Real-Time Vehicle Tracking and Monitoring System Using GPS and Cloud Computing

Prem Prakash Agrawal
Department of Electronics and Communication Engineering,
Galgotias University, Yamuna Expressway,
Greater Noida, Uttar Pradesh.
Email ID: premprakash@Galgotiasuniversity.edu.in

ABSTRACT: ***The objective of this paper is to survey the past work of vehicle tracking, checking and alarming framework, to arrange different philosophies and distinguish new patterns. Vehicle tracking, checking and alarming framework generally solve the challenging issues. There are different difficulties experience in vehicle tracking, checking and cautioning because of lack in legitimate ongoing vehicle area and issue of alarming framework. GPS (Global Positioning System) is most broadly utilized innovation for vehicle tracking and keep standard observing of vehicle. The target of tracking framework is to oversee and control the vehicle utilizing GPS Trans receiver to know the present area of the vehicle. This data is then accessible for the approved clients progressively and each authorized vehicle proprietor can get to the information in the cloud utilizing a web-based interface whenever anyplace. This framework along these lines gives an exact position of the vehicle, speed, driver's condition and gives a savvy checking of the vehicle remotely. The GPS based minimal effort shrewd vehicle tracking framework can be effectively structured and applied in the urban condition of a creating nation like India.***

KEYWORDS: Cloud Computing, Cell, GPS, GSM, Microcontroller.

INTRODUCTION

Transport is one of the significant foundations of any nation. The fundamental issue about the transportation is the vulnerability of holding up time because of car influxes and some other issues live strange molding. The security of private and open vehicles is a significant concern so GPS vehicle tracking framework guarantees their wellbeing while at the same time voyaging. In the current framework, diverse tracking methods are utilized, for example, incorporation with Google maps, Automatic travel headings or ongoing tracking and appearance time expectation.

Radio Frequency Identification is a remote ID innovation that has been utilized in numerous fields including strong state checking, human, item and creature. The usage of RFID in any distinguishing proof and observing framework can improve the checking framework can improve the observing framework and improve the general execution of a framework with minimal effort. Cautioning framework utilizes GSM or GPRS for sending data, GSM is, for the most part, utilized when contrasted with the GPRS. GSM is utilized to advise the client about the accurate area regarding the vehicle. [1], [2]

The vehicle tracking is set up by introducing equipment situating the sensor inside the vehicles and a tracking server to get and disentangle the approaching signs from the vehicles. Numerous vehicle frameworks that are being used now days are some type of advanced vehicle tracking that is an idea for deciding the geographic area of a vehicle and transmitting this data to a remotely found server. The area is resolved utilizing GPS and transmission instrument could be a satellite, earthly radio or cell association from the vehicle to a radio collector, satellite or close by cell tower.

One of the issues with the vehicle tracking framework is the high required cost which keeps them from being across the board relevant. The working expenses can be isolated into GPS beacon cost, area assurance cost, and transmission cost. Right now minimal effort vehicle tracking framework is recommended that consider the necessary working expenses in a manner that doesn't influence the quality, dependability or exactness of the framework.

The framework utilized open source-based cell phones, for example, gadgets running the Android working framework. These gadgets are generally given installed GPS sensor which is a free satellite framework that gives data identified with the current area of the gadget. Distributed computing is utilized for information transmission between the in-vehicle unit and the tracking server. The information is encoded utilizing the adjusted coding technique to decrease the transmission cost by diminishing the information traffic. [3], [4]

LITERATURE SURVEY

This paper proposed innovation for youngsters tracking framework to forestall wrongdoings against kids and valuable to guardians. The innovation depends on a portable specially appointed system. The framework is useful to the parent to realize the wellbeing level and to and from the data of students on school courses. It proposed GPS-GSM incorporated open transportation the executives' frameworks comprise of four modules, for example, bus stop, in transport, base station, and transport stop module. The created framework is helpful for encouraging individuals utilizing open transportation administrations.

The correspondence between the framework and kids will be tackled by youngsters having a label that transmits data to the transport unit making it feasible for the framework and driver to realize the kid is the route to the transport. This framework is valuable for taking care of school transport position tracking and observing.

This paper proposed a Vehicle situating System Based on ARM with a blend of GPS and GSM can transfer the data of the vehicle, for example, the position and speed to the Monitoring focus in time and make it helpful to control the traffic. The vehicle position framework has a preferred position of little size, versatile, dependable and ground-breaking expansibility. The shrewd framework can act as per its circumstance without being told by people. It comprises of information processor like a counterfeit neural system, which is normally utilized as an information coach. The transport observing and the executive's framework give the specific area of the transport and anticipate the appearance time based on traffic. [5], [6]

This paper creates a Public vehicle ticketing and observing framework comprises of GPS, GSM, RFID and ZigBee for the clients. The utilization of GSM and GPS advances permits the framework to follow the vehicle and gives exceptional data about continuous outings. The ZigBee module is interfaced with a microcontroller which is utilized to send the transport data to transport stops and to get data to transport stops. The transport module works the RFID for ticketing purposes and IR sensors for tallying the quantity of entering and leaving travelers.

