



Automatic gas booking system and leakage detection using IOT

Mr.S.Nachimuthu, Assistant Professor Department of ECE, Velalar College of Engineering and.,R.Sree devi ,M. Sheela ,S.Sinthu, M.Vishnupriya B.E Student, IEEE Student Member Department of ECE, Velalar College of Engineering and Technology, Thindal,Erode.

email: rsreedevi04@gmail.com

Abstract: This journal explains about the most common problem experienced in our day- to- day lives that is regarding GAS cylinder going empty. We bring this paper to create awareness about the reducing weight of the gas in the cylinder, and to place a gas order using IOT. The gas booking/order is being done with the help IOT and that continuous weight measurement is done using a load cell which is interfaced with a Microcontroller. When it comes to security of the kit as well as gas container we have an MQ-2(gas sensor).the gas sensor detect the leakage and the servo motor turn off the regulator.

Index terms: Arduino, GAS cylinder, IoT, GSM, Gas Sensor, DC motor, switch, LCD display, relay.

I. INTRODUCTION

This paper is an effective & affirmative way of monitoring the gas quantity in the container, and to intimate as well as to place an refill order in the respective branch office(gas agency), via an message by means of internet through GSM module. The continuous measure is done using the load cell which intern works on the principle of piezoelectric sensor, i.e.; when an gas container is placed on the load cell it measures the weight and sends an electric pulse to the arduino which will compare the pulse with an

ideal value in form of digital (the electric pulse is converted in to equivalent digital value). If the compared output is high then it sends a pulse (high) to the arduino which will update it to the internet but doesn't place an order, but if the compared output is low then it send a pulse(low) to the arduino using GSM which will update it to the internet an even place an gas refill order. When the gas leakage present in the regulator the gas sensor detects the leakage and sends high pulse to the arduino, using DC motor the regulator will be turn off.

II. RELATED WORK

There are very few existing models for the same requirement. So the models have to be discussed to provide their flaws and Reason for the origin of this new model.

A. GSM Technique

This designed project economical, automatic LPG booking, leakage detection and real time gas monitoring system is proposed in this paper. In this system, the LPG leakage is detected through the sensor and information is sent to the

user by SMS & simultaneously alerts the customer using a GSM module. The additional advantage of the system is that it continuously monitors the level of the LPG present in the cylinder using weight sensor and automatically books the cylinder using a GSM model.

This model is it contained GSM which is an old technique used & has a bit of lack of awareness for the uneducated people.

B. GSM with no secure block

Now a day's every one want a facility which reduce their efforts, time and provide a way to do their work more easily. For cooking food we all uses LPG gas. It mostly uses in domestic fuel, industrial fuel and automobile fuel. In INDIA gas distributor uses IVRS, SMS or ONLINE booking for LPG which are time consuming methods in fast running life. We find uneducated people are not able to do these task and busy schedule people they haven't sufficient time to do all the activity. Also safety plays the important role. As we all know that much accident happens due to gas leakage [2]. So to avoid these difficulties we develop paper. We design a paper by considering a safety issues and also provide Easy way for LPG booking. In the paper MQ-6 gas sensor is use to sense the leakage gas. After that leakage motor will close the regulator and through GSM message is send to the user. This model is very near to the present model but has some setbacks that is it will make use of an motor which will get heated up(easily) and may be the cause of an accident, and even more it to makes use of the GSM model.

C. MQ-2 (Gas Sensor)

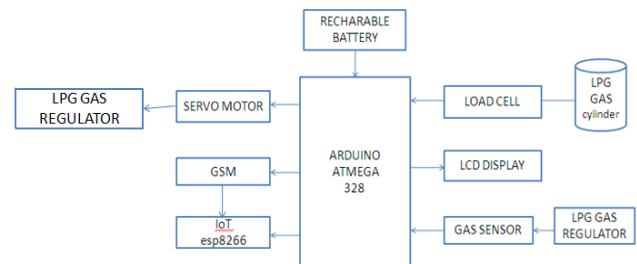
MQ 2 sensor is only for an LPG(liquefied petroleum gas) which is composed of propane & butane. when an gas leakage is sensed by the sensor it will send an high pulse to the arduino

and it sends the instruction to the dc motor to turn off the regulator.

D. DC Motor

The leakage detection is another part of our system. In which a rack and pin arrangement is driving using a dc motor. The arrangement has two sensor attached to it. The DC motor is used

BLOCK DIAGRAM FOR AUTOMATIC GAS BOOKING AND LEAKAGE DETECTION CONTROL



to close the regulator automatically.

III.SYSTEM ARCHITECTURE

Figure 1. Block Diagram Gas booking System

The above block diagram shows the outlay of the entire paper which has been discussed above the hardware requirements are quite limited & easily available as well as less feasible. The gas cylinder is placed on the Load Cell and it constantly keeps on sending the electric pulses to the arduino to compare it with the ideal value. When the value is lower than the ideal values then it will updated to the IoT and using GSM board the message is send to the gas station. The LCD display is used to display the status of the

gas cylinder and as well as to report if any

accident is to occur.

