Design of IoT New Rate Petrol Pump Automation

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Abstract- *In this project we are going to built automated petrol pumps systems for remote areas. With this smart petrol pumps there were no need to put physical person for distribution of petrol. This petrol pumps works with the IoT connectivity so that owner of Petrol pump will have overall control of this petrol station. When user needs fill the petrol in his bike firstly he checks for pricing online in that specific portal designed for this petrol station. Then he will select the nearby stations and pay for petrol amount after that he needs to go there for filling purpose. In the console of pump, he needs to put the OTP received via SMS in this petrol pump console. After that pump motor starts for appropriate In this project we are going to built automated petrol pumps systems for In this project we are going to built automated petrol pumps systems for remote areas. With this smart petrol pumps there were no need to put physical person for distribution of petrol. This petrol pumps works with the IoT connectivity so that owner of Petrol pump will have overall control of this petrol station. When user needs fill the petrol in his bike firstly he checks for pricing online in that specific portal designed for this petrol station. Then he will select the nearby stations and pay for petrol amount after that he needs to go there for filling purpose. In the console of pump, he needs to put the OTP received via SMS in this petrol pump console. After that pump motor starts for appropriate In this project we are going to built automated petrol pumps systems remote areas. With this smart petrol pumps there were no need to put physical person for distribution of petrol. This petrol pumps works with the IoT connectivity so that owner of Petrol pump will have overall control of this petrol station. When user needs fill the petrol in his bike firstly he checks for pricing online in that specific portal designed for this petrol station. Then he will select the nearby stations and pay for petrol amount after that he needs to go there for filling purpose. In the console of pump, he needs to put the OTP received via SMS in this petrol pump console. time and user will get the petrol.*

At the dashboard In this project we are going to build automated petrol pumps systems for remote areas. With this smart petrol pumps there were no need to put physical person for distribution of petrol. This petrol pumps works with the IoT connectivity so that owner of Petrol pump will have overall control of this petrol station. When user needs fill the petrol in his bike firstly he checks for pricing online in that specific portal designed for this petrol station. Then he will select the nearby stations and pay for petrol amount after that he needs to go there for filling purpose. In the console of pump, he needs to put the OTP received via SMS in this petrol pump portal user owner can get all the information about sales and daily station reports.

I. INTRODUCTION

In this project we are going to built automated petrol pumps systems for remote areas. With this smart petrol pumps there were no need to put physical person for distribution of petrol. This petrol pumps works with the IoT connectivity so that owner of Petrol pump will have overall control of this petrol station. When user needs fill the petrol in his bike firstly he checks for pricing online in that specific portal designed for this petrol station. Then he will select the nearby stations and pay for petrol amount after that he needs to go there for filling purpose.

In the console of pump, he needs to put the OTP received via SMS in this petrol pump console. After that pump motor starts for appropriate time and user will get the petrol. At the dashboard portal user owner can get all the information about sales and daily station reports.

First of all the petrol pump with our technology can be possible to operate all the time without help of manpower, In this project there will be a centralized server having the database of the customer like Customer Name, Card No, After paying the cash the petrol balance can be increased and depending upon the use of the card for purchase of petrol the petrol balance will be deducted

Automation of pumps will give oil companies accurate data on sales and control over any adulteration. The petrol pump is one of the next scenes for automation in India. In a move to curb fuel adulteration and to face the competition from the private sector, the state-owned oil marketing companies are implementing an end-to-end automation of the fuel delivery network.. A key facet of the technology-driven project, coming as it does after various measures dependent on manual intervention, is to introduce an electronic locking system for tanker-trucks transporting the fuel, and at select petrol pumps. Apart from making it more difficult for fuel adulterators, the companies are confident of offering improved

customer service and enjoying greater control over the retail outlets. According to a BPCL official, the electronic locking system on tanker-trucks and underground tanks would be linked to a central computer system. It would help the company monitor sales and stocks. The automation covers various oil companies accurate data on sales and control over any adulteration, which might happen at the retail end. These benefits will also flow to the customer.

1.1   CONFIUGRATION

For sharing Microcontroller ESP32 is the main device which is programmed to access all the necessary information and it acts as the central processing device of the whole system.

