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PETROL BUNK AUTOMATION

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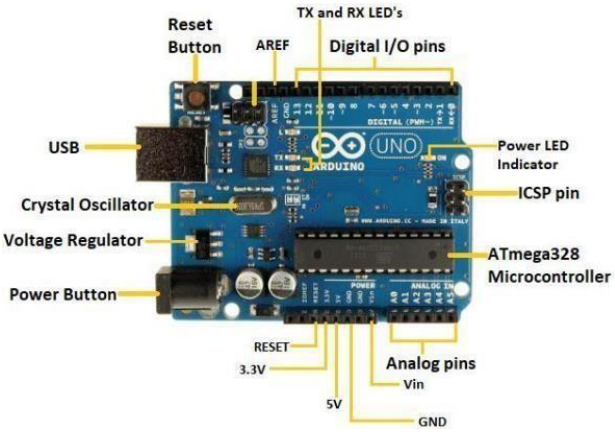
Abstract
This paper indicates the improvisation of manually operated petrol bunks, as of this method the automated petrol bunks the use of cloud communications and Arduino alongside with RFID reader is proposed. Every step is made person friendly, in which automated RFID reader is establish on the bunk. It is that once the person techniques the petrol bunk and swipes the cardboard on the RFID reader, it indicates the respective person details. Then, after verifying the information and password entered simply to conform the person after verifying required quantity of fuel is entered, then the relay sensor gets activated and fuel gets released. When the quantity assigned is filled the filling receives stopped automatically, after this procedure the message of transaction information is automatically despatched to registered cell variety of the user

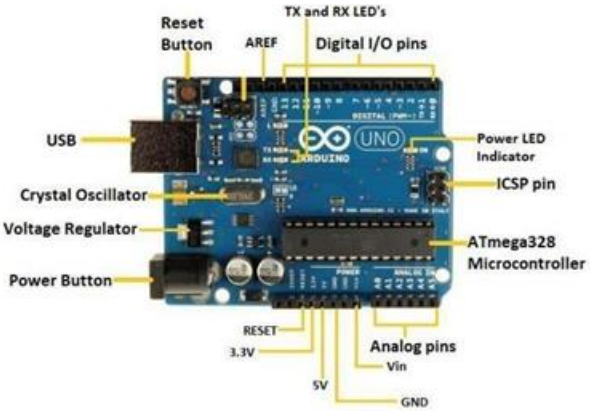
Introduction
Now-a-days petroleum products made an impact by performing a very important role in this world[1]. The cost of demand is very high. The day- to-day evaluation describes the demand of fuel kept increasing but how ever no other alternatives have been found. This is a step taken that has been initiated to control the consumption of fuel as well as to decrease the cost of demand[7]. In exception when it's get implemented, it somehow helps in controlling the traffic and pollution as properly hardly ever however surely.Based on RFID era and device automation generation we purpose to electronically improve the traditional. The LCD show unit will display the values that are entered through keypad with a view to assist the person to confirm electrical pump operation display unit and the keypad unit. The microcontroller unit controls the measuring by operating the pump for precise amount fuel stations. Petrol pumps these days normally have a microcontroller unit which controls the operation of time however none the less we want employee to go into the quality and collect money. Our proposed device is automated so that there is no manpower required to maintain pump. Ease of transaction, transparency and protection is confident to the customerstoo. Our goals is to reduce the operating manpower and to improve the current fuel stations to a entire new level stage the usage technologies. The RFID cards may be given to the customers, now the entire system of fuel dispensing is done by the user itself with the help of automated system for refuelling. The system is automated and System-user interaction is kept simple for the ease of his inputs. The device is nicely programmed that it automatically calculate the precise amount of fuel for entered amount and runs the pump for the correct calculated time interval, therefore it reduces the dishonest in fuel stations. Next era petrol bunk control for self-operation make use Arduino UNO moduleas the central controller unit, which co-ordinate with RFIDcard, electric motor, LCD display and Wi-Fi modem. Every time fuel gets dispensed, a invoice is scheduled to be generated with the information of the particulars which has been used, and could be delivered to the facts of billing and the invoice could be generated on the end of scheduled time for payment and the bill be sent as an SMS/e-mail to the concerned address. In this case, Cloud communicationplaying a vital role in sending notification to the user or client. In this manner several ideas are projected to get automated petrol bunk.

