Course code: 21CSP-344

Course Name: Internet Of Things Lab

Experiment 3.1

Aim: *To design a weather station by checking Air quality of an environment with the help of IoT.*

Objectives:

- *Learn about MQ-135 sensor.*
- *Learn how to assemble.*

Hardware:

- *Arduino Uno R3*
- *MQ 135 AirQuality Sensor Module*
- *Male to Female Jumper Wire*
- *Software: Arduino IDE*

Description:

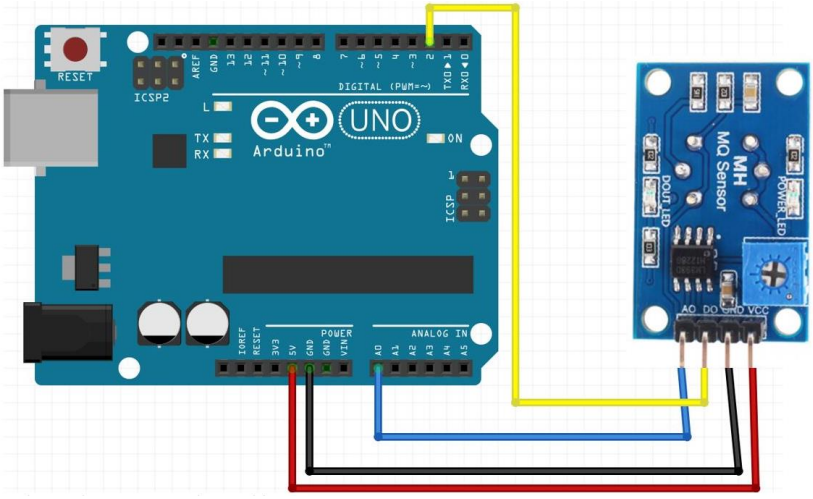
Arduino:

It is an open-source electronics platform. It consists ATmega328 8-bit Micro controller. It can be able to read inputs from different sensors & we can send instructions to the micro controller in the Arduino. It provides Arduino IDE to write code & connect the hardware devices like Arduino boards & sensors.

MQ-135:

MQ-135 sensor belongs to the MQ series that are used to detect different gasses present in the air. The MQ-135 sensor is used to detect gases such as NH3,NOx, alcohol, Benzene, smoke,CO2 ,etc. steel exoskeleton houses a sensing device within the gas sensor module.

Circuit Diagram:



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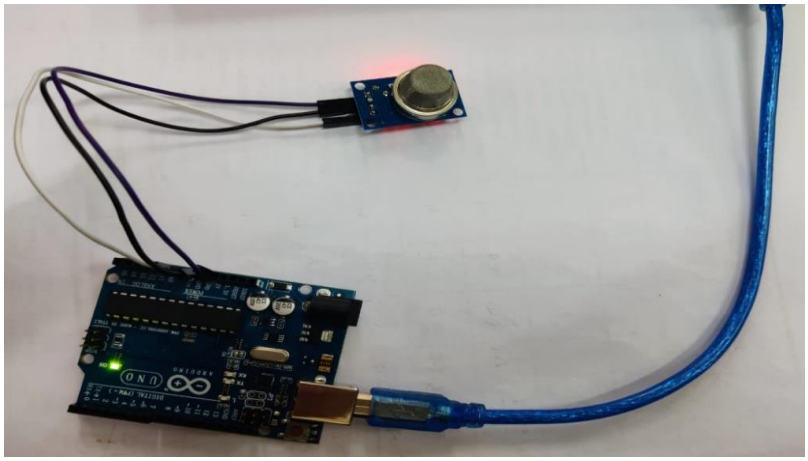
Code:

```
int sensorValue;
int digitalValue;

void setup()
{
  Serial.begin(9600); // sets the serial port to 9600
  pinMode(13, OUTPUT);
  pinMode(2, INPUT);
}

void loop()
{
  sensorValue = analogRead(0); // read analog input pin 0
  digitalValue = digitalRead(2);
  if (sensorValue > 400)
  {
    digitalWrite(13, HIGH);
  }
  else
    digitalWrite(13, LOW);
  Serial.println(sensorValue, DEC); // prints the value read
  Serial.println(digitalValue, DEC);
  delay(1000); // wait 100ms for next reading
}
```

Output:



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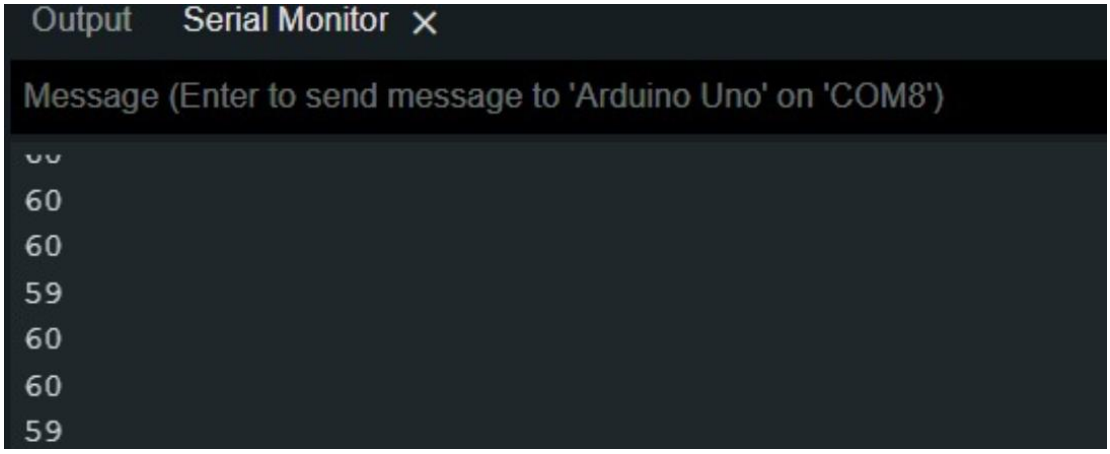

Learning Outcomes:

1. *Learn the use of sensors.*
2. *Learn to perform task on real hardware without using any virtual platform.*
3. *Learn to know about how MQ-135 works.*