# Smart greenhouse monitoring system

#define ldr A1 //defining the pins

#define soil A0

#define baz 7

#define temp A2

#define mot 6

#define ser 3

#include<Servo.h> //including the libraries

#include <Adafruit\_LiquidCrystal.h>

Adafruit\_LiquidCrystal lcd(0);

Servo vent;

void setup()

{

Serial.begin(9600); //initializing the lcd, serial monitor and assingning the pinmodes

lcd.begin(16,2);

lcd.print("hello");

pinMode(ldr,INPUT);

pinMode(soil,INPUT);

pinMode(baz,OUTPUT);

pinMode(temp,INPUT);

pinMode(mot,OUTPUT);

digitalWrite(baz,LOW);

vent.attach(ser);

vent.write(0);

delay(4000);

}

void loop()

{

int data\_soil=analogRead(A0); //reading soilmoisture value

int data\_ldr=analogRead(A1); //reading the ldr(light intensity) value

int data\_temp=analogRead(A2); //reading the surrounding temperature

lcd.clear();

lcd.setCursor(0,0); //displaying the soil moisture values on display and serial monitor

lcd.setBacklight(1);

lcd.print("soil: ");

lcd.println(data\_soil);

Serial.print("soil: ");

Serial.println(data\_soil);

if(data\_soil<200) //here checking the soil moisture if the moisture value is low then ite turn

{ // on the motor in order to irrigate if the moisture is on the range no

digitalWrite(mot,HIGH); //action take over.

}

else

{

digitalWrite(mot,LOW);

}

delay(2000);

//-----------------------------------------

lcd.setCursor(0,1);

Serial.print("ldr: ");

lcd.print("ldr: "); ////displaying the light intensity values on display and serial monitor

lcd.println(data\_ldr);

Serial.println(data\_ldr);

delay(500);

if(data\_ldr<60)

{ //if the intensity is less then the needed range then it turn the window to open

vent.write(100); //using servo motor else no action take over on window

}else

{

vent.write(0);

}

delay(1000);

//-----------------------------------------

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Temperature: "); //displaying the temperature values on display and serial monitor

lcd.setCursor(0,1);

lcd.print(data\_temp);

delay(500);

Serial.print("Temperature: ");

Serial.println(data\_temp);

if(data\_temp>155) //if the temperature is high it notify the user using loud buzzer sound

{ // and displaying temperature is hight need water

digitalWrite(baz,HIGH);

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Temperature high");

lcd.setCursor(0,1);

lcd.print("need water ");

}

else

{

digitalWrite(baz,LOW);

}

delay(1000);

}