

Name : Anuj Shailendra Naikodi

Roll no. 41

Experiment No. 05

Code :

```
#include <LiquidCrystal.h>

// Initialize the LCD (RS, EN, D4, D5, D6, D7)
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
const int tempPin = A0;

void setup() {
  lcd.begin(16, 2);
  lcd.print("Temp: ");
}

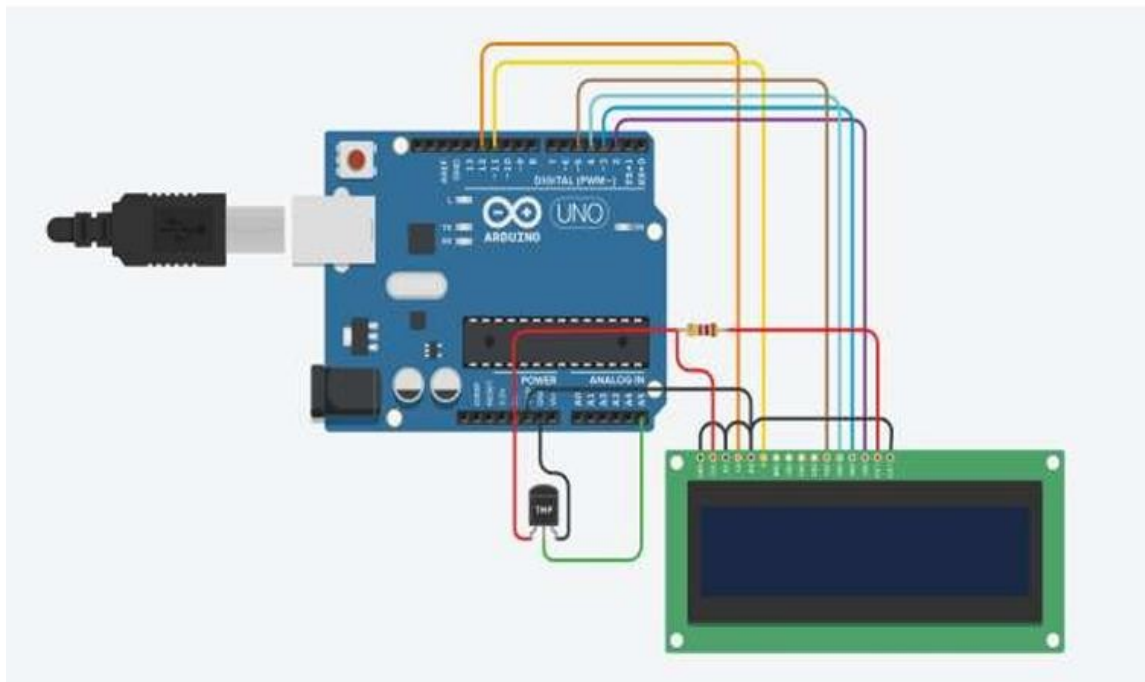
void loop() {
  float temperatureC = analogRead(tempPin) * (5.0 / 1023.0) * 100;
  lcd.setCursor(0, 1);
  lcd.print("Temp: "); lcd.print(temperatureC); lcd.print(" C");
  delay(1000);
}
```

Output :

Temp: 26.5 C

Temp: 27.6 C

Circuit Diagram:



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Experiment No. 04

Code :

```
#include <LiquidCrystal.h>

// Initialize the LCD (RS, EN, D4, D5, D6, D7)
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

int gasVal = 0;
float tempVal = 0;

void setup() {
  pinMode(A0, INPUT); // Gas sensor
  pinMode(A1, INPUT); // Temperature sensor
  pinMode(7, OUTPUT); // Buzzer
  pinMode(9, OUTPUT); // Gas LED
  pinMode(12, OUTPUT); // Temp LED
  lcd.begin(16, 2);
}

void loop() {
  gasVal = analogRead(A0);
  tempVal = -40 + 0.488155 * (analogRead(A1) - 20);

  // Display on LCD
  lcd.clear();
  lcd.setCursor(0, 0); lcd.print("Temp: "); lcd.print(tempVal); lcd.print(" C");
```

```
lcd.setCursor(0, 1); lcd.print("Gas: "); lcd.print(gasVal);

// Gas alert
if (gasVal >= 250) {
    tone(7, 523, 1000);
    digitalWrite(9, HIGH);
    lcd.clear(); lcd.setCursor(0,0); lcd.print("ALERT: Gas Detected");
} else digitalWrite(9, LOW);

// Temp alert
if (tempVal >= 70) {
    tone(7, 523, 1000);
    digitalWrite(12, HIGH);
    lcd.clear(); lcd.setCursor(0,0); lcd.print("ALERT: Temp High");
} else digitalWrite(12, LOW);

delay(1000);
}
```

Output :

