#include<LiquidCrystal.h> // LCD header

#include<Servo.h> // Servo header

void switching\_off\_the\_Gas();//function prototype

void switching\_ON\_the\_Gas();//function prototype

Servo Motor; // motor object

int angle = 1; // motor angle variable

int gasOn ; // switch

int sw; // switch

LiquidCrystal lcd(12 , 11 , 5 , 4 , 3 , 2); // Crystal display setup

int Gas = 9; // gas High/Low comes in

int redLed = 7;

int greenLed = 6;

int gasOnSW = 8; ///// manually off gas On gas switch

void setup() {

Motor.attach(10); // attach the signal pin of servo to pin10 of arduino

pinMode(Gas , INPUT); // gas High/Low

pinMode(13 , INPUT); // system switch

pinMode(gasOnSW , INPUT);// gas on/off switch

pinMode(6 , OUTPUT);//for green LED

pinMode(7 , OUTPUT);//for red LED

}

void loop() {

sw = digitalRead(13); /// system switch

gasOn = digitalRead(8); /// manually off gas On gas switch

if (sw == HIGH) { // system switch On

if (gasOn == LOW && angle != 0 ) { /// manually off the gas

switching\_off\_the\_Gas(); //calling function to turn off the gas

}

if (digitalRead(Gas) == HIGH) { ///if gas detected

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Gas Detected");

delay(25);

digitalWrite(7 , HIGH); // red led ON

digitalWrite(6, LOW);

delay(25);

if (angle != 0) { // if the gas is not off

switching\_off\_the\_Gas(); // if the gas is not off then colling function to switch off the gas

}

} ///if gas detected

else { ///if not gas detected

lcd.setCursor(0, 0);

lcd.print("No Gas Detected");

delay(20);

digitalWrite(6, HIGH);

digitalWrite(7 , LOW);

if (angle != 90 && gasOn == HIGH ) { // if the gas is off and situation is safe and want to On the gas

switching\_ON\_the\_Gas(); //calling function to switch ON the gas

}

} ///if not gas detected

}

else { // when the system is off

digitalWrite(7 , LOW);

digitalWrite(6, LOW);

lcd.clear();

}

}// end of void loop

void switching\_off\_the\_Gas() {// function to turn off the gas

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("switching off gas");

delay(20);

for (angle = 90; angle >= 0; angle -= 1) // command to move from 90 degrees to 0 degrees

{

Motor.write(angle);

delay(20);

}

angle = 0;

Motor.write(angle);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("gas off now");

delay(20);

}

void switching\_ON\_the\_Gas() {// function to turn ON the gas

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("switching ON gas");

delay(20);

for (angle = 0; angle <= 90; angle += 1) // command to move from 0 degrees to 90 degrees

{

Motor.write(angle); //command to rotate the servo to the specified angle

delay(20);

}

angle = 90;

Motor.write(angle);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("gas ON now");

delay(15);

}