

DESIGN OF BUS TRACKING AND FUEL MONITORING SYSTEM BASED ON GSM MODULE

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ABSTRACT

The necessity for gainful opentransportation structure, for instance, transports is immediately extended as a result of the growing in people, the explorers need to understand the exact appearance time of the specific vehicle to express station and some time later course of action their adventure from their home .Fuel watching have been the noteworthy issue that by a wide margin the vast majority of transport affiliations wanting to appreciate. This paper built up a vehicle following and watching the fuel and speed structure to give an office to the organization essentials by the administrator. The proposed framework subject to Arduino, GSM/GPS and guide suit ASP.MVC give the established appearance time in spite of graphically showing the vehicle domain on Google map. The structure also draws in the proprietor of the vehicles to screen the vehicle instantly considering the way that the framework authority can no ifs, and or buts kept up database data of transports and its fuel tank at whatever purpose of the association.

Article Received: 10 August 2020, Revised: 25 October 2020, Accepted: 18 November 2020

INTRODUCTION

The vehicle following system is a useful andproductive structure, at the bus station peopleneed to hold tight for a long time withoutknowing when the vehicle will appear, the globe-trotters,find the hour of appearanceof the express vehicle at the particular objectiveeven at their homes and plan their journey in likeway. The proposed system presents the vehicleappearance time need and fuel checkingstructure that give the specific appearance time and transport view to the wayfarers, and givestransport watching, plan the heads and fuelchecking to the vehicle association owner. Fuellevel attestation circuit selects the fuel levelfrom the fuel check which is open in the entiretyof the vehicles the present condition of thevehicle was gained by the Global PositionSystem (GPS) recipient. The Arduino aggregates the information from the fuel sensor, GPS andspeed sensor sends it to the server at the basestation utilizing GSM. The information at theserver side is overseen in a database table witchproposed and can be recovered as game plansfor a position exploring on the guide. A site pageis made utilizing ASP.MVC web structure,visual a Studio2013 with comfortable GoogleMap with

recovery and show up on tracksubtleties. A work zone GUI is organizedutilizing ASP.MVC works a region release todraw in the proprietor to see the fuel level and

the current in the zone of the vehicles in the guide.

LITERATURE SURVEY

1. “RFID-based Tracking System Preventing Trees Extinction andDeforestation”, Salma Aboussaid, Hind Benbihi, YassineSalih Alj,2013, IEEE.

This paper describes the design of a radio frequency identification systemthat we called Trees RFID Tracking System (TRTS). This suggested studydevelops a system that would enable the detection and identification oftrees illegal logging cases and hence preventing risks of species distinctionand deforestation threats. The TRTS consists of RFID passive tags (statictags) fitted in trees and serving as unique identity for each tree; handheldreaders (moving devices) with a suitable

readable range and embedded circular polarization antenna. These readers would be held by forest officers and the data read from the tags would be accessible through the readers thanks to a visualization software that would analyze and process the data received. The database that saves all the readings and user interface and enables access to that data is located at the server side of the system. Communication between the tag readers and the server side is done through 3G connectivity enabled at the handheld reader device. An example of this suggested study practicality is the forests in Ifrane region of Atlas Mountains which are well known for the cedar species that are constantly subject to illegal extracting and thus are threatened by extinction. Moreover there has been no suggested method to improve their management process. Here is where our RFID system comes to play.

2. "RFID-based System for School Children Transportation Safety Enhancement", Anwaar Al-Lawati, Shaikha Al-Jahdhami, Asma Al-Belushi, 2015, IEEE.

This paper presents a system to monitor pick-up/drop-off of school children to enhance the safety of children during the daily transportation from and to school. The system consists of two main units, a bus unit and a school unit. The bus unit the system is used to detect when a child boards or leaves the bus. This information is communicated to the school unit that identifies which of the children did not board or leave the bus and issues an alert message accordingly. The system has a developed web-based database-driven application that facilitates its management and provides useful information about the children to authorized personal. A complete prototype of the proposed system was implemented and tested to validate

the system functionality. The results show that the system is promising for daily transportation safety.