Temp: 45.3 C

Gas: 120

Temp: 50.1 C

Gas: 270

ALERT: Gas Detected

Temp: 72.5 C

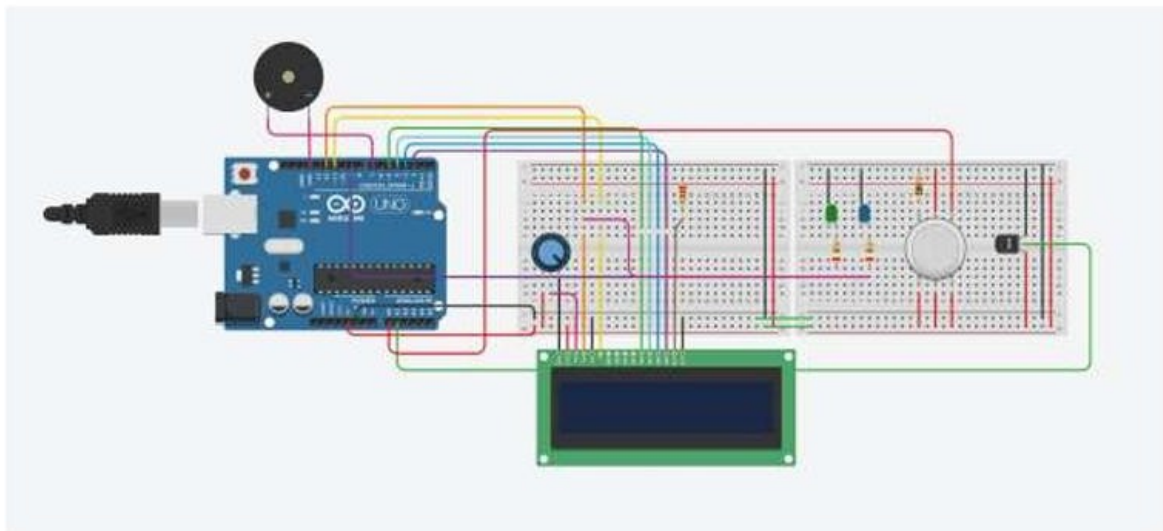
Gas: 230

ALERT: Temp High

Temp: 68.0 C

Gas: 200

Circuit Diagram:



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Experiment No. 03

Code :

```
float y, z, temp;

void setup() {
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(A5, INPUT);
  pinMode(A4, INPUT);
  Serial.begin(9600);
}

void loop() {
  y = analogRead(A5);    // Sensor 1
  z = analogRead(A4);    // Sensor 2
  Serial.print("Y: "); Serial.print(y);
  Serial.print(" Z: "); Serial.print(z);

  // Convert z to temperature in Celsius
  temp = ((z / 1024.0) * 5 - 0.5) * 100;
  Serial.print(" Temp: "); Serial.println(temp);

  // Control pins based on y and temp
  digitalWrite(5, (y < 550));
  digitalWrite(6, ((y < 550 && temp > 30) || (y > 550 && temp > 30)) ? HIGH : LOW);
}
```

Output :

