

Implementation of Real Time Fuel Estimation using Micro-Controller and Android App

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Abstract:

The present world is that the continuous that needs advanced. Along these lines, the fuel meters that at present are of simple in nature. In this Project we are executing fuel pointer in shrewd computerized way utilizing equipment and programming utilizing android application for clear understanding of fuel and to incite suitable information on fuel present inside the vehicle and How much Kilometer the vehicle can travel utilizing that Fuel are shown on Google map. The fuel which are Present in fuel tank are estimated in advanced route with the assistance of equipment and android application for example 1.0, 1.5, 2.0, 2.5 liters and so on taking of fuel could likewise be a greater disadvantage in this day and age. Level out of nowhere gets decrease from 2-wheeler vehicles then the Alert are frequently sending to the proprietor of motorbike..

1. Introduction

Presently a days the globe is dealing with constant framework. anyway at the current stage, advanced fuel meters are upheld in late vehicles. Current vehicles framework the specific amount of fuel present inside the fuel tank cannot be decipher appropriately Due to simple meter comprising of redirecting needles or it shows fuel in assortment of bars. These redirecting needles show measure of fuel in fuel tank as vacant, low or high. that the individual don't come to comprehend the exact fuel contains inside the fuel tank and the way how much their vehicle can travel utilizing fuel contains in tank. To determine this issue, this technique actualizes the fuel meter utilizing microcontroller and locator which can show the exact amount of fuel contains in fuel tank in advanced organization that is in liters in custom android application. Fuel taking is also significant disadvantage, when the individual fills the fuel from gas siphon, the Person doesn't comprehend the exact amount of fuel in fuel tank, that the clients will be basically cheated. on the off chance that the theft is happened once fuel goes down out of nowhere, the signal can actuate to mindful the proprietor android application of 2 wheeler vehicle and simultaneously the notice will be send to the proprietor of 2 wheeler vehicle through Application. This framework will likewise show measure of fuel present in tank, how far vehicle will go utilizing that fuel when that vehicle going to stop. It will likewise show the close by petroleum siphons of last goal.

2. Proposed Block Diagram

In present situation, client can't discover the how much separation their vehicle will cover This undertaking will give the visual portrayal of separation on google map that can cover their vehicle utilizing remaining fuel and will likewise give data about fuel station in the middle of separation with the goal that client can refuel their vehicle. Undertaking utilizes both Micro Controller and Android application.

- **Sensor**

Sensor can notice the particular quantity of fuel gift in tank and send information to small controller for analysis.

- **Microcontroller:-**

With the help of sensor micro controller will get how much fuel vehicle contains. It will perform calculation and provide the result to android application Via Bluetooth module.

- **Android Application:-**

Our Android application will get Data as input and perform some computation and with the help of google map API library it will display the estimate route on google map. It will also display number of liters of fuel present in vehicle

