

“The Internet of Things is about creating a smarter, more connected world, where devices can communicate with each other to make our lives easier and more efficient.”

~Eric Schmidt, Executive Chairman of Alphabet (Google)

Smart Gas Leakage System

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Introduction

International for Fire & Rescue Services-
2020

24.2% in residential budlings

82% death only in residential budlings

Average 20 incidents per 1000
inhabitants



Objective

An IOT system that can monitor gas leakage and spot potential fires.

Hardware :

Arduino Uno Wi-Fi Rev 2

Raspberry Pi 3

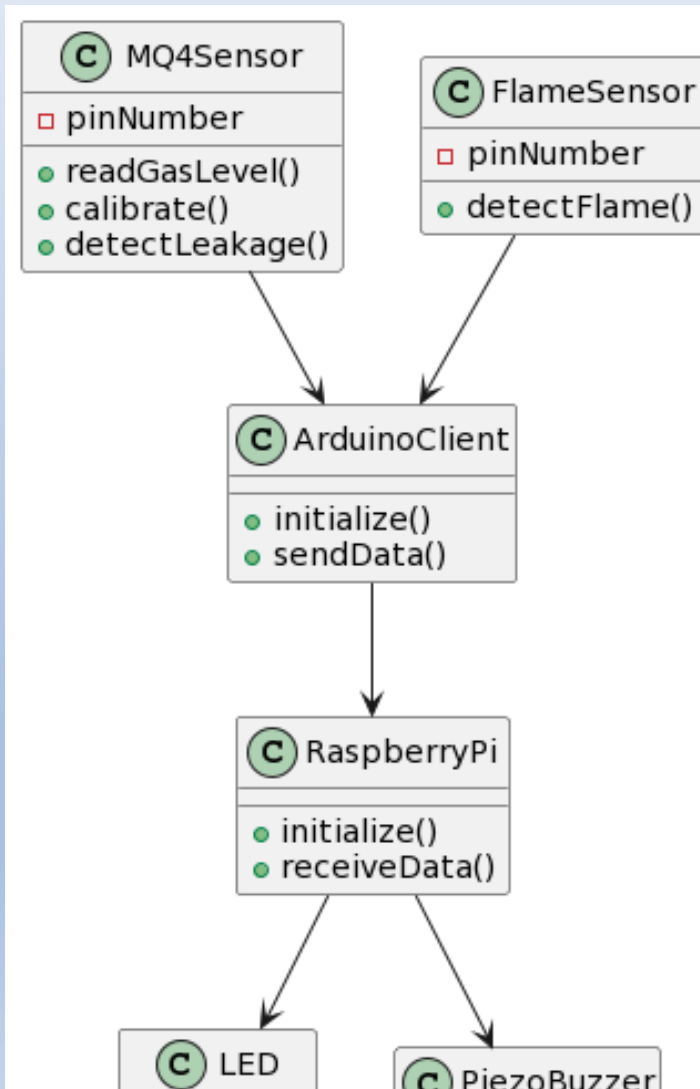
Sensors and Actuators (MQ4 Gas, Flame sensor ,LED,Piezo buzzer)

Software:

