

Intelligent Smart Car Dashboard With GPS Tracking

Rajesh Kumar.K¹, Ranjani.N², Sowmiya.K³, Yogadharshini.M⁴

Assistant Professor, Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India¹

U.G Students, Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India^{2,3,4}

ABSTRACT: All petroleum and diesel filling bunks have advanced presentations to show the measure of fuel included. The clients don't know whether it is demonstrating the exact worth or not. To conquer this issue, this paper proposes a heap cell-based fuel estimation which gives definite degree of fuel while fuel filling process and furthermore in the voyaging time. Relentless observing of fuel level is accomplished by connecting the heap cell beneath the fuel tank with the utilization of Arduino Uno and show unit fixed with run board. The present speed of vehicle is demonstrated by the IR sensor which is masterminded with Arduino and it likewise ascertains the mileage which causes the vehicle client to think about the rest of the kilometres of vehicle will go through dependent on current speed with the accessible fuel. This framework can distinguish smoke, fire, current area and fuel status. Client can ready to see status of vehicle in the raspberry pi show. We build up a computerized dashboard for a vehicle that would show things like speed, area, liquor, fuel status. The deliberate fuel levels and sensor subtleties can be sent through raspberry pi to the Server side. After that administrator can vehicle status from server. By interfacing GPS module with raspberry pi, it can show the vehicle's position.

KEYWORDS: Arduino, Car Dashboard, Fuel amount, GPS, Load Sensor, Raspberry Pi.

I. INTRODUCTION

The advanced fuel demonstrating framework as of now exists in four-wheeler yet just not many endeavours have been made in bikes. The first computerized fuel demonstrating framework in quite a while was Vanav advanced fuel pointer. The rest of the fuel in the fuel tank is shown in the marker of the four wheelers. Speed and fuel are estimated in kilometre/hour and liters. The simple pointer framework can't give this sort of data in precise way. By utilizing the advanced circuit, clients can distinguish the right measure of fuel included bunk and it assists with knowing the mileage of the vehicle. We are normally confronting the oil bunk fakes intentionally or unconsciously and it prompts debasement all over the place. The clients pay the perfect adds up to fuel amount however they were cheated by the bunk proprietors. The fuel included isn't precise and it has a distinction between the showed fuel esteems to the additional amount. Each client has their privileges to request an exact amount and advanced presentation encourages them. The vehicle dashboard tracks area and the genuine vehicle's position is resolved by means of the NEO-6M GPS beneficiary module, which speaks with Raspberry Pi by a Common Asynchronous Receiver and Transmitter (UART) interface applying the specific standard. This framework can identify smoke, fire, current area and fuel status. We are utilizing raspberry pi show 3.5 inch. Client can ready to see status of vehicle in raspberry pi show. This undertaking can be utilized to identify speed of a moving vehicle.

II. RELATED WORK

[1] Ms. Vidhy Khule et al. study finds the advantages of fireside detection in Road transport that can't be overemphasized. This work contains style hearthside of hearth of fireplace detection system in automobile exploitation Arduino microcontroller exploitation logic primarily based observation and system to avoid damages because of fire in cars. the automated system consisting of flame sensors, temperature sensors, smoke sensors and a re-engineered mobile CO2air-conditioning unit for testing of a medium sized physical automobile,

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associate degree innovative, terribly promising resolution module for hardware implementation in fireplace detection and management for cars square measure aiming to be developed by exploitation new algorithms and logic.

[2] Sweta rule et al. aims at rising the engine life time of associate degree vehicle through endless measuring and observation of necessary engine operational parameters and providing an economical alerting to drivers for any abnormality. Vehicles presently square measure exploitation audio and visual alerting signals through alarms and light-weight as a warning to the drive however these are not effective in buzzing environments and thru daylight. Through the use of the sense of feeling a driver square measure usually alerted effectively. the requirement to no alternative vehicle parameter should be assisted through the mobile show (phone). Thus a system is supposed and implements to measure engine temperature, RPM, Oil level associate degreed fluid level exploitation applicable detectors and a wireless communication (Bluetooth) is established to actuate a moveable vibration management device and to browse the varied vehicle sensor readings through an golem application for show and designation

III.BLOCK DIAGRAM

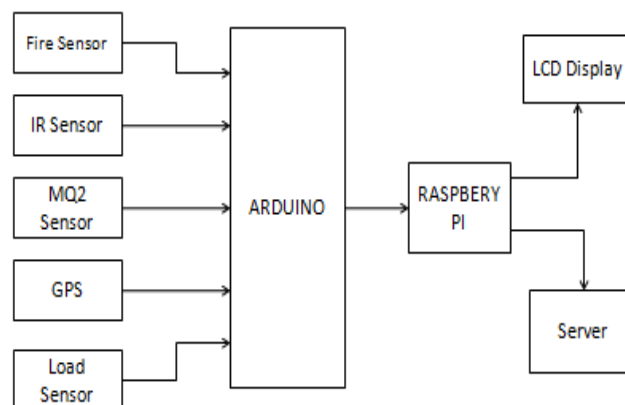


Figure1 Block diagram

The input data from load cell, fire sensor, gas sensor and IR sensor is given to arduino microcontroller using embedded C programming. Based on the appropriate analysing being done the user will get to know if any leakage of gas occurs, speed and fuel level status in the car display. Then raspberry pi sends the car status to server side and allows the admin to track the vehicle.

