A Survey on Smart LPG Gas Refilling Booking System

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ABSTRACT: In these Era of automation all things are going to be advanced technically and practically. One of the most important thing is LPG cylinders, when the customers need LPG cylinders we book refilling request either by calling by messaging or by using DTMF(Dual tone multiple frequency) ,using this system we can book cylinder and inform distributors about requirement of cylinder ,but may happen that, cylinders are not available in their stock to distribute. To overcome this, we proposed our idea that, with the help of this system we don't need to measure weight of cylinder by ourself, it will be monitored by loadcell and checked daily, whenever the cylinders needs to be refilled, the distributor and the customer will get a message. Distributor will automatically refilling request from the customer through our service. This will help distributor to predict the future requirements of cylinders to refill. Customer need to install this system only once in a lifetime. It can be provided by Distributor at the time of connection.

KEYWORDS: ATmega328p controller, LPG Refilling, Intrenet of Things, Automatic Refilling request.

I. INTRODUCTION

LPG is comprised of Commercial Propane and Commercial Butane having soaked tooa sun immerse hydrocarbons. On account of its flexible nature of LPG it is utilized in numerous necessities, for example, household fuel, mechanical fuel, auto-portable fuel, enlightenment and so on and the interest for LPG is consistently expanding step by step. The condensed oil gas is utilized generally in homes, businesses and in auto-mobiles as fuel due to its attractive properties which incorporate high calorific worth, it makes less smoke and doesn't make a lot of damage the earth .Natural gas is another broadly utilized fuel in homes.

This paper is a viable and agreed method for checking the gas amount in the compartment, and to cozy as well as to put in a top off request in the particular branch office(gas office), through a message by methods for Internet. The consistent measure is finished utilizing the heap cell which understudy deals with the guideline of piezo electric sensor, i.e; at the point when a gas compartment is put on the Load cell it measures the weight and sends an electric heartbeat to the mictrocontroller which will contrast the Signal and a perfect an Ideal Value in type of computerized signal.

II. LITERATURE SURVEY

A review of completed and ongoing research has been conducted to identify current knowledge or methodologies Different strategies for gas booking are there in current framework. This framework shows that there is additional time required to convey LPG subsequent to booking. There is no such office of ceaseless gas level checking framework. And furthermore there is no arrangement for gas spillage location and control activity on gas spillage. We as a whole are occupied in our day by day life furthermore, it is hard to know the status of LPG gas chamber. On the off chance that LPG is going to complete without educating us it can make exceptionally troublesome condition for cooking and so on. There is no office for gas spillage discovery and control activity.

Current System in Village

We book gas chamber when it gets vacant by calling gas office and office will gives us booking number, with this booking number we got receipt from office. At that point one needs to go in store space for taking chamber.

Current System in City

In current framework there is office of booking gas by calling organization and naturally enlisted of versatile number also, address of proprietor. So the organization conveys the chamber on that address. Be that as it may, there is likewise issue happen if gas will finish inside that days then we need to sit tight for conveyance of LPG.

Savvy Gas Booking System

Our proposed structure can assist us with avoiding such sort of issue in our day by day life. Our plan depends on micro controller, it persistently screen level of the gas. In the event that the gas level is ranges to the edge level, at that point naturally SMS send to the organization and chamber is reserved. It likewise has arrangement to identify gas spillage and controlling, the controller handle is turn off consequently if the gas spillage is happens.
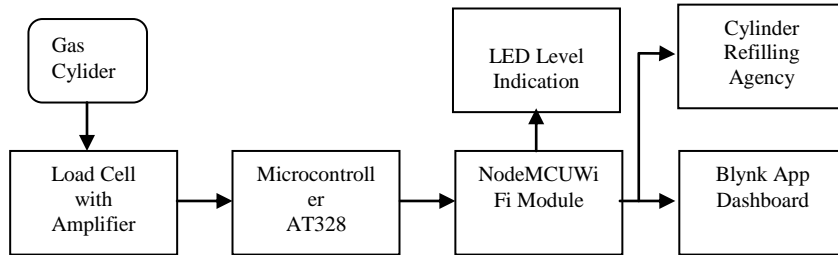
III. SYSTEM DESIGN

A. *Block Diagram*
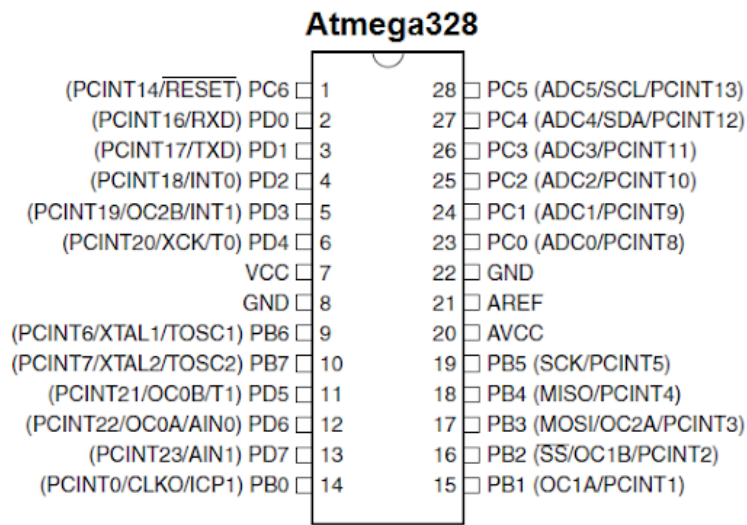

Fig 1. Block Diagram

- **ATmega328p**:

Fig 2.AT 328 Pin Diagram

AVR Microcontroller was created by the "Atmel Enterprise". The Microcontroller incorporates the Harvard design that works quickly with the RISC. The highlights of this Microcontroller incorporate various highlights contrasted and other like rest modes-6, inbuilt ADC (simple to computerized converter), inward oscillator and sequential information correspondence, plays out the guidelines in a solitary execution cycle. These Microcontroller were extremely quick and they use low capacity to work in various force sparing modes. There are various designs of AVR microcontrollers are accessible to perform different activities like 8-Bits, 16-Bits, and 32-Bits. It is an 8 bit and 28 pin microcontroller. It follows RISC architecture and flash memory of 32kb. It will be used as primary microcontroller of the system. All the peripherals will be interfaced with this microcontroller.

