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AUTOMATIC GAS BOOKING AND LEAKAGE DETECTION

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ABSTRACT

In modern day's safe gas leak detection or safe use of LPG cylinder and automatic booking of gas which is a time consuming process is a major issue hence, we will deal with this issues in our project. The accident that occurs are mainly because of gas leakage so we are now identifying the gas leakage and controlling it without any human interface gas booking can also be done without any human interface. The most economical and cost effective automatic LPG booking as well as leak detection or real time gas monitoring system is proposed in this paper. The main aim of this paper is to monitor LPG gas leakage and avoid accidents thus by providing home safety feature. The system proposed will detect the gas leakage using MQ6 sensor. This will also alert the consumer about the leakage issue by sending SMS and also subsequently activate the alarm and exhaust fan. The salient feature of this system is that it is continuous monitoring of LPG level in the cylinder using weight sensor. This will help automatically rebooking the cylinder on reaching minimum level.

KEYWORDS Data encoding; network-on-chip (NoC); coupling switching activity; Liquid Petroleum Gas(LPG) low power, power analysis.

1. INTRODUCTION

In our country using pipelines LPG supply is not possible because of LPG production scarcity. Even though technology improved, booking of new cylinder is very difficult for customers because of their busy schedules. Gas leakage is very dangerous when it occurs in chemical industry, any domestic usage or other applications. In our project we are dealing with this issue to solve gas

leakage by providing automatic booking of gas cylinder. Using IVRS system consumer complaints were

solved, with this customer can dial gas agency using toll free number and follows the interactive instructions. At end IVRS will tell customer number and confirms it and also confirm cylinder refill by pressing 1. Most of the illiterate people facing difficulty in call handling and unable to utilize this

technology. So in our project we are completely automated gas refill booking process without human involvement, this will make it easier for the customer against foul. Our project also helps consumers to enhance their safety standards importantly preventing from accidents and protect human property, lives from disasters. The main aim of our project measure the gas level in the cylinder and compare it with the fixed load. If gas level is below the fixed load, automatically gas retailer gets new cylinder booking order and message will be sent to the house owner about the booking proceedings. And second main aim is to prevent explosion of LPG and damage by providing any gas system mal-function information.

2. RELATED WORK

All over India many people uses LPG cylinders we have to wait few days for the new cylinder once it is booked now no cost efficient idea is convenient which detects when cylinder is get empty. So there is need to design and develop a system which identifies the quantity of the cylinder and book the cylinder automatically and identify gas leakage to reduce irregularities and providing better service to customer. Design and develop of an automatic LPG booking and leakage detection system. The automatic LPG booking and detecting system aims at providing the information about the level of the gas present in the cylinder

and also it monitors LPG leakage. All the information's are displayed on LCD display and its send to customer mobile number.

3. PROPOSED METHOD

In this chapter we describe the proposed diagram of automatic LPG gas booking and identification system, also software and hardware required for the development of system. The overview of the block diagram is shown in Fig 3.1.

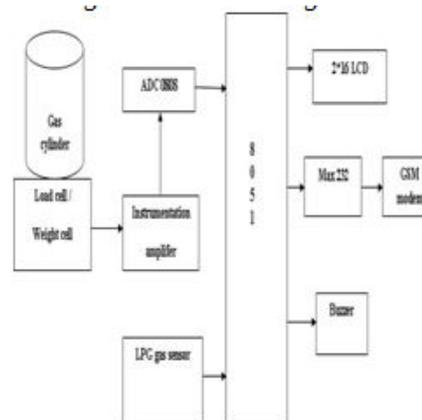


Fig 3.1 Block Diagram for proposed system

The cylinder is placed on the weight cell and the readings of the weight cell are given to the Instrumentation amplifier. Instrumentation amplifier amplifies the signal strength of the weight cell, these signals are fed to the ADC0804. The ADC0804 converts the analog signals into the digital signals and given to the 8052 microcontroller. The microcontroller displays the ADC0808 readings on 2X16 LCD and those readings are compared with threshold values respectively. When it reaches $\frac{1}{4}$ the

of cylinder automatically message will be sends to the customer using GSM model.

When there is gas leakage, it will be sense by the LPG gas sensor and sensor pulses will be given to the 8051 microcontroller. The microcontroller automatically turns ON the buzzer and alert message will be sends to the customer.