3. "Design of Phasor Data Concentrator for Phasor Monitoring System", Suttinan Buttayak, Apichai Wornpuen, Nattasit Prompan, 2012, IEEE.

A Phasor measurement system is used for measuring of the amplitude, phase and frequency of the bus voltage in real time. Amplitude and phase of each station are then compared to calculate the differences. Differences in voltage amplitudes affect the amount

of reactive power flow. The active power flow is influenced by differences in the voltage phasors. The system operators utilize amplitude, phase and frequency of the voltage to monitor the power flow and stability conditions. This paper proposes to create a Phasor Data Concentrator (PDC) for the comparison of phase angles in the power system and that can measure and record voltage, current and frequency of the system. The PDC has been the time form the Phasor Measurement Unit (PMU). The PMU synchronizes time using Global Positioning System (GPS). This guarantees that the electrical values are measured exactly at the same time and that the differences of phasor of more than two points can be compared. This paper is divided into two parts, the first part is the simulation. The model is simulated using the PSCAD / EMTDC. The other part will be the installation. The actual value of the power station, two stations with the results.

4. "GPS Based Bus Tracking System", Leeza Singla, Dr. Parteek Bhatia, 2015, IEEE.

In this fast life, everyone is in hurry to reach their destinations. In this case

waiting for the buses is not reliable. People who rely on the public transport their major concern is to know the real time location of the bus for which they are waiting for and the time it will take to reach their bus stop. This information helps people in making better travelling decisions. This paper gives the major challenges in the public transport system and discusses various approaches to intelligently manage it. Current position of the bus is acquired by integrating GPS device on the bus and coordinates of the bus are sent by either GPRS service provided by GSM networks or SMS or RFID. GPS device is enabled on the tracking device and this

information is sent to centralized control unit or directly at the bus stop using RF receivers. This system is further integrated with the historical average speeds of each segment. This is done to improve the accuracy by including the factors like volume of traffic, crossings in each segment, day and time of day. People can track information using LEDs at bus stops, SMS, web application or Android application. GPS coordinates of the bus when sent to the centralized server where various arrival time estimation algorithms are applied using historical speed patterns.

5. "GIS Application for the BRT Station Selection", Tianchi Zhang, 2011, IEEE.

Bus Rapid Transit (BRT) is generalized as an approach for using buses as an improved high speed transit system. By applying innovative technologies, e.g. signal prioritization, few stops, and easy-to-board vehicles, BRT can provide faster and more stable service, compared with the regular bus service. BRT has become a popular public transportation approach in many United States cities, such as Albany, NY, which initiated BRT plans to improve public transportation service, enhance community development and improve the environment. One of the important problems for BRT is selecting station locations that attract the greatest number of passengers and enhance community redevelopment. This paper reviews the main characteristics of the BRT system and BRT development on New York State Route 5 in Albany NY. It also illustrates a practical application of ArcGIS in deciding the potential BRT stations through Washington/Western Avenue Corridors in Albany NY.

6. J. C. Williams, "2012 Sleep in America poll: Transportation workers 'sleep,'" Nat. Sleep Foundation, Arlington, VA, USA, Tech. Rep., 2012

In today's world, actual record of fuel filled and fuel consumption in vehicles is not maintained. It results in a financial loss. To avoid this we are implementing a microcontroller based fuel monitoring and vehicle tracking system. In this paper, the implementation of embedded control system based on the microcontroller is presented. The embedded control system can achieve many tasks of the effective fleet management, such as fuel monitoring, vehicle tracking. Using GPS vehicle tracking technology Fuel monitoring have been the major problem that most of bus companies looking to solve. This paper developed a bus tracking and monitoring the fuel and speed system to provide a facility for the management requirements by the administrator using GPS and GSM Technology

