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#include<LiquidCrystal.h>
#include<dht.h>

#define dht_dpin A1
#define LUX A0
LiquidCrystal lcd(2,3,4,5,6,7);

dht DHT;

#define light 10
#define fan 8
#define spray 11
#define motor 12
#define soil 9

int temperature, humidity, temp,Temp;
int check;
int test,test1,test2,test3;
float volt,lux,value;

byte degree[8] =
    {
        0b00011,
        0b00011,
        0b00000,
        0b00000,
        0b00000,
        0b00000,
        0b00000,
        0b00000
    };

void setup()
{
    Serial.begin(9600);
    lcd.begin(16,2);

    pinMode(soil, INPUT);
    pinMode(light, OUTPUT);
    pinMode(fan, OUTPUT);
    pinMode(spray, OUTPUT);
    pinMode(motor, OUTPUT);

    lcd.createChar(1, degree);
    lcd.setCursor(0,0);

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    lcd.print("Green House  ");
    lcd.setCursor(0,1);
    lcd.print("  Monitering");
    delay(2000);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.setCursor(0,1);
    delay(2000);
    lcd.clear();
}

void loop()
{
    /*-----Light Intensity-----*/

    DHT.read11(dht_dpin);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print(" humidity=");
    lcd.print(humidity=DHT.humidity);
    lcd.print(" % ");
    // lcd.clear();
    lcd.setCursor(0,1);
    lcd.print("temperature=");
    lcd.print(temperature=DHT.temperature);
    lcd.write(1);
    lcd.print("C ");
    delay(2000);
    lcd.clear();

    value=analogRead(LUX);
    volt=(value/1023.0)*5;
    lux=((2500/volt)-500)/3.3;
    delay(10);

    if(lux<100)
    {
        digitalWrite(light, HIGH);
        Serial.println("AT+CMGF=1");\
        Serial.println("AT+CMGS=\"9784398922\"");
        Serial.println("LOW LIGHT ");
        Serial.println("LIGHT TURNED ON");
        Serial.print("Light Intensity: ");
        Serial.print(lux);
        Serial.println(" LUX");
        Serial.print("Temperature: ");
        Serial.print(temperature);
    }
}

```

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    Serial.println(" Degree Celsius");
    Serial.print("Humidity: ");
    Serial.print(humidity);
    Serial.println(" %");
    Serial.write(26);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("Low light ");
    lcd.print(lux);
    lcd.print(" LUX");
    lcd.setCursor(0,1);
    lcd.print("Lights turned ON");
    check=1;
    test=1;
    delay(2000);
}
else
{
    if(check==1)
    {

        Serial.println("AT+CMGF=1");\
        Serial.println("AT+CMGS=\"9784398922\"");
        Serial.print("LIGHT TURNED OFF");
        Serial.print("Light Intensity: ");
        Serial.print(lux);
        Serial.println(" LUX");
        Serial.print("Temperature: ");
        Serial.print(temperature);
        Serial.println(" degree Celsius");
        Serial.print("Humidity: ");
        Serial.print(humidity);
        Serial.println(" %");
        Serial.write(26);
        check=0;
        lcd.clear();
        lcd.setCursor(0,0);
        lcd.print("light int: ");
        lcd.print(lux);
        lcd.print(" LUX");
        lcd.setCursor(0,1);
        lcd.print("Lights turned OFF");
    }
    digitalWrite(light, LOW);
    test=0;
    delay(2000);
}

```

```

if(temperature > 40)
{
    digitalWrite(fan, HIGH);
    Serial.println("AT+CMGF=1");\
    Serial.println("AT+CMGS=\"9784398922\"");
    Serial.println("TEMPERATURE INCREASES FROM CRITICAL
LEVEL");
    Serial.println("FAN TURNED ON");
    Serial.print("Light Intensity: ");
    Serial.print(lux);
    Serial.println(" LUX");
    Serial.print("Temperature: ");
    Serial.print(temperature);
    Serial.println(" degree Celsius");
    Serial.print("Humidity: ");
    Serial.print(humidity);
    Serial.println(" %");

    Serial.write(26);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("Temp increases ");
    lcd.setCursor(0,1);
    lcd.print("Fan Turned ON ");
    delay(2000);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("Temperature");
    lcd.setCursor(0,1);
    lcd.print(temperature);
    lcd.write(1);
    lcd.print("C");
    check=2;
    test2=1;
    delay(2000);
}
else
{
    if(check==2)
    {
        Serial.println("AT+CMGF=1");\
        Serial.println("AT+CMGS=\"9784398922\"");
        Serial.println("FAN TURNED OFF");
        Serial.print("Light Intensity: ");