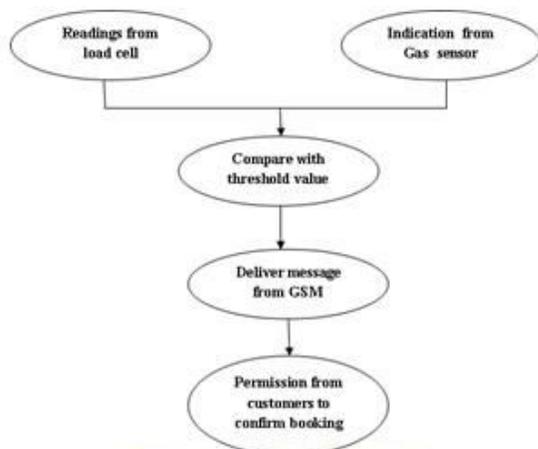


Figure 3.2 Overview of the system

The overview of the system is as shown in Fig.3.2. The cylinder is placed on weight cell and the weight cell readings given to the ALPGBDS. Then the system compares the readings with threshold values. Based on output of the system, GSM sends message to customer. Finally based on his/her requirement customer can confirm the booking.

In this system gas leakage we are giving main priority for gas leakage identification. This system contains gas leakage identification system protections circuitry MC with GSM module. Gas leakage identification contains gas sensor which detects gas leakage in air. MQ6 placed in vicinity of LPG gas cylinder for gas leakage identification. By

emergency of LPG gas leakage sensor will increases its conductivity by decreasing its resistance. Respective pulses is sent to MC and results are concurrently switches the buzzer MQ6 gas sensor provides many uses like low-cost, high sensitivity, reliable and long life-time to LPG. By default gas leakage detection sensors connected to channel 0 and ADC0804 take this input to produce high pulses. +5v is given as logic high pulse to INTO pin of MC as an interrupt. In this system the amount of gas is continuously monitored by displaying the same on the LCD. Here the weight of gas is measured day by day with 24 hours of delay. So microcontroller selects the channel 1 of ADC to take input from load cell to measure Based on the written algorithm microcontroller compares the fed value with the threshold value and displays the weight on the LCD and if it exceeds threshold value then the message for confirmation of booking is sent to the customer and waits for customer response, based on his requirement customer need to confirm the booking. Once customer replied his confirmation, system books the gas automatically. The overall system block diagram is as shown in Fig. Based on specifications of load cell and gas leakage detector, both the sensors generate analog voltage output. This analog voltage is given to Analog to Digital converter which consist of 8 channels out of which two are used in the project. We need to continuously detect.

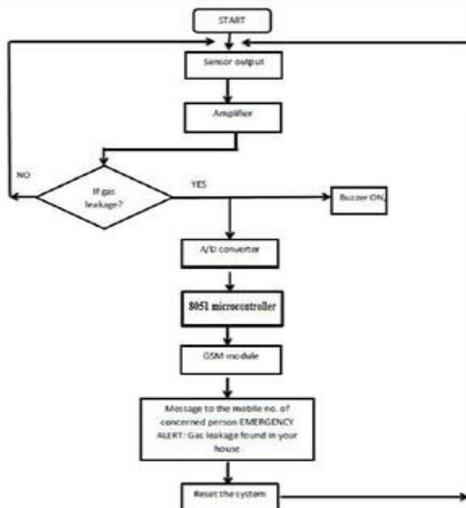


Figure 3.3 Flow chart of leakage detection

Monitoring the level of the cylinder: In this system the amount of gas is continuously monitored by displaying the same on the LCD. Here the weight of gas is measured day by day with 24 hours of delay. So microcontroller selects the channel 1 of ADC to take input from load cell to measure weight of gas cylinder.