7. Global Positioning System Standard Positioning Service Performance Standard, Department of Defence – USA, 4th Edition (2008)

In today's era everyone is using mobile phones for communication. At the same time Mobile Providers are also providing the variety of services to users. In attempt to expand on this, we propose a GPS based vehicle tracking system for an organization to help to find addresses of their vehicles and locate their positions on mobile devices. The organizations are investing money in monitoring and tracking vehicles aiming at improving services and ensuring the safety in cargo transports. The proposed system will give the exact location of vehicle with distance between user and vehicle. The proposal allows organizations to track real-time information about their proposed vehicle during travel. The system contains single android mobile that is equipped with GPS and GSM modems along with processor that is installed in vehicle. During vehicle motion its location update can be continuously reported to a server using GPRS service. This location information will be plotted using Google maps on monitoring device. Also the paper gives brief information about GNSS (Global Navigation Satellite System) like GLONASS and GALILEO.

8. A. Anusha "Vehicle Tracking and Monitoring System to Enhance the Safety and Security Driving Using IoT" 2017 International Conference on Recent Trends in Electrical, Electronics and Computing Technologies (ICRTEECT), July 2017

In this paper, vehicle monitoring and tracking systems are implemented using Blynk platform acting as a medium for data transfer and visualization. The system is developed to monitor various driver help parameters like eye blinking, alcohol consumption and vehicle parameters like engine temperature, the distance between the vehicles and tracking of the live location of the Vehicle. The Ultrasonic sensor is placed in the front part of the vehicle, if any two vehicles draw near to one another then an alert message is sent to the mail through Blynk application. The Temperature sensor is placed in the engine part. When the temperature rises in the engine, caution is sent to the mail. Eye-blink sensor and alcohol sensor are utilized to check the condition of the driver, if the state of the driver is abnormal then a notification is sent to mail. The developed system takes care of vehicles and driver's safety.

9. N. Upendra Yadav¹, Prof Kamalakannan², "Smart Vehicle Monitoring System using IOT" JDCST March-April-2017, Issue-V-5, I-3, SW-31

The proposed of system that informs location of vehicle, accident if any happens it gets inform to family members. Accelerometer is used to detect the reason of accidents. GSM & GPS module are used for communication and Arduino Uno microcontroller is used and a system for development of portable road vehicle and its speed measurement. Here for detecting ultrasonic sensor is used as transmitter and receiver. The controller used is ATmega128 microcontroller. ZigBee module is used to transfer the information to control section. Thus, if any wrong thing done by someone while driving can be informed.

10. Dr. L. Jubair Ahamed, 2S. Rameshkumar, 3S. Sabari Maheswaran, 4K. Sreenivasa Perumal and 5S. Venkataraman, " Vehicle Parameter Monitoring System" Asian Journal of Applied Science and Technology (AJAST) Volume 2, Issue 2, Pages 274-276, April-June 2018

Nowadays, actual record of fuel filled and fuel consumption in vehicles is not maintained. It results in a financial loss. To avoid this loss, monitoring and tracking system is implemented by based Fuel Monitoring in vehicle. The fuel monitoring system is built on ESP8266 Wi-Fi chip. This system uses Hall Effect Sensor to calculate the information about tank's current fuel level and also the amount of currently inserted fuel. It delivers data to the ESP8266 Wi-Fi chip. ESP8266 chip is a hardware which connect flow sensor and server, then server send that data on users android app. On the unavailability of device it stores data into memory. This system is based on technology which provides security to user identity to authenticate access and identify impersonated devices or fake devices in the network. The purpose of the is to make possible things to connect at any time, in any place, with anything and anyone ideally using Network and service.

COMPONENTS AND METHODOLOGY

ARDUINO UNO CONTROLLER:

Arduino is an open-source device organize reliant on easy-to-use hardware and

programming. Arduino sheets can get inputs – light on a sensor, a finger on a catch, or a Twitter

message-and change it into a yield - inciting a motor, turning on a LED, appropriating something on the web. You can manage your board by sending a lot of bearing to the microcontroller on the board.

