



OUR
WEATHER

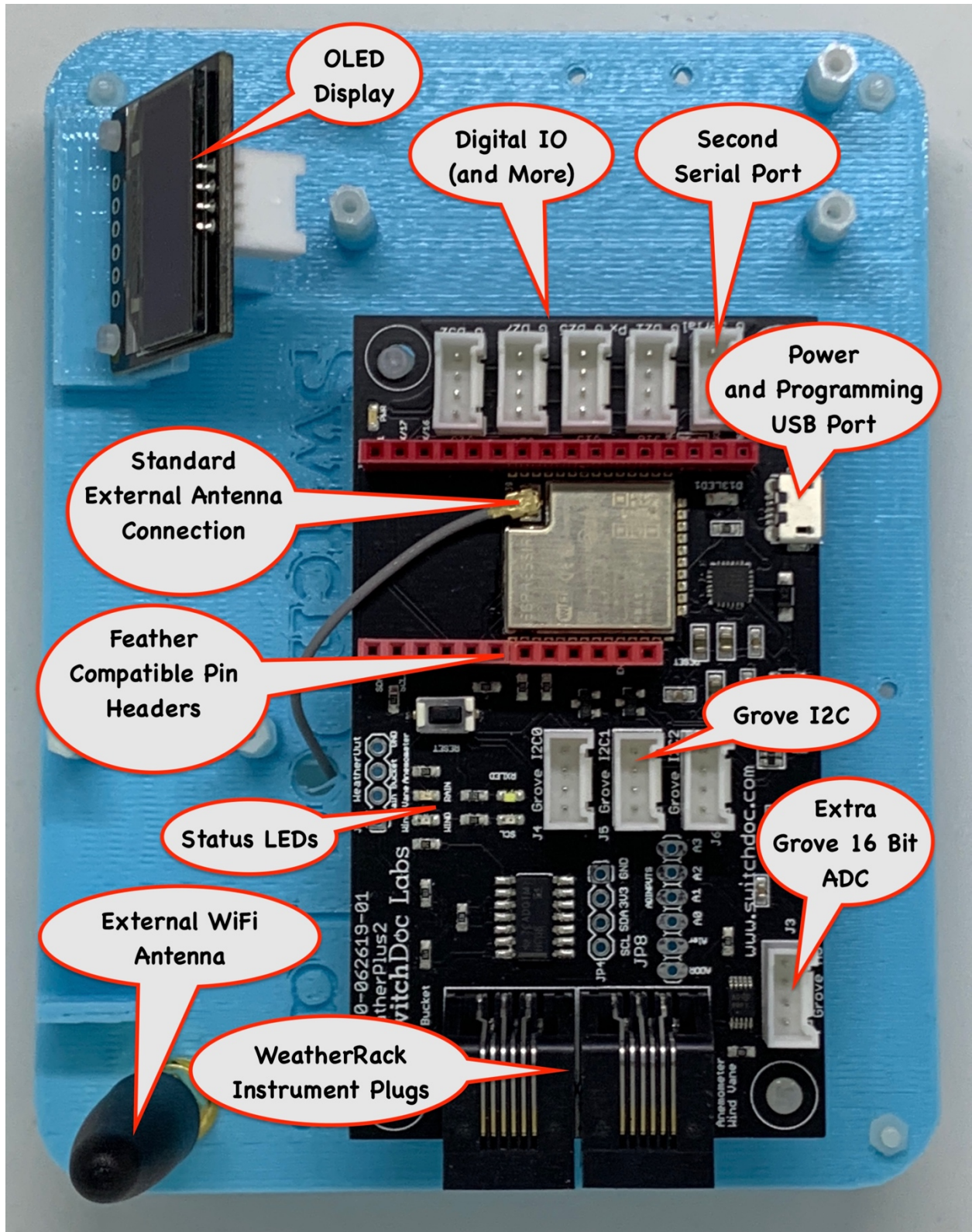
V2 Expansion Kit Assembly and Operation Manual

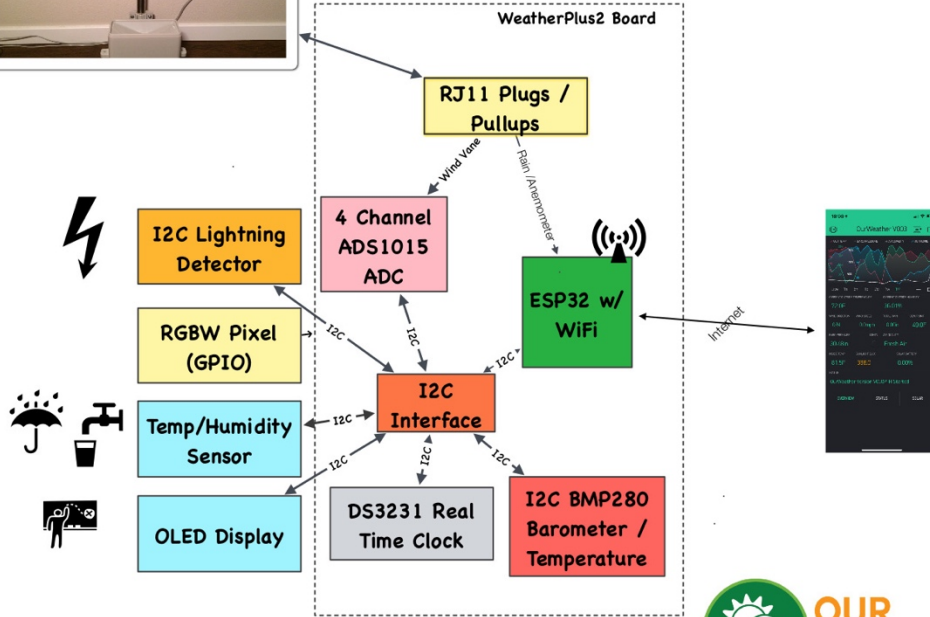
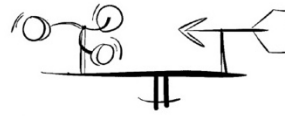
Version 1.1

December 2019

SwitchDoc Labs

What is in the OurWeather Box?	5
.....	Error! Bookmark not defined.
.....	Error! Bookmark not defined.
.....	Error! Bookmark not defined.
Step By Step Assembly.....	12
Building the Weather Sensors.....	Error! Bookmark not defined.
Testing the OurWeather Weather Station	15
Power Up OurWeather.....	Error! Bookmark not defined.
Setting up your OurWeather WiFi Connection	Error! Bookmark not defined.
Looking at the OurWeather Webpage	23
Advanced Usage - OurWeather Administration Page	28
Updating the OurWeather Software.....	30
Buttons and Lights on the OurWeather Board.....	32
.....	33
Troubleshooting Guide	34





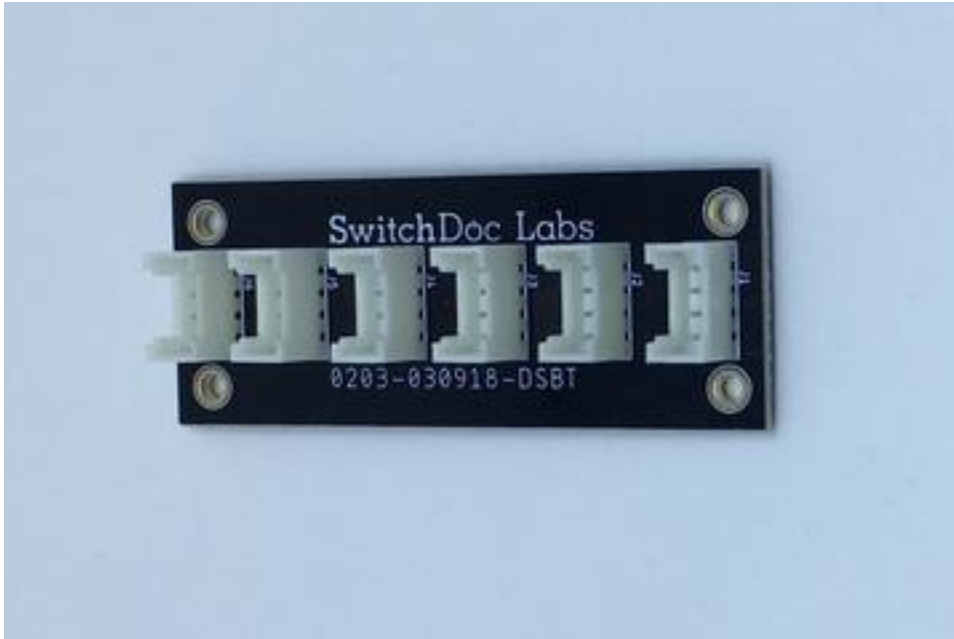
What is in the OurWeather Expansion Kit Box?

Following is a list of all the parts included in the OurWeather Expansion Kit.

