

## DETECTION OF LPG LEAKAGE BY LIVE MONITORING AND CONTROLLING FROM SMART PHONE

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**Abstract** - The project aim is to design and develop a cloud connected smart LPG gas cylinder platform, acting as a safety device for detecting LPG gas leak at low levels to avoid any possible accidents. It is also capable of sensing fire breakout in the area and weight of the gas in order to provide real time monitoring and alert over Internet. If an abnormal condition is detected, the device sends an alert to the smart phone of the user and also generates an alert to other authorities. In addition to this upon detecting a gas leakage or a fire breakout, the device automatically takes safety precautionary measures, like gas valve closing, ventilation opening, fire sprinkler activation and home electrical power supply cut-off.

**Key Words:** LPG gas leak; firebreakout ;gas valve closing;ventilation opening; fire sprinkler.

### 1.INTRODUCTION

A large number of residential gas spills happen each year, with many prompting to wounds, passing, hardware harm, and a shocking ecological impact. There have been many taking care of this issue, yet with restricted achievement. A remote gas spill identification with mugginess and temperature detecting arrangement by means of SMS utilizing GSM innovation. The recognition happens when the propane and butane is available and the approach is assessed that to control the controller through SMS. The trial setup is conveyed with GSM and gas, moistness, temperature sensor interfaced with the controller from which the information are transmitted to the recipient unit i.e., versatile in this way the gas spillage are checked consistently even the temperature and mugginess esteem additionally redesigned after each recognition the SMS is sent to the concerned individual.

### 2. LITERATURE SURVEY

Anindya Nag, Asif Iqbal[1] proposed that Gas detecting innovation has been one among the topical research work. This paper demonstrates the exploration done on the discovery system of

spillage of household cooking gas at encompassing conditions. Small scale electro mechanical frameworks construct inter digital sensors were manufactured in light of oxidized single-precious stone silicon surfaces by the maskless photolithography method. Dangdang [2] proposed a method constrained air and gas holes are ordinarily identified utilizing sensor innovation. In this commitment the utilization of aloof IR- thermography is proposed to allow remote hole recognition by evaluating the subsequent temperature profile unsettling influence because of extension of forced gas. Remote estimations are favorable as they are simpler and more secure to direct. Shanbi Peng, Enbin Liu [3] proposed a method that another strategy to recognize spillage in view of transient model enhances a conventional run of the mill line technique. By finishing the pipeline transient model, it is watched that the time taken for startup to settle is less devoured. The distinctive plan is enhanced, so that there is no compelling reason to do consistent state reproduction.

### 3. EXISTING SYSTEM

A number of methods are reported that pipeline analysis frameworks offered ascend to ultrasonic sensors these sensors, however unaffected by ecological conditions, don't gauge the power of the break, are still not able to decide its cause. A hole discovery framework that just associates with the remote umbrella

#### 3.1 DISADVANTAGES

- Content mode permits just constrained elements of SMS.
- It doesn't show the accurate amount of gas leaked.

**4. PROPOSED SYSTEM:**

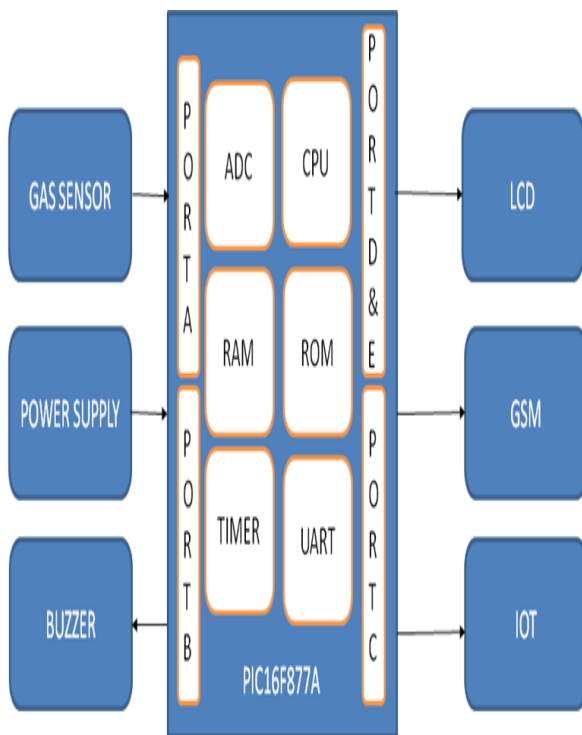
As soon as an LPG gas leakage or a fire breakout is sensed, the device automatically takes the following precautionary measures.

- Closes the gas valve.
- Opens the air ventilation.
- Shuts-off the home electricity, to prevent electrical sparks.
- Provides a loud local alarm to alert neighbours.
- Sends a smart phone alert to the owner.
- Sends an alert to the owner or authorities.
- Waits for the gas concentration to return to normal.

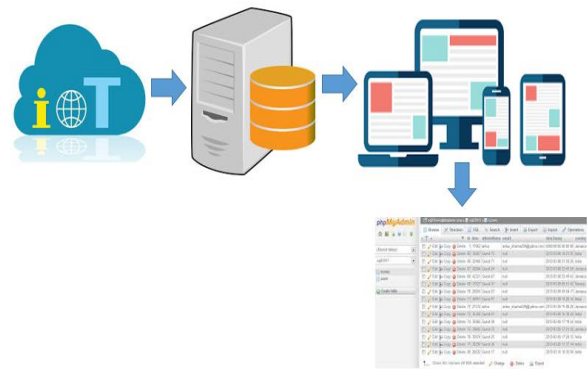
**4.1 ADVANTAGES:**

- In addition to SMS alert, it also stores all the leakage information in the database.
- It also gives the accuracy on the amount of gas leaked.

**5. BLOCK DIAGRAM:**



**RECEIVER**



**Fig -1:** Block diagram of our proposed method

**5.1 UART**

- UART is a simple half-duplex, asynchronous, serial protocol.
- Simple communication between two equivalent nodes.
- Any node can initiate communication.
- Since connection is half-duplex, the two lanes of communication are completely independent.

**5.2 ADC**

**Analog-to-Digital converter (ADC, A/D, A-D, or A-to-D)** is a system that converts an analog signal, such as a sound picked up by a microphone or light entering a digital camera, into a digital signal. An ADC may also provide an isolated measurement such as an electronic device that converts an input analog voltage or current to a digital number proportional to the magnitude of the voltage or current.

**6. RESULTS AND DISCUSSION:**

**Fig 1.**



Fig 1, shows the image after implementation which consists of gas sensor, LCD display, GSM.

## 7. CONCLUSIONS

In this project, the proposal, implementation and validation of a distributed gas leak solution is done for domestic places with amount of gas detected. In our system architecture, gas sensor is placed around a region of interest in a plant, and they all report to a concerned person via SMS using GSM technology. In mobile we will receive the humidity value and temperature value as well the gas leak detect to the user via SMS.

## ACKNOWLEDGEMENT

The authors can acknowledge any person/authorities in this section. This is not mandatory.

## REFERENCES

[1].“Novel Sensing Approach for LPG Leakage Detection :Part I- Operating Mechanism and Preliminary Results”,Anindya Nag, IEEE Sensor Journal,Volume 16,No.4, February 15,2016.

[2].“Leakage Region Detection of Gas Insulated Equipment by Applying Infrared Image Processing Technique”, Dangdang Dai, 2017 9th International Conference on Measuring Technology and Mechatronics Automation

[3].“Oil &gas pipeline leakage detection based on transient model”, Shanbi Peng, Enbin Liu, 2011 International Conference on Computational and Information Sciences