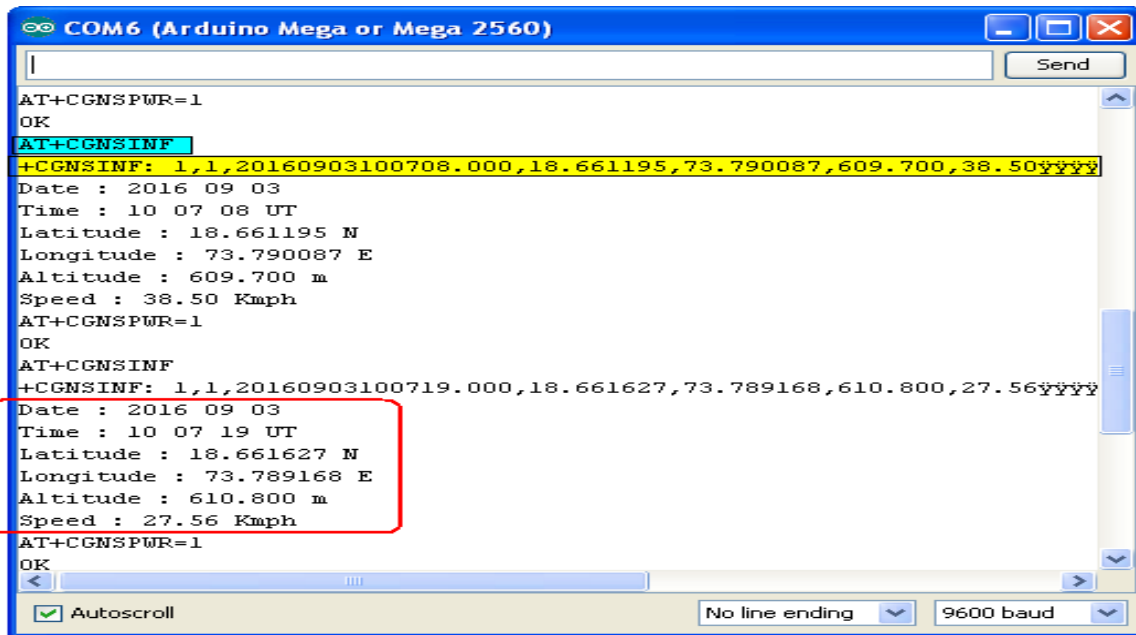
motor compartment temperature, fuel level and so forth. These parameters are put away in database on a web server and a website page is made to show vehicle parameters information. All the while vehicle area information is connected with Google maps to show vehicle area on guide.

5. HARDWARE

I. ARDUINO

Arduino is an open source stage of microcontroller having distinctive variations of sheets relying upon controller chip utilized. For the most part ATMEGA arrangement 8 bit controller chips are utilized. A few variations have ARM based 32 bit controllers. Arduino MEGA 2560 controller board is utilized in this venture which is having ATMEGA2560 (8 bit) controller chip.