A – ThunderBoard Lightning Detector



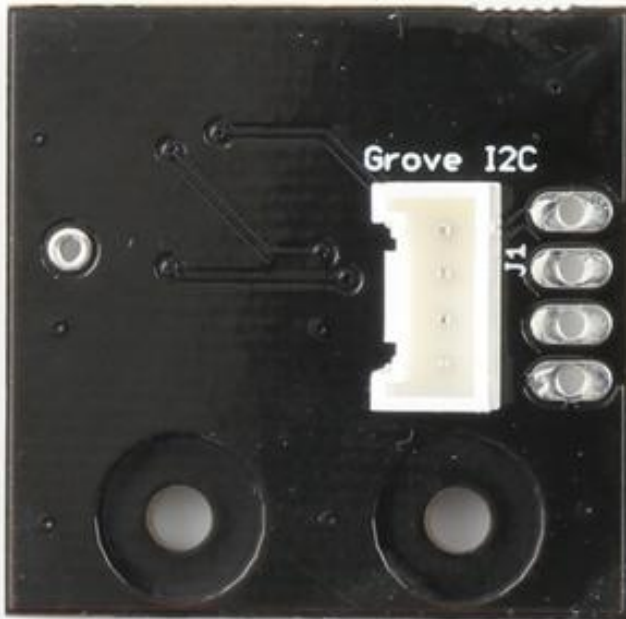
B – 6 Port I2C Hub



C – Indoor Air Quality Sensor



D – TSL2591 Sunlight Sensor



E – HDC1080 Temperature / Humidity Sensor



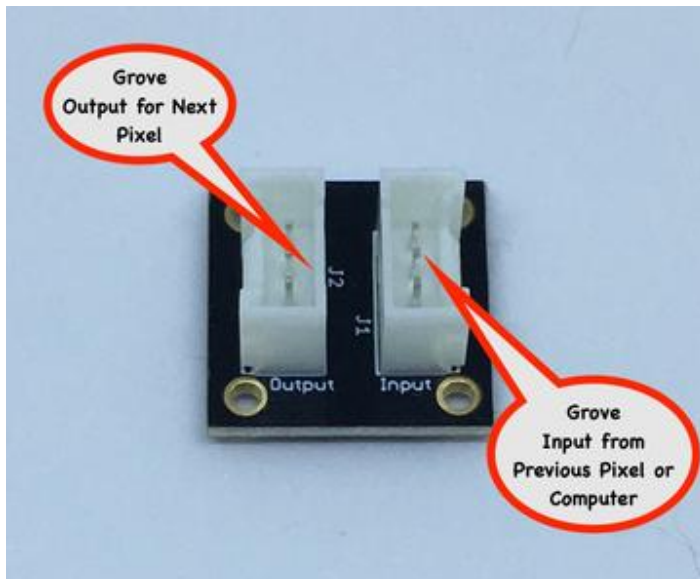
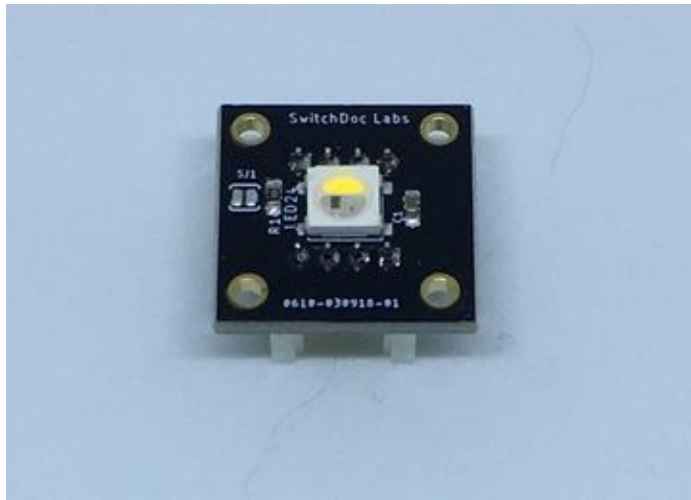
F – 5 20cm Grove Cables



G – 1 50cm Grove Cables



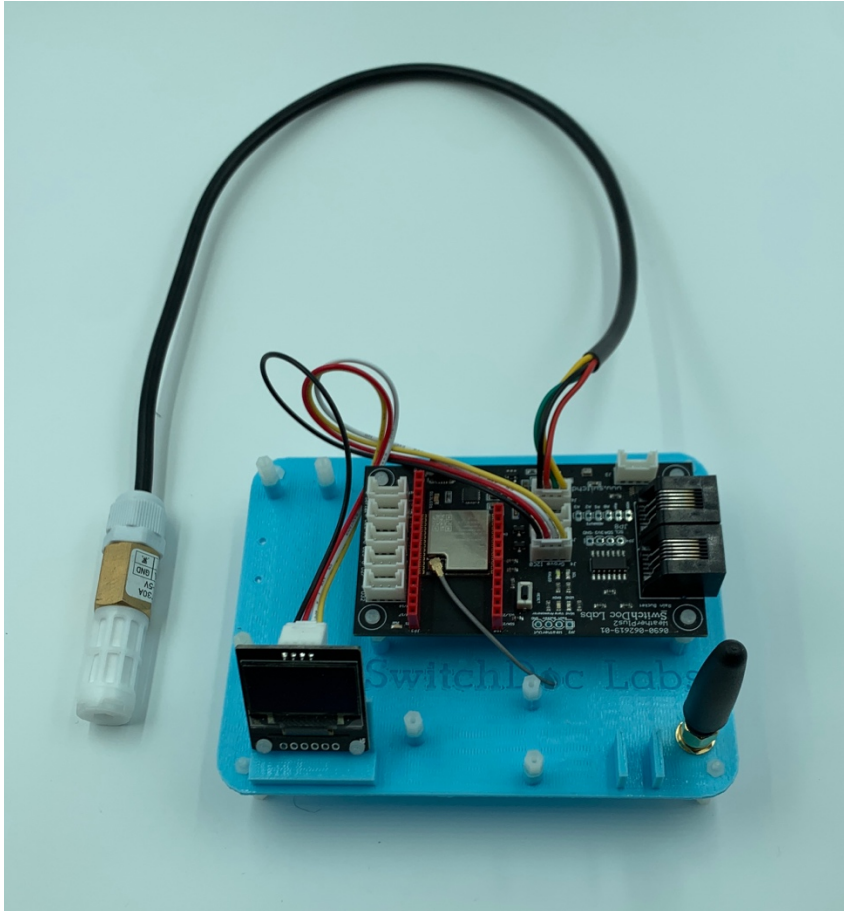
H – Single RGBW Pixel LED



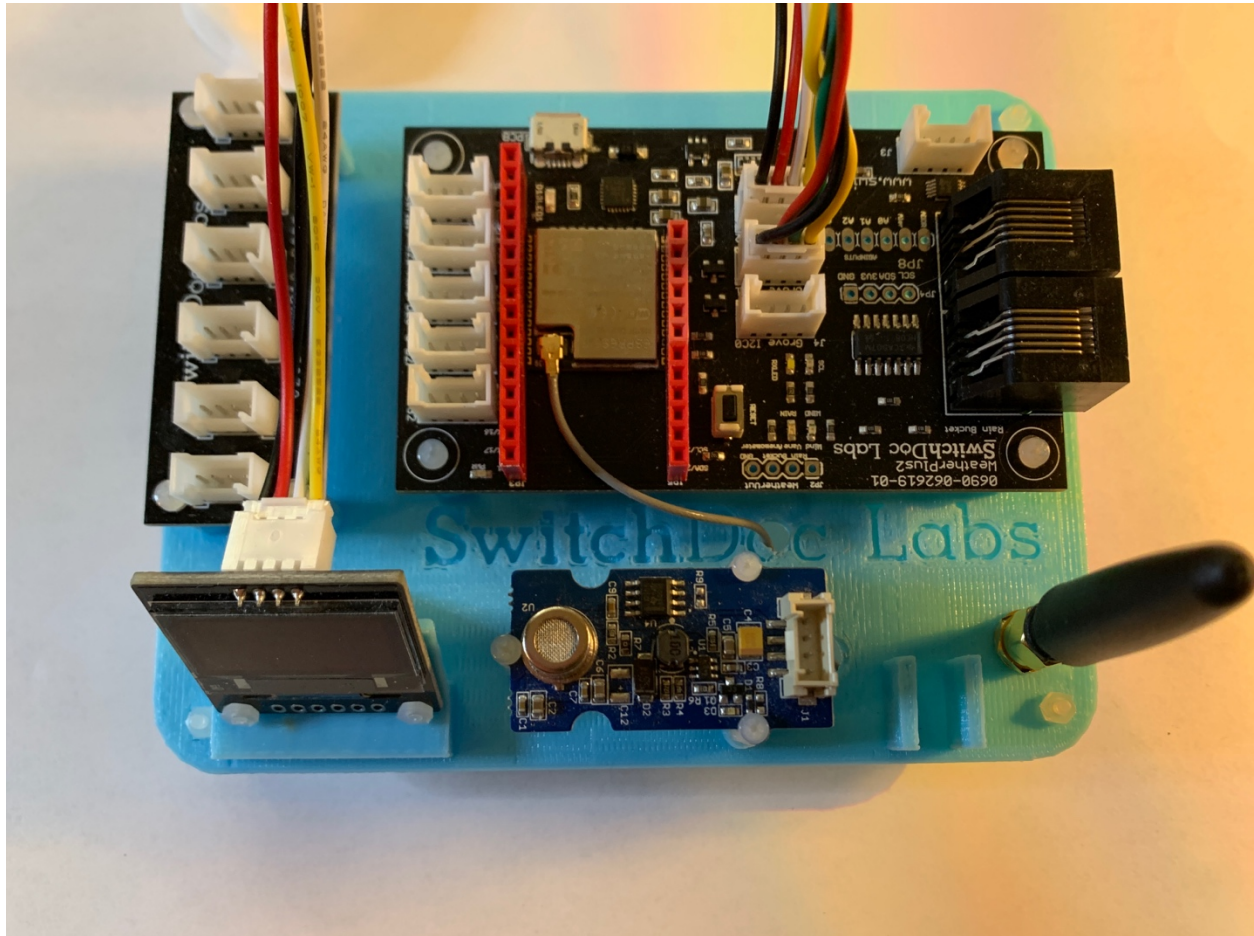
Step By Step Assembly

Building the Computer Module.

