Switchdoc.com provides a nice little Weather board that is based on an ESP8266 Arduino.

The board, called “WeatherPlus” is an all in one weather station controller.

The controller can be bought separately or can be purchased in a larger kit called the “OurWeather”

OurWeather is a connected weather station containing 7 different sensors including Wind speed, Direction, Rain Gauge etc.

If you buy the “WeatherPlus” board as part of the “OurWeather” format. It comes with a little 1-inch OLED display that can be set to continuously display the weather information extracted from the “WeatherPlus” weather controller.

This works well. But, the display is connected (physically) to the “WeatherPlus” board. And, the “WeatherPlus” board is typically sitting outside of the house near the weather sensors.

Wouldn’t it be nice if that display were a wireless display that could be placed anywhere in the home ?

That is what this project is all about.

The device (Pictured below) called the “WeatherClient” uses just two components.

A NodeMCU V3 board (or similar). We will call this the CPU board.
https://www.amazon.com/gp/product/B071YPS666/ref=oh_aui_detailpage_o01_s00?ie=UTF8&psc=1

and a 1-inch OLED display. We will call this the client display.
https://www.amazon.com/gp/product/B01HEBIJKK/ref=oh_aui_detailpage_o08_s00?ie=UTF8&psc=1

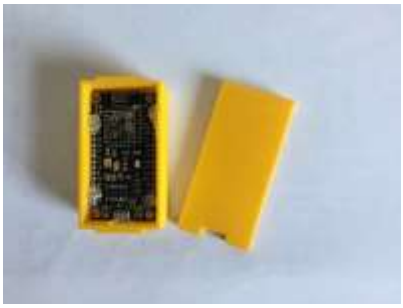
You can power the project using a USB cable connected to your computer or you can get a wall wart.
https://www.amazon.com/gp/product/B00MARDJZ4/ref=oh_aui_detailpage_o06_s00?ie=UTF8&psc=1

The CPU board uses an ESP8266 as the Wi-Fi connection. This will allow us to “talk” to the weather board over your local wireless network.

The code for the Weather Client makes a connection to your local Wi-Fi and then queries your WeatherPlus board (using the wireless network). The code then extracts Time, Temperature, Humidity and wind speed and displays it on the Weather Client display.

Because you are using the local wireless to get the data from the WeatherPlus board. You can place the Weather Client almost anywhere in the house.