Fig 2: Vehicle location and vehicle speed from test vehicle on Arduino



II. SIM808

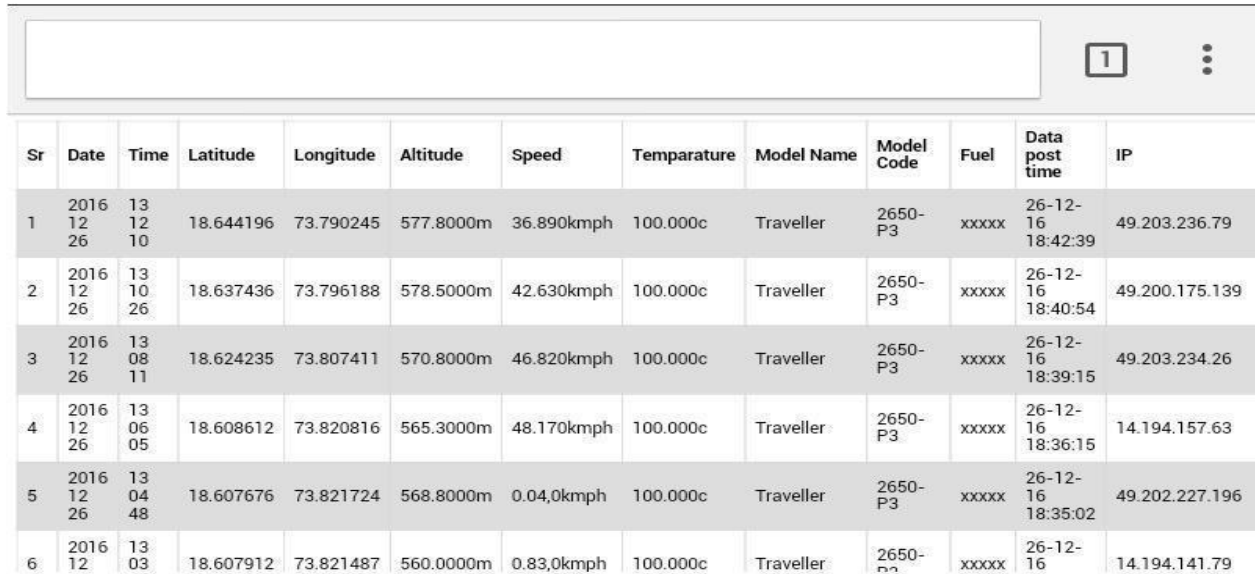
SIM808 is incorporated with superior GSM/GPRS motor, a GPS motor and BT motor. GSM/GPRS motor is quad band GSM/GPRS module that chips away at 850 MHz, 900 MHz, 1800 MHz, 1900 MHz frequencies and backings class 12/class 10 GPRS. A GPS arrangement offers stand out securing and following affectability. SIM808 is planned with power sparing procedure so the present utilization is as low as 1mA in rest mode. SIM808 coordinates TCP/IP convention and broadened TCP/IP AT directions which are helpful

for information exchange.

6. RESULTS AND VALIDATION

SIM808 is arranged and interfaced with Arduino to get GPS parameters alongside vehicle speed. Arduino is customized to process information of vehicle parameters and send it to a database on a webserver. SIM808 module takes a shot AT directions which can be given by means of Arduino code. These directions and the reactions of the SIM808 module can be checked utilizing Arduino's sequential screen.

Fig 3: Data Receive from System Hardware to the Data Base on Web server



Sr	Date	Time	Latitude	Longitude	Altitude	Speed	Temperature	Model Name	Model Code	Fuel	Data post time	IP
1	2016 12 26	13 12 10	18.644196	73.790245	577.8000m	36.890kmph	100.000c	Traveller	2650- P3	xxxxx	26-12- 16 18:42:39	49.203.236.79
2	2016 12 26	13 10 26	18.637436	73.796188	578.5000m	42.630kmph	100.000c	Traveller	2650- P3	xxxxx	26-12- 16 18:40:54	49.200.175.139
3	2016 12 26	13 08 11	18.624235	73.807411	570.8000m	46.820kmph	100.000c	Traveller	2650- P3	xxxxx	26-12- 16 18:39:15	49.203.234.26
4	2016 12 26	13 06 05	18.608612	73.820816	565.3000m	48.170kmph	100.000c	Traveller	2650- P3	xxxxx	26-12- 16 18:36:15	14.194.157.63
5	2016 12 26	13 04 48	18.607676	73.821724	568.8000m	0.04,0kmph	100.000c	Traveller	2650- P3	xxxxx	26-12- 16 18:35:02	49.202.227.196
6	2016 12 26	13 03 03	18.607912	73.821487	560.0000m	0.83,0kmph	100.000c	Traveller	2650- P3	xxxxx	26-12- 16	14.194.141.79