- **Load Cell & Amplifier:**A load cell is a transducer that is used to convert a force into an electrical signal. The various types of load cells that exist include Hydraulic load cells, Pneumatic load cells and Strain gauge load cells. We are also using Amplifier HX711 for signal shaping of load cell. This will give data in digital format.

- **Node MCU:** NodeMCU is a low-cost open source IoT platform. It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which was based on the ESP-12 module. Later, support for the ESP32 32-bit MCU was added. It is used to connect the system to internet through WiFi Module. It will help to update the data continuously on internet.
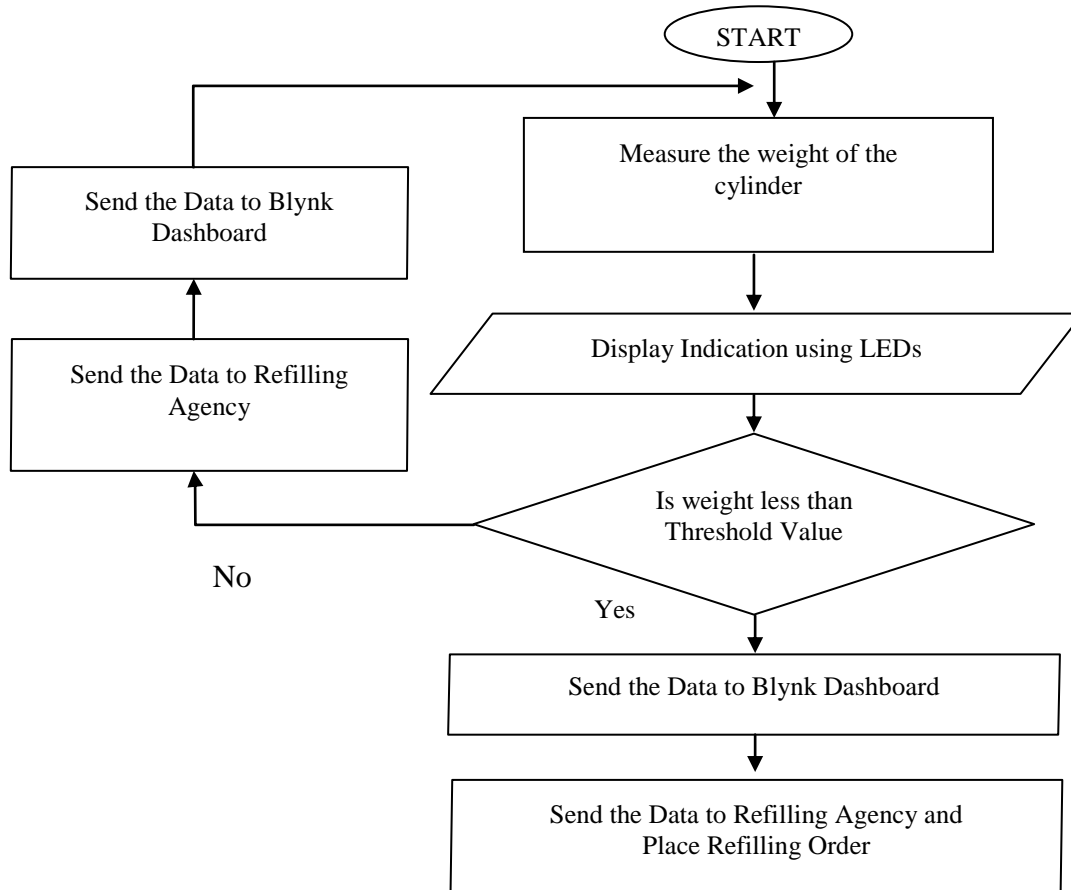
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B. *Flowchart*

Fig 2. Flowchart

IV. SYSTEM WORKING

The load cell will measure the weight of the working cylinder after every 24 hour.The system that is Nodemcu which is connected to the user mobile through the blynk app. If the measured weight of cylinder is found below the desired threshold it will generate an alert message to both the customer and to distributor. So with this provision the distributor will come to know the desired quantity of cylinders will be required in future. After this the confirmation button is provided for customers to place the order of cylinder.There is also a provision that if there is not a use of internet connection we will provide a GSM module for non-smartphone user and also there are 4 LEDs of different colours are also connected. So that every LED will notify the below percentage of the gas present in a cylinder.So that, the customer will get every update of the use of his cylinder.In Traditional Method, we can book Refilling request either by calling, by messaging or by using DTMF. This system we can book cylinder refilling With prior alert before time

V. CONCLUSION

Our system is designed and tested for customers and also for distributors so that they will come to know about the requirements of cylinders in future. This system measures the weight of cylinder in every 24 hr and it will notify to user.As soon as the cylinder is going to be empty the customer and distributor both will be notified through blynk app. Now-a-days as we all know about the requirement of LPG is going on a big demand. From the use of cylinder up to the use of petroleum pipeline. The biggest advantage of this system is it will stop the selling of cylinders in black.It is an

efficient home security system and also can be use in hotels and other places where cylinders are used. The cost involved in developing the system is significantly efficient to user and it will small amount of time to be user friendly.

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