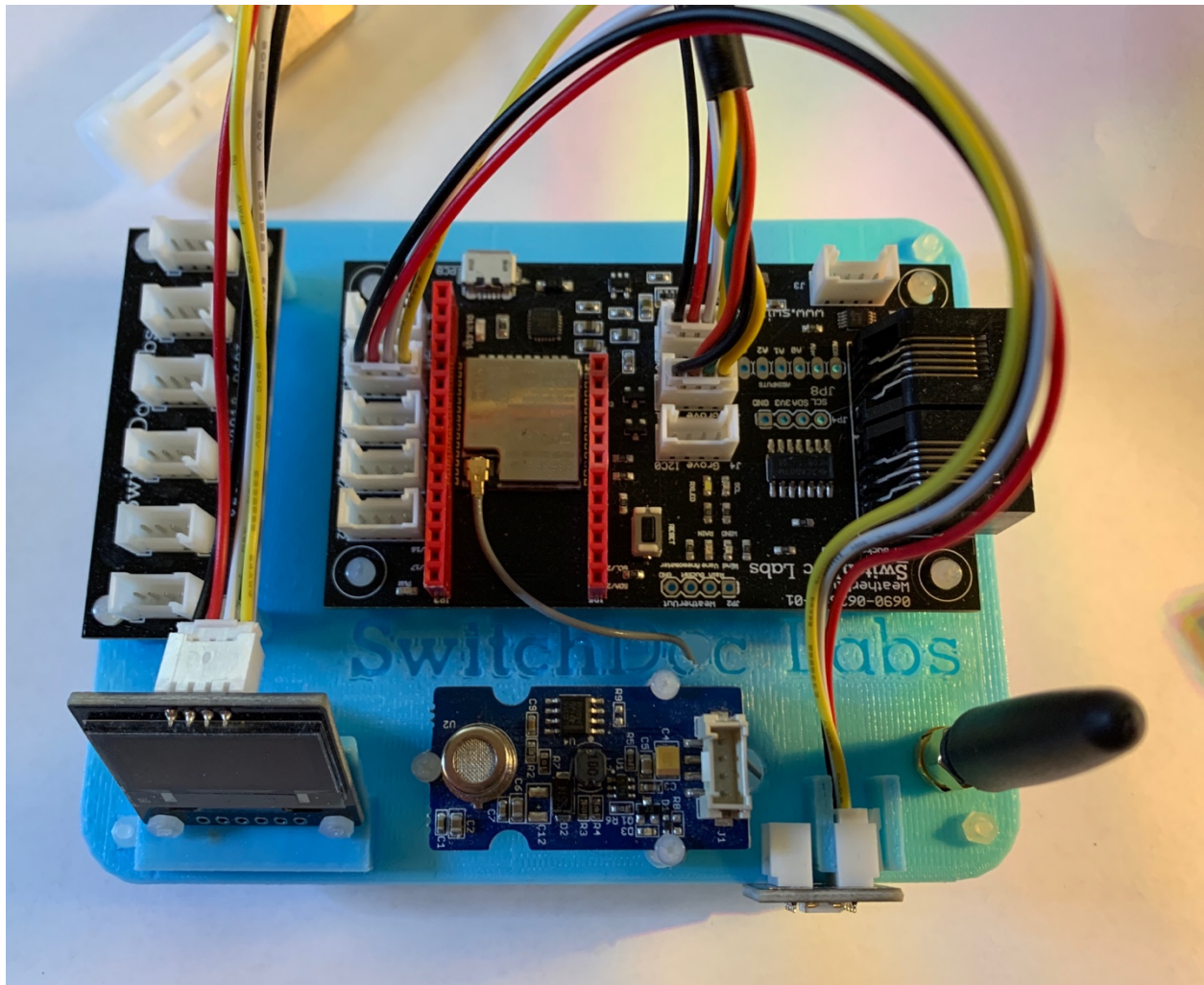
Step 1 – Assembly and test the Base OurWeather Kit and unplug the power from the unit.



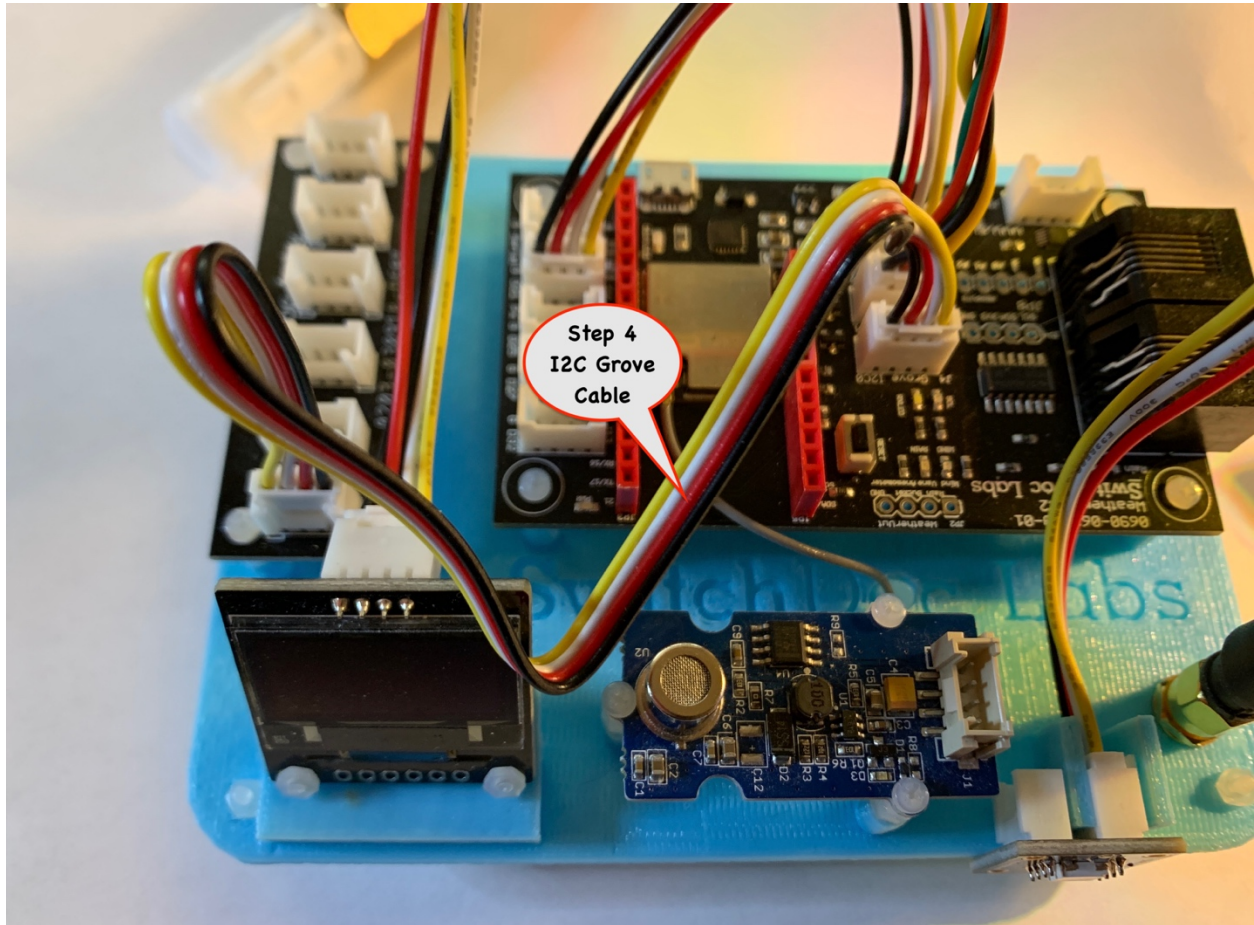
Step 2 – Using M2 screws from the OurWeather base kit, attach the 6 Port I2C Hub (Part B) to the Base unit as shown and then attach the Indoor Air Quality (Part C) to the base unit as shown.