ZIGBEE MODULE (2):

The nRF24L01+ is a solitary chip 2.4GHz handset with an inserted baseband convention motor (Enhanced Shock Burst™), appropriate for ultra-low force remote applications. The nRF24L01+ is intended for activity in the overall ISM recurrence band at 2.400 - 2.4835GHz. The installed baseband convention motor (Enhanced Shock Burst™) depends on bundle correspondence and supports different modes from manual activity to cutting edge self-governing convention activity. Interior FIFOs guarantee a smooth information stream between the radio front end and the framework's MCU. Improved Shock-Burst™ diminishes framework cost by taking care of all the fast connection layer activities.

GPS:

GPS or Global Positioning System is a satellite course structure that outfits zone and time information in all air conditions to the customer. GPS is used for course in planes, vessels, vehicles and trucks in addition. The system gives fundamental abilities to military and non-military staff customers around the globe. GPS gives ceaseless continuous, 3-dimensional situating, route and timing around the world.

GSM MODEM:

Worldwide framework for versatile correspondence (GSM) is a comprehensively

acknowledged standard for advanced cell correspondence. GSM is the name of an

institutionalization bunch built up in 1982 to make atypical European cell phone standard that would detail particulars for a dish European portable cell radio framework working at 900 MHz. It is assessed that numerous nations outside of Europe will join the GSM association.

LCD:

A 16x2 LCD construes it can show 16 characters for each line and there are 2 such

lines. Right now character shows up in a 5x7 pixel structure. This LCD has two registers, explicitly, Command and Data. The course register stores the solicitation rules given to the LCD. A heading is a bearing given to LCD to do a predefined task like introducing it, clearing its screen, setting the cursor position, controlling

show, and so forth. The information register stores the information to show up on the LCD. The data is the ASCII estimation of the character to appear on the LCD. Snap to get acquainted with the internal structure of an LCD.

ULTRASONIC SENSOR:

The HC-SR04 ultrasonic sensor utilizes sonar to decide separation to an article like bats do. It offers superb non-contact extend identification with high exactness and stable readings in a simple-to-utilize bundle. It comes total with ultrasonic transmitter and collector modules, as the name demonstrates measure separation by utilizing ultrasonic waves. The sensor head discharges ultrasonic wave and gets the wave reflected back from the objective. Ultrasonic estimates this separation through the objective by estimating time among outflow and gathering.

MOTOR DRIVER:

Ordinary DC gear head motors need current above 250mA. There are many composed circuits like ATmega16 Microcontroller, 555 tickers IC. In any case, the IC 74 course of action can't supply this proportion of current. Exactly when the motor is dishonestly connected with the o/p of the above ICs by then, they may hurt. To beat this issue, a motor control circuit is required, which can go about as a framework between the above motors and ICs (facilitated circuits). There are various strategies for causing an H-to interface motor control circuit, for instance, using transistor, moves and using L293D/L298.

DC MOTOR:

Pretty much every mechanical improvement that we see around us is cultivated by an electric engine. Electric machines are a strategy for changing over

vitality. Engines take electrical vitality and produce mechanical vitality. Electric engines are used to control several gadgets we use in regular day today existence. Electric engines are extensively grouped into two distinct classes: Direct Current (DC) engine and Alternating Current (AC) engine. In this article we will examine about the DC engine and its working. And furthermore how a rigging DC engines functions

CONCLUSION

This paper offers a keen structure of following and checking the transports which encourages the transport organizations to give high caliber of administration. This plan can give the area of the transports of the administration with a mistake under

10m on account of moderate speed and clear condition and the framework give the precise appearance time of the transport and give the area of the transport in Google map for both client and chairman. This framework diminishes the sitting tight time of remote clients for transport and gives transport following at any area, the board and fuel checking.

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