

An Intelligent Real Time Vehicle Detecting System For Taxis

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Abstract:

Vehicle detecting System is used to detect the location of individual vehicles with use of specified software that collects the data and display the comprehensive picture of vehicle locations. “The Intelligent Realtime Vehicle Detecting” systems can help drivers to avoid accidents, and can even detect speed, pressure, fuel etc., They can also be used in reducing pollution by using smoke sensor. In spite of their prospective, most intelligent systems are not yet available in the market. Keeping all these reasons in mind we decided to target the call-taxi markets which is reaching its zenith nowadays. Therefore our system is cost efficient and compatible to all types of taxis and cab services. As taxi services is a fast growing industry, this project develops a system which has continuous real time monitoring along with many useful sensors for monitoring vehicle/taxi ,thus helping to make the taxis more safer.

Keywords:

Intelligent Realtime Vehicle System, Ultrasonic sensor, Pressure Sensor, Smoke sensor, GPS, GSM, Arduino, Webpage.

Introduction:

Internet of Things is playing a major role in all aspects of our day to day life. Internet of things is the inter-linking of all mechanical, digital devices and controlling them with internet for making the routine human activities much more easier and convenient. Vehicle Tracking System or vehicle monitoring system was initially developed for helping the drivers to drive in a correct path. A few years later researchers enhanced the same system by using many shortest path algorithms for finding the nearest routes for the drivers. Further IoT played major role along with sensors, with the help of sensors like ultrasonic sensor the developers developed a model for alerting the drivers when any obstacle comes on

their way by using ultrasonic waves. Speed sensors were used for controlling and intimating the drivers when the vehicle is out of control at high speed. Keeping all these pain-points in mind we are proposing “An Intelligent realtime Vehicle Detecting System for Taxis”. Thus our main objective is to provide an intelligent realtime vehicle detecting system for taxis and private cabs. This system is mainly developed for monitoring the most essential parameters of the vehicle such as speed, pressure, smoke level and fuel level. The real time data is processed by the arduino micro-controller and through GSM it reaches the webpage as well as the LCD Display unit and gets displayed. The display is available in both desktop view for the owner of the private cab as well as mobile view for the taxi driver. Through this setup the owner can monitor the essential parameters of the vehicle from anywhere in the world and at anytime. He can also add delete and update the details of the driver. In future it can be used for the indoor and outdoor testing in car making industries.

Literature Survey:

Taxi services have increasingly attracted researchers attention in the field of urban transport, and many previous studies on urban taxi operations, dispatching and management have been conducted in recent

years. Marianne A. Azer, Ahmed Elshafie [1] has proposed a system called real time social network based traffic monitoring system this system mainly concentrates on traffic monitoring so that the drivers can choose the smartest part instead of shortest path. The paper mainly concentrates in tracking the smartest route using GPS which will be very useful for people who love travelling to new places. Mayuresh Desai [2] proposed a system called internet of things based vehicle monitoring system. This system mainly targets the vehicle manufacturing industries so that it will help the research and development team in vehicle manufacturing industries for design verification and validation. This process is done to check both the indoor and outdoor reaction of the vehicles. The concepts of wireless sensor network plays a major role in this system. Thiyagarajan Manihatty Bojan [3] proposed his idea in the name of vehicular tracking system-an open source approach (vertiguo) it mainly uses gsm and gprs tracking of the cabs. This will be helpful for detecting the distance between one vehicle and another. This application can be installed and monitored using mobile phones. This can also be used in courier tracking, parceling services, long distance postal services etc., Mohammad Ahmar Khan, Sarfraz Fayaz Khan [4] proposed his idea in the stream of Iot and he named it as IoT based framework for

vehicle over speed detection. This proposal mainly used speed sensors to detect the speed and acceleration of all the four wheels at the same time. Only speed parameter is monitored in this proposal other important parameters such as fuel capacity, obstacle management, smoke management etc., A.J. Fernández-Ares [5] also proposed a system for traffic monitoring and made an analysis using all the data available to prove the shortest path among several paths available in a particular place.

Proposed System:

An Intelligent Realtime Vehicle Detecting System for Taxis is mainly proposed for satisfying the basic and highly necessary needs of both owner and driver. This system continuously tracks the location using GPS and monitors the important parameters of the vehicle such as speed, pressure, smoke level and fuel level.

Global Positioning System:

GPS systems are tremendously versatile. In the whole setup the GPS will be fixed inside the taxis and cabs so it can guide the drivers to their terminus by using digital maps and pre-recorded voice commands. It can also be used to track a vehicle's mobility wherever it moves. During the time of travel, GPS

tracking devices fitted to taxis or private cabs shows where those vehicles go and how long they spend at each location.



Arduino Micro-controller:

Then the raw data is then transmitted back to the office with the help of arduino micro-controller. The micro-controller the converts the raw data into processed data and then it is displayed on a computer dashboard, allowing administrator to monitor the status of their vehicles in real time. It mainly displays the essential parameters like speed limit, fuel level, smoke level and pressure of the cabs. This is also another way of measuring the wellness of the vehicle as well as the employees.



Fuel Rail Sensor:

The fuel rail sensor, commonly referred to as the fuel level sensor, is an important engine management component of our proposed system that can be commonly fitted on diesel, and some gasoline injected vehicles. Once the fuel sensor is fitted it becomes a part of the vehicle's fuel system and it indicates the level of fuel available to both owner and driver. The sensor sends this signal to the computer(webpage), as well as LCD Display Unit which then monitored by the owner and driver.



Pressure Sensor:

The purpose of the tire pressure monitoring system (TPMS) in the vehicle is to intimate you that at least one or more tires are significantly under-inflated, possibly

creating unsafe driving conditions.



Mini Accelerator is used to know whether the driver is going in right speed and if they are going in over speed it will give over speed notification to the owner as well as the driver. The owner can view the status of the vehicle along with the details of the driver by using his admin login in the webpage. The webpage consists of a login page. The admin (owner) can login the webpage using the correct user-id and password. The details of the driver can be inserted, deleted and updated. The changes can be viewed by the admin user in the webpage. The webpage is developed using PHP language. The owner can also view the real time values of speed, air-pressure, smoke level and fuel level. So that the owner will always be aware of the status of his vehicle and the status of the driver. The driver can view the changes and indications in the webpage through his own mobile phone during the time of travel. The user can also directly print the real time data from anywhere and at anytime.

Block Diagram:

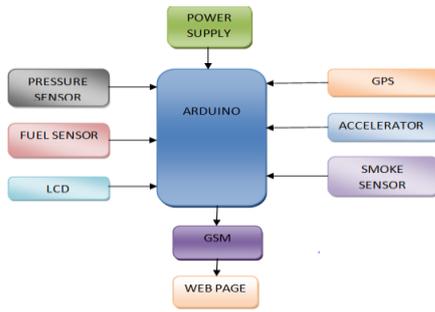


Fig 1.1 : Block Diagram for the proposed model

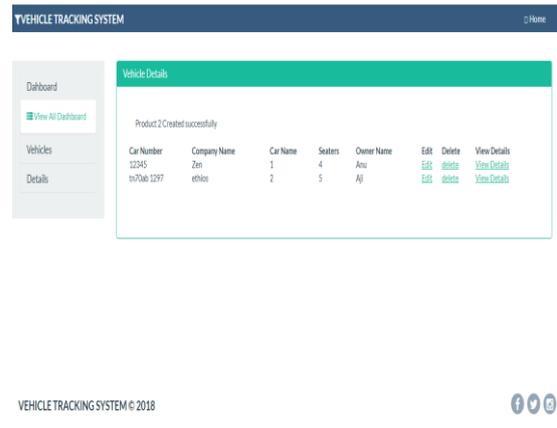


Fig 1.3: Dashboard details module of the webpage

Results:

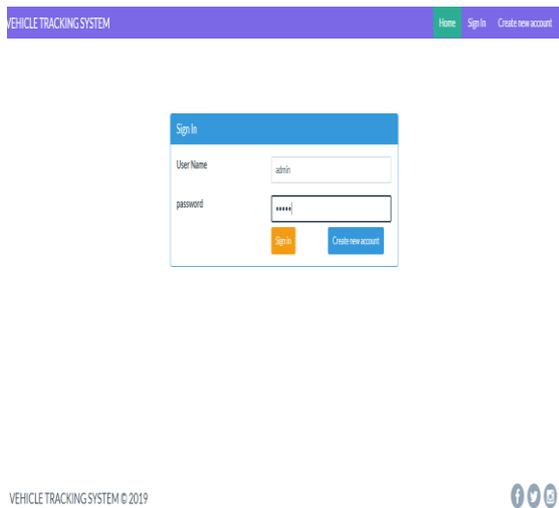


Fig 1.2 Login module of the webpage for both admin and driver

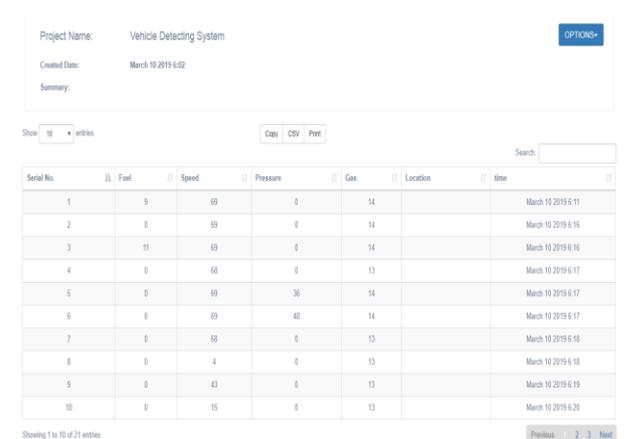


Fig 1.4: Real time display module of the webpage

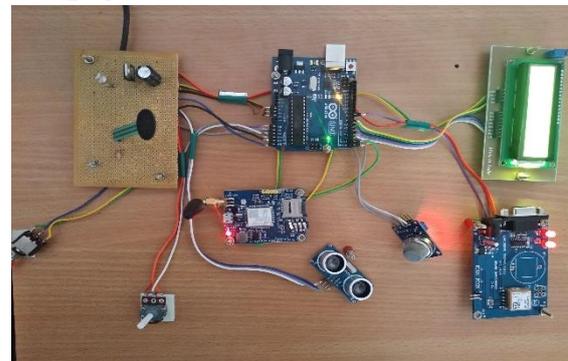


Fig 1.5: Hardware Setup

Conclusion:

Thus our proposed system will be helpful for the taxi drivers as well as owners while monitoring the efficiency of the vehicles. It can also reduce the number of accidents. In future this system can be enhanced for indoor and outdoor testing in the car manufacturing industries.

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