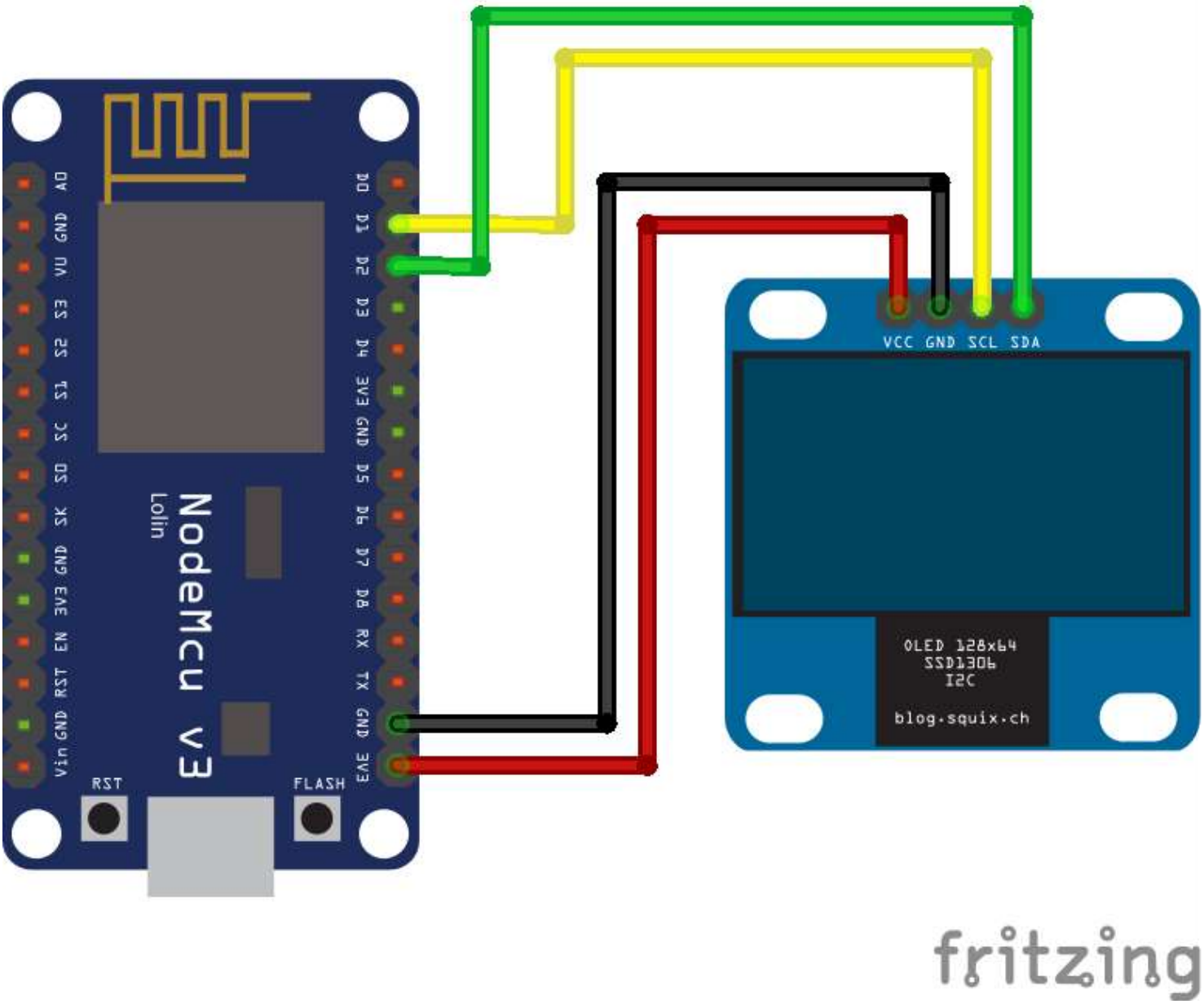
I provide the “STL” files to enable you to 3D print a small case and cover.



All necessary information for building the Weather Client can be obtained from:
https://www.thingiverse.com/thing:2527547

The whole project should cost you less than $30
OLED = $9
CPU = $7
Wall Wart = $10

The WeatherClient is wired in this manner:



The code is in a file called WeatherClient.ino and will require you to modify:

Line 84
const char* host = "192.168.0.220"; // WeatherPlus board address
Change the above line and enter your WeatherPlus board IP address.

Line 114 and 115
WiFi.begin("Your Wireless SSID", "Your Wireless Password");
WiFi.config(IPAddress(192,168,0,219), IPAddress(192,168,0,1), IPAddress(255,255,255,0));
Change the above two lines. Enter your Wi-Fi information and your Weather Clients IP address, Gateway and subnet mask.

The library used for the OLED display is from https://github.com/squix78/esp8266-oled-ssd1306
The Adafruit driver did not seem to work for some reason.
The following is the OLED library used in this project:
#include "SSD1306.h" // alias for `#include "SSD1306Wire.h"`

A word about the information above.
Line 84 (in the WeatherClient.ino file) is the WeatherPlus (not the WeatherClient) ip address. You can get this address off of the OLED display connected to the WeatherPlus board when the WeatherPlus board first boots up.

