International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 08 Issue: 05 | May 2021 www.irjet.net p-ISSN: 2395-0072

CENTRALIZED AUTOMATION OF PETROL BUNK MANAGEMENT USING RFID AND GSM TECHNOLOGY

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Abstract - *In current days fuel stations are worked physically. These fuel siphons are tedious and require more labor. To put fuel stations in far off region, it is exorbitant to give fantastic office to the customers every one of these issues are figured out by the utilization of automated petroleum siphon which requires less an ideal opportunity to work and it is powerful and can be introduced anyplace the shopper self-going to profit the administrations the installment is finished by electronic clearing framework. The basic and legitimate utilization of microcontroller and GSM innovation gives an all-out security and robotized framework in conveyance of fuel. It is interface with high velocity fuel gadget which is advantageous for customer to work. In our framework the secret key will be given to the client by means of his cell phone by the GSM client needs to enter this secret key on the LCD given by the fuel station which will help the petroleum organization to make verification for client likewise the appropriation of the fuel is beyond the realm of imagination until it gets confirmed by the information base. A Petro card peruse is introduced at the bunk. The Petro-card is swiped on the Petro-card peruse gave. On swiping, the data is provoked at each progression, similar to secret word and amount of petroleum in liters. The validation of the secret word and checking for adequacy of equilibrium accessible for installment is finished. If both are fine, the fuel filling begins subsequently through the fuel pipe.*

Key Words: Arduino, IR Sensor, GSM module, Smoke Sensor, Petrol motor, diesel motor.

1.INTRODUCTION

One of the rarest and value-added creation of nature is the petroleum products. It is most widely used commodity today, due to the increasing number of vehicles being used, as the mode of commutation, for our travel, on a regular basis. As India is now becoming digital, this proposed system will contribute to Digital India program. Current System at the petrol bunks needs manual intervention for the fuel filling process i.e., the customer needs a bunk attendant to fill the fuel in customer vehicle and pay the money for that transaction. These station attendants keep inhaling the petrol and diesel vapors along with the highly polluted particulate matter which directly impact their lungs and hence their respiratory system. This is very dangerous, if the exposure continues for a prolonged period. In hilly and remote areas, the bunk attendants must face adverse weather conditions and safety issues like burglary during the working hours.

Due to direct cash transactions at the bunk, chances of robbery are high. Since the bunk attendants operate the Handel of the nozzle of the fuel pumps in petrol stations, fraudulent transactions can occur, as exact quantity of petrol as per amount paid by customer may not done by the attendant. All the drawbacks of the current system are overcome by the automation process used in the proposed project. These cards work on RFID technology. When manual intervention is eliminated, all issues faced by bunk attendants is resolved.

The automated process is programmed internally to calculate the exact amount of fuel to be filled, which will be equivalent to the amount paid. This helps in removing the possibility of fraudulent transactions. Many systems have been proposed to enhance this automation process of fuel filling. A complete solution was proposed for all traffic cum transport related issues like accident alert, traffic rule violation control, toll gate control, parking management and special zone alert with the use of RFID technology.

It has on-road unit with 'N' RFID tags for transmission of general area information and alert zones like school, hospital, zigzag bends, weak bridges etc. Similarly, in vehicle unit, RFID tags are installed in vehicle for transmitting vehicle related information. SIM 900L GSM modules are used for sending SMS alert data to configured.

2. RELATED WORK

This paper presents a fuel administering framework dependent on RFID innovation. The framework can improve the energizing cycle to make it a lot simpler, secure and dependable. It forestalls unapproved filling by relegating a predefined measure of fuel for enlisted vehicles, contingent upon their sorts, inside a particular timeframe so every vehicle will get an adequate measure of fuel. It likewise gives

effective insights about the different amounts of fuel at the stations. The framework was carried out at the Oil Products Distribution Company, The Distribution of Baghdad. It utilizes ELA816B RFID peruse with its aloof labels. It has a product application, constructed utilizing VB.Net, for enrollment of clients, refreshing their records and charging them for the assigned measure of fuel. The equipment a piece of this framework comprises of a microcontroller, card transfer, LCD and other fundamental electronic parts, and it is joined to regular fuel containers to make them work under the RFID innovation. The framework utilizes a brought together data set to permit fuel stations to have similar information about vehicles and related equilibrium. Extra highlights of this framework incorporate a site and a telephone application, which permit clients to login to their records.

3.PROPOSED SYSTEM

This system is made up by using Arduino that controls the complete system components i.e., RFID card, relay, motor. It also provides the facility of onsite recharge. The significant component of these comes is that it takes out human connection and maintains a strategic distance from the situation of dark advertising without administration man. On the fulfillment of gathering activity cash is withdrawals from card and the equilibrium is shown again on the LCD. when the equilibrium in clients account is low, the cycle won't be administrated and message will be shown as "Low equilibrium". Every one of the subtleties of date time and measure of petroleum will be put away inside the data set when the fuel is circulated.

4.BLOCK DIAGRAM

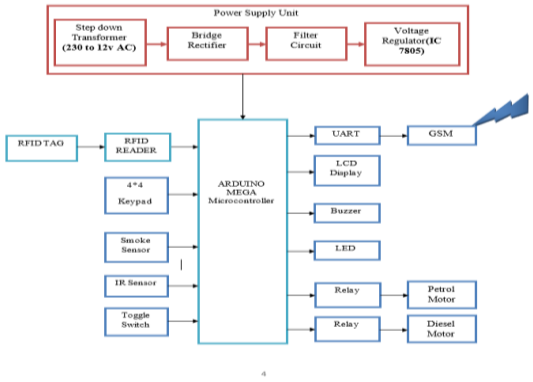

Fig -1: Block Diagram for Proposed System

5.WORKING PRINCIPLE

In this venture, the client having the petroleum card. It is examined utilizing RFID peruse. The peruse circuits produce great sign to peruse the grand reach. at the point when client shows this card on the peruse, the peruse read this magnificent number and given the relating sign to microcontroller. In microcontroller we tend to have effectively customized, so it checks the number if it's an authorized card and furthermore the relating data is appeared on the LCD show. The keypad is utilized to enter the expense of petroleum and accessibility of money. In microcontroller we will in general previously set time for liters. at the point when you entered the planned liters on the PC console the microcontroller enacts the hand-off driver for that particular timeframe. The driver circuit is utilized to kill ON, turn the engine. Driver circuit is straightforwardly associated with petroleum bunk, so it siphons the petroleum according to our planned amount entered inside the keypad. It is outfitted with GSM module to convey the data, for example, accessibility balance is shipped off the client's versatile number. The smoke sensor with ringer is associated with distinguish unintentional fire and sends an alarm message to bunk proprietor's versatile number.
The Arduino Integrated Development setting (IDE) could be a cross-stage application for various OS applications that is written in capacities from c and keypad. It. it's wont to compose and move projects to Arduino viable sheets.

6.EXPERIMENTAL RESULTS

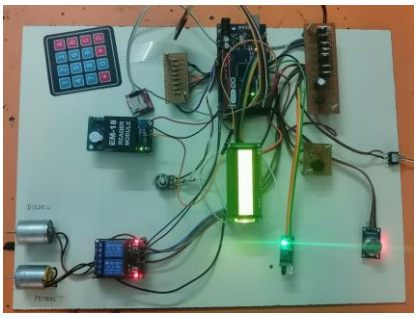

Fig -2: Experimental setup of activated device

Fig -3: Result in LCD display

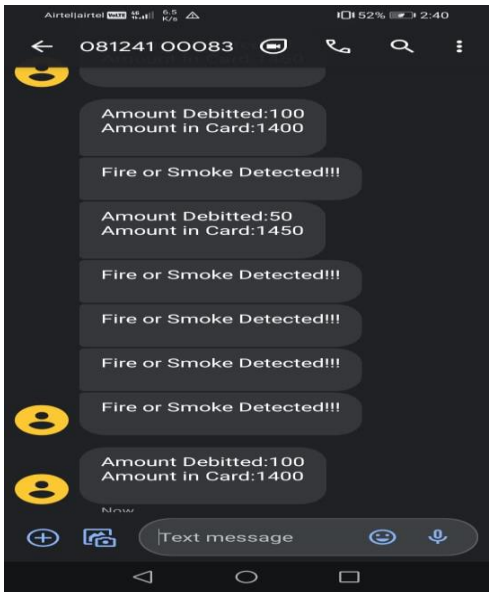

Fig -4: Result through GSM

7.CONCLUSIONS

RFID system is a versatile technology. This system is used in many application and real time application. In our application, RFID framework administers the right amount of fuel that diminishes the abuse of the fuel. What's more, it additionally decreases the labor. Furthermore, if the customer attempts to swipe with the unapproved card, the RFID framework dismisses the cardboard. In this strategy the framework is accordingly gotten. to get best execution the RFID peruses and Tag's ought to be in shrewd quality.

- Database management of customers can be done using IOT.
- Providing QR code scanning technology for individual customer can be implemented.
- Mobile application can be developed for checking status of individual such as place, date and time with the amount paid for petrol / diesel.

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