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Home Task:	DHT and LDR combined (Week-6)
Course Name:	IoT and Embedded Systems
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IoT & Embedded Systems

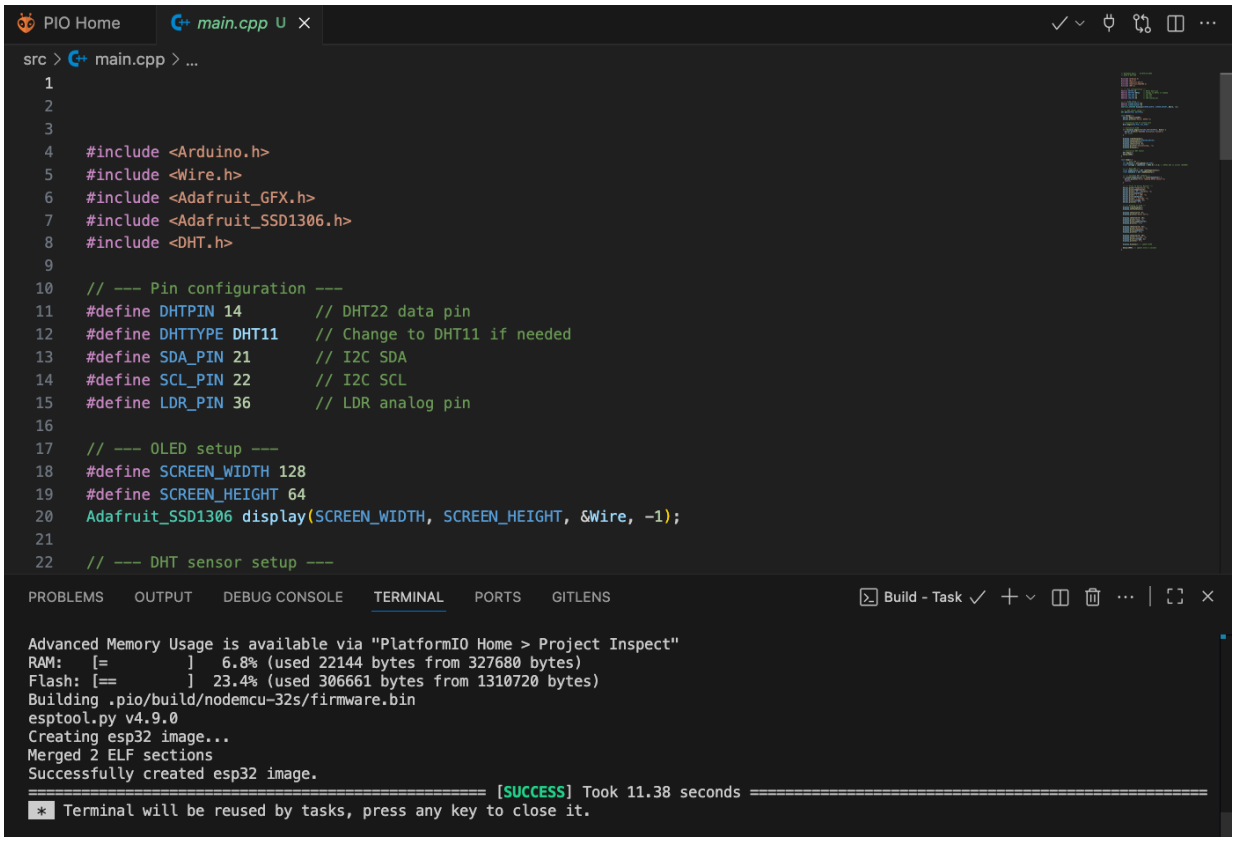
Home Task

Code Screenshot:

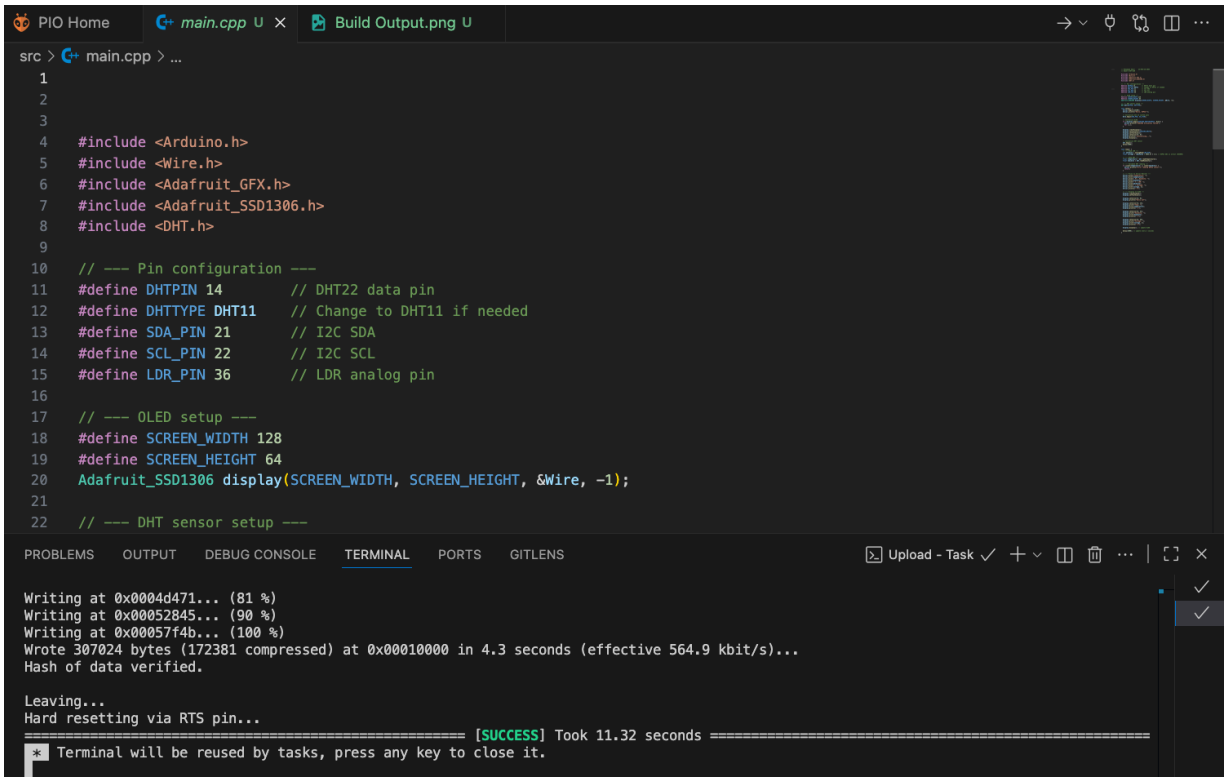
```
#include <Arduino.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>
#include <DHT.h>

#define DHTPIN 14
#define DHTTYPE DHT11
#define SDA_PIN 21
#define SCL_PIN 22
#define LDR_PIN 36

#define SCREEN_WIDTH 128
#define SCREEN_HEIGHT 64
Adafruit_SSD1306 display(SCREEN_WIDTH, SCREEN_HEIGHT, &Wire, -1);

DHT dht(DHTPIN, DHTTYPE);

void setup() {
  Serial.begin(115200);
  Serial.println("Hello, ESP32!");

  Wire.begin(SDA_PIN, SCL_PIN);

  if (!display.begin(SSD1306_SWITCHCAPVCC, 0x3C)) {
    Serial.println("SSD1306 allocation failed");
    for (;;);
  }

  display.clearDisplay();
  display.setTextColor(SSD1306_WHITE);
  display.setTextSize(1);
  display.setCursor(0, 0);
  display.println("Initializing...");
  display.display();

  dht.begin();
  delay(1000);
}

```

```
41  void loop() {
42
43    int adcValue = analogRead(LDR_PIN);
44    float voltage = (adcValue / 4095.0) * 3.3;
45
46    float temperature = dht.readTemperature();
47    float humidity = dht.readHumidity();
48
49    if (isnan(temperature) || isnan(humidity)) {
50      Serial.println("Error reading DHT22 sensor!");
51      return;
52    }
53
54    Serial.print("Temperature: ");
55    Serial.print(temperature);
56    Serial.print(" °C | Humidity: ");
57    Serial.print(humidity);
58    Serial.print(" % | LDR: ");
59    Serial.print(adcValue);
60    Serial.print(" | Voltage: ");
61    Serial.print(voltage, 2);
62    Serial.println(" V");
63
64    display.clearDisplay();
65    display.setTextSize(1);
66
67    display.setCursor(0, 0);
68    display.println("Hello IoT");
69
70    display.setCursor(0, 16);
71    display.print("Temp: ");
72    display.print(temperature);
73    display.println(" C");
74
75    display.setCursor(0, 32);
76    display.print("Humidity: ");
77    display.print(humidity);
78    display.println(" %");
79
80    display.setCursor(0, 48);
81    display.print("Voltage: ");
82    display.print(voltage, 2);
83    display.println(" V");
84
85    display.display();
86
87    delay(2000);
88  }
89
```