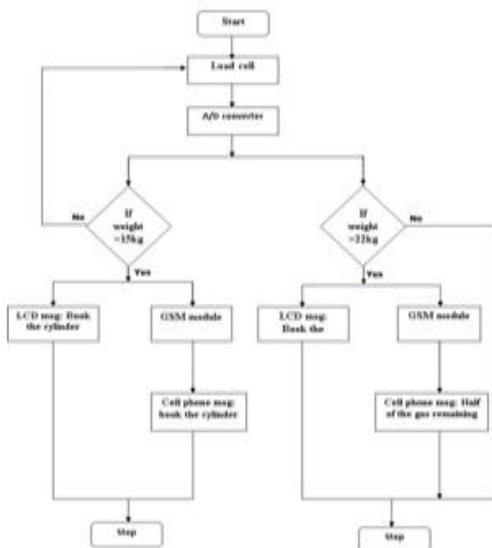


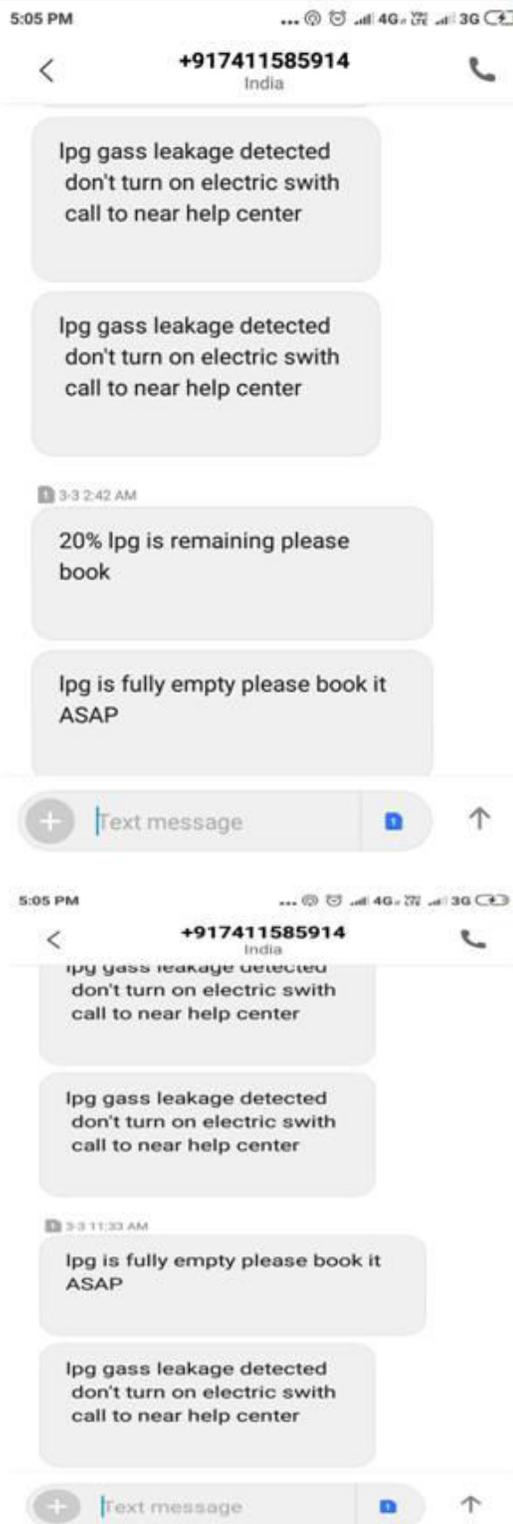
Figure 3.4 Automatic gas booking system

Based on the written algorithm microcontroller compares the fed value with the threshold value and displays the weight on the LCD and if it exceeds threshold value then the message conformation of booking is sent to the customer and waits for customer response, based on his requirement customer need to conform the booking. Once customer replied his conformation, system books the gas automatically. The work is as shown in the figure The overall system block diagram is Based on specifications of load cell and gas leakage detector, both the sensors generate analog voltage output. This analog voltage is given to Analog to Digital converter which consist of 8 channels, out of which two are used in the project. In air we are continuously detecting the gas leakage, so gas leakage detector is given to default channel. For automatic LPG booking, processor selects other channel which is meant for monitoring load cell. The hardware setup which is used for automatic booking of the cylinder

4 RESULT

Wei	Gas	Condition	Message
15k	Empty	128	Empty
g	cylinder		cylinder is placed
30k	Cylinder	255	Cylinder
g	+gas		r is full
22k	Cylinder	190	Half of
g	+gas		the gas remaining
15k	1kg gas	140	Book
g	remainin		the cylinder

Table 4.1 Gas weight details and messages



5 CONCLUSION

Now a day's major concern is safety. At present many approaches are available for gas leakage identification and automatic booking. In our project we advanced the system with the help of new approach which increases the efficiency of the system. By this system Gas leakage is identified alert SMS will be sent to the customer about gas leakage and emergency measure system trigger the alarm. This system provides fully automated approach regarding gas booking along with the detection of gas leakage. Weight checking of the gas and displaying on LCD makes ancient home security system.

6 REFERANCE

1. A CheSoh, M K Hassan, and A J Ishak Vehicle Gas Leakage Detector.
2. Automated unified system for LPG using microcontroller and GSM
3. module- A Review B. B. Didpaye1, Prof. S. K. Nanda2.
4. ARM 7 based automated high performance system for LPG refill booking and leakage performance detection. S Shyamaladevi1*, V G Rajaramya2, P Rajasekar1 and P Sebastin Ashok1
5. ATMEGA 16 Datasheet; www.atmel.com
6. D M Han and J H Lim (2010), Smart Home Energy Management System Using IEEE 802.15.4 and Zigbee, IEEE Trans. on Consumer Electronics, Vol. 56, No. 3, pp. 1403-1410.
7. GSM World statistics". GSM Association. 2010. Retrieved 2010-06-
8. Automated uni_ed system for LPG using microcontroller and GSM module- A Review B. B. Didpaye1, Prof. S. K. Nanda2