METHODOLOGY

The proposed framework consequently assembled data utilizing sensors and transmitting through GSM empowered gadget and GPS used to find the present area of the vehicle. The transmitting information is put away in the server which is kept up in the cloud framework. The customer web-based interface used to get to the server information. The approved client can get to the information. The information is put away as per the vehicle distinguishing proof number. At first, the vehicle enlistment is completed. Every vehicle proprietor has enlisted with the claim client name and secret word for getting to the online interface. The executive kept up the key rundown of the vehicle proprietor data and an absolute number of the vehicle as shown in figure 1.

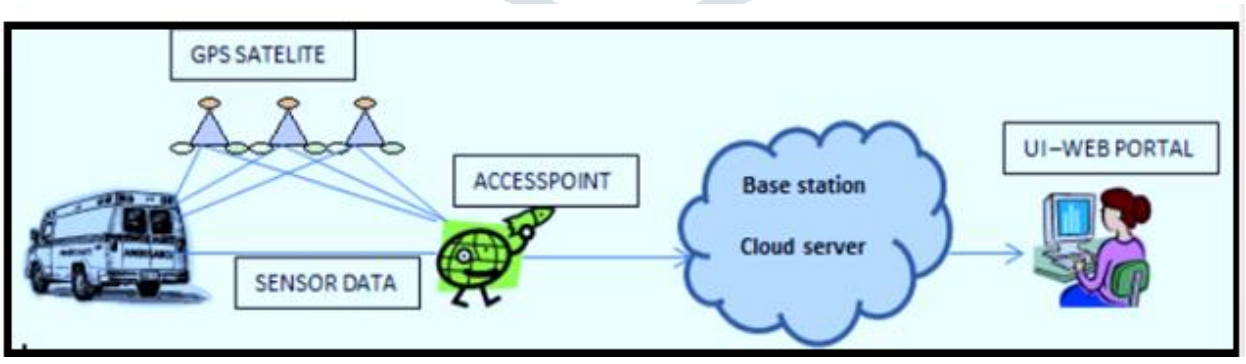

Fig.1: The Figure Portrays the System Overview

The head just can include and erase the vehicle distinguishing proof number from the server. So it stays away from the control of getting to other vehicle information. The proposed innovation dependent on "sensors". The sensors are included to screen the imperative parameter of the vehicles and drivers. Fuel screen control gives clients of vehicle tracking framework to screen where, when and how much fuel was filled into the tank; it stays away from the control of fuel and, subsequently, decreases the working expenses of transport. All the

data identified with fuel, fuel tank limit, when driver filled the fuel, remaining fuel in the tank are removed utilizing sensors and move to cloud server through GSM empowered gadget.

The GSM empowered gadget are immediate correspondence with passages which is closer to vehicles. The information is consequently refreshed in the server. The liquor breath sensor used to recognize whether the driver is flushed or not. In the event that the sensor recognizes the liquor, the gadget consequently creates the admonition sign to the driver and furthermore, information is moved to the cloud server. The proposed framework will be vigorously precluding control from securing a moving vehicle. And furthermore, If the gadget identifies any up typical with the driver, the speed of the vehicle will be diminished and after some time vehicle will be halted. All subtleties are forward to the cloud server through GSM empowered gadgets.

The approved client can get to the information ongoing just as later. While a breath liquor test can be managed various ways, breathalyzer tests are the most widely recognized type of breath alcohol testing and have the accompanying qualities: The Alcohol Sensor is a little (approx. 8cm long) handheld gadget which shows breath liquor level in one of three levels, shown on a LED show and produce cautioning signal. [7], [8]

