**Project**

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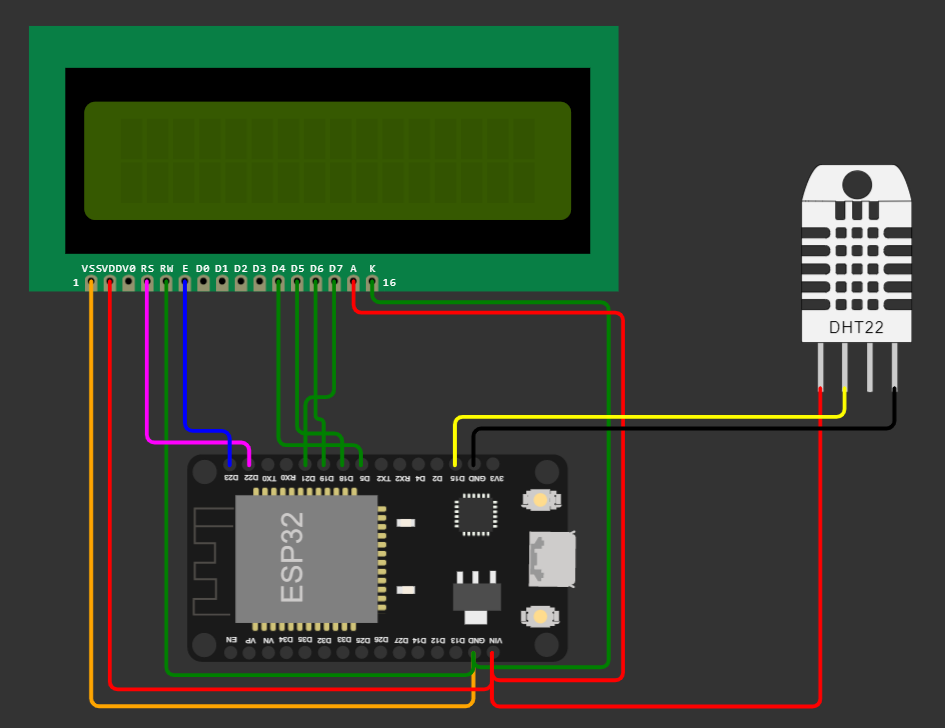
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Project Name: Internet of Things Project

Project Description:

Create a circuit to display a message internet is connected and then when the device is connected to ThingSpeak and sending data successfully to it, display all this in LCD display.

* CIRCUIT DIAGRAM



DHT 22 Sensor

LCD Display (16\*2)

Note: This Circuit diagram was created in “Wokwi” online simulator. Thus the power supply is not shown to the Vin(5V) pin and 3V3 pin of ESP32 microcontroller and is assumed to be connected.

* COMPONENTS REQUIRED

1. ESP32 Microcontroller
2. DHT22 Sensor
3. LCD Display (16\*2)
4. Regulated Power supply
5. Connecting Wires

* PROGRAM USED IN SIMULATOR

1. #include"WiFi.h"

// #include"DHT.h"

1. #include "DHTesp.h"
2. #include"LiquidCrystal.h"
3. #include"ThingSpeak.h"

// #define DHT\_PIN 15

// #define DHTTYPE DHT22

// DHT dht(DHT\_PIN,DHTTYPE);

1. const int DHT\_PIN = 15;
2. DHTesp dhtSensor;
3. LiquidCrystal lcd(22,23,5,18,19,21);
4. const char \* ssid = "yourNetworkName";
5. const char \* password = "yourNetworkPass";
6. unsigned long myChannelNumber = 1760540;
7. const char \* myWriteAPIKey = "6KYP4I9LLPJQRODU";
8. WiFiClient client;
9. float t,h;
10. void Connect\_to\_WIFI(){

// USE THIS WHEN USING ACTUAL HARDWARE

// lcd.setCursor(0,0);

// WiFi.mode(WIFI\_STA);

// WiFi.begin(ssid,password);

// while(WiFi.status()!=WL\_CONNECTED){

// Serial.print(".");

// delay(100);

// }

// if(WiFi.status()!=WL\_CONNECTED){

// lcd.print("INTERNET IS CONNECTED");

// }

1. lcd.setCursor(0,0);
2. lcd.print("Connecting to ");
3. lcd.setCursor(0,1);
4. lcd.print("WiFi");
5. delay(3000);
6. WiFi.begin("Wokwi-GUEST", "", 6);
7. while ( WiFi.status() != WL\_CONNECTED ) {
8. delay(100);
9. lcd.print(".");
10. }
11. lcd.clear();
12. lcd.print("INTERNET IS ");
13. lcd.setCursor(0,1);
14. lcd.print("CONNECTED");
15. delay(5000);
16. }
17. void setup(){
18. Serial.begin(115200);

// dht.begin();

1. dhtSensor.setup(DHT\_PIN, DHTesp::DHT22);
2. lcd.begin(16,2);
3. lcd.clear();
4. Connect\_to\_WIFI();
5. ThingSpeak.begin(client);
6. }
7. void loop(){

// t=dht.readTemperature();

// h=dht.readHumidity();

1. TempAndHumidity data = dhtSensor.getTempAndHumidity();
2. t=data.temperature;
3. h=data.humidity;

// sending data to thingspeak

1. ThingSpeak.setField(1,t);
2. ThingSpeak.setField(2,h);
3. ThingSpeak.writeFields( myChannelNumber , myWriteAPIKey);
4. lcd.clear();
5. lcd.print("Sending data");
6. lcd.setCursor(0,1);
7. lcd.print("Successfully");
8. delay(5000);

// displaying values on LCD

1. lcd.clear();
2. lcd.print("Temp: ");
3. lcd.print(t);
4. lcd.print("C");
5. lcd.setCursor(0,1);
6. lcd.print("Humidity: ");
7. lcd.print(h);
8. lcd.print("%");

// displaying values on serial monitor

1. Serial.print("Temp: ");
2. Serial.print(t);
3. Serial.print("C ");
4. Serial.print(" Humidity: ");
5. Serial.print(h);
6. Serial.println("%");
7. delay(10000);
8. }

* Video Demonstration of Simulation of How the Project Works

[Click here to view Video](https://drive.google.com/file/d/10nVN-0z0r4rym4ULUh5R4wGmc3DO4xHW/view?usp=sharing)

* ThingSpeak Channel Graphs