If you would like to guarantee that the WeatherPlus board ALWAYS boots up with the same address (and this is what I do). Download the latest WeatherPlus code from github.
https://github.com/switchdoclabs/OurWeatherWeatherPlus
Load the code into the Arduino IDE and assign an address to the Weather plus board like this:

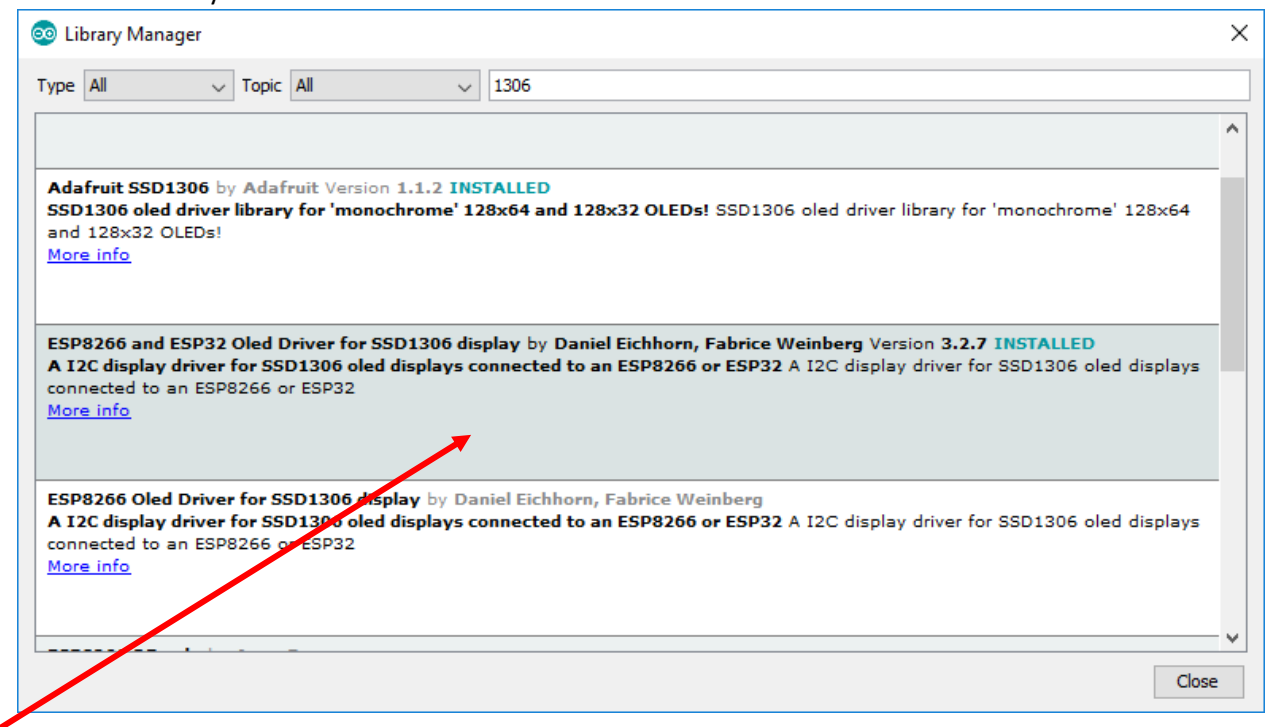
In the SDL_ESP8266_WeatherPlus.ino file add the following line (around line 656) just above the line that says //reset saved settings

wifiManager.setSTAStaticIPConfig(IPAddress(192,168,1,77), IPAddress(192,168,1,1), IPAddress(255,255,255,0));
//reset saved settings