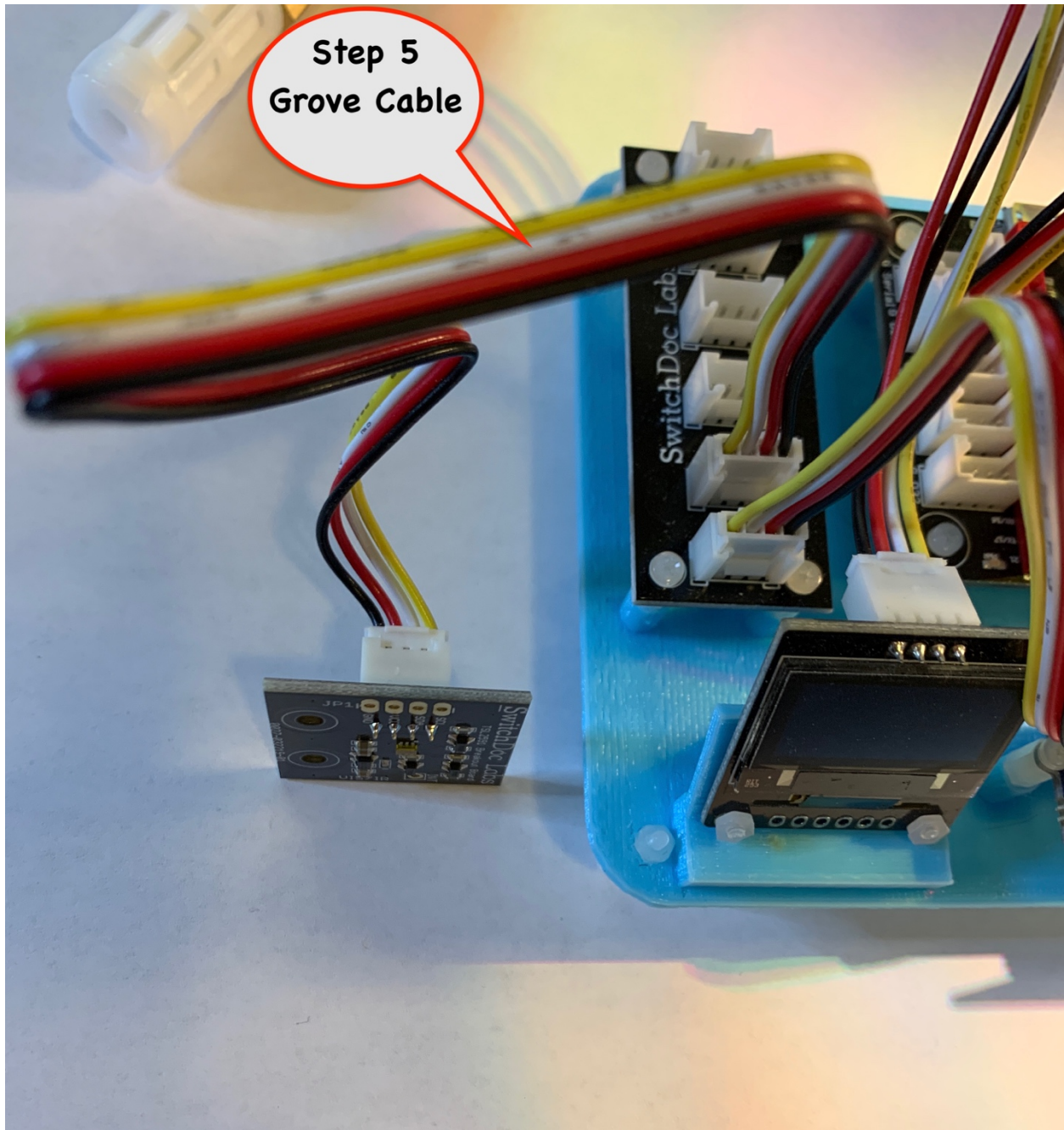
Step 3 – Attach a 20cm Grove Cable (Part F) to the Input port on the Single Pixel RGBW LED (Part H). Note we often clip the buckles off the Grove cables as they annoy us, but don't take the buckle off of this Grove cable. It will fit snugly with the. Next Slide the Connected Single Pixel RGBW LED (Part H) into the the slot shown on the OurWeather base unit. Plug the other end of the Grove Cable into the Grove Connector marked D21 on the WeatherPlus2 board as shown.



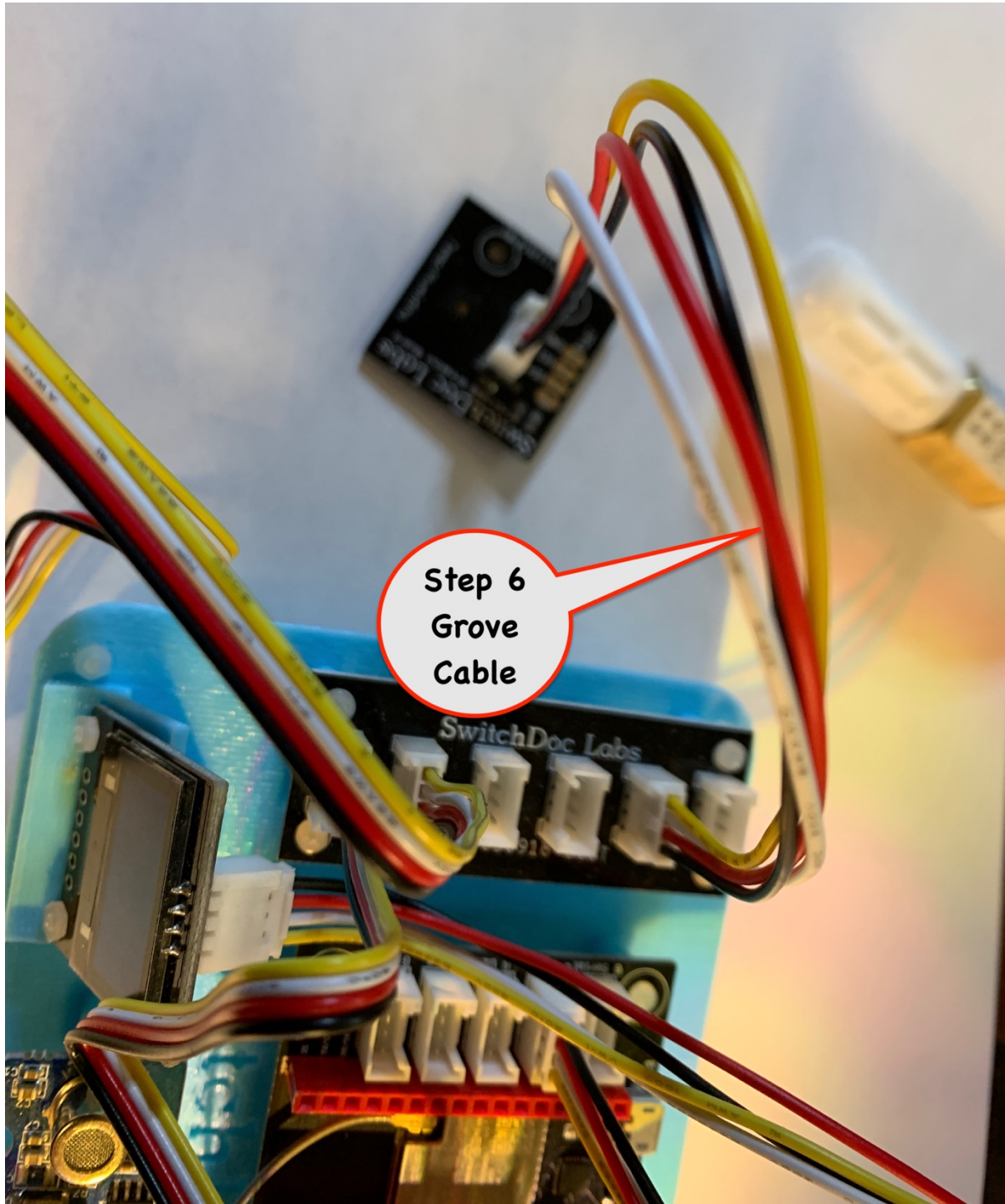
Step 4 – Take on 20cm Grove Cable (Part F) and plug in into the remaining I2C Grove connector on the WeatherPlus2 Board and plug it into the slot shown on the 6 Port I2C Hub (Part B) (any port will do as it is a bus on the hub).



Step 5 – Take the TSL2591 Sunlight Sensor (Part D) and plug in 20cm Grove Cable (Part F) to the back of the TSL2591 board. Take the other end of the 20cm Grove Cable and plug it into another Grove connector on the 6 Port I2C Hub (Part B).

