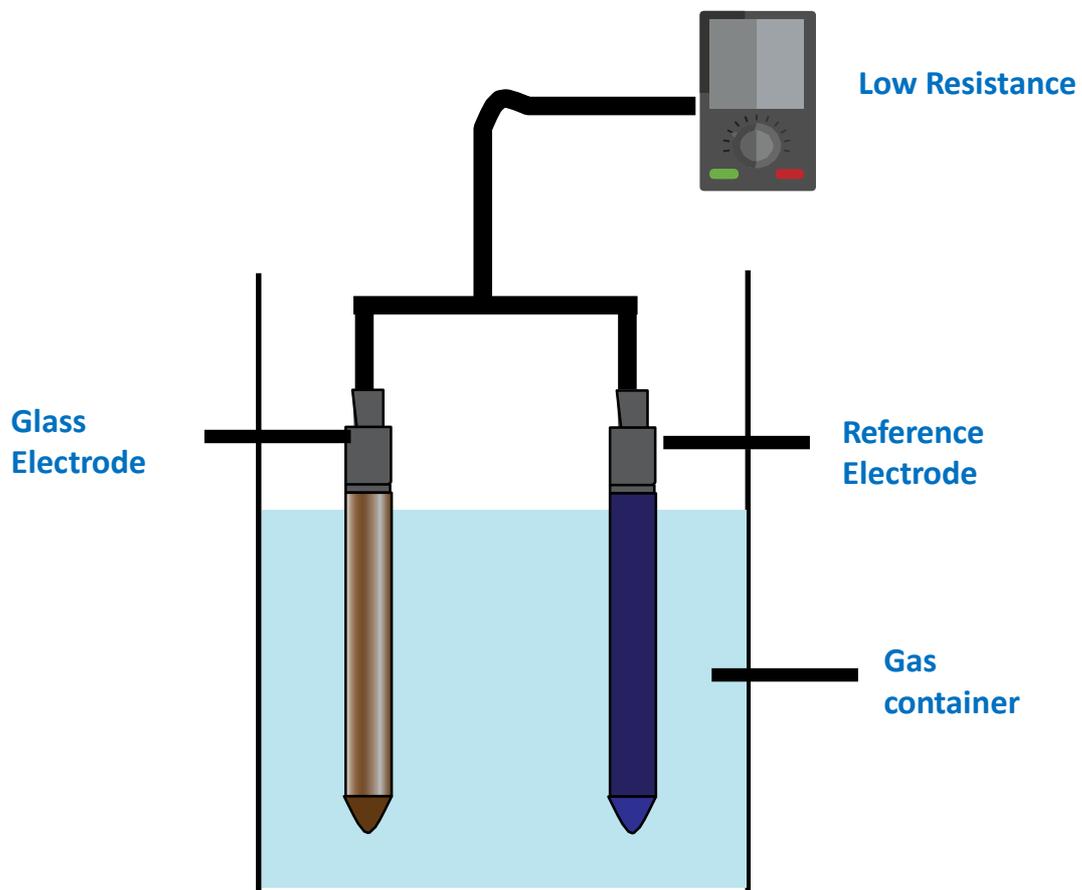


ACTIVITY CARD - 5

MQ GAS SENSOR

Introduction

MQ gas sensors are a family of sensors which are used to detect a wide variety of gases like alcohol, smoke, methane, LPG, hydrogen, NH₃, Benzene, Propane etc. These sensors are made up of electrode which is coated with a sensing material, and it is heated to make it more reactive and sensitive. When the gas reacts with these electrodes, its resistance changes, more the gas, less is the resistance and vice-versa.



