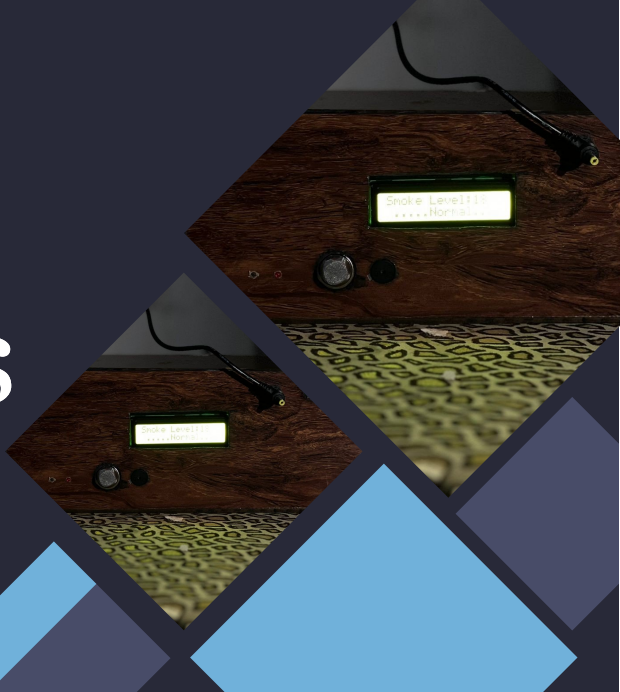


# SensoGas



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# outlines:

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- components
- introduction
- gas safety importance
- MQ5
- Arduino Integration
- Project Implementation
- solid mask
- coding
- Benefits and Limintation

# components

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- 1.Arduino
- 2.Sensor Gas (MQ5)
- 3.Jumper Wires
- 4.Bread Board
- 5.Adaptor
- 6.Buzzer
- 7.I2C
- 8.Lcd
- 9.Resistors
- 10.Led

# Introduction

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A gas sensor is a device that detects and measures the concentration of gases in the surrounding environment. It plays a crucial role in various applications, including industrial processes, environmental monitoring, safety systems, and consumer electronics. Gas sensors are designed to identify the presence and level of specific gases, providing valuable information for controlling processes, ensuring safety, and maintaining air quality. coded by programming language c.

# Gas Safety Importance

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Gas is extremely combustible, which is why it must be burned in a safe and controlled manner. If an appliance is faulty and is releasing more gas than it should be, it could ignite, which can cause a fire or explosion.





# MQ5 Gas Sensor Overview

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The MQ5 is used in gas leakage detecting equipments in consumer and industrial applications, this sensor is suitable for detecting natural gas and

coal gas. The sensitivity can be adjusted by using the potentiometer

MQ5 has four pins:

1- analog output

2-digital output

3-ground

4-VCC

It also detects: Methane, propane and butane

# Arduino Integration

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The integration of **Arduino** with the **MQ5 Gas Sensor** allows for real-time data processing, analysis, and alert mechanisms. This combination provides a cost-effective and efficient solution for gas safety monitoring.

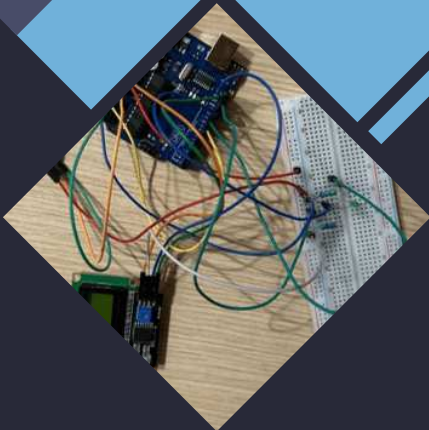




# Project Implementation

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The implementation of the **MQ5 Gas Sensor** and **Arduino** project involves hardware setup, sensor calibration, and code development for data interpretation. We will delve into the step-by-step process of implementing this project.



## solid work

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We have used wood as a materialNote:  
It is a simulation to show  
you the internal connections of the  
project.

# Coding

We have used C language for coding the project.

```
1 #include <Wire.h>
2 #include <LiquidCrystal_I2C.h>
3
4 LiquidCrystal_I2C lcd(0x27, 16, 2); // set the LCD address
5 int redLed = 10;
6
7 int greenLed = 12;
8
9 int buzzer = 8;
10
11 int smokeA0 = A0;
12
13 // Your threshold value
14
15 int sensorThres = 250;
16
17
18 void setup()
19 {
20     lcd.init();           // initialize the lcd
21     lcd.backlight();       // Turn on the LCD screen backlight
22     pinMode(redLed, OUTPUT);
23
24     pinMode(greenLed, OUTPUT);
25
26     pinMode(buzzer, OUTPUT);
27
28     pinMode(smokeA0, INPUT);
29
30     Serial.begin(9600);
31
32     lcd.clear();
33 }
```

# Coding

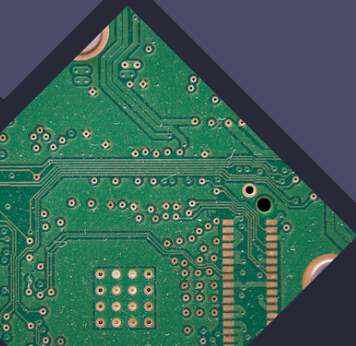
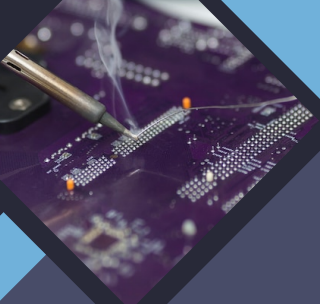
We have used C language for coding the project.

```
35 void loop()
36 {
37
38
39
40     int analogSensor = analogRead(smokeA0);
41
42
43
44     Serial.print("Pin A0: ");
45
46     Serial.println(analogSensor);
47
48     lcd.print("Smoke level:");
49
50     lcd.print(analogSensor);
51     lcd.setCursor(1, 4);
52
53     lcd.print(".....Normal.....");
54
55
56     // Checks if it has reached the threshold value
57
58     if (analogSensor > sensorThres)
59
60     {
61
62         digitalWrite(redLed, HIGH);
63         lcd.clear();
64         //lcd.setCursor(0, 2);
65
66         lcd.print("Alert....!!!");
```

# Coding

We have used C language for coding the project.

```
58 17 (analogSensor > sensorThres)
59
60 {
61
62     digitalWrite(redLed, HIGH);
63     lcd.clear();
64     //lcd.setCursor(0, 2);
65
66     lcd.print("Alert....!!!");
67
68     digitalWrite(12, LOW);
69
70     tone(buzzer, 2000, 200);
71
72 }
73
74 else
75
76 {
77
78     digitalWrite(redLed, LOW);
79
80     digitalWrite(12, HIGH);
81
82
83     noTone(buzzer);
84
85 }
86
87 delay(500);
88
89 lcd.clear();
```



# Benefits and Limitations

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The project offers benefits such as *real-time monitoring*, *early gas leak detection*, and *customizable alert systems*. However, it also has limitations related to *sensor accuracy* and *environmental conditions* that will be discussed.

# Thanks!

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presented to:  
Dr/ Hany Salem

