Domestic LPG Monitoring and Regulating System Using IOT

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Abstract: **In this project, an LPG stand incorporated level indicator, which does not disturb the path of LPG is made, unlike the existing system, which has a gauge in the path of the fuel gas. This system uses piezoelectric sensor, measuring the amount of LPG is considered in mass and is displayed as a percentile in output LCD screen. A mobile application will be generated, which transmits the level of LPG in percentile, and when the percentage reaches 20%, it alerts the user to go for the next booking, it also alerts the user via text message for non- Smartphone users.**

Keywords: **GAS, IoT, SMS, WiFi, Sensor, Piezoelectric.**

I. INTRODUCTION

In today's world energy consumption is a major act carried out. One of such usage is LPG, this method of fuel is used in almost all homes, in every part of the world, one of the main difficulties faced in it is the unawareness of empting of fuel, and inconvenience in booking for the next cylinder.

Considering this problem, in this project, a LPG stand incorporated level indicator, which does not disturb the path of LPG in a cylinder is made. Unlike the existing system, which has a gauge in the path of the fuel, that many people think it's not safe at home.

With the help of this project we are aiming to receive the predicted days of availability of fuel for consumption, percentage of available fuel and an alert for booking at the critical level, from a remote location and to the centralized office with the confirmation of the customer. In this way efficient and conservative fuel consumption can be observed. This improves the effectiveness of the agency to the delivery of the refill cylinder

This idea is economically efficient as well because we can get the available amount with the persisting technology by means of a simple SMS or by means of the android application.

The arduino based system continuously records the readings by means of a piezoelectric sensor, for measuring the weight of the LPG, i.e., the amount of LPG measured in mass and is displayed as a percentile in output LCD screen. A mobile application will be generated, which transmits the level of LPG in percentile, and when the percentage reaches 20,it alerts the user to go for the next booking, and predicts the number of days the LPG is left for usage, it also alerts the user via text message for non-Smartphone users.

II. RELATED WORK

A. ARM Processor

This structured framework identifies the spillage and cautions the customer about hole by sending message that enacting the alert. The extra favorable position is that it constantly screens the amount of the LPG present in the chamber utilizing load sensor [3] and if the weight of cyclinder is underneath the edge level around 2.5 kgs so the client can supplant the old chamber with new in time and consequently books the chamber utilizing a IOT .The gadget guarantees security and forestalls suffocation and blast because of spillage with Leakage .This paper is structured ,actualized and utilizing ARM 7 processor and reproduced utilizing keil programming The flaw in the recently referenced model is no security for the customer, and similarly as the usage of processor as opposed to controller.

B. GSM with no secure block

For preparing nourishment we as a whole uses LPG gas. In INDIA gas distributer uses IVRS, SMS or ONLINE saving for LPG which are dreary procedures in speedy running life. We find uneducated people are not prepared to complete these duty and involved schedule people they haven't satisfactory time to do all the activity. Additionally security assumes the significant job. In the paper MQ-6 gas sensor is use to distinguish the spillage gas. After that spillage motor will close the controller and through GSM message is send to the customer.

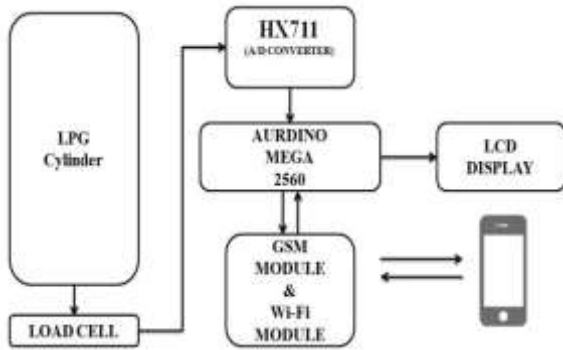## III. WORKING OF THE TECHNOLOGY

Fig 1.Layout of Gas booking System

The stack cell is a transducer that is used to make an electrical sign whose degree is honestly comparative with the force being assessed .The cylinder is kept over the stand that is embedded with the load cell. The electric current of smaller magnitude is produced by the load cell. This analogy signal from it is converted by means of an A/D converter (HX711). The digital signal is received and is sent to the arduino mega 2560, and as per the calibrated program and values, the output is shown in the display and/or to the phone. The serial parameter is the value that is used to trigger the GSM module to send the SMS or to the android application to send a notification. The serial parameter limit is set such that, when the value reaches 20% of the total value an alert has to be sent via the GSM module, else only the monitoring has to be carried out.

