

# Gas Leakage Monitoring and Alerting System for Industries

<b>PROJECT NAME</b>	GAS LEAKAGE MONITORING & ALERTING SYSTEM FOR INDUSTRIES
<b>TEAM ID</b>	PNT2022TMID03557
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<b>BRANCH</b>	ELECTRONICS AND COMMUNICATION ENGINEERING

## **Abstract:**

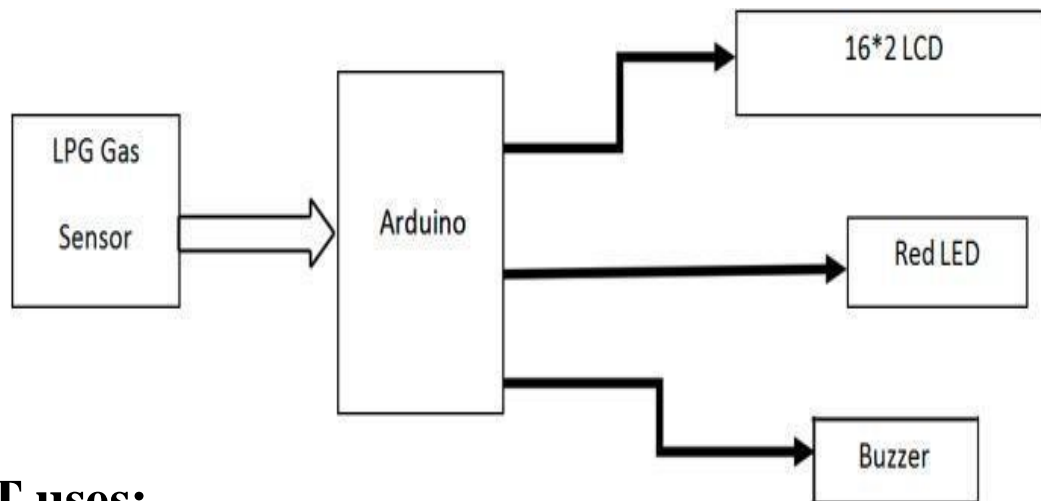
Gas leaks can be fatal and harmful, whether they occur in open or closed spaces. In large-scale companies, harmful gas leakage detection is monitored and tracked. We can eliminate the risks by utilizing Wireless Sensor Networks, an advanced technology. Devices and networks will significantly increase environmental and local population safety. Regarding their industrial limit, power, energy use, and structure.

## **Introduction:**

Industrial hazards have been occurring regularly over the past ten years. We need to take precautions because there are so many deaths. We can avoid the risks by utilizing the most recent technologies. These gases could include poisonous substances and be combustible, which is even riskier. Modern technology is available in the Internet of Things to address these issues. This system is incredibly dependable and effective. It has the ability to detect gases including CO, CO<sub>2</sub>, LPG, and CH<sub>4</sub>. Not only do these wireless sensor networks include built-in detection and warning mechanisms. With alerting messages, the detection information can also be disseminated to those below the environment.

## **Objective:**

The main goal of the proposed Gas Leakage Detection and Automatic Control System (GLDACS) is to build an automatic system that can detect liquefied petroleum gas (LPG) leaks in homes and control them by turning the cylinder knob off. A gas leakage detector becomes essential and aids in defending individuals from the risks associated with gas leaks. Techniques for detecting gas leaks have been the subject of several research articles.