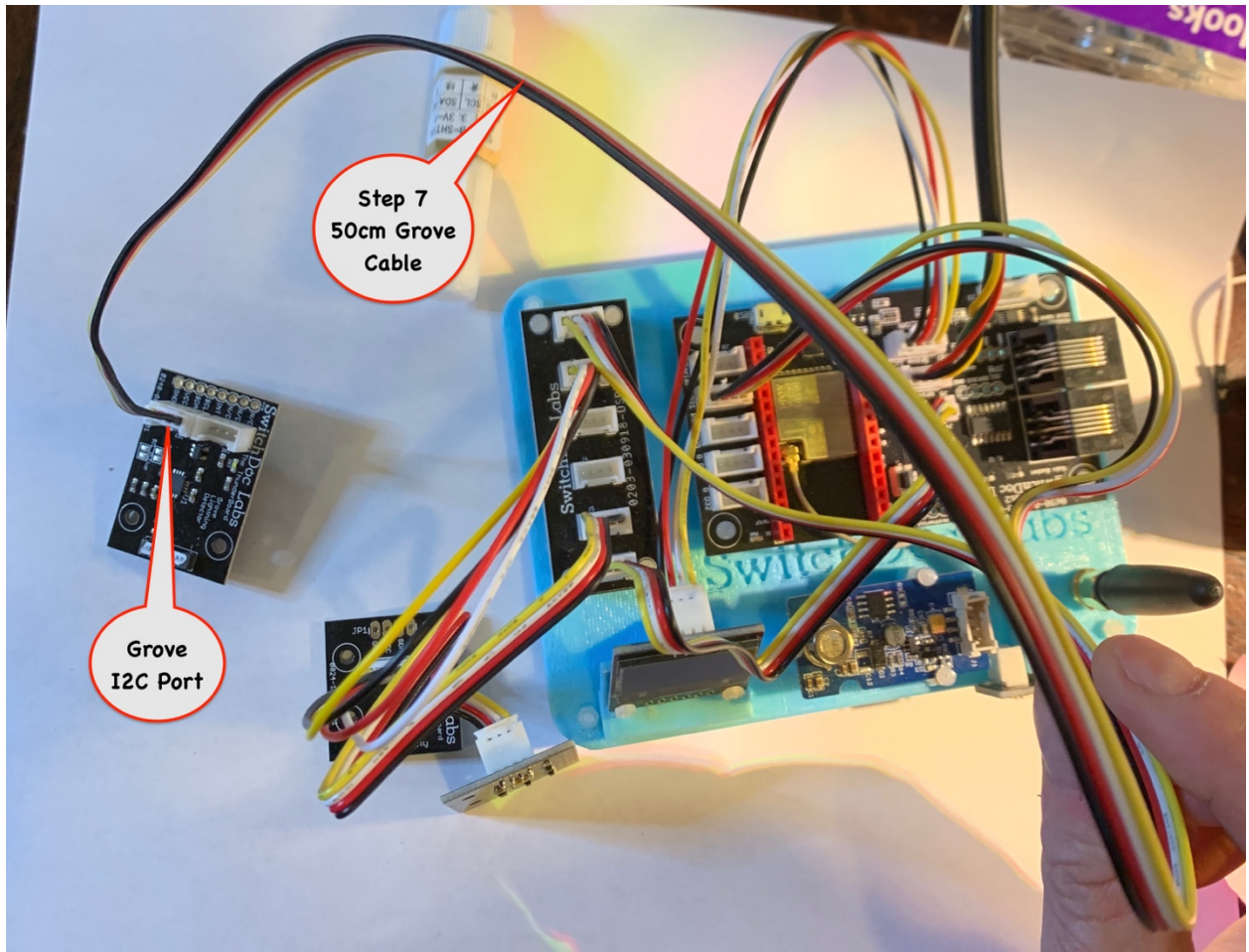


Step 6 – Take the HDC1080 Indoor Temperature / Humidity Sensor (Part E) and plug in one end of a 20cm Grove Cable (Part F) into the Grove connector on the HDC1080. The plug the other end of the Grove cable into a slot on the 6 port I2C Hub (Part B).



Step 7 – Take a Grove 50cm Cable (Part G) and plug it into the I2C Port on the ThunderBoard Lightning Detector (Part A). Make sure you plug the Grove cable into the I2C Port on the ThunderBoard Lightning Detector. If you plug it into the Digital port, it won't hurt anything, but the ThunderBoard will not work. Plug the other end of the 50cm Cable into a port on the 6 port I2C Hub (Part B). Why a 50cm Grove Cable? The ThunderBoard Lightning Detector is a very sensitive sensor and needs to be placed far away from the main CPU on the WeatherPlus2 Board.





Step 8 – Take a 20cm Grove Cable (Part F) and plug one end into the port marked Grove A3 on the WeatherPlus2 board as shown and the other end into the Indoor Air Quality Sensor (Part C) Grove connector – The Air Quality Sensor was installed in Step 2.

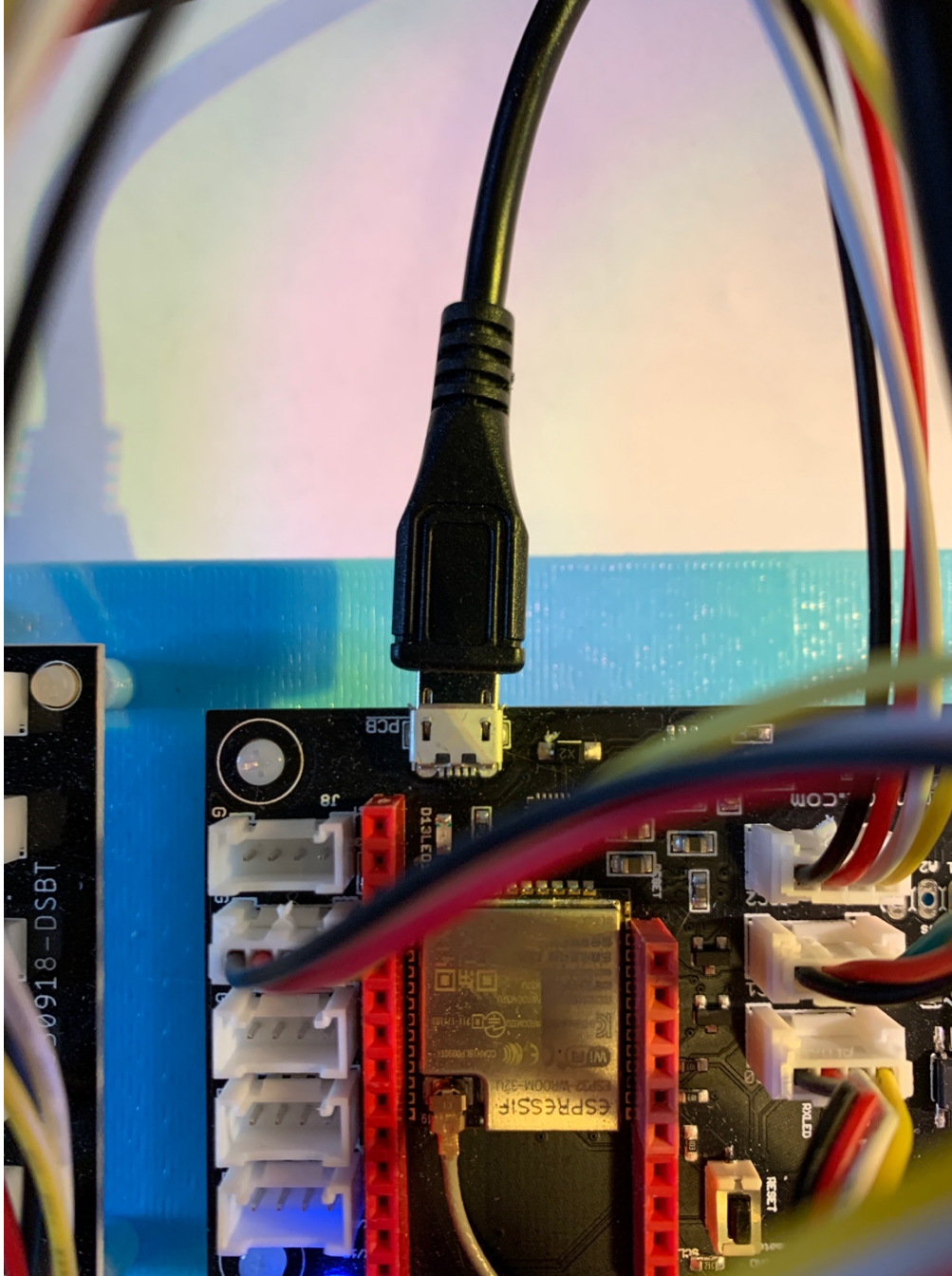


Step 9 – Go back and check all your wiring!

You have now completed the assembly of the OurWeather Expansion Kit.