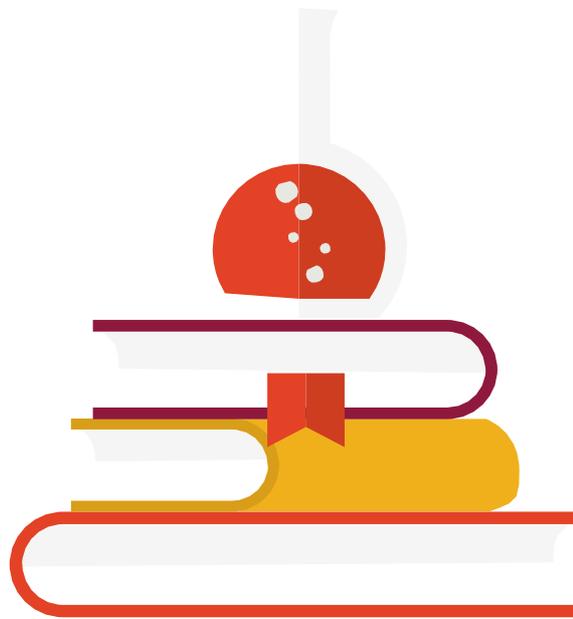
Here is a list of the different sensors that we have provided and the gases they detect:

Sensor	Gases detected
MQ 3	Alcohol
MQ 7	CO
MQ 4	Methane, Natural Gas
MQ135	Air Quality Control
MQ6	LPG, Propane
MQ 8	Hydrogen
MQ 2	General combustible gas
MQ 5	LPG, Natural gas, Coal gas

Objective:

During this activity, you will help students to achieve following objectives:

- Understanding principle and operations of MQ Gas sensor.
- Design algorithm and flowchart to sense moisture of soil using MQ Gas sensor.
- Programming MQ Gas sensor using Arduino API for Intel Genuino.
- Interfacing MQ Gas sensor with Intel Genuino using analog pin A0.

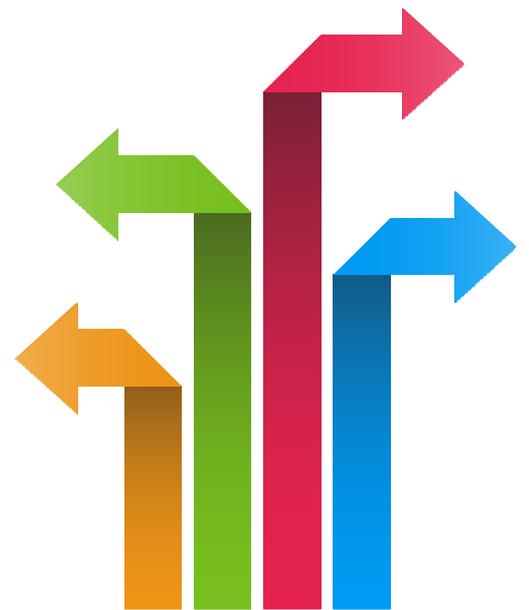
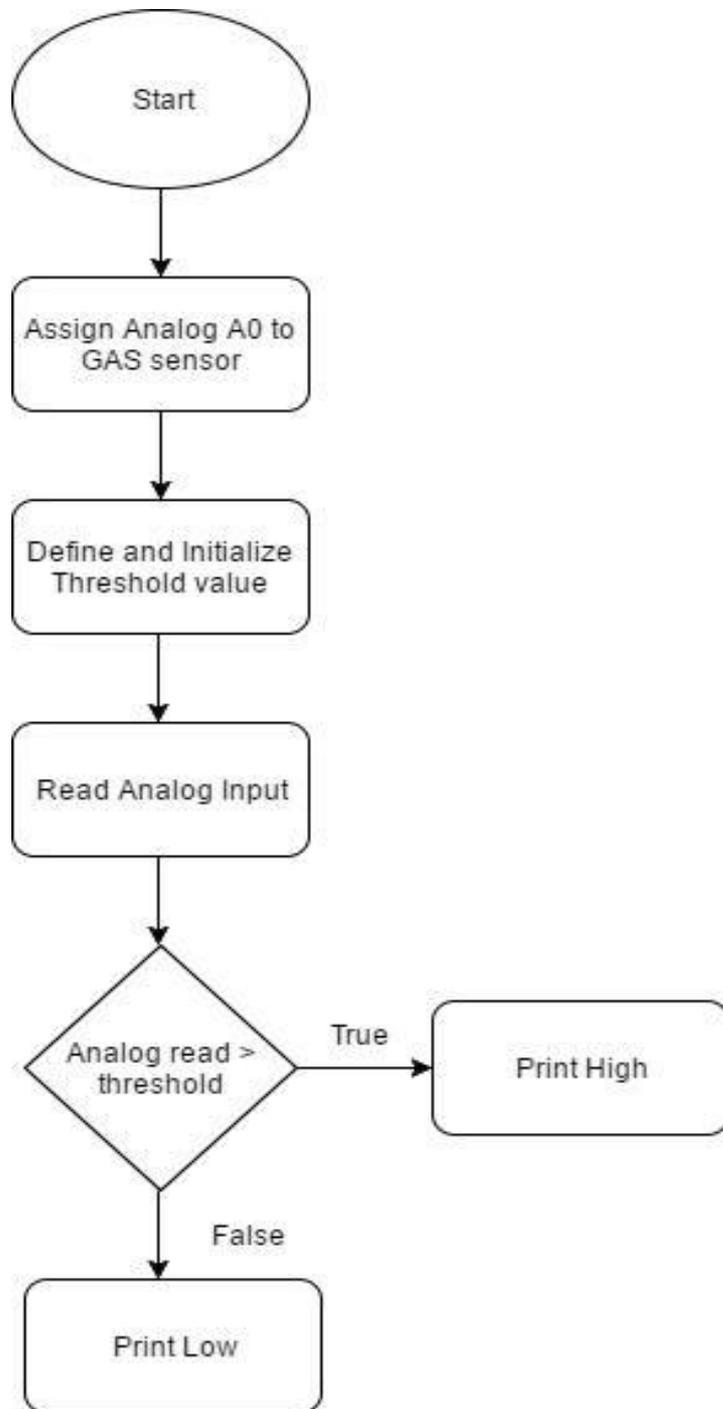