Whenever a text message is sent to the GSM module, a return message carrying the level information should be sent back. This process carried out is real-time.

IV. RESULT

Simulation Output:

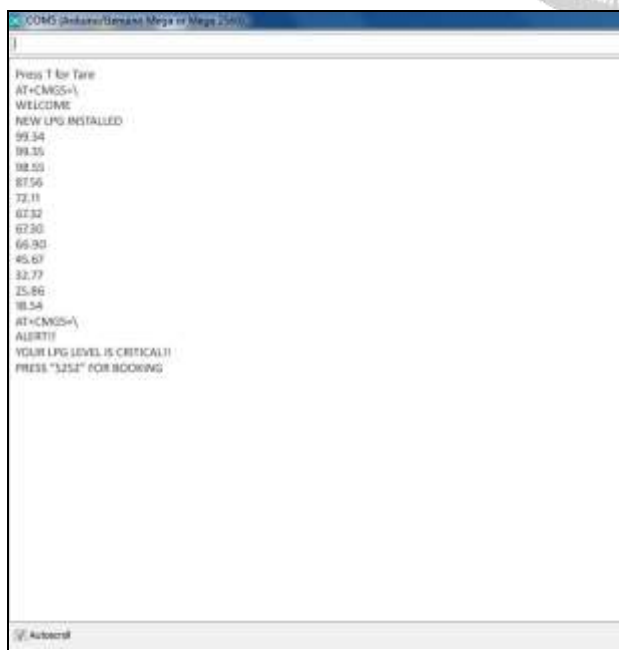Fig 2 Simulation output

V. REAL TIME OUTPUT (GSM / SMARTPHONE)

The figure shows that the whole system operates on automatic mode. The microcontroller continuously measures the amount of LPG consumed by the user. If the amount of LPG consumption exceeds the given limit (20%),it gives an alert message to the user by an SMS and/or by the android application , and automatically redirect the user to the booking of next LPG cylinder.

The figure shows the SMS message when the amount of LPG reaches the 20% of the overall available amount. The microcontroller continuously measures the LPG consumed by the user. If the consumption exceeds below the given limit, it gives an alert message to the user and he/she will be redirected to the booking process of the next cylinder with the confirmation and by the knowledge of the user.
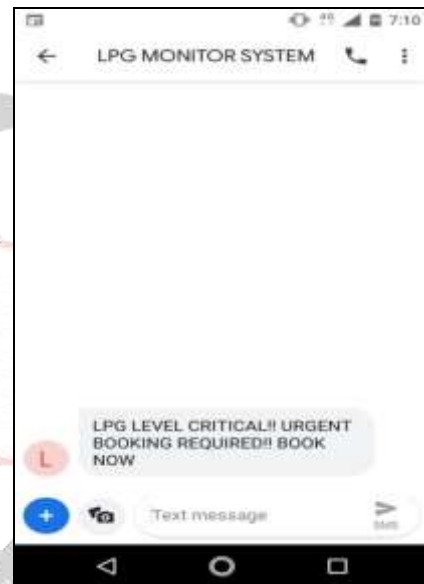

Fig 3 Screenshot of text message generated by the system

Fig 4 Screenshot of android application that monitors the system

The figure shows the android application, that monitors the usage of LPG in real-time, and is shown graphically for a monthly period. The microcontroller continuously measures the LPG consumed by the user. If the consumption exceeds below the given limit (20%), it gives a notification to the user and he/she will be redirected to the booking process of the next cylinder with the confirmation and by the knowledge of the user. It also predicts the availability of the cylinder in days.

VI. CONCLUSION

The concept of LPG monitoring and regulating system using IOT is implemented in my project which will reduce the various disadvantages that we have in our conventional system. In present scenario, LPG monitoring and regulating system using IOT can be implemented in smart homes. This paper ideas eliminates the unawareness of emptying of the domestic cooking fuel, which has been an inconvenience since the implementation of LPG cylinder in homes. In future our project can be implemented to a vast extend in our homes, industries and other places were refillable cylinders are used. I believe my project can create huge impact in the upcoming days as we are marching towards the concept of automation that will enhance our lives in the best way leading us towards smart living and will help us in economical usage of the domestic fuel, and save energy for our future generation so that we can make this world a better place for the entire human race in the present as well as in the future.

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