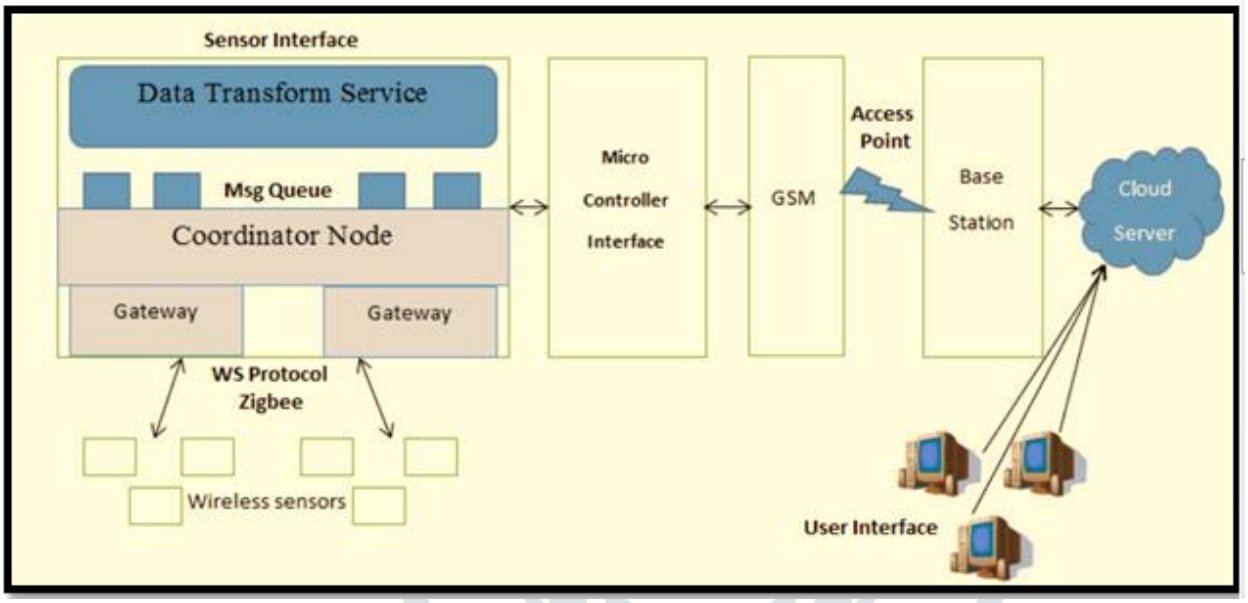

Fig.2: Figure Portryas the System Architecture

Fig. 2. shows the proposed system configuration is conveyed with basic parts associated with distributed computing. The remote sensor arrangement is utilized to screen the parameters. The ZigBee convention is utilized to move the information from sensors. We utilize an economically accessible portal for coordinating sensors. The organizer hub is utilized to gather every one of the information from sensors through passage and keeps up the line list. The line list despatches the information as per the need.

The proposed innovation utilizes a need booking calculation for dispatching the information from the line. The usefulness of the parts portrayed beneath Sensors is utilized to gather the fundamental parameter of the vehicle. Sensors are accustomed to extricating the data from the fuel tank, driver conditions, speed of the vehicle and anticipated appearance time. There is a specific sensor fitted with both the beneficiary and transmitter for transmitting the information. The information is transmitted utilizing ZigBee.

The Vehicle moving plan stands of GPS unit, with sensor and Microcontroller. The GPS part acknowledges the in arrangement from the implanted sensor satellites and makes a 32kbps information rope. This information string is given to the Microsensor which makes strides as an intersection point between the GPS unit and the visual nuts and bolts. It at that point sends this prepared information line to the sensor as sown in figure 3.[9], [10]