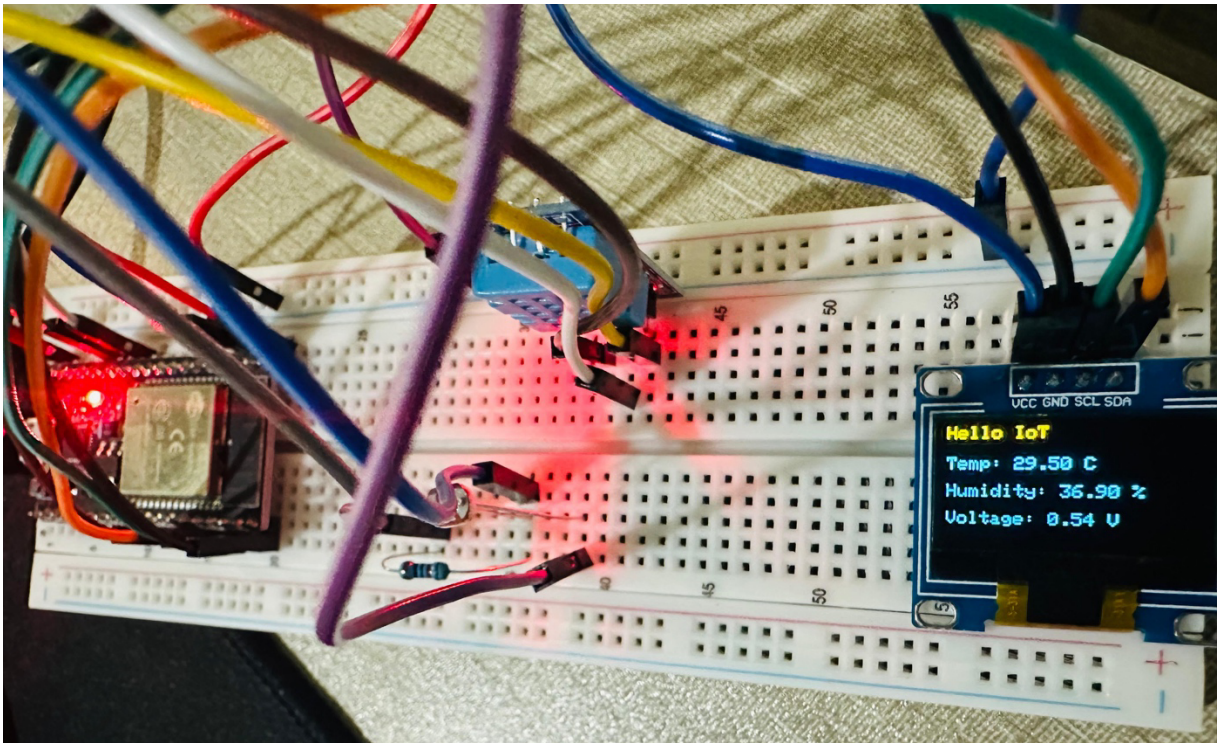
Code Build Output:



Code Upload Output:



Hardware Output:



Circuit Pin Map:

Device Name	Pin Name	Pin Number
OLED	**Ground**	**GND**
OLED	**VCC**	**3.3v**
OLED	**SDA**	**21**
OLED	**SCL**	**22**
LDR	**VCC**	**3.3**
LDR	**Second Pin**	**10k Resister**
10k Resister	**One side pin**	**GND**

10k Resister	**Second side pin**	**36**
DHT	**VCC**	**5**
DHT	**Data Pin**	**14**
DHT	**Ground**	**GND**