Testing the OurWeather Weather Station Expansion Kit

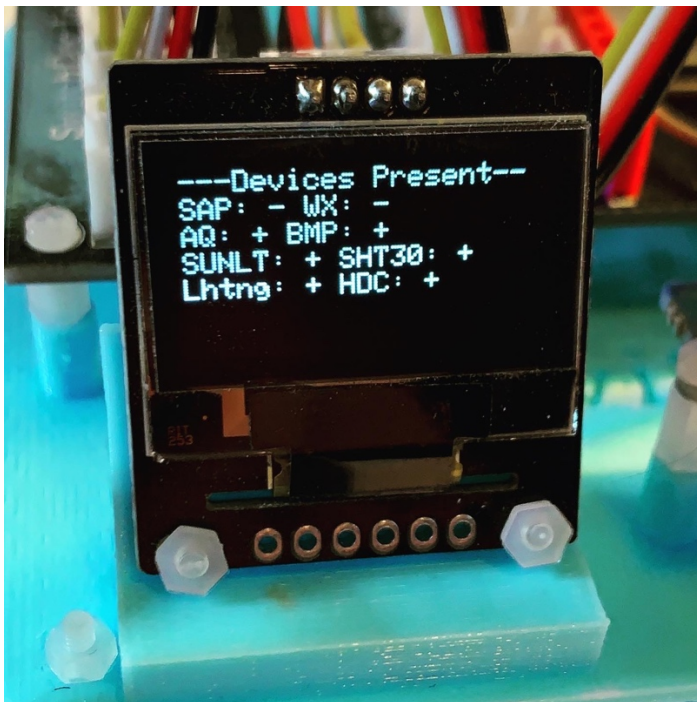
Step 1 - Plug in the micro USB Cable into the micro USB Plug on the WeatherPlus2 Board.



Step 2 - Plug in the Wall unit of the 5V Power Supply (A) into a 110V AC outlet. You will then see the OurWeather Logo on the OLED Display (B). If you don't see the Logo then see the Troubleshooting section at the end of the OurWeather Base unit assembly manual.



Step 3 – After about 30 seconds, you will see the screen below. This screen indicates which devices have been detected. If you haven't set up the WiFi yet, this could take a couple of minutes.



A “+” means present and a “-“ means not present.

SAP – Solar Power Connected

WX – WXLink Remote Sensors connected

AQ – Indoor Air Quality connected

SUNLT – Sunlight Sensor connected

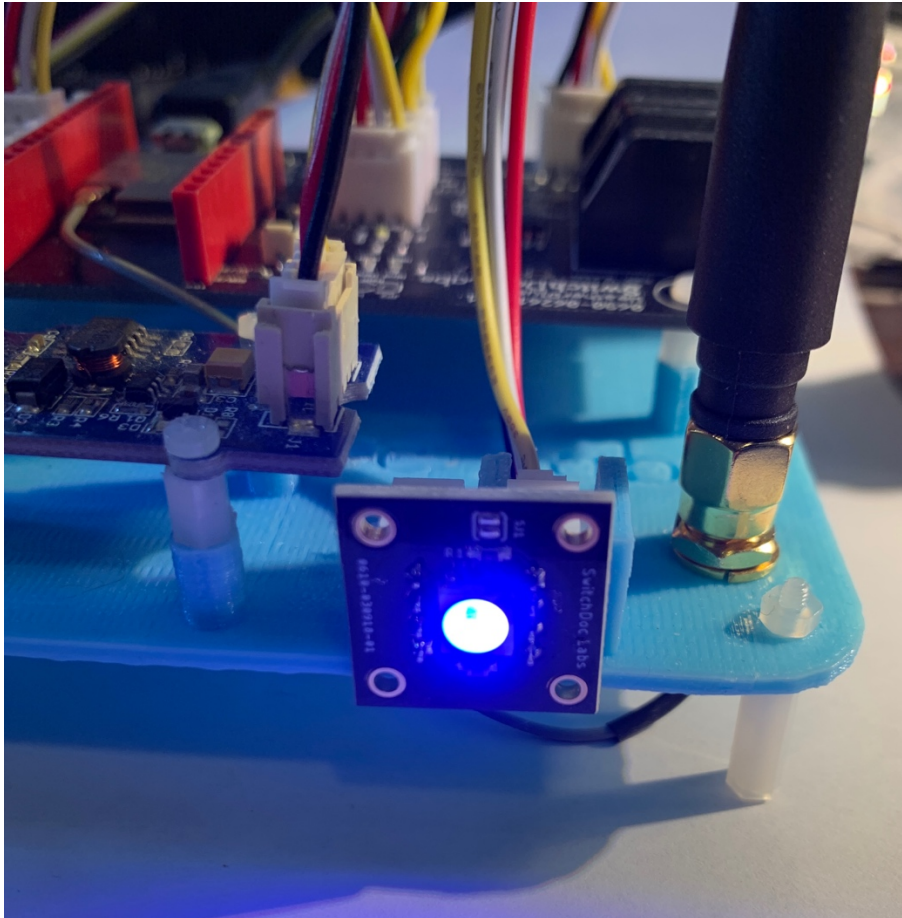
SHT30 – Outside Temperature and Humidity Sensor connected

Lhtng - ThunderBoard Lightning Detection connected

HDC – Inside Temperature and Humidity Sensor connected

NOTE: As of V051, the detection of the Indoor Air Quality Sensor does not always detect the sensor and may sometimes report the presence of an Indoor Air Quality Sensor even if one is not present.

Step 4 – You should see the Single RGBW Pixel slowly go from dark to bright blue and back again repeatedly. This indicates the OurWeather Software is running correctly.



Looking at the OurWeather Webpage

Step 1: You must connect OurWeather to a local WiFi network as in the OurWeather Base kit assembly manual to see the OurWeather Webpage

Step 2: Find the OurWeather local IP number. To do this, either turn OurWeather on and off using the power supply or hit the RESET button on Our Weather.

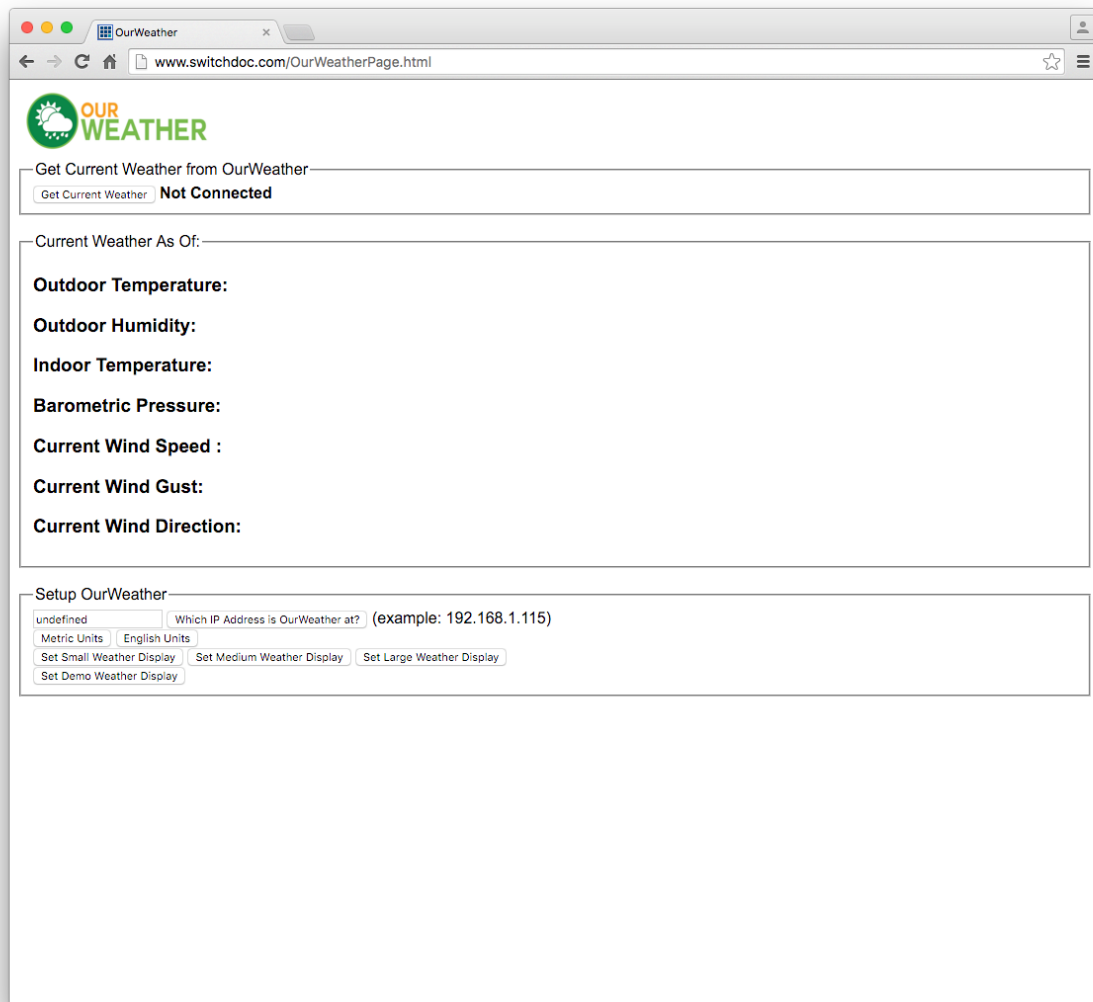
Step 3: As Our Weather powers up, you will see a window similar to the following:



192.168.1.140 is the local IP number showing in the above picture. Your IP number will be different.

