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Proposed System-Advanced Vehicle Utilities and Security

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Abstract: ***In todays world there are several systems already designed in automobile industry for user convenience and security purpose like antitheft buzzer, speedo meter, fuel level meter, steering lock system. Taking in consideration the real need of the transportation industries as well as the personal vehicles holders, the proposed system will not only provide facilities like GPS tracking , biometric ignition, battery level indicator etc. this system will be able to provide petrol level indication in digit . The point of attraction of this project is notification of the amount of petrol top-up on the registered phone number and detailed overview of petrol consumption in the form of graph or data sheet. To achieve this functionality a web application is going to be developed so that it will receive the values from sensor and generate the overview of consumption of fuel. As Automotive industry is growing very fast and estimation of fuel level and its indication is very much required to make aware the vehicle owner about the distance it can cover. Thus the requirement of fuel level management system and associated algorithms becomes more prominent. The system have to be robust, elective and durable. So as to provide the exact calibrated value to the owner, and will be more efective if it can give you the idea of fuel consumption of the vehicle.***
Keywords: Arduino UNO, fingerprint Sensor, liquid level sensor , GSM module .

I. INTRODUCTION

Automobiles and the transportation industry played a major role in the early growth and prosperity of the towns, industry lots of innovations are done till the date to ensure the security of the vehicle as well as the and in these days public demands the vehicles with full of utilities and security. In advancement of the automobile utilities, keeping in mind the demands in the market, this proposed system provides biometric ignition which will grant the ignition only to the authorized person and oil level indication which may be useful to track the oil level and maintain the same. A liquid level sensor is used which is to be interfaced with the Arduino UNO board to achieve this functionality. Liquid level sensor senses the level of liquid and gives corresponding values. It will make use of GSM module to send the notification of quantity of fuel topped up on the registered mobile number. This will help to manipulate scams at the petrol pumps.

In these days some of the vehicles are coming along with the digital fuel indication. In todays world it became very important for transportation industries to analyse the fuel consumption. This proposed system will send the notification of the amount of fuel toped up in the vehicle and will be able to show the fuel level in the digits. To ensure the additional functionality a web application is to be developed which will receive the data from the sensor and display the analysis of fuel consumption. This particular functionality will be very effective in transport industries. All the sensors are to be interfaced with Arduino UNO board.

A. Goal

The Goal of this project is to create a system that will be able to ensure the security by using Biomatric Ignition and oil level indication. Primary goal of this system is to show fuel level in digit and send notification of the amount of fuel topped up on the users mobile phone using GSM module so that the scams at the petrol pumps can be manipulated and to show the detailed overview of fuel consumption by using web application.

II. LITERATURE SURVEY

This section describes various implementations and research done associated with this topic.

Mr. Shaikh, Mr. Sumit D Chambharve, U.V. Gandhewar, Prof Mahesh Gorde (ref. [1] in references) describes in their paper presented on "Development and fabrication of Alphanumeric fuel level indicator for two wheeler" that due to irregular shape of tank there were many complexities arrises for the installtaion of electronic equipment so they designed the tank with regular shapes like square, triangular, circular to overcome this problem.

According to the survey some of the most commonly security security systems used for vehicle security are steering wheel lock, antitheft buzzer, alcohol detection system, oil level indication etc. For the ignition security of the vehicle it is found that biometric

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ignition system can be very effective because of every person has unique fingerprint, eye retina, face cut. By using biometric scanning system authentication of authorized person can be done effectively which makes vehicle very secure

Some of the vehicles are equipped with the system which can show fuel level and distance that can be covered by consuming available fuel. Such system gives proper idea of the mileage of vehicle. To measure available fuel in the tank mostly ultrasonic and float sensors are used.

III. EXISTING SYSTEM

Presently most of the vehicles has came with many feature in terms of luxury and security. In these days the concept of animation getting popular, following the need in market vehicles equipped with GPS tracker, temperature controller , Low oil level indication, Digital fuel meter are already got launched in the market with some of the security features like antitheft buzzer, alcohol detector, A.B.S, Etc, Almost all the vehicles are coming with fuel level indication system using analog meters as well as in terms of bars.

