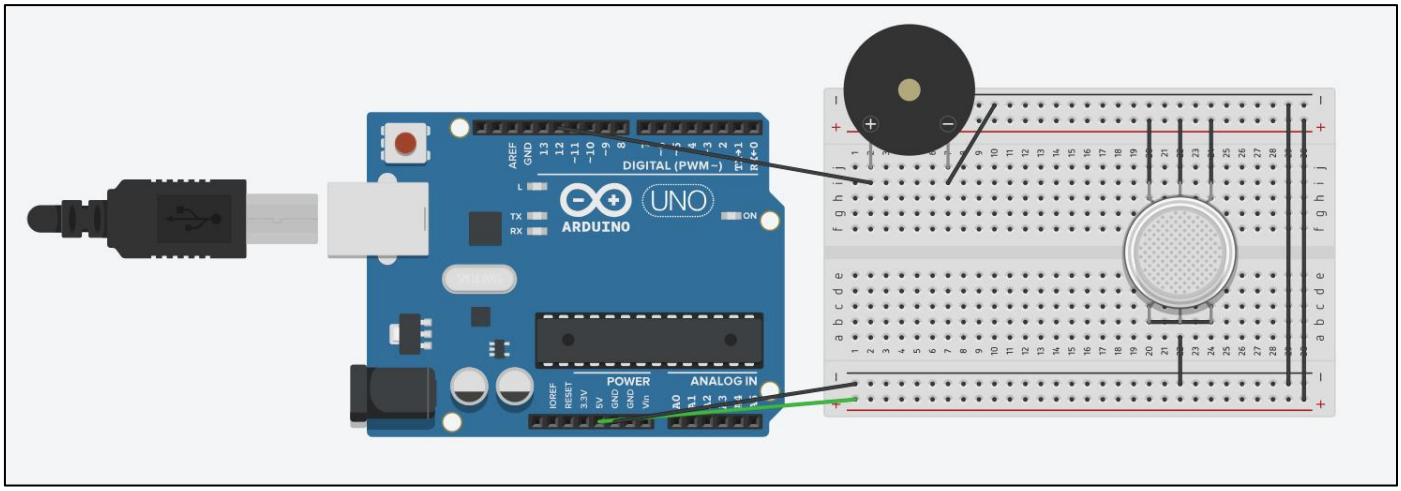
Experiment-6 Basic Gas Detection with MQ Sensors

Aim:- **Detect a specific gas using an MQ gas sensor and trigger an alarmwhen detected**

Apparatus:-



Software Code:-

```
const int gas_input = A0;
int gas = 0;
const int buzzer = 12;
void setup()
{
  pinMode(buzzer,OUTPUT);
  Serial.begin(9600);
}
void loop()
{
  gas  = analogRead(gas_input);
  Serial.println(gas);
  int led_out = map(gas, 80, 400, 0, 255);
  tone(buzzer,100);
  delay(15);}
```

New Commands Used:-

i. **void setup() :** This function is called once when the program starts. It is used to initialize settings, such as pin modes and serial communication.

ii. **pinMode() :** This command configures the specified pin to behave either as an input or an output.

iii. **void loop() :** This function runs continuously after the setup() function. It contains the main logic of the program.

iv. **analogRead() :** This command reads the value from the specified analog pin (A0 in this case) and returns a value between 0 and 1023, corresponding to the voltage level (0V to 5V).

v. **delay() :** This command pauses the program for the specified number of milliseconds (1000 ms = 1 second). It is used to create a delay between readings.

Conclusion:-

In this experiment, an **MQ gas sensor** was used to detect a specific gas and trigger an alarm when the concentration exceeded a threshold. The results demonstrated the sensor's ability to detect gas presence and activate a warning system. This experiment highlights the **practical application of gas sensors** in safety systems, proving their effectiveness for **hazard detection in homes, industries, and laboratories**.