Step 4: Open a browser window and type in the following URL:

<http://www.switchdoc.com/OurWeatherPage.html>

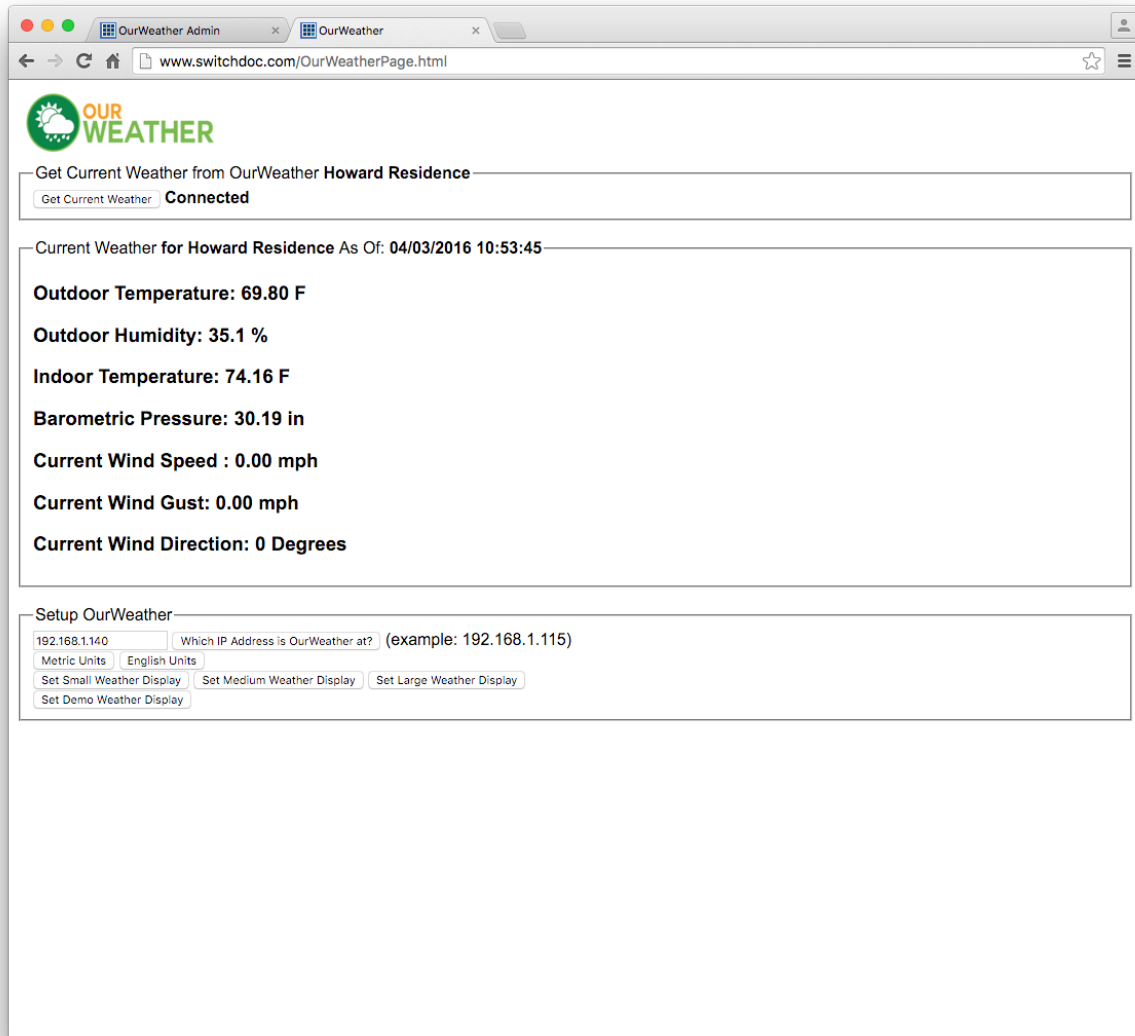


This will bring up the following page.

Step 5: Look under “Setup OurWeather” and enter your IP number gathered in Step 3 and put in the provided box next to the “Which IP Address is OurWeather at?” button

Step 6: Click on the button “Which IP Address is OurWeather at?” Next to the IP number you just entered.

Step 7: Click the button at the top of the page saying “Get Current Weather”



Step 8: You are now able to read OurWeather on your computer!

Note: This procedure needs to be repeated on each computer (or mobile device) that you wish to read OurWeather from. The OurWeather Page station is only available on the local network. An advanced procedure is required to be able to see this page and information on the general Internet outside of the local WiFi. See the application note “Seeing OurWeather on the Internet For Advanced Users” for information.

Setup OurWeather

Which IP Address is OurWeather at? (example: 192.168.1.115)

Description of the other “Setup OurWeather” buttons:

- Metric Units - Change all units to Metric on this page
- English Units - Change all units to English on this page
- Set Small Weather Display - Change the OurWeather Display to Small type
- Set Medium Weather Display - Change the OurWeather Display to Medium type size
- Set Large Weather Display - Change the OurWeather Display to Large type size
- Set Demo Weather Display - Change the OurWeather Display to demo mode. Demo mode cycles through the easily changeable weather sensors quickly (Temperature / Humidity / Wind speed / Wind Direction) quickly if you are having students hand manipulate the sensors. This is also the mode that OurWeather will come up in if you don't connect it to a local WiFi after 5 minutes.

Advanced Usage - OurWeather Administration Page

For OurWeather Administrators:

Note: IT IS RECOMMENDED THAT YOU SET AN ADMINISTRATION PASSWORD IMMEDIATELY TO PROTECT YOUR OURWEATHER STATION FROM BEING CHANGED BY UNAUTHORIZED PEOPLE.

Step 1: Open a browser and type in the following URL:

<http://www.switchdoc.com/OurWeatherAdmin.html>

This will open a page as follows. Note that the IP number will be filled in if you completed the procedure above for the OurWeatherPage. If not, enter the IP number of your OurWeather Station and click the “Which IP Address is OurWeather at?”

The screenshot displays the 'OurWeather Admin Functions V3.8' interface. It features several sections for configuration:

- OurWeather Admin Functions V3.8:** Includes fields for '192.168.1.18' (Set OurWeather IP Address), 'Old Password', 'New Password', 'Set Admin Password', 'Admin Password', 'WeatherUnderground Stati', 'Set WeatherUnderground Station ID', 'Set WeatherUnderground Station Key', 'Set OurWeather to Defaults', 'Reset WiFi Access Point', and a date/time picker (example: Jan 07 2016, 13:14:33).
- OurWeather Alexa Admin Functions V3.8:** Includes 'Enable Alexa' and 'Disable Alexa' buttons.
- OurWeather Blynk Admin Functions V3.8:** Includes 'Blynk Authorization Code' and 'Set Blynk Authorization Code' buttons.
- OurWeather ThunderBoard Lightning Detector Admin Functions V3.8:** Includes a 'Fetch Current ThunderBoard Parameters' button and several parameter settings like 'Noise Floor 0-7 (default 2)', 'Tuning Capacitor 0-15 (default 7)', 'Watchdog Threshold 0-15 (default 3)', and 'Spike Rejection 0-15 (default 3)'. It also has radio buttons for 'Outdoor or Indoor (default indoor)' and 'No Disturber Detection or Disturber Detection (default no disturber detection)'.

Step 2: Change your Admin password. The default password for OurWeather is “admin”

Now you have set a new password (38555533 in our example page above), you can use all the other functions.

Button Descriptions

Any of these buttons (with the exception of “Check For Latest OurWeather Version”) requires the use of the Admin password that you set in Step 2 above.

- SetOurWeatherTo Defaults - Reserved for future versions - This does nothing in software Version 014 and below. You can reset OurWeather entirely (including Admin password) by rebooting pushing the GPIO0 button when you see the OurWeather Logo and holding it until you see the following page.
- Reset WiFi Access Point - Resets the WiFi SSID and Password to “XXX” and “XXX”. OurWeather can then be reset to a different local WiFi. This does not reset the Admin password.
- SetDateTime - To reset the OurWeather Clock, enter the date and time in the format shown (remember the time is in 24 hour format) and click the button

Updating the OurWeather Software

The final buttons on the OurWeatherAdmin page are for doing an update of the onboard OurWeather Software.

- Check For Latest OurWeather Version - clicking this button checks the SwitchDoc Labs OurWeather Server to check the latest version available for update.

Update OurWeatherSoftware - Fill out the Admin password and click the button to Update the OurWeather Software. Follow the directions on the screen below.

