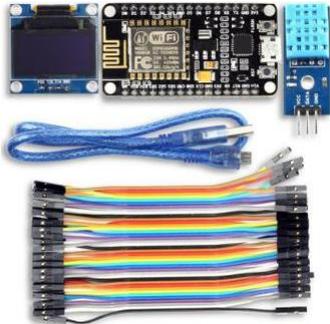


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PACKING LIST



1. ESP8266 ESP-12E Development Board
2. 0.96" OLED display
3. DHT11 Temperature and Humidity Sensor
4. 40x10cm female-female jumpers
5. USB cable

INTRODUCTION

This kit meets your demand to fetch current and forecast weather information by getting it from an online service and displays it on a 128 x 64 pixels OLED display with icons. The program uses a side-scrolling carousel to display the date and time and humidity through the DHT11 sensor.

FEATURES

1. Updated current and 3-day forecast weather from online service
2. Real-time temperature and humidity in graphs upload-able to ThingSpeak

① THE ESP8266 WEATHER STATION

We will install several libraries used to set up access to the internet, read and parse data from the service providing your local weather forecasts, as well as a library to display the data on the OLED display. Then we will adjust the WeatherStation code to display your local weather information and get a so-called API key to access the weather forecast service.

1.1· Install the libraries

To get the WeatherStation to compile, you need to download 3 libraries. The first library is the WeatherStation, the second one is to read and understand the data, and the third is needed to use the beautiful OLED display.

Go to **Sketch > Include Library... > Manage Libraries...** and search and install the following libraries.

Type Topic

ESP8266 Weather Station by ThingPulse
 ESP8266 based internet connected Weather Station
[More info](#)

Json Streaming Parser by Daniel Eichhorn
 A very memory efficient library to parse (large) JSON objects on small devices
[More info](#)

ESP8266 and ESP32 Oled Driver for SSD1306 display by Daniel Eichhorn, Fabrice Weinberg
 A I2C display driver for SSD1306 oled displays connected to an ESP8266 or ESP32
[More info](#)

Version 4.0.0

1.2· Open the WeatherStation Example

Go to **File > Examples > ESP8266 Weather Station > WeatherStationDemo**

Save the new sketch with a good name in a location you will remember - but leave it open. Configure the wifi information and your APP_ID you have got. Then upload it to the ESP8266.

1.3· Get the OpenWeatherMap API

To get the OpenWeatherMap API key go to <https://openweathermap.org/appid> and click on the sign-up button. Then get your API key from this page.

```

WeatherStationDemo.ino  ReadMe.adoc
40 // for setup instructions
41 // WIFI
42 const char* WIFI_SSID = "TP_8F24";
43 const char* WIFI_PWD = "00180605";
44 #define TZ 2 // (utc+) TZ in hours
45 #define DST_MN 60 // use 60mn for summer time in some
46 // Setup
47 const int UPDATE_INTERVAL_SECS = 20 * 600; // Update every 20 minute
48 // Display Settings
49 const int I2C_DISPLAY_ADDRESS = 0x3c;
50 #if defined(ESP8266)
51 const int SDA_PIN = D3;
52 const int SDC_PIN = D4;
53 #else
54 const int SDA_PIN = 5; //D3;
55 const int SDC_PIN = 4; //D4;
56 #endif
57 // OpenWeatherMap Settings
58 // Sign up here to get an API key:
59 // https://home.openweathermap.org/users/sign_up
60 const boolean IS_METRIC = true;
61 String OPEN_WEATHER_MAP_APP_ID = "a751469e7c1ab6208438c7f09d6f3abf";
62 String OPEN_WEATHER_MAP_LOCATION = "Zurich,CH";
63
64 <
    
```

The WeatherStationDemo Sketch

OpenWeatherMap API keys

Key: f42c672cab129e0611ceed9f0b23ab5b

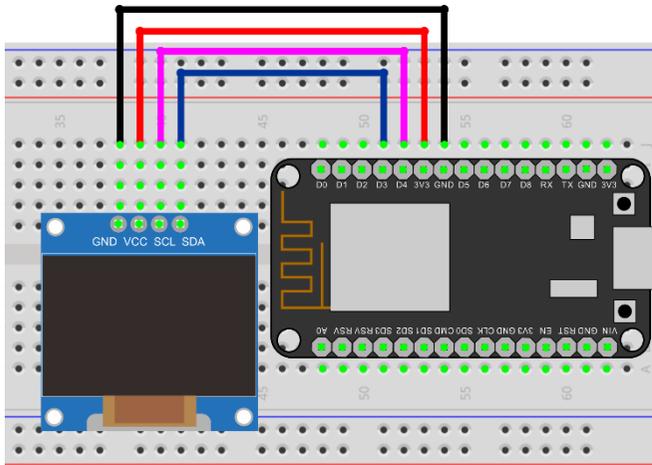
Name: Default

Create key form: * Name

OpenWeatherMap API key

1.4- Connecting the Hardware

Connect the OLED display and the ESP8266 and uploaded the firmware.



After connecting the hardware, the renderings are as follows:



The ESP8266 WorldClock



The climate data upload



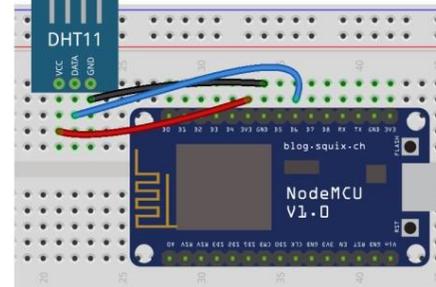
The current and forecast weather information

2 CONNECTING & DISPLAYING LOCAL DATA

This project will enable you to collect humidity and temperature in one room of your house or apartment and display the values in another room on the WeatherStation

2.1- The Climate Node Setup

This project will enable you to collect humidity and temperature. Now use the female-to-female jumpers to connect them:



2.2- Thingspeak Setup

Go to https://thingspeak.com/users/sign_up and create the account. After you completed that process, log in to your new account and go to My Channels.



Then click on the **New Channel**

button and fill out the form.

Now navigate to the API Keys tab and note the two generated keys.

The first one will allow you to write to this channel in Thingspeak, and the second one will allow you to read from it.

New Channel

Name

Description

Write API Key

Key

2.3- Programming the Climate Node:

Go to: https://github.com/supprot/ArduCAM_esp8266-dht-thingspeak-logger.git and download the code as a Zip file (or optionally do a GitHub checkout).

```
esp8266-dht-thingspeak- README.adoc
35 const char* ssid = "KK";
36 const char* password = "12345687";
37
38 const char* host = "api.thingspeak.com";
39
40 const char* THINGSPEAK_API_KEY = "J6CFQT6INPHG7KW4";
41
42 // DHT Settings
43 #define DHTPIN D6 // what digital pin we're connected to. If
44
45 // Uncomment whatever type you're using!
46 #define DHTTYPE DHT11 // DHT 11
47 // #define DHTTYPE DHT22 // DHT 22 (AM2302), AM2321
48 // #define DHTTYPE DHT21 // DHT 21 (AM2301)
49
50 const boolean IS_METRIC = true;
51
```

Now adapt the settings to your needs: In particular, the Wifi settings and the Thingspeak APIkey have to be updated. Then flash your program to the Node MCU and your Climate Node should start logging. To check the result you can go back to Thingspeak and look at the charts:



Channel Stats

Created: 30 minutes ago
Updated: 2 minutes ago
Last entry: 2 minutes ago
Entries: 14