In most of the vehicles the biometric systems are getting used for unlocking purpose. To enhance the security, automobile industries are working hard to launch vehicles with authorized user authentication by using retinal scanning , face detection and thumb impression.

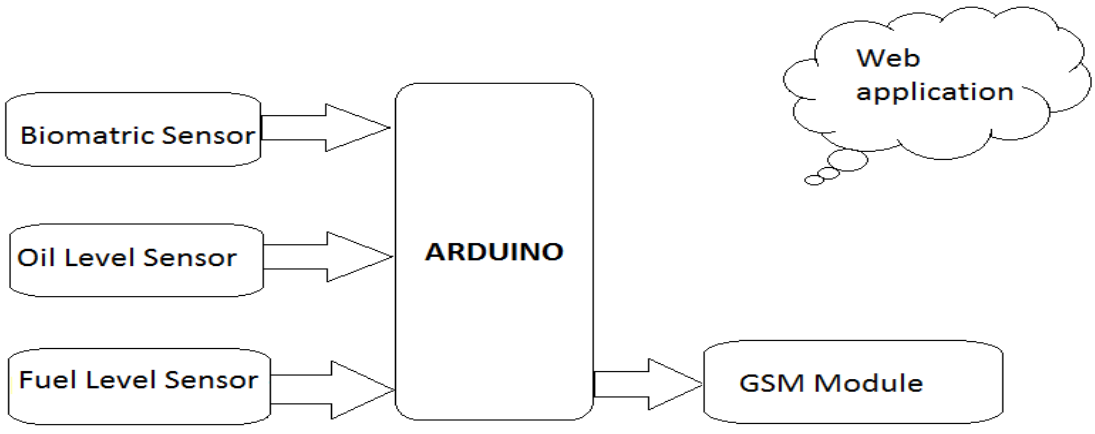
A. List of Components

1) Arduino Uno
2) Fingerprint sensor
3) Ultrasonic sensor
4) Float Sensor
5) GSM Module

IV. BLOCK DIAGRAM

User will first authenticate himself by using fingerprint sensor. Once authentication is done he will allowed to ignite the vehicle. Arduino will receive the values from liquid level sensor to sense the level of oil as well as fuel present in tank. User will be able to see the level of fuel and oil present in the tank. Whenever fuel is to be topped up the Arduino will be programmed such a way that it will send the notification of quantity of fuel topped up on the registered mobile number with the help of GSM module interfaced with Arduino. User will get the analysis of fuel consumption whenever needed with the help of web application .

Figure given below shows the block diagram of proposed system.



A. Arduino UNO

The Arduino UNO is an open-source microcontroller board based on the Microchip ATmega328 microcontroller.
The board has number of input/output pins that can be interfaced to various sensors or circuits.
The board has 14 digital pins and 6 analog pins. It is programmable with the Arduino IDE.
It can be powered by a USB cable .
Arduino UNO accepts the voltage between 7 and 20 volts.

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B. GSM Module

GSM is a mobile communication modem; it is stands for global system for mobile communication (GSM). The idea of GSM was developed at Bell Laboratories in 1970. It is widely used mobile communication system in the world. GSM is an open and digital cellular technology used for transmitting mobile voice and data services operates at the 850MHz, 900MHz, 1800MHz and 1900MHz frequency bands. GSM system was developed as a digital system using time division multiple access (TDMA) technique for communication purpose. A GSM digitizes and reduces the data, then sends it down through a channel with two different streams of client data, each in its own particular time slot. The digital system has an ability to carry 64 kbps to120 Mbps of data rates.

