

# **GAS LEAKAGE MONITORING AND ALERTING SYSTEM FOR INDUSTRIES**

## **LITERATURE SURVEY**

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# **1. Gas Leakage Detection and Alert System using IoT**

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The Internet of things (IoT) is the system of gadgets, vehicles, and home machines that contain hardware, programming, actuators, and network which enables these things to interface, collaborate and trade information. IoT includes broadening Internet network past standard device, for example, work areas, workstations, cell phones and tablets, to any scope of generally stupid or non-web empowered physical device and ordinary articles. Installed with innovation, these gadgets can convey and connect over the Internet, and they can be remotely observed and controlled. The meaning of the Internet of things has advanced because of the union of numerous innovations, ongoing examination, AI, wear sensors, and implanted frameworks. Conventional fields of installed frameworks, remote sensor systems, control frameworks computerization (counting home and building mechanisation), and others all add to empowering the Internet of things. A gas spill alludes to a hole of petroleum gas or different vaporous item from a pipeline or other regulation into any territory where the gas ought not be available. Since a little hole may steadily develop a hazardous convergence of gas, spills are perilous. Notwithstanding causing flame and blast dangers, holes can slaughter vegetation, including huge trees, and may discharge amazing ozone harming substances to the environment. The advantage of this simple gas leak detector is its simplicity and its ability to warn about the leakage of the LPG gas. This system uses GSM technique to send alert messages to the respective person if no one is there in the house and then gas leaks occur, GSM module is there to send immediate messages to the respective person regarding the gas leak. The main advantage of this system is that it turns off the regulator knob of the cylinder automatically when gas leakage is detected.

## **2.Portable Gas Detection Device With Warning System**

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Authors : Tarun Joseph; Kirti Tyagi; Dr. Y. S. Rao

Liquid Petroleum Gas (LPG), Natural gas or Carbon monoxide(CO) are one of the most commonly used gases in households as well as industrial applications. However, they are also the reasons for accidents caused due to negligence and explosions causing damage to life and property. The mishaps occurring due to negligence can be easily avoided by intimating the concerned personnel beforehand. The Internet of Things (IoT) combines various technologies to augment our lives. This paper proposes a portable gas detection system which is rechargeable and will continuously monitor the surrounding for unexpected presence of dangerous and harmful gases and immediately alerts the user of the leakage through a buzzer and notification on his android phone.

LPG, CNG and CO gases are widely used in homes, hospitality industry, agriculture, transportation, electricity generation, in laboratories to perform various experiments, in chemical industries and many more. Ignorance of gas leaks and subsequent blasts have resulted in numerous accidents in India taking many lives. The gross number of accidental deaths due to LPG leakage in India during 2014 was 3525. Patients with impaired olfaction are at greater risks of experiencing such hazardous situations. Especially for such people or maintenance workers, we bring in our portable gas detection system which will continuously monitor the harmful gases around them whose values can be seen through our android application and a notification will be sent if the threshold is seen approaching. Everyone with the android application will receive the notification. Alerts are made by using the techniques mentioned in the solution. It is a compact, battery operated and easy to use device which requires one time installation.

### **3.Gas Leakage Detection Based on IOT**

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Authors:Suma V, Ramya R Shekar, Akshay Kumar A

The Internet of things endeavours towards making life simpler and faster by automating the entire small tasks associated with the life of humans. Today, everything is getting smarter due to technological progress such as IOT. Gas leakage results in a serious problem in households and other areas where household gas is used, therefore the proposed gas leakage detection and monitoring system is developed. Authors have used MQ-5 sensor to detect and sense the gas leakage, it senses molecular hydrogen,LPG, CH<sub>4</sub>(methane), CO(carbon monoxide) and Alcohol, This proposed system is not only capable of Sensing or detecting the gas leakages as well as alerting the user about the gas leakage by buzzer alarm and sending notification to the user in the other side automatic LPG booking is allowed this is done by using load cell ,as soon as the LPG reaches below the threshold level it will send a notification about the low weightage of LPG by getting notification user can be able to book a LPG by just confirming message through the mobile which is connected to Wi-Fi. Usually in homes or industries, most of the disaster happens due to gas leakages, which leads to several accidents and also causes human life. In order to handle such a situation, the proposed gas leakage detection and monitoring system is developed and put forth in this paper. This paper thus put forth a new proposed system which is a microcontroller based application of gas booking and gas detection systems using IOT. The sensor used in this model can sense and detect the leakage of the gas, and the user gets notification regarding the remaining percentage of gas in the cylinder,thus ensuring safety.

## **4. Gas Leakage Detection and Smart Alerting and prediction using IoT**

Published: July 2017

Authors : Asmita Varma; Prabhakar S; Kayalvizhi Jayavel

IoT is an expanding network of physical devices that are linked with different types of sensors and with the help of connectivity to the internet, they are able to exchange data. Through IoT, the internet has now extended its roots to almost every possible thing present around us and is no more limited to our personal computers and mobile phones. Safety, the elementary concern of any project, has not been left untouched by IoT. Gas Leakages in open or closed areas can prove to be dangerous and lethal. The traditional Gas Leakage Detector Systems though have great precision, fail to acknowledge a few factors in the field of alerting the people about the leakage. Therefore we have used the IoT technology to make a Gas Leakage Detector having Smart Alerting techniques involving calling, sending text message and an e-mail to the concerned authority and an ability to predict hazardous situations so that people could be made aware in advance by performing data analytics on sensor readings. In order to have a control over such conditions this paper proposes a system that uses an MQ-2 sensor which is capable of detecting gases such as H<sub>2</sub>, LPG, CH<sub>4</sub>, CO, Alcohol, Smoke and Propane. This system is not only capable of detecting the leakages and hence presence of excess amounts of harmful gases and alerting through audible alarms but also, with the help of IoT, alerting the concerned authority about the condition before any mishap takes place through a personal call and message using GSM module, an email about the details of the area using an Ethernet Shield. The system cuts off the main power supply of the house or building when the concentration of gas is about to reach its Lower Explosion Limit (LEL) which is done with the help of relays. The Gas Leakage Detector System also sends the sensor reading to the cloud so that analytics could be carried out on the readings for increasing the precision of the system.