Develop a Smart Home Automation project using ESP32.

The tasks involved in completing this project are:

Get the Temperature, Humidity from the DHT11 sensor

Get the light intensity from LDR

Display the light intensity, Temperature, Humidity values on the OLED display.

control the lights based on Light intensity ( Control led's as an indication of light)

Control the fans based on the temperature and humidity parameters ( Control led's as an indication of fan)

PROGRAM

#include "DHT.h"

#define DHTPIN 2

#define DHTTYPE DHT11

DHT dht(DHTPIN, DHTTYPE);

#include<Wire.h>

#include<Adafruit\_GFX.h>

#include<Adafruit\_SSD1306.h>

#define SCREEN\_WIDTH 128

#define SCREEN\_HEIGHT 64

Adafruit\_SSD1306 display(SCREEN\_WIDTH,SCREEN\_HEIGHT,&Wire,-1);

void setup() {

dht.begin();

if(!display.begin(SSD1306\_SWITCHCAPVCC, 0x3C)){

Serial.println("SSD1306 FAILED");

}

delay(2000);

display.clearDisplay();

display.setTextSize(1);

display.setTextColor(WHITE);

display.setCursor(0,10);

display.println("values of dht");

display.display();

}

void loop() {

int a = analogRead(15);

Serial.print("ldr value is:");

Serial.println(a);

delay(2000);

float h = dht.readHumidity();

float t = dht.readTemperature();

if (isnan(h) || isnan(t)){

Serial.println(F("Failed to read from DHT sensor!"));

return;

}

display.print("Humidity:");

display.display();

display.println(h);

display.display();

display.print("Temperature: ");

display.display();

display.println(t);

display.display();

display.print("ldr value is");

display.display();

display.println(a);

display.display();

// controling the lights based on the ldr value the ldr value 2000and above will go in to the dark side up to 4000

//if the value of the ldr is greater 2000 we are making the led to ON.

if(a>2000){

digitalWrite(16,HIGH);

Serial.println("led is on");

}

else{

digitalWrite(16,LOW);

Serial.println("led is off");

}

//depending on the temperature and humidity of the air we control the fans(led is optianlly connected)

//if the tempereature greater than 35 and humidity greater than 45 the fan is on.

if((t>35)||(h>45)){

digitalWrite(17,HIGH);

display.println("fan is on");

display.display();

}

else{

digitalWrite(17,LOW);

display.println("fan is off");

display.display();

}

}