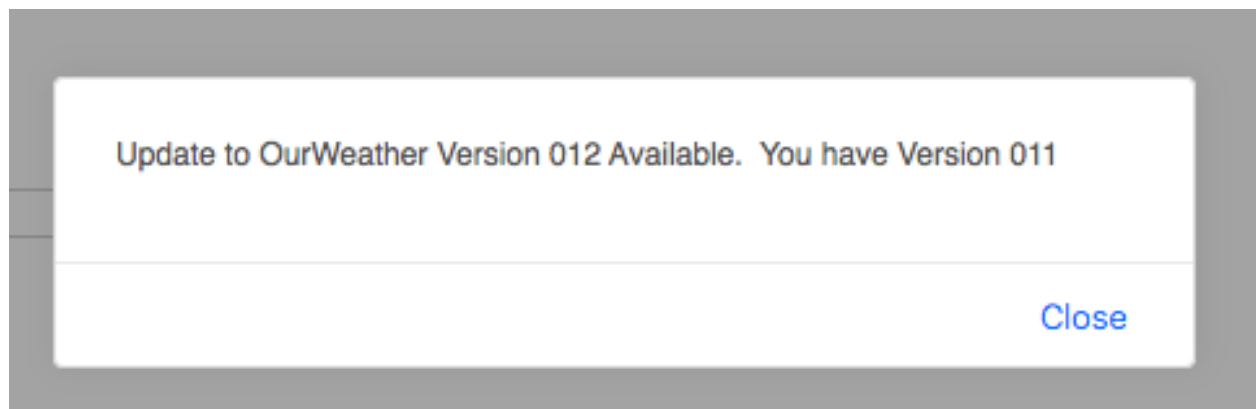


Note: Depending on your Internet connection, you may have to repeat the Update several times.

During boot you can see the software version number that OurWeather is running as seen below:



You can compare this version number to the available update version shown by clicking on the

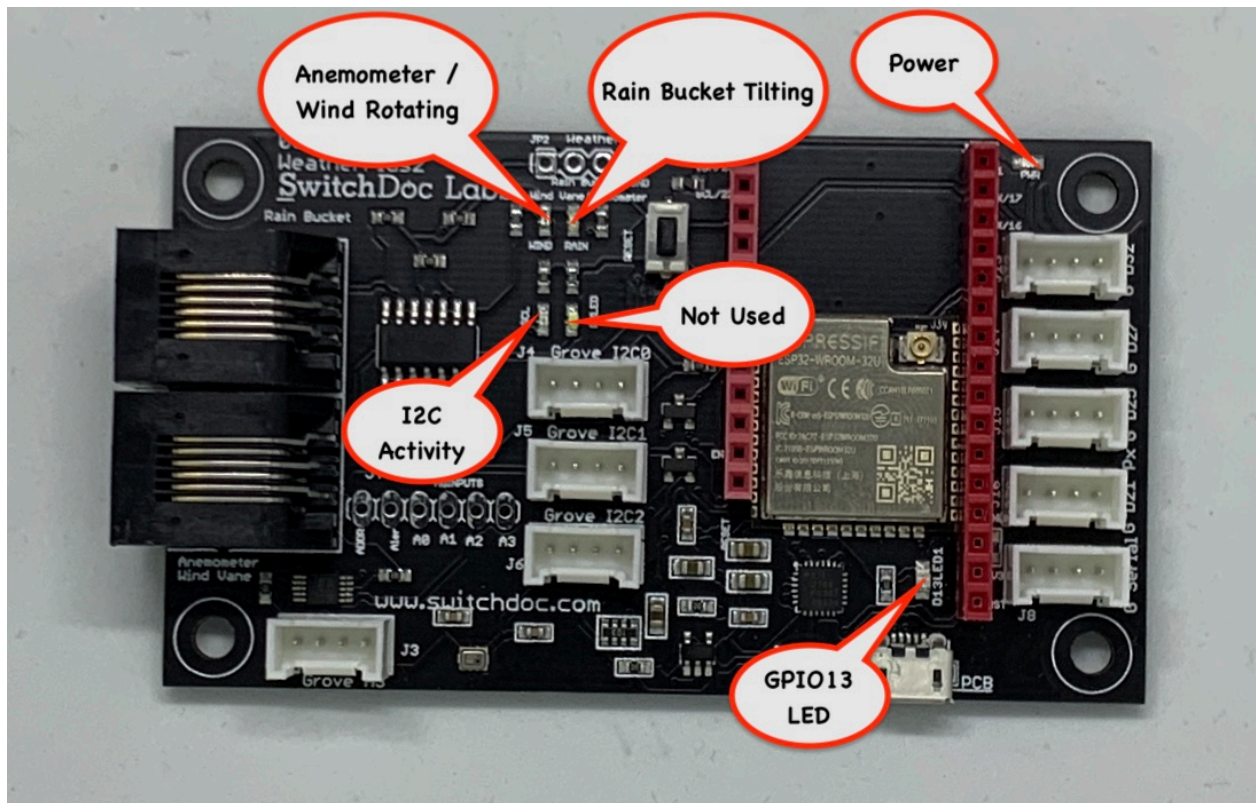


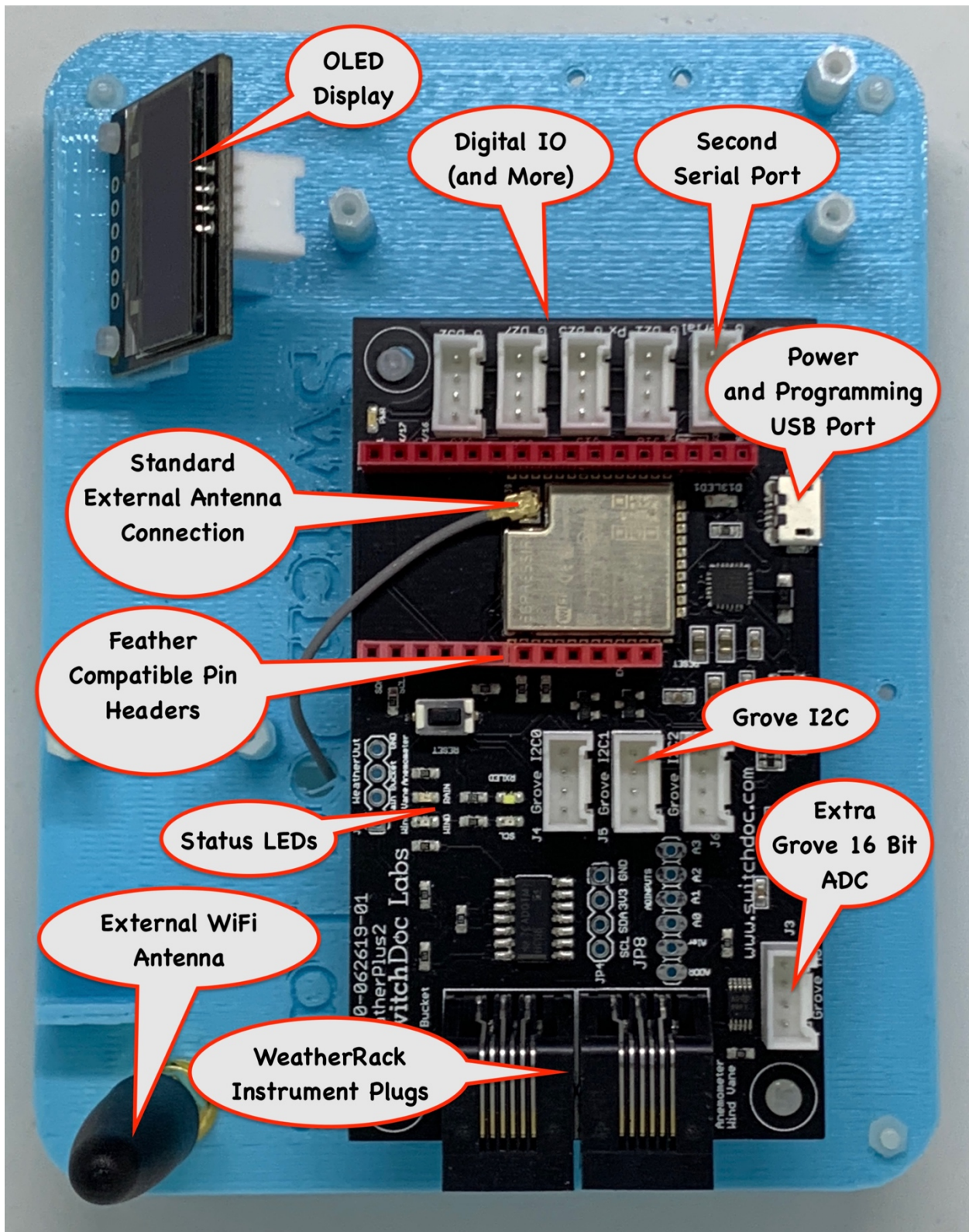
“Check For Latest OurWeather Version” button.

Buttons and Lights on the OurWeather Board V2

The OurWeather Weather Kit is built upon the SwitchDoc Labs WeatherPlus2 board. There is one button on the WeatherPlus2 board.

Reset - Push this button to reboot the OurWeather Kit





Troubleshooting Guide

Q: My wind direction and speed is not working. I am getting a lot of rain

A: You have the RJ45 plugs on OurWeather Reversed

Q: I can't get my WiFi to connect on OurWeather

A: Make sure your WiFi password has no special characters or quote marks. OurWeather does not like those.

Q: My Inside temperature value is too high.

A: The inside temperature is taken at the Barometer and will read high because of board self heating. Look at getting the OurWeather Expansion kit that has a separate Inside Temperature and Humidity Sensor, the HDC1080.