IV.RESULTS

FIG:4.1 GAS LEVEL MONITORING.

The figure shows the load cell measure the weight of the gas cylinder and the LCD display is used to display the weight of the gas cylinder.

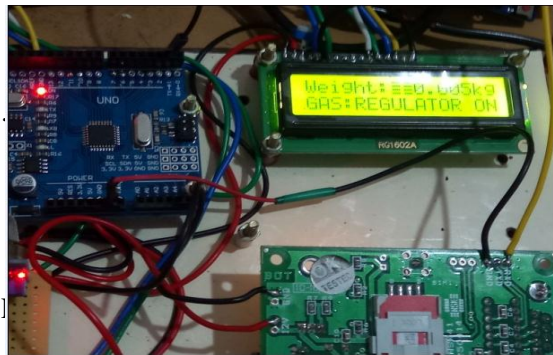


FIG:4.2 GAS ORDER PLACED

The figure shows the updation in the internet through GSM for any change in the LPG gas level, the measured weight is under the ideal value then it is updated to arduino using gsm module the gas order is placed.

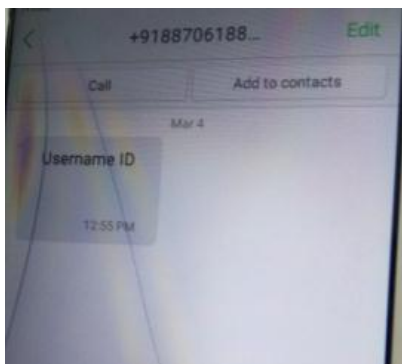


FIG:4.3 GAS LEAKAGE MONITORING

The figure shows the status of the gas regulator. And it is display in the LCD display.

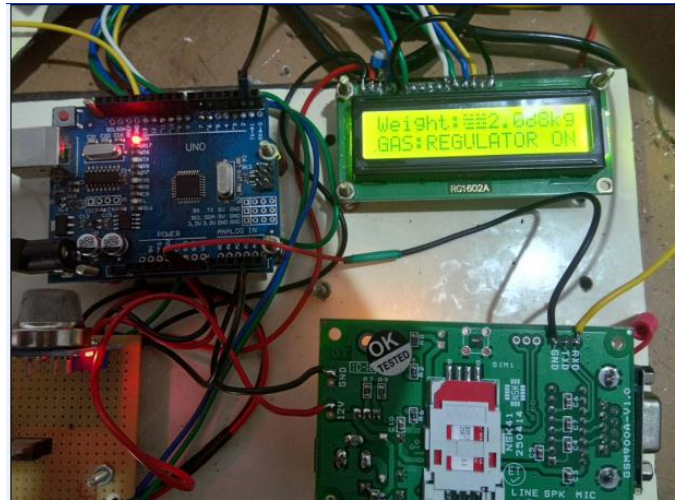


FIG:4.4 INITIAL SETUP

Initially the regulator is open so the switch is ON.



FIG:4.4 GAS LEAKAGE DETECTED

The figure shows the status of the gas sensor, its continuously sense the gas leakage. If any leakage is present in the gas regulator it will updated in the arduino.



FIG:4.5 LEAKAGE CONTROLLED

The figure shows that the arduino sends instruction to the dc motor and the dc motor close the regulator. So the switch is OFF



V.CONCLUSION.

Hence, from the above discussion we can conclude that the paper (Automatic Gas Booking

using IoT) is absolutely ethical for the application of the users who consume (use) gas in their daily life. It not only helps in making he work easier but also plays a major role in the security /avoidance of accidents to the user and helps in leading an easy life

VI.REFERENCES

- [1]. Prof. S. K. Nanda B. B. Didpaye. Automated uni_ed system for lpg using microcontroller and GSM module a review.
- [2]. International Journal of Advanced Research in Computer and Communication Engineering, IJARCCCE, 4(1), January 2015
- [3]. Mahesh S.R Pooja R Preethi K. Mane Kumuda S. Shivalingesh B.M,Ramesh C. LPG detection, measurement and booking system. IJRSI, 1(6),November 2014
- [4]. Shailendra Kumar Dewangan³ Praveen Singh Rathore⁴ Abid Khan¹, NejuK. Prince². Gsm based automatic lpg ordering system with leakage alert.IJRET: International Journal of Research in Engineering and Technology,3(12), Jun-2014.
- [5]. P Rajasekar S Shyamaladevi, V G Raja ranya and P Sebastin Ashok. Arm7basedautomated high performance system for lpg refill booking & leakage detection. International journal of engineering research, science and technology (IJERST), 3(2), May, 2014.
- [6]. Dr. M. Dhanabhakyaam& T. Sumathi. A study on customers attitude and satisfaction towards hp lpg in house hold. The SIJ Transactions on Industrial, Financial and Business Management (IFBM), 2(2), March-April 20143323