Arduino Uno IDE

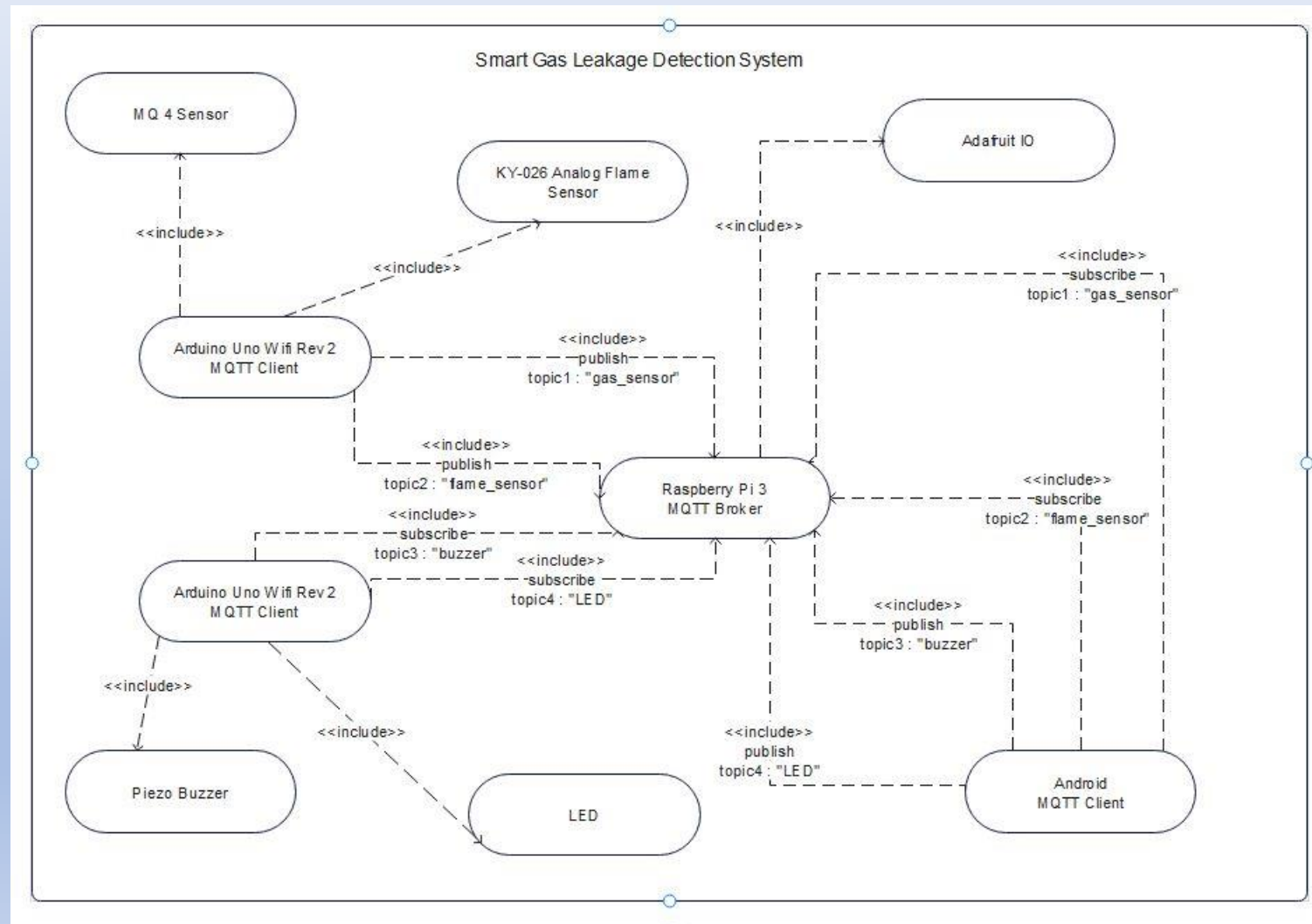
Raspberry Pi Imager

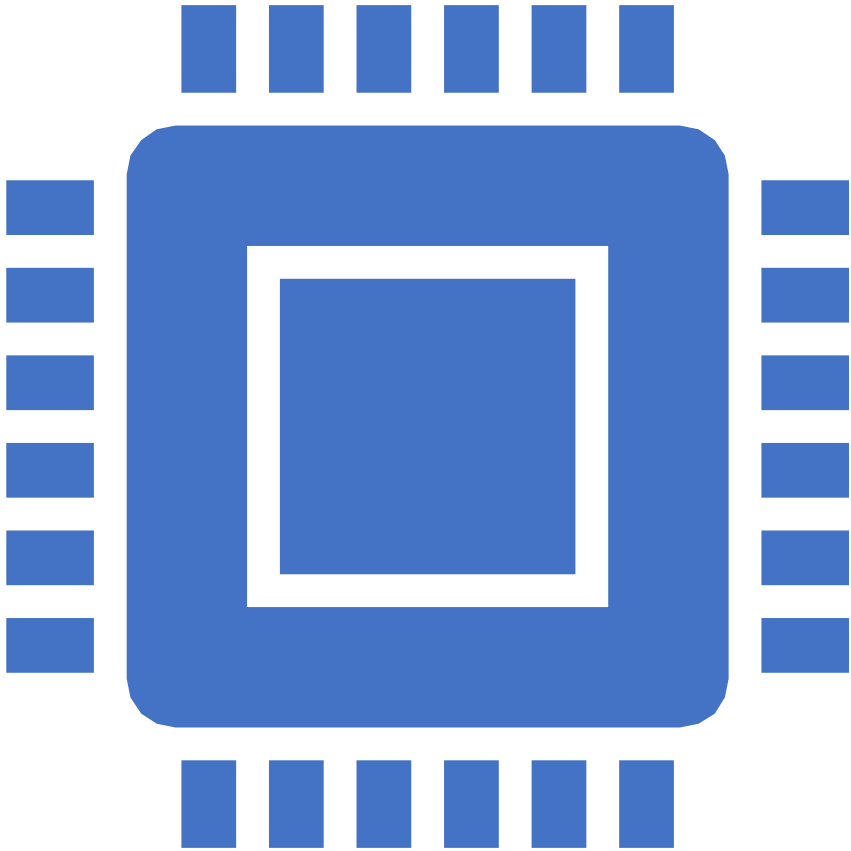
Class Diagram/Use Case Diagram



System Framework

- Block Diagram





Initial Task To Final Rendition

- Programming Arduino for Sensor reading
- Programming Arduino for Actuator control
- Simultaneous Iterations
- Raspberry PI as MQTT broker

OutPut

```
Output  Serial Monitor x
Message (Enter to send message to 'Arduino Uno WiFi R
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
Gas Sensor: 3%
Flame Sensor: 4%
```

```
Output  Serial Monitor x
Message (Enter to send message to 'Arduino Uno WiFi Rev2' on 'COM5')
11:43:52.546 -> Buzzer turned OFF
11:43:53.569 -> LED turned OFF
11:43:53.569 -> Buzzer turned OFF
11:43:54.636 -> LED turned OFF
11:43:54.801 -> Buzzer turned OFF
11:43:55.602 -> LED turned OFF
11:43:55.645 -> Buzzer turned OFF
11:43:56.430 -> LED turned OFF
11:43:56.430 -> Buzzer turned OFF
11:43:57.459 -> LED turned OFF
11:43:57.501 -> Buzzer turned OFF
11:43:58.489 -> LED turned OFF
11:43:58.526 -> Buzzer turned OFF
```

```
Shell
Gas Sensor Reading: 3
Flame Sensor Reading: 4
Gas Sensor Reading: 3
Flame Sensor Reading: 4
Gas Sensor Reading: 3
Flame Sensor Reading: 4
Gas Sensor Reading: 3
Flame Sensor Reading: 4
```



≡ Gas-Fire Monitoring






Flame Reading	A green semi-circular gauge with a needle pointing to the value 9.	⋮
Gas Reading	A green semi-circular gauge with a needle pointing to the value 3.	⋮
A green icon representing a fire alarm, showing a flame and a bell.	FireAlarm	⋮
A green icon representing a gas alarm, showing a gas cylinder and a flame.	GasAlarm	⋮






Adafruit IO

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 **Devices** Feeds Dashboards Actions Power-Ups  **+ New Device**

ESP8266 based devices may be impacted due to SSL certificate updates, please see [this post on our forums](#) to ensure you can continue to connect to IO. 

THROTTLE WARNING: chovy96de data rate limit reached, 60 seconds until reset 

chovy96de / Dashboards / Smart Gas Leak Alarm System  

Flame Readings




8

0 100

June 20th 2023, 11:20:32AM

Gas Readings



3

0 100

Get Help
Quick Guides
API Documentation

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Challenges





Conclusion



References

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