Internet of Things Lab

Digital Assignment 2

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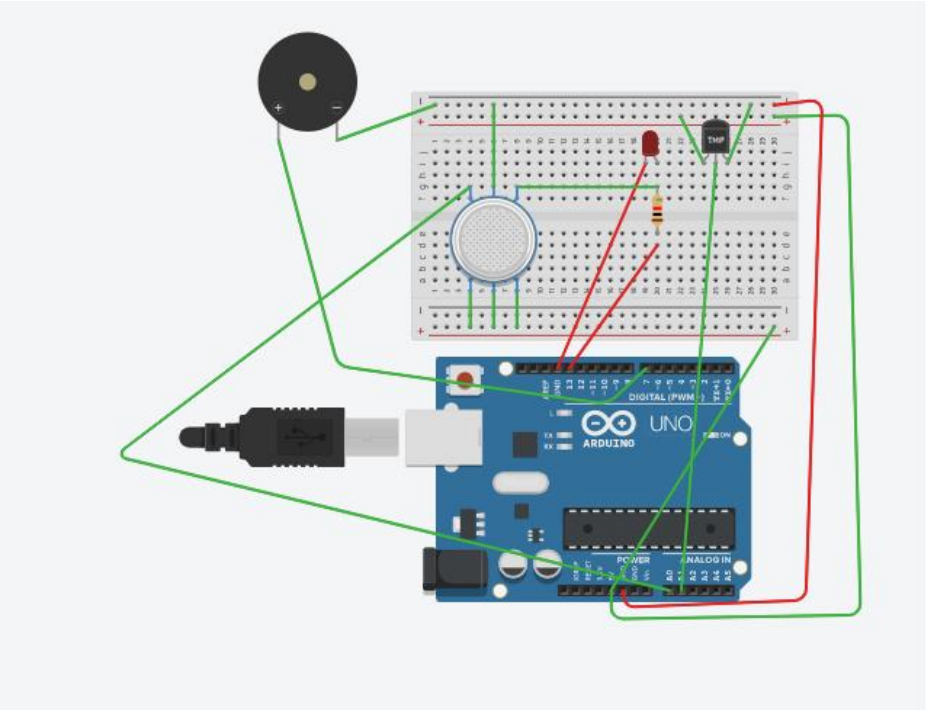
Experiment 1:

Aim:

To construct a circuit in Tinkercad to detect the amount of smoke using Arduino and smoke (MQ 2) sensor.

Circuit:



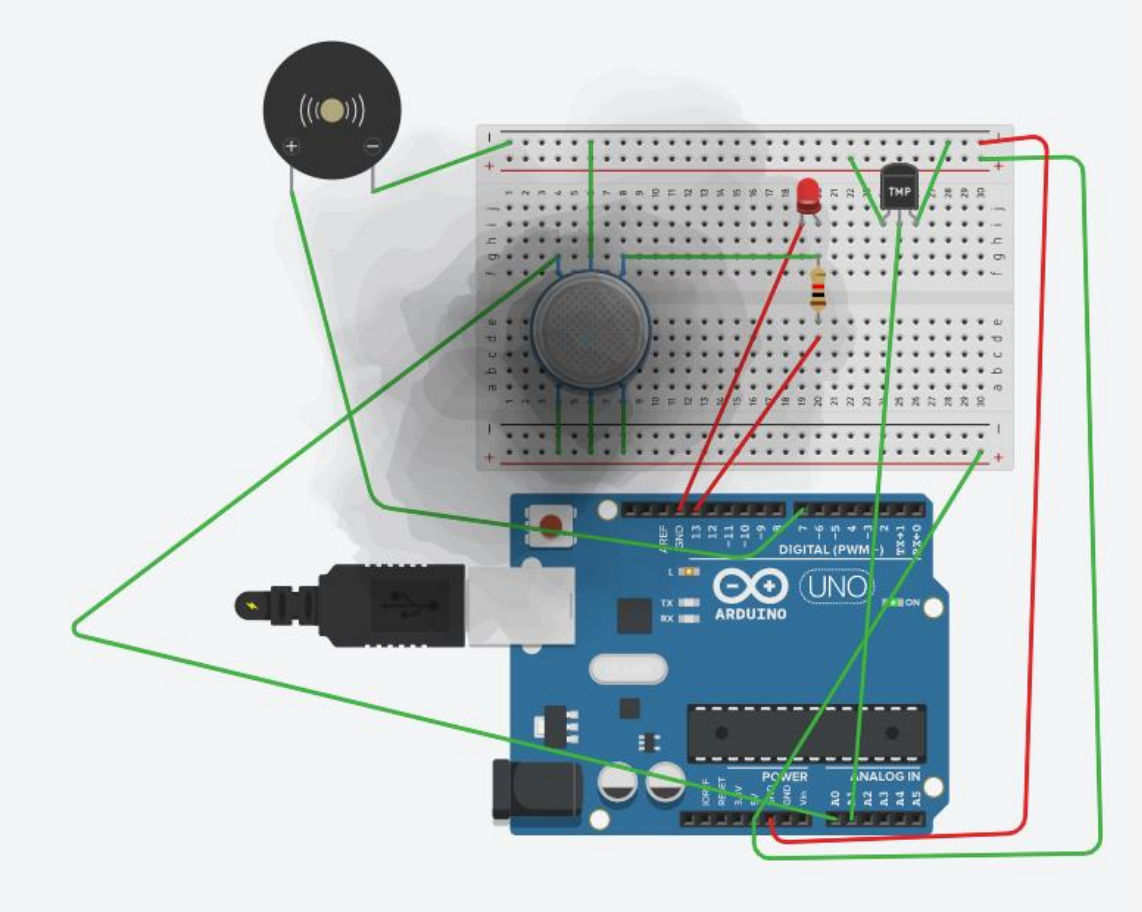
Code:

```
float temp;
float vout;
float vout1;
int led=13; int
gasSensor; int
piezo=7; void
setup()

{
```

```
  pinMode(A0,INPUT);
pinMode(A1,INPUT);
pinMode(led,OUTPUT);
pinMode(piezo,OUTPUT);
  Serial.begin(9600);

}


void loop() {
vout=analogRead(A1);
vout1=(vout/1023)*5000;
temp=(vout1-500)/10;
gasSensor=analogRead(A0);
if(temp>=80)
  {

    digitalWrite(led,HIGH);

  }
else
  {

    digitalWrite(led,LOW);

  }

  if(gasSensor>=100)

  {

    digitalWrite(piezo,HIGH);

  }
else
  {

    digitalWrite(piezo,LOW);

  }

  Serial.print("in DegreeC= ");

  Serial.print(" ");

  Serial.print(temp);

  Serial.print("\t");

  Serial.print("Gas Sensor = ");

  Serial.print(" ");

  Serial.print(gasSensor);
Serial.println();   delay(1000);
```

}

Output:



Result and Inference:

The circuit was constructed using the given parts. The output was observed both in the serial window, the LED's and Buzzer. Whenever smoke was detected, the level of smoke was displayed in the serial window. Whenever the level of smoke surpassed a threshold value, the red LED would turn on.

Experiment 2

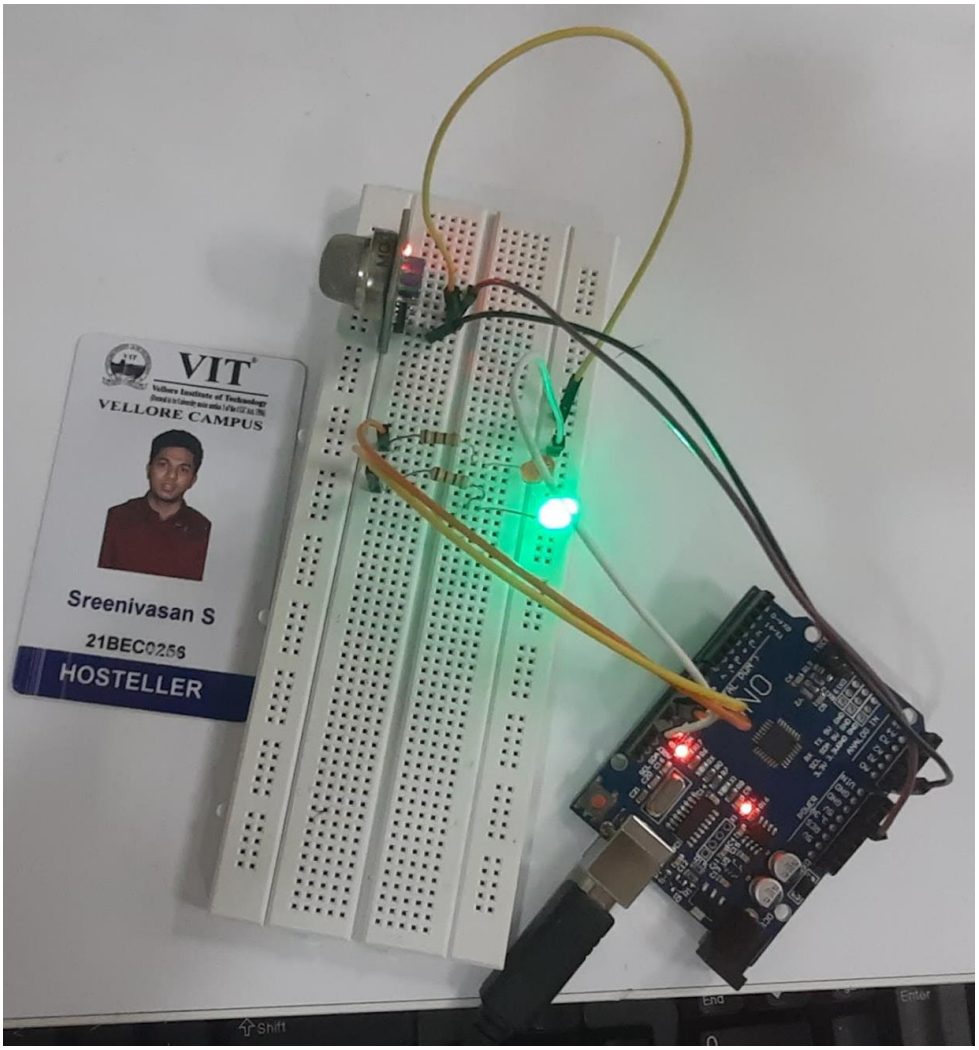
Aim:

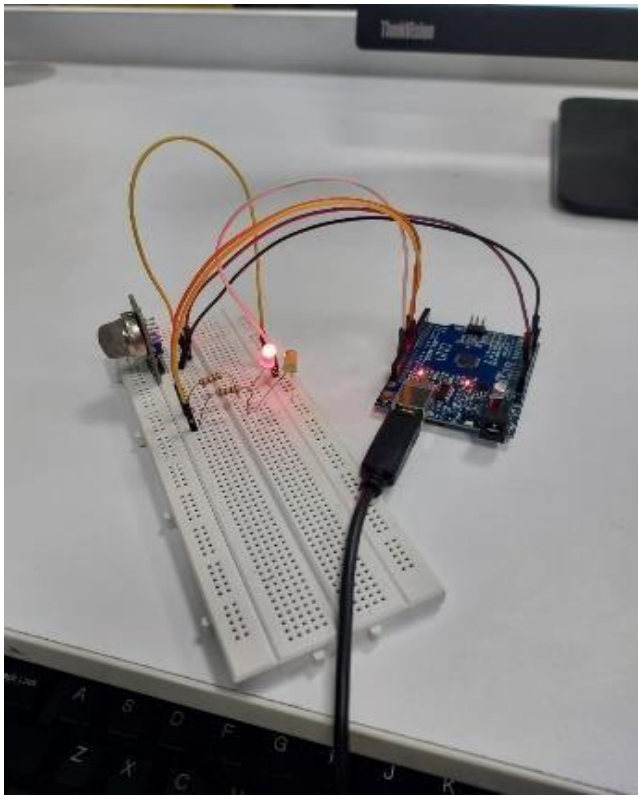
To construct a circuit to detect the amount of smoke using Arduino and smoke (MQ 2) sensor.

Components Required:

Name	Quantity
Arduino Uno	1
Bread board	1
Smoke Sensor (MQ 2)	1
USB Cable	1
Jumper wire	multiple
LED	2
Resistors	2

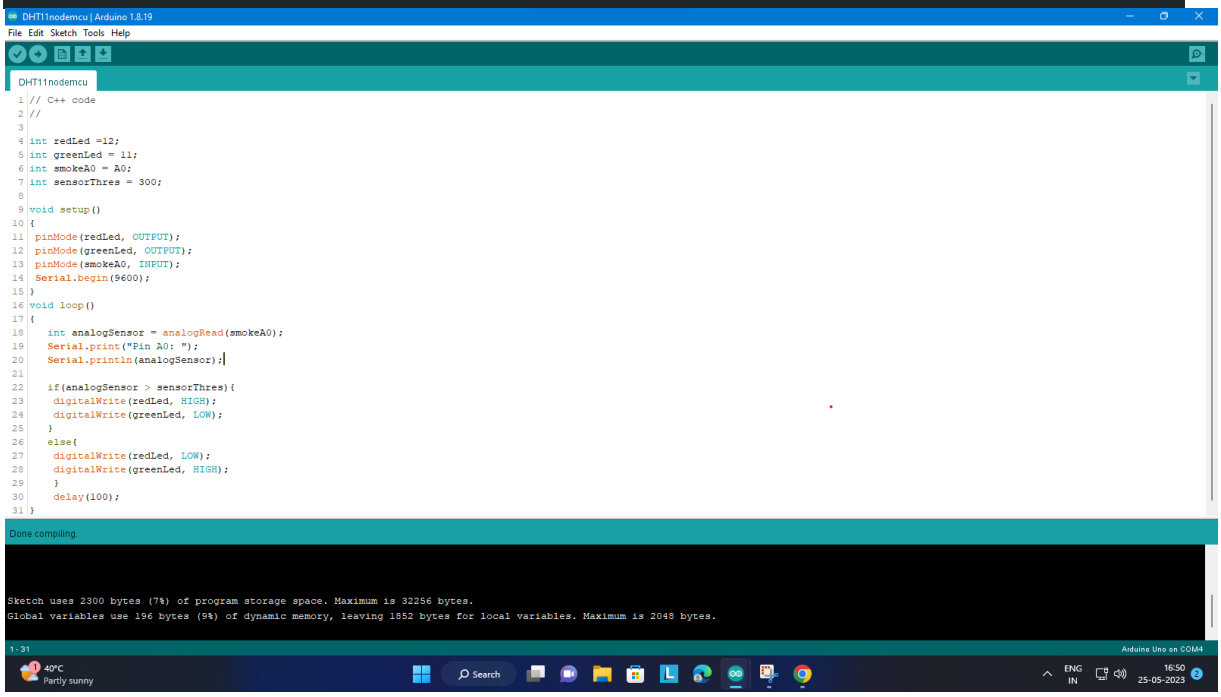
Circuit:



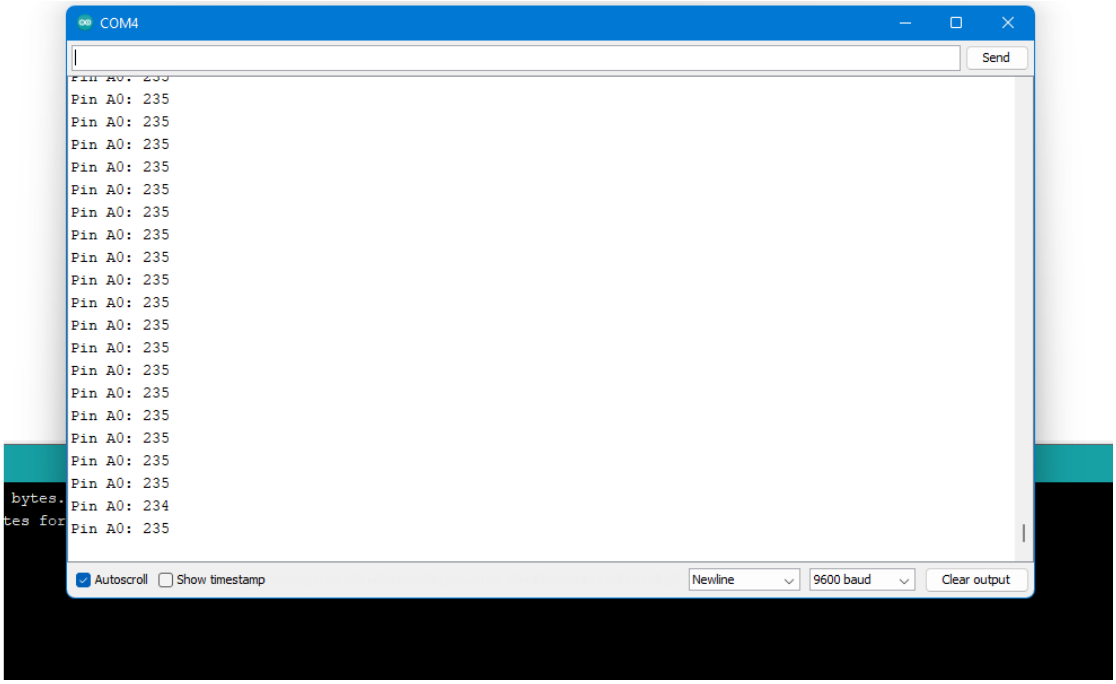


Code:

```
int redLed =12; int
greenLed = 11; int
smokeA0 = A0; int
sensorThres = 300;
 void
setup()
{  pinMode(redLed,
OUTPUT);
pinMode(greenLed,
OUTPUT);
pinMode(smokeA0, INPUT);
 Serial.begin(9600);
}
void loop()
{
   int analogSensor = analogRead(smokeA0);
   Serial.print("Pin A0: ");
   Serial.println(analogSensor);
    if(analogSensor >
sensorThres){
digitalWrite(redLed, HIGH);
digitalWrite(greenLed, LOW);
   }    else{
digitalWrite(redLed, LOW);
digitalWrite(greenLed, HIGH);
    }
    delay(100);
}
```



Output:



Result and inference:

The circuit was constructed using the given parts. The output was observed both in the serial window and the LED's. Whenever smoke was detected, the level of smoke was displayed in the serial window. Whenever the level of smoke surpassed a threshold value, the red LED would turn on, else the green LED would turn on.