Materials required
Arduino Uno: the Arduino UNO is the main standard board of the Arduino. It has digital and analog input/output pins. The word Uno is one in the Italian language. The board consists of shields. Arduino. cc is a developed Arduino UNO board that is easy to use compared to other boards. It contains 6 analog pins and 14 digital pins, a USB connector and a power jack, and an ICSP header.

Arduino is used for the USB board used in a different types of projects. The program based on IDE can be used in both online and software forms.



RFID Reader: RFID Reader is powered via a development system where it is connected to. The presence of the power deliver is indicated by a LED marked power. When the RFID reader is turned on, a 125 KHz voltage is supplied on its antenna. As a result, the antenna starts emitting an electromagnetic subject important for analysing the RFID identification card.



LCD Display: The liquid-crystal display has the distinct gain of getting low electricity intake than the LED. It is normally of the order of microwatts for the display in comparison to some order of mill watts for LEDs. The low power consumption requirement has made it compatible with MOS-integrated logic circuits. Its other benefits are its low cost and good contrast. The main drawbacks of LCDs are an additional requirement of the mild source, arestrict temperature variety of operation (between 0 and 60° C), low reliability, short operating life, poor visibility in low ambient lighting slow, and the need for an acdevice.

Keypad: Keypads are a part of HMI or Human Machine Interface and play a really important role in a small embedded system where human interaction or human input is needed A keypad is a set of buttons arranged in a block or "pad"

GSM MODULE (SIM 900): The SIM900 is a complete quad-band GSM/GPRS solution in an SMT module that can be embedded in customer applications. Featuring an industry-standard interface, the SIM900 delivers GSM/GPRS 850/900/1800/1900MHz performance for voice, SMS, data, and fax in a small form factor and withlow power consumption. With a tiny configuration of24mm×24mm×3mm. SIM900 can fit almost all the space requirements in our M2M application, especially for theslim and compact demand of design.

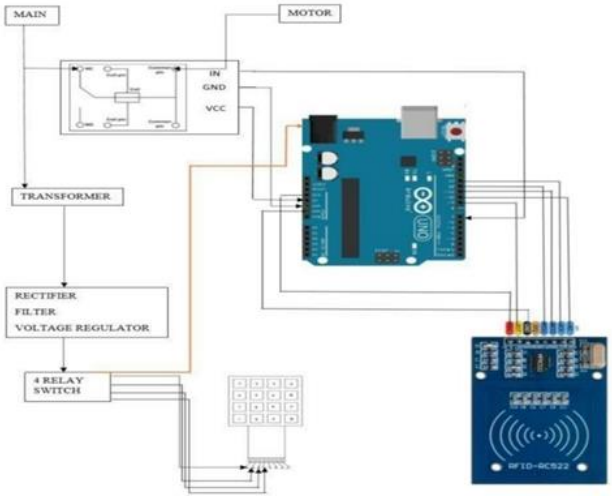
Smoke Sensor: Photoelectric smoke detection is normally greater conscious to fires that start with a long duration of smoldering (known as smoldering fires). “Photoelectric alarms react slower to rapidly growing fires than ionization alarms, but laboratory and field tests have shown that photoelectric smoke alarms provide adequate warning for all types of fires and be far less likely to be deactivated, occupants”. Although optical alarms are highly effective at detecting smoldering fires and do provide good enough safety from flaming fires.

Level Sensor: Level sensors detect the level of substances that flow, together with liquids, slurries, granular materials, and powders. Fluids and fluidized solids flow to become basically degree of their containers (or other physical boundaries) due to gravity while maximum bulk solids pile at an perspective of repose to a peak. The substance to be measured may be interior a box or may be in its natural form (e.g., a river or a lake). The stage sizecan be either continuous or point values. Continuous-levelsensors measure the level within a specified range anddecide the exact amount of substance in a certain place, even as point-level sensors only indicate whether the substance is above or below the sensing point. Generally,the latter detects levels that are excessively high or low.