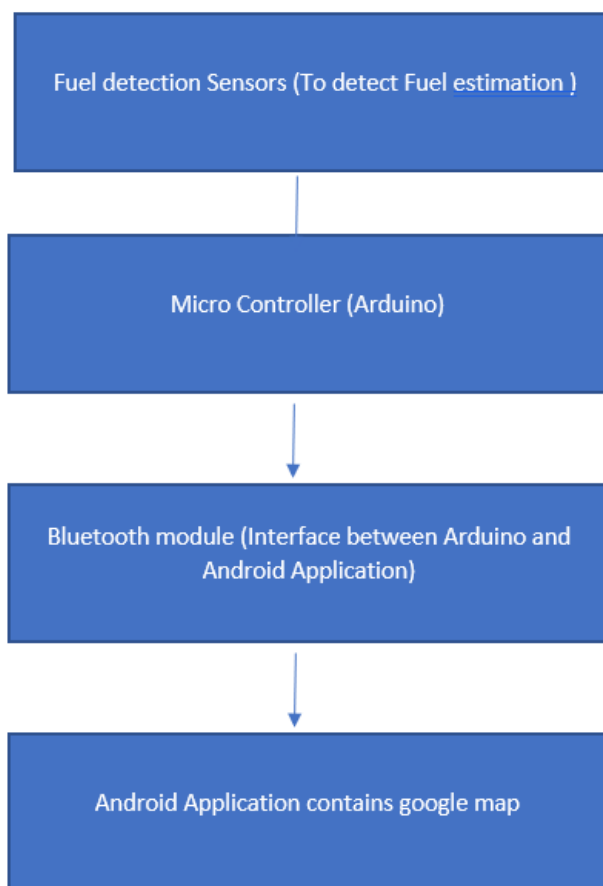


Figure 1:Block diagram of system

3. TECHNOLOGIES USED

In this project following are the technologies used. Global Positioning System, Google Maps API, Arduino.

3.1 GPS Technology

GPS likewise know as "Worldwide Positioning System." It is a route framework which uses satellite to decide the situation of an item on the outside of the ground. Presently a days, Many gadgets included GPS collectors circuits, such contains in GPS Technology which is conveyed in space around 12,000 miles (19,300 kilometers) over the world's surface. Satellites circle once like clockwork around the earth at a very quick pace. This satellites are spread out equally with the goal that 4 satellites are available by means of from anyplace on the globe through direct view. Each satellite communicates its present position, circle, and specific time. A GPS recipient contains in our gadget get that message and compute its careful position utilizing a procedure called triangulation. To

decide a collector's area three satellites are required, however four satellites association are required to get the more prominent exactness. For appropriate working of GPS gadgets. They should initially build up an association with three of more satellites. This procedure requires few moments or minutes relying upon the gadget association quality.

3.2. Google Maps

Google Maps is created by Google. Google made this Web Mapping Service to gives road maps, 360° all encompassing perspectives on avenues (Street View), utilizing satellite .It additionally give Real-Time traffic states of streets (Google Traffic) utilizing clients portable information , and furthermore give short course wanting to individual who is going by foot, vehicle, bike or open transportation. To get the headings through open transportation, driving, strolling, or biking client can utilize Google Maps. Google Map application is available in Android play store just as on iPhone. Client can likewise get to google map through google map site. Google Map gives turn by turn route, Street View. Presently google has additionally tie up with legislature of nation to get the data of open vehicle. After the update in June 2012 google additionally acquaint new component with store the guide of certain district on portable which causes client to get to delineate. As of late in 2017 Google present new component of google map for USA which give data with respect to parking spaces in city and In India for development of traffic availability google likewise give bike mode.

3.3. Arduino

Arduino Uno based on Microchip ATmega328P. It is open source micro controller. It contains a set of digital input and output pins that may be connected to various sensors and modules or circuits. It contains 14 input/output pins and 6 analog Input/Output pins. Arduino Uno is programmable with Arduino IDE using Type B USB cable. It can be powered by 9 volt battery or usb power cable. Uno communicates using STK00 protocol. FTDI USB to serial driver chip does not used in Uno. Instead of that it uses Atmega 16U2 programmed as USB to serial converter.

4. Implementation

This project consists of hardware and software. Hardware contains Arduino and HC-SR04 ultrasonic sensor, and HC-06 Wireless Bluetooth Transceiver RF Master Module for Arduino. Software contains Android application which will get data from Arduino and perform operations on that data.

4.1 Module at Arduino

First HC-SR04 Ultra Sonic sensor will gauge the separation between the tank surface and sensor and send the readings to Arduino. Where Arduino will perform figuring dependent on tank stature, volume and dependent on those predefined equation we will discover no of liters of petroleum in tank. By utilizing Bluetooth module, we will transmit information from Arduino to android application..

4.2 Android Application

In Android Application we are utilizing google map where client will choose the source and goal area where client needs to travel and dependent on information (number of liters) application will bring up the area among source and Destination where vehicle will be out of fuel.

5. Conclusion

In this Project, stealing of fuel is avoided and therefore the stealing of fuel from petrol pump will come to an end, Thanks to this, system are going to be more reliable. this technique will obtain the accurate readings of fuel and supply end in human readable form. this technique also will provide approximate distance in google map which vehicle will cover using current fuel present in tank. Make sure the user will ride their vehicle without fear about what proportion distance will their bike will cover.

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