A. ARDUINO UNO:

The UNO is that the foremost used and documented board of the complete arduino family. Arduino may be a microcontroller board supported the ATmega328P. UNO suggests that one in Italian and was chosen to mark the understand of Arduino software system (IDE)1.0. The UNO board is that the initial in an exceedingly series of USB arduino boards and also the reference model for the arduino platform that area unit commissioned beneath antelope Lesser General Public Licence (GLPL) or the antelope General Public Licence (GPL). The arduino boards area unit out there commercially in create type or as be intimate yourself (DIY) kits. This area unit equipped with sets of digital and analog input /output pins which will be interfaced to varied growth boards and different circuits. The microcontroller's area unit generally programmed employing a accent of options from the C and C++ programming languages.

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Figure 2 Arduino Uno

B. RASPBERRY PI 3 MODEL B+:

The Raspberry Pi device looks like a motherboard, with the mounted chips and ports exposed (something you'd expect to establish as long as you detached your laptop and confirmed its internal boards), however it's all the parts you'd wish to attach input, output, and storage devices and start computing. you will encounter 2 models of the device: Model A and Model B. the sole real variations area unit the addition of LAN and an extra USB port on the dearer Model B. Raspberry Pi has several benefits like Low value, vast process power in an exceedingly compact board several interfaces (HDMI, multiple USB, Ethernet, aboard Wi-Fi and Bluetooth, many GPIOs, USB powered , etc.), Supports Linux, Python (making it simple to make applications), without delay out there examples with community support, Developing such associate degree embedded board goes to value tons of cash and energy.



Figure 3 Raspberry Pi 3 Model B+

C. DISPLAY 3.5-INCH LCD:

Liquid crystal show could also be a flat panel show that uses light- modulating properties of liquid crystals. LCD's area unit out there to show discretionary pictures as throughout a general video display. These discretionary pictures area unit created from sizable amount of little pixels. Little LCD screens area unit out there in transportable shopper devices like digital watches, calculators and etc. LCD screen is a lot of vitality effective within which info are often displayed or hidden on seven phase displays as in an exceedingly digital clock.



Figure 4Raspberry Pi Display

D. NEO 6M GPS MODULE:

GPS stands for international positioning system that was created by North American nation department of defence for the navigation of military in any a part of world beneath circumstances. however with the time, this method is currently obtaining used for many different functions and GPS system has established to be a revolutionary technology in today's world.



Figure 5 Neo 6M GPS Module

E. LOAD CELL:

Load cell may be a force sensing module - a carefully designed metal structure, with small elements called strain gauges mounted in precise locations on the structure. Load cells are designed to live a selected force, and ignore other forces being applied. The electrical signal output by the load cell is extremely small and requires specialized amplification. Fortunately, the DAQ1500 - Wheatstone bridge Phidget will perform all the amplification and measurement of the electrical output. Load cells are designed to live force in one direction.



Figure 6 Load Cell

F. IR SENSOR:

Infrared sensors are often passive or active. Passive infrared sensors area unit essentially Infrared detectors. Passive infrared sensors don't use any infrared supply and detects energy emitted by obstacles among the sphere of read. they're of 2 types: quantum and thermal. Thermal infrared sensors use infrared energy as a result of the supply of heat and area unit freelance of wavelength. Thermocouples, pyro electrical detectors and bolo meters area unit the common types of thermal infrared detectors.

G. GAS SENSOR(MQ2):

The MQ2 gas sensing element are often wont to sense the presence of LPG, gas and H, it also can be wont to sense alkane series and different fuel vapour, it's low value and ideal for numerous applications. sensing element is sensitive to flame retardent gas and smoke. A five potential unit smoke sensing element is provided to power

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it. Smoke sensing element shows the voltage that emanates from the smoke. a lot of exhaust smoke. A potentiometer is provided to regulate the sensitivity.



Figure 7 MQ2 Gas Sensor

H. FIRE SENSOR:

A sensing element that is mostly delicate to a typical light-weight is understood as a fireplace sensing element. that's the explanation this sensing element module is used in fireplace cautions. This sensing element distinguishes fireplace in any case wavelength within the scope of 760 nm – 1100 nm from the sunshine supply. This sensing element are often effortlessly injured to warmth. on these lines, this sensing element are often place at a selected sensible way in which from the hearth. the hearth discovery ought to be doable from a 100cm separation and also the identification purpose are 600. The yield of this sensing element is each straightforward and computerised signal. These sensors area unit used in fireplace fighting robots like as a fireplace caution.



Figure 8 IR Flame Sensor

IV. CONCLUSION

The proposed idea of fuel measurement using load cell with arduino is extremely cost efficient and straightforward to use. It's going to be enhanced with any microcontrollers and can be implemented in all types of vehicles. By using this method petrol bunk frauds are often avoided. This project are often enhanced by interfacing GPS with arduino to trace vehicle's location just in case of any emergency situations.

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