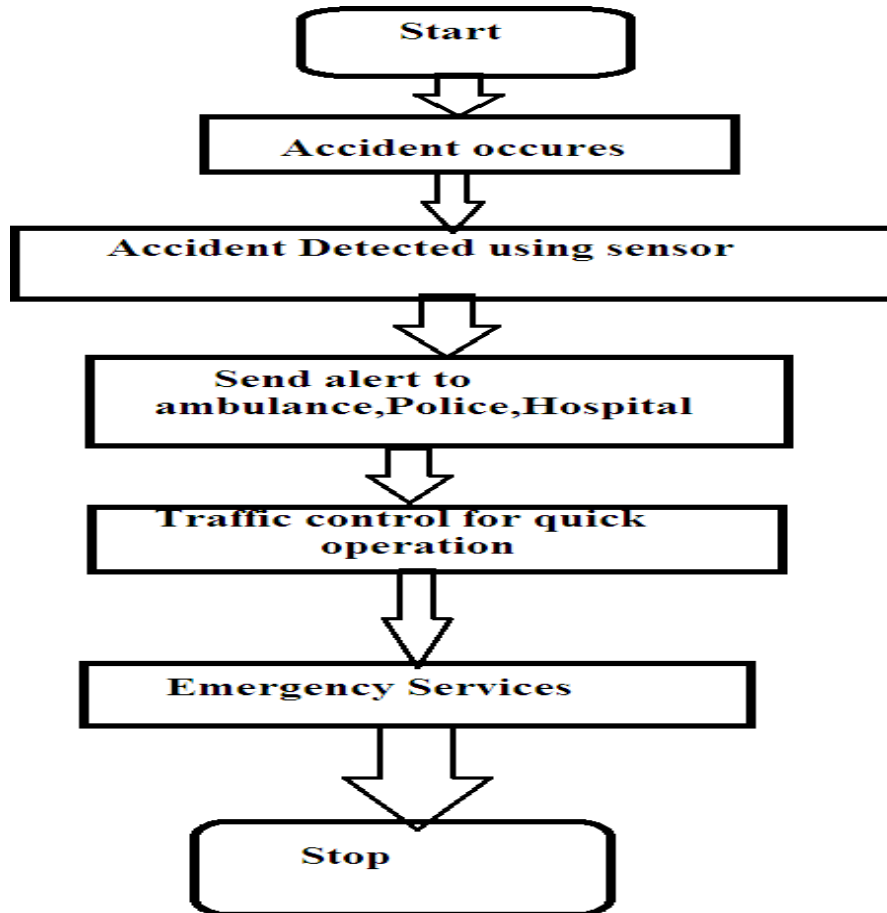
A webpage is created to display data of vehicle parameters sent by Arduino and SIM808 hardware system to the database. This data is also linked with the Google maps for real time location display of vehicle on map.

6.1 Webserver

To interact with users, a website has been developed where a user with the hardware can create an account and monitor all the vehicle installed this system. User will get notification if any vehicle gets into accident through the website account, mobile application and mobile SMS with the exact GPS location of accident. Also any police station and hospital can open an account from the website and will get notification through website and mobile SMS about an accident with the accident location and direction towards the accident location using google map. It considers a network with N mobile unlicensed nodes that move in an environment according to some stochastic mobility models. It also assumes that entire spectrum is divided into number of M non-overlapping

orthogonal channels having different bandwidth. The access to each licensed channel is regulated by fixed duration time slots. Slot timing is assumed to be broadcast by the primary system. Before transmitting its message, each transmitter node, which is a node with the message, first selects a path node and a frequency channel to copy the message. After the path and channel selection, the transmitter node negotiates and handshakes with its path node and declares the selected channel frequency to the path. The communication needed for this coordination is assumed to be accomplished by a fixed length frequency hopping sequence (FHS) that is composed of K distinct licensed channels. In each time slot, each node consecutively hops on FHS within a given order to transmit and receive a coordination packet. The aim of coordination packet that is generated by a node with message is to inform its path about the frequency channel decided for the message copying.

Flow chart of Vehicle Monitoring



ADVANTAGES

1. Totally advanced version of Ambulance system with vehicle tracking.
2. With the help of GPS we get the latitude and longitude of the detected position.
3. The ambulance would be able to cross all the traffic junctions without waiting
4. This Scheme is fully automated, thus it finds the accident spot, controls the traffic

lights, helping to reach the hospital in time.

APPLICATIONS

1. Mainly used for Ambulance vehicles
2. Fire Engines;
3. Other Life Saving Emergency Vehicles
4. All vehicle tracking system.

Fig 4: Vehicle location Display on Google maps



7. CONCLUSION

The framework will be utilized to screen or track the area and vehicle parameters of various test vehicles from unified spot for the innovative work reason and to store information of testing parameters of those vehicles on the server for further examination and records. IoT and open source stage makes this venture exceptionally powerful, proficient and financially savvy; accordingly it tends to be utilized to sum up the checking of various vehicle parameters. The system is very much helpful for avoidance of road accidents and ambulance supply. Using this system, we can do real time surveillance of vehicles and emergency systems. This Scheme is fully automated, thus it finds the accident spot, controls the traffic lights, helping to reach the hospital in time.

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International Journal of Research in Advent Technology, Special Issue, March 2019

E-ISSN: 2321-9637

International Conference on Technological Emerging Challenges (ICTEC-2019)

Available online at www.ijrat.org

Engineering Research, Volume 5, Issue 2,
February-2014.