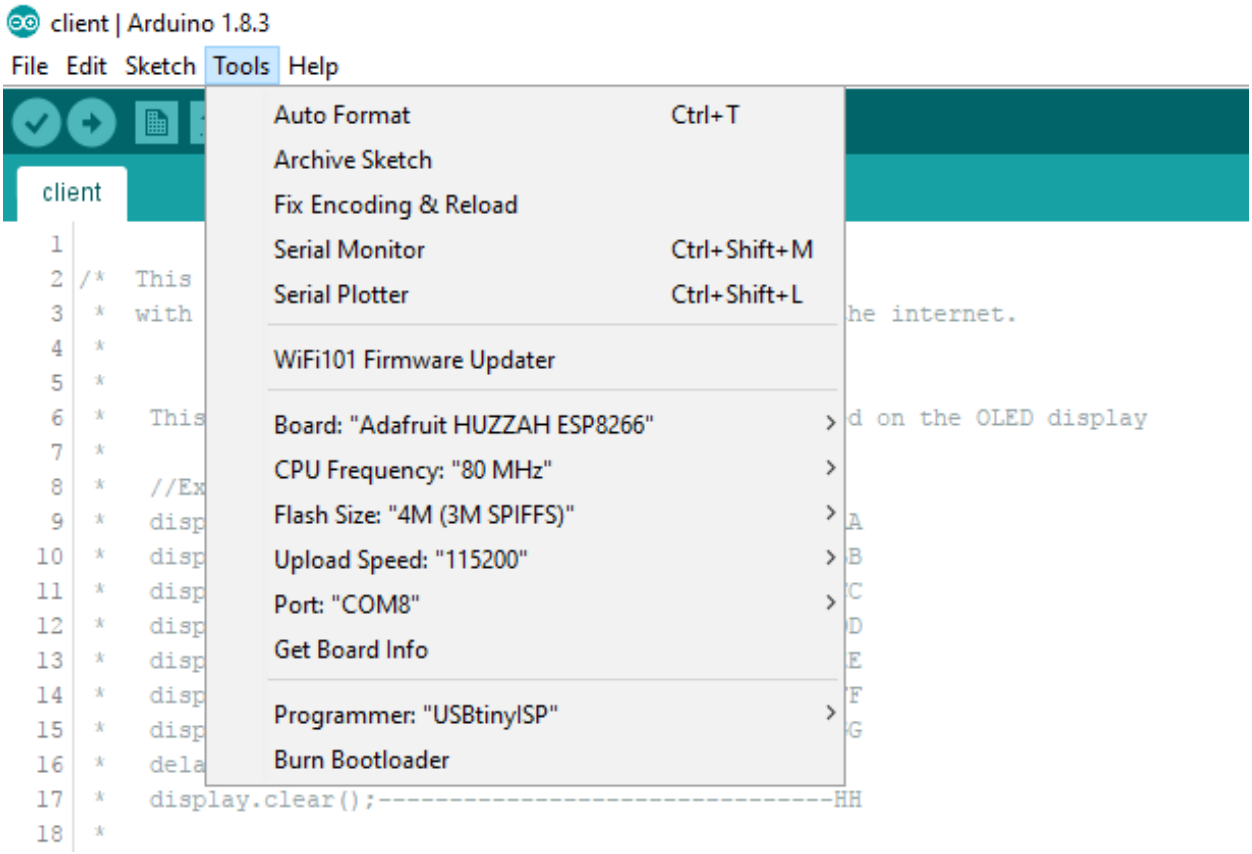
Replace the addresses with your new assigned address, gateway and subnet mask.
In the example above the new IP address is 192.168.1.77 and the gateway is 192.168.1.1 the subnet mask is (almost) always 255.255.255.0
This will force the WeatherPlus to use this new address.
One other note. Notice that the addresses above are separated with comas “,” and not periods “.”

If you are not sure about how addresses are assigned or derived please ask someone with networking experience to help.

The OLED Library used is:



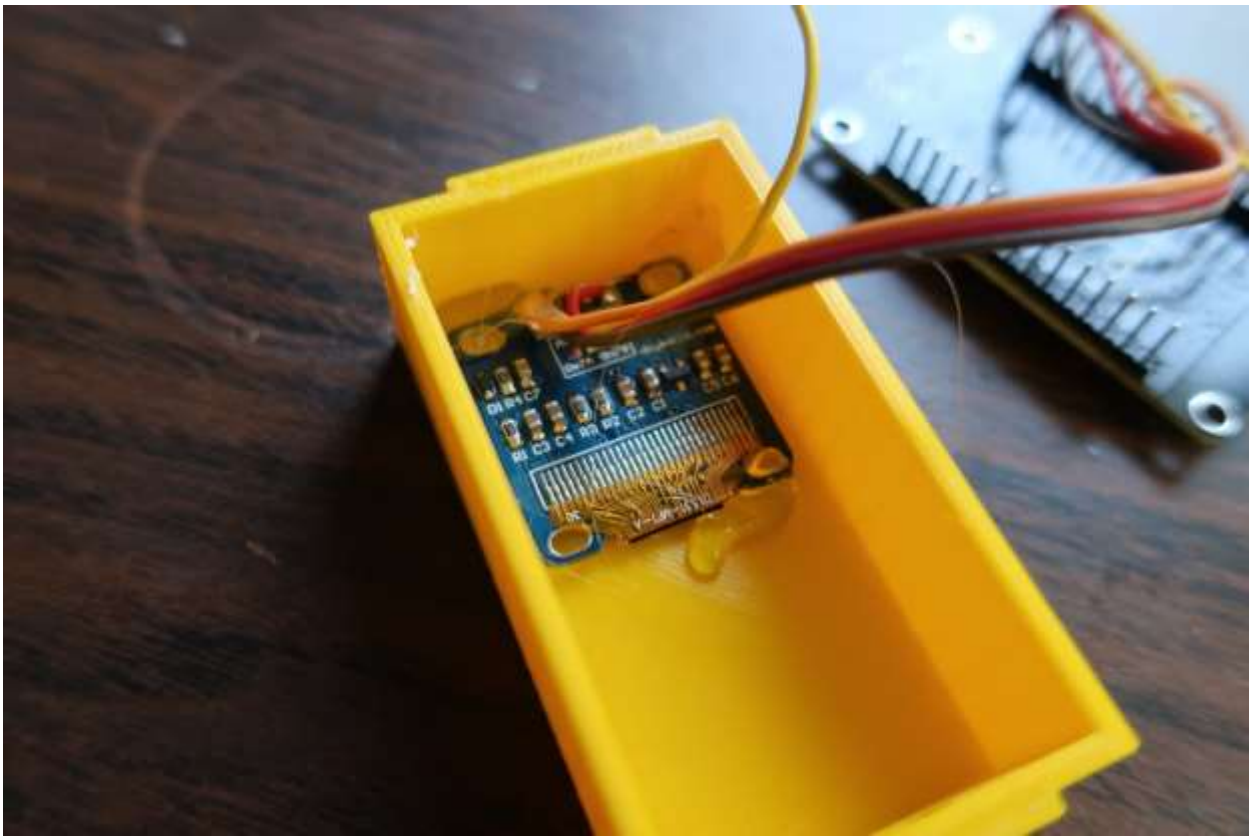
The IDE setup looks like this:



Assembling the box
If your OLED has a connector on it. Remove the connector. Then wire up the OLED to the CPU board.

I use hot glue to fasten all of the components into the case. Why ?
Because hot glue is easy to remove if you need to make repairs.

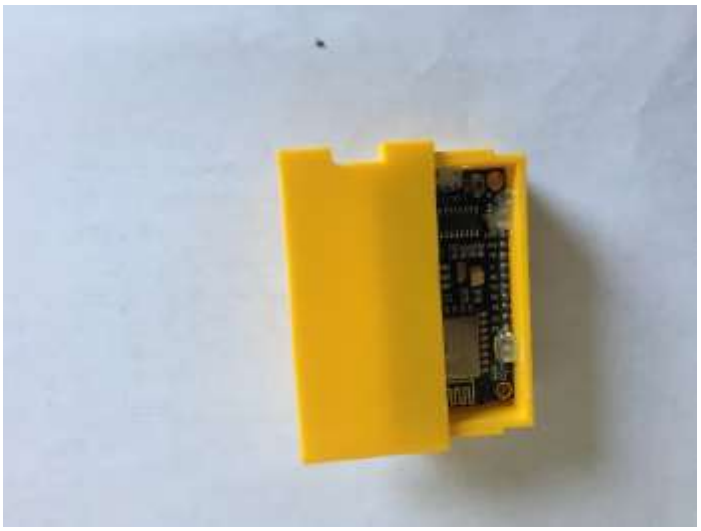
After wiring up the unit, use hot glue to fasten the OLED display into the box.



Don’t use too much glue and try to keep it away from the right and left side of the box because the pins on the CPU need to sit straddling the OLED display.

Next place the CPU board into the box and use hot glue to fasten it into the box. Be sure that the CPU boards pins are straddling the display and that the pins are sitting flush against the case.

The cover then slides onto the box.



And that’s it, plug in the power and enjoy.