Algorithm

- Step 1 Assign analog pin A0 to MQ GAS Sensor
- Step 2 Define and initialize Setup Function for GAS sensor
- Step 3 Read GAS Sensor Value
- Step 4 If GAS sensor value is Greater than Threshold value than Print High
- Step 5 If GAS sensor value is Less than Threshold value than Print Low



Flowchart



Programming

```
int input =
A0; int
output = 7;
int thr=500; // Set threshold level. void
setup()
{

    Serial.begin(9600);
    pinMode(output,OUTPUT);
    digitalWrite(output,LOW);

}

void
loop()
{Serial.println(analogRead(input)    if(analogRead(input)>th
));                                  r)
{

    digitalWrite(output,HIGH
);

}

else

{

    digitalWrite(output,LOW    delay(500
);                                  );
}

}
```



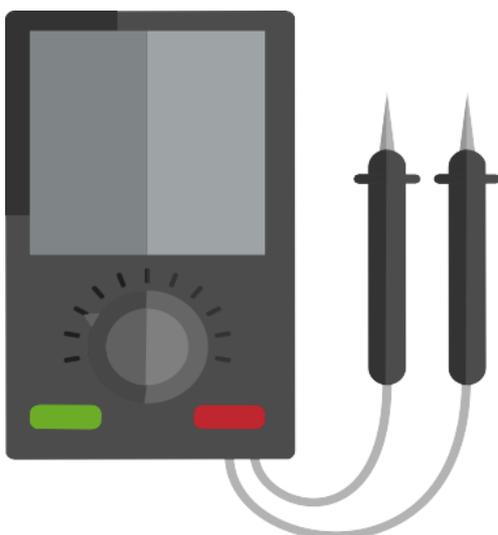
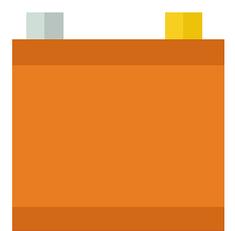
Hardware

Instructions:

- Connect GND pin of Gas sensor to GND on the Genuino board
- Connect Out pin of Gas Moisture sensor to A0 on the Genuino board
- Connect VCC pin of Gas Moisture sensor to 5V on the Genuino board
- Connect power supply to the Genuino and USB to USB Client Port on the Genuino
- Open Arduino IDE under Tools → Board select Intel® Genuino
- Under Tools → Serial Port select the Com # where the Genuino is connected to
- Write the above code on Arduino IDE
- Upload to the Genuino by clicking the upload button
- Monitor the value of the gas sensor in the Serial Monitor

Hardware Connection

Genuino pin	MQ Gas Sensor Pin
5V	VCC
GND	GND
Analog pin 0	Signal



Circuit Diagram:

