#include <Servo.h>

#define GAS\_SENSOR A0   // Gas sensor connected to analog pin A0

#define SERVO\_PIN 9     // Servo motor connected to digital pin 9

#define BUZZER\_PIN\_1 10 // First buzzer connected to digital pin 10

#define BUZZER\_PIN\_2 11 // Second buzzer connected to digital pin 11

Servo servoMotor;       // Define servo motor object

bool gasDetected = false;

void setup() {

  Serial.begin(9600);              // Initialize serial communication

  pinMode(GAS\_SENSOR, INPUT);      // Set gas sensor pin as input

  pinMode(SERVO\_PIN, OUTPUT);      // Set servo pin as output

  pinMode(BUZZER\_PIN\_1, OUTPUT);   // Set first buzzer pin as output

  pinMode(BUZZER\_PIN\_2, OUTPUT);   // Set second buzzer pin as output

  servoMotor.attach(SERVO\_PIN);    // Attach servo motor to pin 9

  servoMotor.write(0);             // Set initial position of servo motor to 0 degrees

}

void loop() {

  // Read gas sensor value

  int gasValue = analogRead(GAS\_SENSOR);

  // Gas leakage detection

  if (gasValue > 500) {

    if (!gasDetected) {

      servoMotor.write(180);           // Rotate servo motor 180 degrees in forward direction

      digitalWrite(BUZZER\_PIN\_1, HIGH);// Turn on the first buzzer

      digitalWrite(BUZZER\_PIN\_2, LOW);// Turn on the second buzzer

      delay(4000);                     // Keep buzzers on for 10 seconds

      digitalWrite(BUZZER\_PIN\_1, LOW);

      delay(7000); // Turn off the first buzzer

      digitalWrite(BUZZER\_PIN\_2, HIGH); // Turn off the second buzzer

      delay(3000);                      // Wait for servo motor to reach the position

      gasDetected = true;              // Set gas detected flag

      Serial.println("Gas leakage detected!");

    }

  } else {

    if (gasDetected) {

      servoMotor.write(0);   // Rotate servo motor to 0 degrees in reverse direction

      delay(4000);           // Wait for servo motor to reach the position

      gasDetected = false;   // Reset gas detected flag

    }

  }

  delay(100); // Delay for stability

}