Y: 500 Z: 700 Temp: 33.9

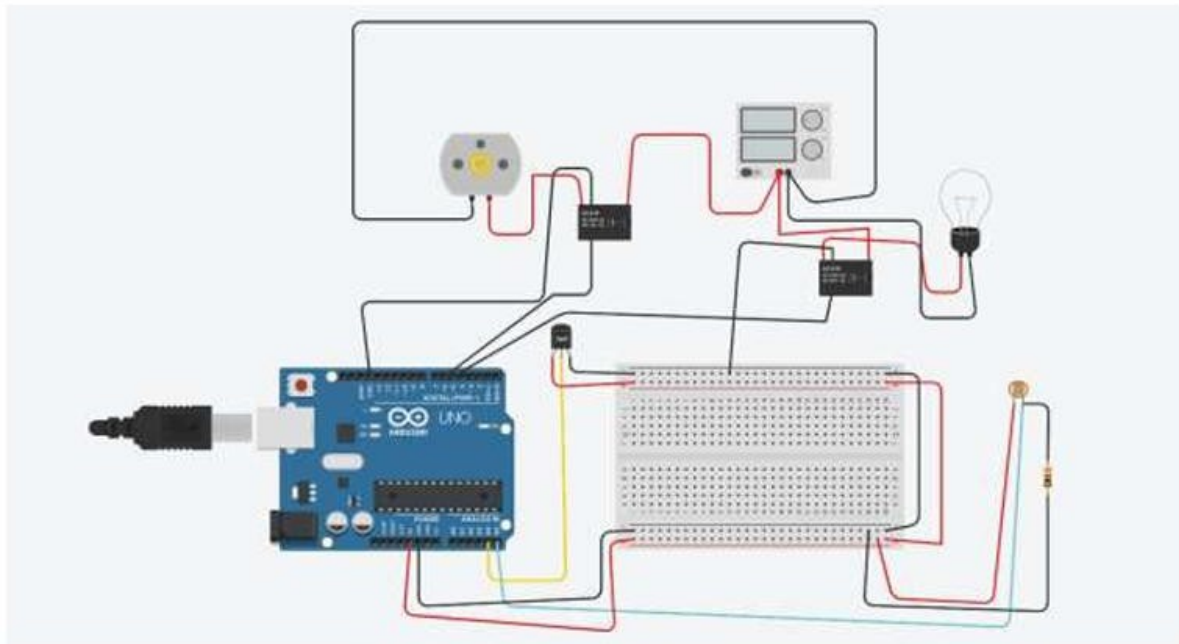
Y: 530 Z: 600 Temp: 29.3

Y: 560 Z: 720 Temp: 34.8

Y: 480 Z: 680 Temp: 32.1

Y: 600 Z: 590 Temp: 28.9

Circuit Diagram:



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Experiment No. 02

Code :

```
const int pirPin = 2;  // PIR sensor pin
const int ledPin = 13; // LED pin

void setup() {
  pinMode(pirPin, INPUT);
  pinMode(ledPin, OUTPUT);
  Serial.begin(9600);
}

void loop() {
  bool motion = digitalRead(pirPin);
  digitalWrite(ledPin, motion ? HIGH : LOW);
  Serial.println(motion ? "Motion detected!" : "No motion");
  delay(1000);
}
```

Output :

No motion

Motion detected!

Motion detected!

No motion

No motion

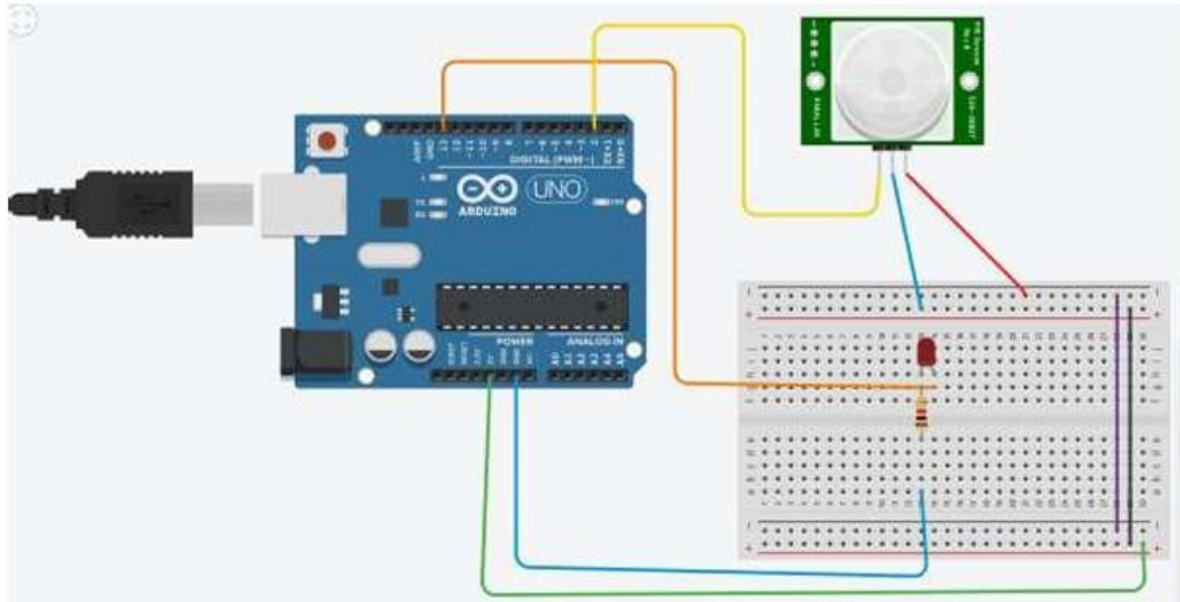
Motion detected!

Motion detected!

Motion detected!

No motion

Circuit Diagram:



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Experiment No. 01

Code :

```
#define TEMP_PIN A0      // TMP36 sensor pin
#define BUZZER_PIN 8     // Buzzer pin
const float THRESHOLD = 23.0; // Temperature threshold

void setup() { pinMode(BUZZER_PIN,
    OUTPUT);
    Serial.begin(9600);
}

void loop() {
    float temperatureC = (analogRead(TEMP_PIN) * 5.0 / 1023.0 - 0.5) * 100.0;
    Serial.print("Temperature: "); Serial.println(temperatureC);

    digitalWrite(BUZZER_PIN, temperatureC > THRESHOLD ? HIGH : LOW);
    if(temperatureC > THRESHOLD) Serial.println("ALERT: Temperature too high!");

    delay(500);
}
```

Output :

Temperature: 22.45

Temperature: 22.60

Temperature: 22.90

Temperature: 23.10

ALERT: Temperature too high!

Temperature: 23.25

ALERT: Temperature too high!

Temperature: 23.00

Temperature: 22.85

Temperature: 22.70

Temperature: 22.95

Circuit Diagram:

