3.1 Soil moisture Sensor

```
int MV;

float mp;

void setup()

{

  Serial.begin(9600);

}

void loop(){

  MV=analogRead(A0);

  mp=((MV/539.00)*100);

                    Serial.print("\nSoil Moisture Value: ");

          Serial.print(mp);

          Serial.print("%");

          delay(1000);

}
```

3.2 temperature sensor

```
int tempPin = A0;
float analogR;
float voltage;
float tc;
float tfar;

void setup() {
  pinMode(tempPin, INPUT);
  Serial.begin(9600);
}

void loop() {
  analogR = analogRead(tempPin);
  Serial.print("Analog Reading: ");
  Serial.println(analogR);

  voltage = analogR * 5.0 / 1024.0;
  Serial.print("Voltage: ");
```

```
  Serial.println(voltage);

  tc = 100 * (voltage - 0.5);  // Celsius
  Serial.print("Celsius: ");
  Serial.print(tc);
  Serial.println(" °C");

  tfar = (tc * 9.0 / 5.0) + 32;  // Fahrenheit
  Serial.print("Fahrenheit: ");
  Serial.print(tfar);
  Serial.println(" °F");

  delay(3000);
}
```

For lcd display

```
#include <Wire.h>
#include <LiquidCrystal_I2C.h>

int tempPin = A0;
float analogR;
float voltage;
float tc;
float tfar;

// I2C address (0x27 is typical)
LiquidCrystal_I2C lcd(0x27, 16, 2);

void setup() {
  lcd.init();          // Initialize the LCD
  lcd.backlight();     // Turn on the backlight

  Serial.begin(9600);  // Optional: For debugging in the Serial Monitor
}

void loop() {
  analogR = analogRead(tempPin);
  voltage = analogR * 5.0 / 1024.0;
  tc = 100 * (voltage - 0.5);        // Celsius
  tfar = (tc * 9.0 / 5.0) + 32;      // Fahrenheit

  // Debugging: Print to Serial Monitor
  Serial.print("Celsius: ");
  Serial.print(tc);
  Serial.print(" °C  | Fahrenheit: ");
  Serial.println(tfar);

  // Display the temperature on the LCD
```

```
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Temp: ");
  lcd.print(tc);
  lcd.print(" C");

  lcd.setCursor(0, 1);
  lcd.print("Temp: ");
  lcd.print(tfar);
  lcd.print(" F");

  delay(2000);  // Update every 2 seconds
}
```

5. Led Light with Arduino

```
// C++ code
//
void setup()
{
  pinMode(8, OUTPUT);
}

void loop()
{
  digitalWrite(8, HIGH);
  delay(1000); // Wait for 1000 millisecond(s)
  digitalWrite(8, LOW);
  delay(1000); // Wait for 1000 millisecond(s)
}
```

10 gas sensor

```
int led = 8;
int MQpin = A0;

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

void loop() {
  float sv;
  sv = analogRead(MQpin);

  if (sv >= 250) {
    digitalWrite(led, HIGH);
    Serial.print("Sensor Value: ");
```

```
    Serial.print(sv);
    Serial.println(" - Gas Detected!");
  } else {
    digitalWrite(led, LOW);
    Serial.print("Sensor Value: ");
    Serial.println(sv);
  }

  delay(1000);
}
```