Alarm: Electronic alarm systems are made up of three parts designed to detect, determine and deter criminal activity or other threatening situations. An alarm system can detect an event such as an invasion, fire, gas leak, or environmental changes; decide if the event poses a threat; and then send a notification about the event.

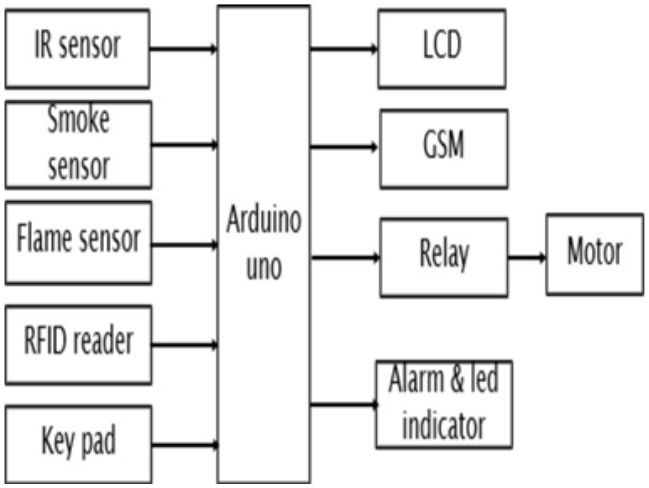
Software Requriments: The open-source software known as the Arduino IDE is used to create and upload code to Arduino boards. For different operating systems, including Windows, Mac OS X, and Linux, the IDE program is appropriate. The programming languages C and C++ are supported. Integrated Development Environment is referred to in this sentence. Sketching is a common term for writing a program or piece of code in the Arduino IDE.To upload the sketch created in the Arduino IDE software,we must connect the Genuine and Arduino board with the IDE. The sketch has the ". in" file extension.[3]

Circuit diagram

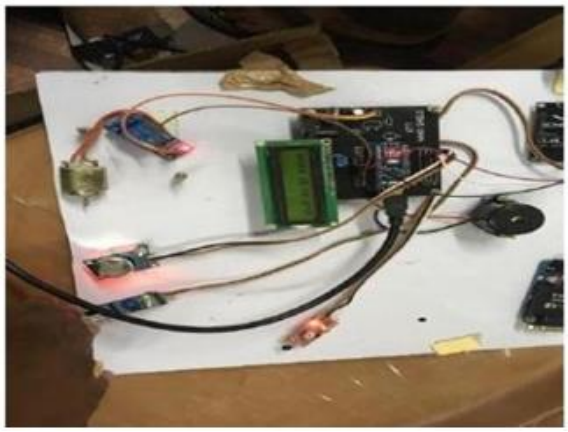


In the proposed system, the consumer will have a postpaidcard with a unique number which when he swipes on the RFID reader, the signal will be sent to the MIC. So, it checks the number whether is correct or not and displays information like the balance amount. The keyboard is employed to enter the number of fuels. In the microcontroller, there will be a time for the amount of fuel going to be released will be registered in advance. When the desired quantity is entered on the keypad, the microcontroller which is installed to activate the relay driver activates the relay driver for a scheduled period of time. When the user enters a value, it should not exceed the limit. When the balance is not available the alarm is activated. The driver circuit is employed to show ON and shut down the relays. The relay output is directly connected to the petrol pump.When the relay receives activated, automatically fuel will be released. Once this is done, the billing details of the transaction will be sent to the user`s mobile using the GSM technology

Block diagram:



Results and discussion:



When the RFID tag is scratched the limit is checked. If the limit exceeds, then the security system will automatically decline the card. If the limit is there then it will ask the amount

Conclusion:

The smart petrol bunk is to monitor thelimit of the consumption of the petrol. This process required sensors, motors of smaller size and required very less space. The approach sense using high wavelength light and actimmediately when the limit crosses the threshold. Theproposed system works efficiently and provides an automatic device to save human life.

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