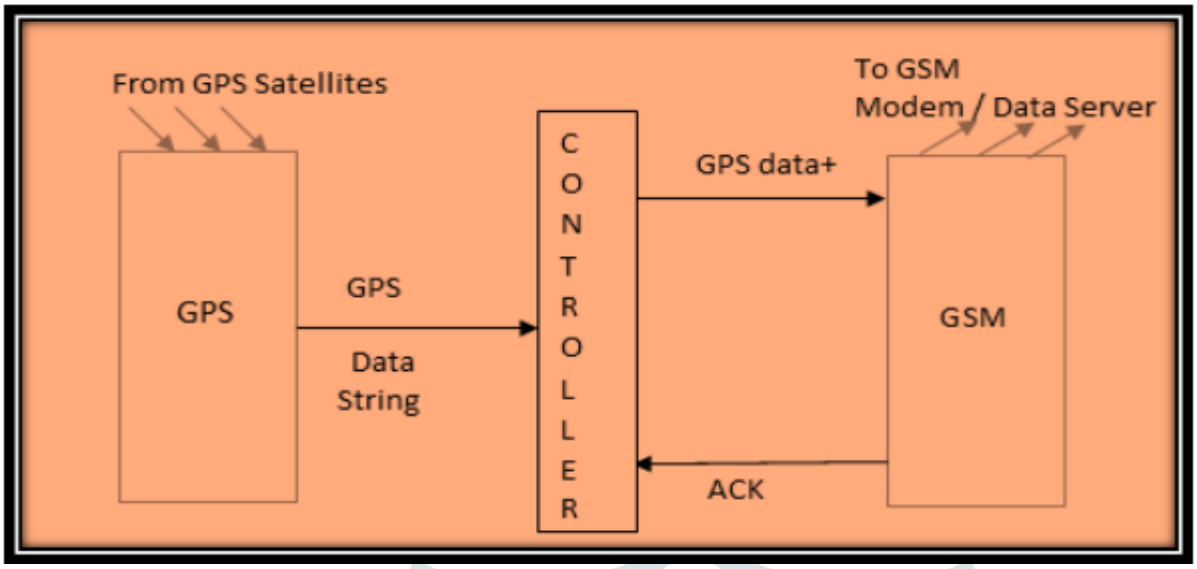

Fig.3: The Figure Demostrates the System Design

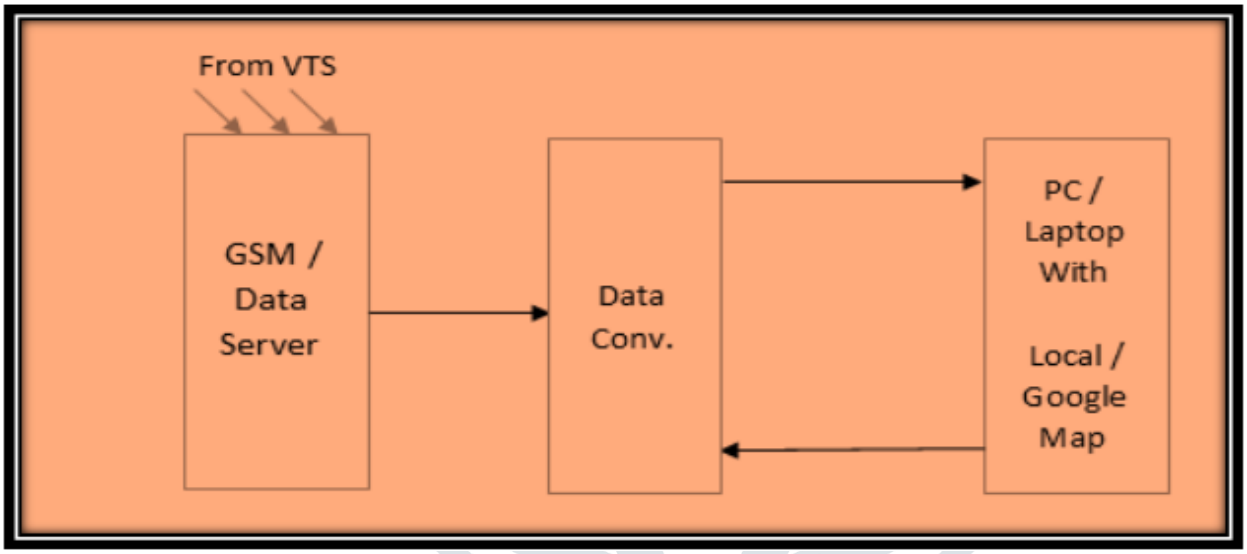

Fig.4: The Figure Displays the Data Coversion Model

This realities rope can act naturally guaranteed either by utilizing the IR sensor to control position. In the event that data tributary is pomposity by the sensor, it is landed by remote IR sensor and information is fixated extra by visual essentials lastly given to Laptop with Google Maps for present as shown in figure 4.

RESULTS

This tracking data framework utilizing both GSM and GPS has been talked about. The proposed tracking framework dependent on distributed computing foundation The sensors are utilized to screen the fuel level, driver conditions, and speed of the vehicle. Every information moved to a cloud server utilizing GSM empowered gadgets. Every vehicle outfitted with GPS reception apparatus to find the spot. To maintain a strategic distance from the alcoholic and drive, the liquor sensor is introduced to screen the driver status. The proposed innovation altogether keeps away from the mishap in parkways. The working of the proposed system is shown below in figure 5.

Fig.5: Vehicle Tracking and Monitoring System

CONCLUSION

The proposed vehicle tracking framework is built up utilizing a tracking server and the number of vehicle units. The framework has various highlights to ensure security, unwavering quality, and effectiveness of the framework. The key trade technique alongside the protected session the executives' strategy permits secure correspondence and transmission of touchy area information without influencing preparing time. The encoding technique gives proficient utilization of the system traffic to transmit area information coming about high transmission time continuously. The framework has been intended to be practical with sensible working expense by utilizing required minimal effort gadgets, encoding procedures for productive utilization of system traffic which prompts low working expense of all association. The proposed tracking framework depends on a distributed computing foundation alongside sensors helpful for checking the fuel level, height, tire pressure, driver conditions, and speed of the vehicle. All the information is moved to the cloud server utilizing GSM empowered gadget and all the vehicles are outfitted with GPS reception apparatus for pinpointing the area. To evade the tanked driving, the liquor sensors are introduced to screen the driver's status. The proposed innovation fundamentally dodges the mishap in expressways.

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