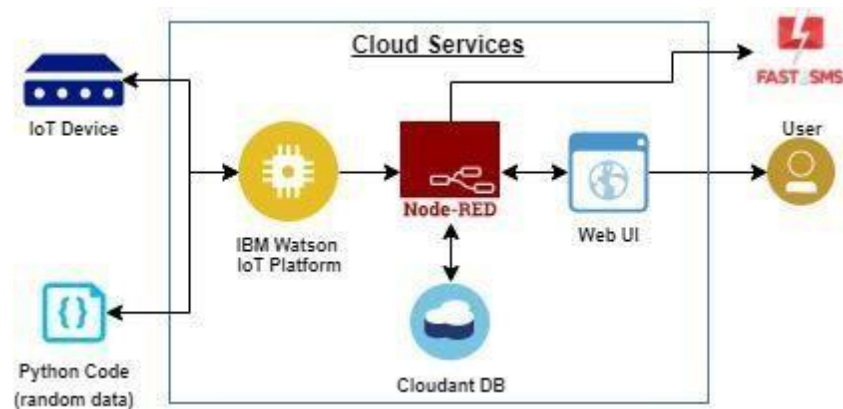


## **IoT uses:**

The extremely flammable substance known as liquid petroleum gas (LPG) is a combination of propane and butane. LPG is used for cooking in homes, restaurants, and other commercial settings. They have a few imperfections, which let the gas out. Gas leaks can only be noticed by nearby humans; if no one is present, they cannot be found. A person with a poor sense of smell might not always be able to detect it, though. As a result, this device will help in gas leak detection.

Gas leaks have the potential to cause fires that damage property, result in severe injuries, or result in fatalities. This system's real-time feedback and notification capabilities were made possible through the usage of IOT during development.

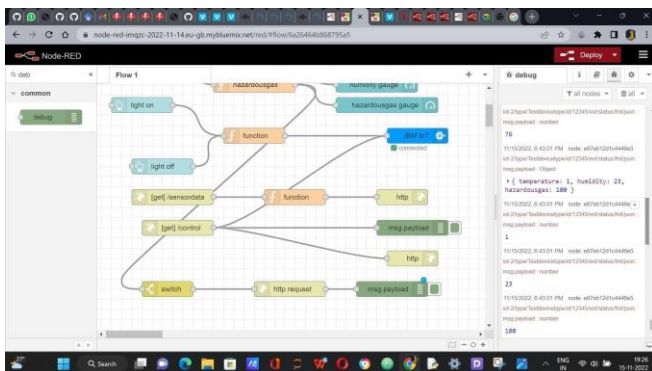
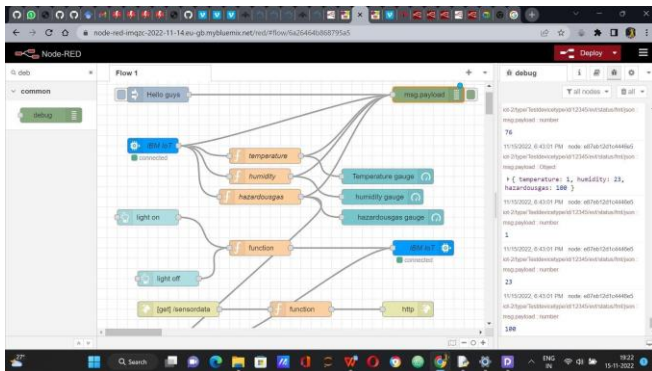
The required basic electronics components for designing a microcontroller based LPG leakage detector circuit mainly include Arduino Pro Mini, LPG gas sensor module, buzzer, BC 547 transistor, 16×2 LCD, 1K resistor, bread board, 9 volt battery and connecting wires.



Step 1:

Creating service with IBM cloud and Node-red.

Step 2:



Connecting the flow with IBM modules with node red packages

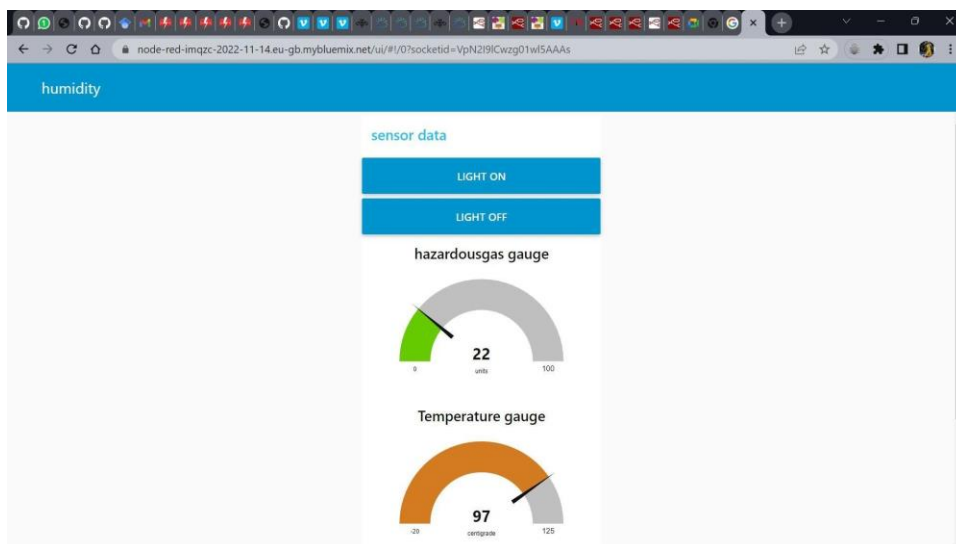
Step 3:

By using python we have connect the IBM using authentication keys.

Step 4:

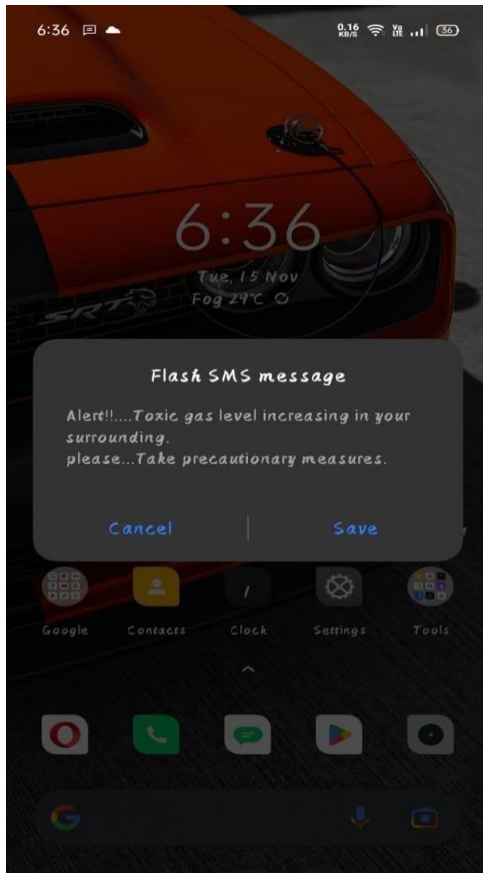
Create UI in node red.

Browse to the web in the Browser.



Step 5:

For mobility and easy notation services, The Fast2sms is used.



Step 6:

Using MIT app inventor app, user interface app is created.

APP Link:

<http://ai2.appinventor.mit.edu/b/193fq>



### *Smart Home Application*

Temperature 97

Humidity 30

Toxic Gas Level 22

Lights ON Lights OFF

## **Gas Sensors:**

Electronic devices called gas sensors (sometimes referred to as gas detectors) are used to locate and classify various gases. They are frequently employed to gauge gas concentrations and identify explosive or dangerous gases. Gas sensors are used in manufacturing facilities and factories to find gas leaks and to detect smoke and carbon monoxide in residential buildings. Gas sensors come in a wide range of sizes (portable and fixed), sensing capabilities, and ranges. They frequently function as a component of a larger embedded system, such as security and hazmat systems, and are typically connected to an interface or audible alarm. Gas sensors require more frequent calibration than many other types of sensors since they are continually reacting with air and other gases.

However, in our project we have used random output value generated in Python

## **Conclusion:**

In this study, we employ IOT technologies to raise the bar for current safety regulations. The goal of creating this prototype was to revolutionize environmental safety by eliminating any major or small hazards brought on by the release of hazardous and dangerous gases into the environment. We created a Gas Leakage Detector for society using IOT technology, and it has the capacity to do data analytics on sensors and Smart Alerting techniques that send text messages to the relevant authorities.