The supply voltage is from 5.0V to 12.0. The maximum operating frequency of ESP32 is 11.0592 MHz Microcontroller is interfaced with mobile via UART of information to the customer regarding the dispensing petrol and available balance. The NeXT ion display is used for filling out the amount.Nextion Display is used to show up the proper details.
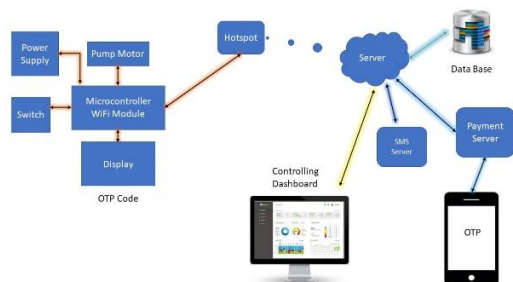
Block Diagram: IoT New Rate Petrol Pump Automation

The Buzzer is used as an electromagnetic switch for both pump and motor. The onboard power supply is used for regulating the power supply and control out the voltage and current flow.

WI-FI module is used to connect with the microcontroller. It is directly   connected to the microcontroller. The fuel tank is attached to the Motor pump. UART stands for universal asynchronous receiver transmitter used to connect the WI-FI module and microcontroller.

Above fig shown the block Diagram of petrol pump automation using iot based following are hardware and software used in this diagram touch screen display used for Input And Output. When user needs fill the petrol in his bike firstly he checks for pricing online in that specific portal

designed for this petrol station. Then he will select the nearby stations and pay for petrol amount after that he needs to go there for filling purpose. In the console of pump, he needs to put the OTP received via SMS in this petrol pump console. After that pump motor starts for appropriate time and user will get the petrol. At the dashboard portal user owner can get all the information about sales and daily station reports.
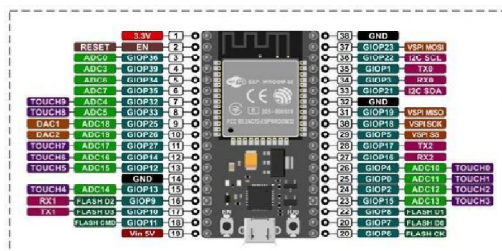

Fig. Wi-FI Module

A.   Description:

1.   The ESP32 chip comes with 48 pins with multiple functions. Not all pins are exposed in all ESP32 development boards, and there are some pins that cannot be used. There are many questions on how to use the ESP32 GPIOs. What pins should you use? What pins should you avoid using in your projects? This post aims to be a simple and easy to follow reference guide for the ESP32 GPIOs Not all GPIOs are accessible in all development boards, but each specific GPIO works in the same way regardless of the developme0nt board you're using. The ADC (analog to digital converter) and DAC (digital to analog converter) features are assigned to specific static pins. However, you can decide which pins are UART, I2C, SPI, PWM, etc. – you just need to assign them in the code. This is possible due to the ESP32 chip's multiplexing feature. The ADC input channels have a 12 bit resolution. This means that you can get analog readings ranging from 0 to 4095, in which 0 corresponds to 0V and 4095 to 3.3V.

2.   AIM, OBJECTIVES AND SCOPE

3.1. ADVANTAGE:

1.   Petrol station online Monitoring

2.   Fuel cards loyalty system

Integrated SILO control process with Bottle Filling Assembly machine system by detecting bottles by using PLC has been IOT based monitoring system
Easy to handle crowd as system will be available through mobile

3.2. APPLICATION:

1.   Petrol station online monitoring.

2.   Fuel pump controller.

3.   Fuel cards loyalty system.

3.3. FUTURE SCOPE

- The bidirectional current flow control naturally has smoothly mode transition because of the unified power stage model and the adopted unified controller, but for all the other mode transitions a certain control scheme is needed to develop and further investigated. The other mode transitions include transition between current mode battery charging and voltage mode battery charging control, transition between voltage mode battery charging and bus system voltage mode discharging, and transition between current mode battery discharging and voltage mode discharging.
- Research on the power management strategy is needed to incorporate with the mode transitions control scheme.

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