V. CONCLUSIONS

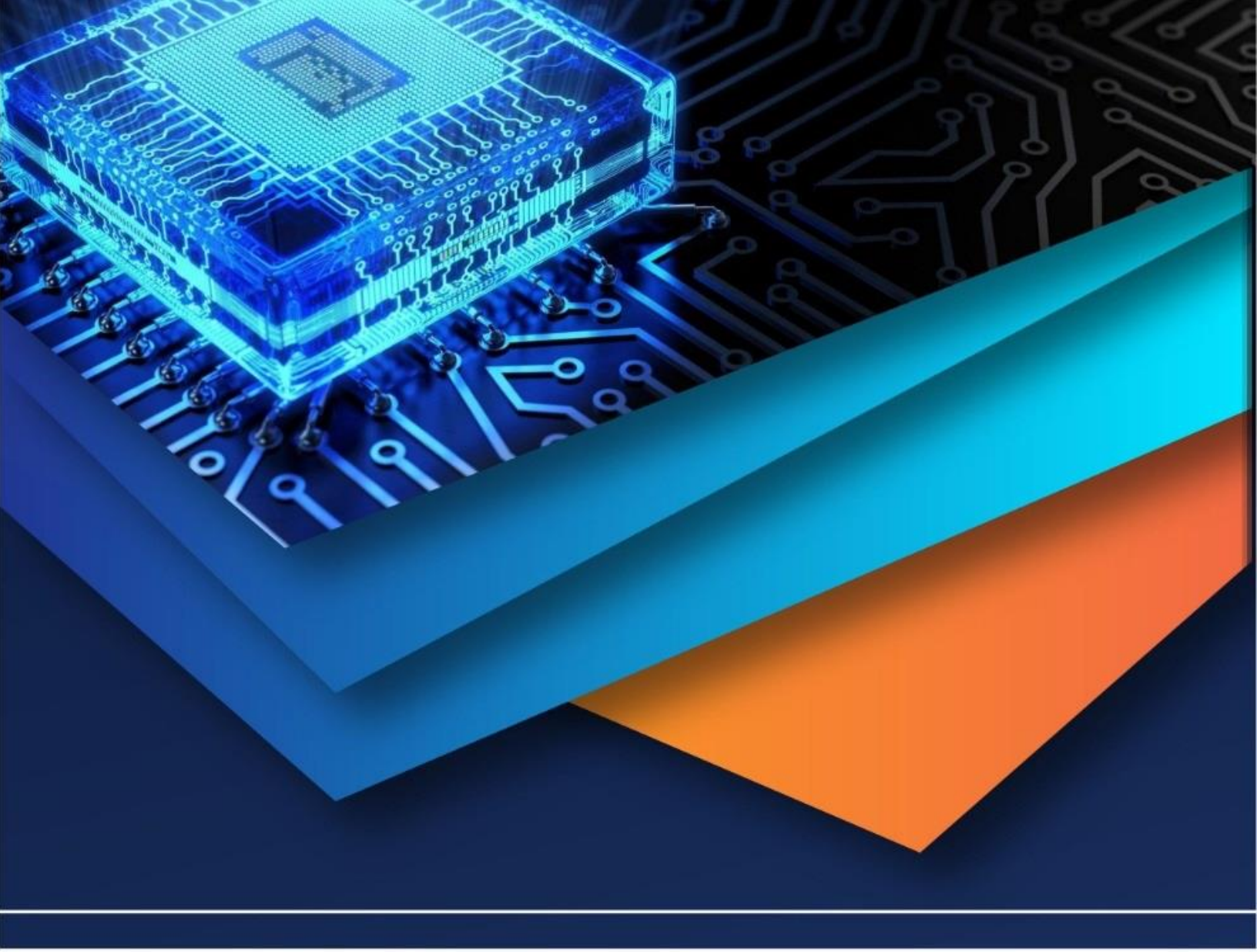
Presently in automobile industry there is cutthroat competition to launch the vehicle in the market with optimum features keeping in mind real need in the market a system can be developed including various systems which are already got developed .

The proposed system can also be equipped with the fuel level indication in digits and to get the notification of amount of fuel topped up along with other features already existing in market. By using Arduino, also overview of the consumption of fuel can be computed remotely with the help of IOT. The proposed system including with all above features mentioned can be very effective keeping in mind the real need of the industry as well as the vehicle owners. Such well-designed system will fulfill the idea of new approach to the automobile industry.

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