```

```

    Serial.print(lux);
    Serial.println(" LUX");
    Serial.print("Temperature: ");
    Serial.print(temperature);
    Serial.println(" degree Celsius");
    Serial.print("Humidity: ");
    Serial.print(humidity);
    Serial.println(" %");

    Serial.write(26);
    check=0;
    test1=0;
}
digitalWrite(fan, LOW);
delay(1000);
}

if(humidity < 30)
{
    digitalWrite(spray, HIGH);
    digitalWrite(13, HIGH);
    Serial.println("AT+CMGF=1");\
    Serial.println("AT+CMGS=\"9784398922\"");
    Serial.println("HUNIDITY INCREASES FROM DEFINED LEVEL ");
    Serial.println("SPRAY TURNED ON");
    Serial.print("Light Intensity: ");
    Serial.print(lux);
    Serial.println(" LUX");
    Serial.print("Temperature: ");
    Serial.print(temperature);
    Serial.println(" degree Celsius");
    Serial.print("Humidity: ");
    Serial.print(humidity);
    Serial.println(" %");

    Serial.write(26);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("Humidity increas");
    lcd.setCursor(0,1);
    lcd.print("Spray Turned ON ");
    delay(2000);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("Humidity");
    lcd.setCursor(0,1);
    lcd.print(humidity);

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```

        lcd.print(" %");
        check=3;
        test2=1;
        delay(2000);
    }
    else
    {
        if(check==3)
        {
            Serial.println("AT+CMGF=1");\
            Serial.println("AT+CMGS=\"9784398922\"");
            Serial.println("SPRAY TURNED OFF");
            Serial.print("Light Intensity: ");
            Serial.print(lux);
            Serial.println(" LUX");
            Serial.print("Temperature: ");
            Serial.print(temperature);
            Serial.println(" degree Celsius");
            Serial.print("Humidity: ");
            Serial.print(humidity);
            Serial.println(" %");
            Serial.write(26);
            check=0;
        }
        digitalWrite(13, LOW);
        digitalWrite(spray, LOW);
        test2=0;
        delay(2000);
    }

    if(digitalRead(soil)==1)
    {
        digitalWrite(motor, HIGH);
        Serial.println("AT+CMGF=1");\
        Serial.println("AT+CMGS=\"9784398922\"");
        Serial.println("WATER REQUIRED ");
        Serial.println("MOTOR TURNED ON ");
        Serial.print("Light Intensity: ");
        Serial.print(lux);
        Serial.println(" LUX");
        Serial.print("Temperature: ");
        Serial.print(temperature);
        Serial.println(" degree Celsius");
        Serial.print("Humidity: ");
        Serial.print(humidity);
        Serial.println(" %");
        Serial.write(26);
    }

```

```

    check=4;
    test3=1;
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("Water Required ");
    lcd.setCursor(0,1);
    lcd.print("Motor turned ON");
    delay(2000);
}

else
{
    if(check==4)
    {
        Serial.println("AT+CMGF=1");\
        Serial.println("AT+CMGS=\"9784398922\"");
        Serial.println("WATER REQUIRED ");
        Serial.println("MOTOR TURNED OFF ");
        Serial.print("Light Intensity: ");
        Serial.print(lux);
        Serial.println(" LUX");
        Serial.print("Temperature: ");
        Serial.print(temperature);
        Serial.println(" degree Celsius");
        Serial.print("Humidity: ");
        Serial.print(humidity);
        Serial.println(" %");
        Serial.write(26);
        check=0;
    }
    digitalWrite(motor, LOW);
    test3=0;
}
delay(100);
}

```