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WEBSITE AND PROCESS OF MANOEUVURING

Website Link:

<https://weathermonitoringstationee.000webhostapp.com/home.html>

HOME PAGE OF OUR WEBSITE:



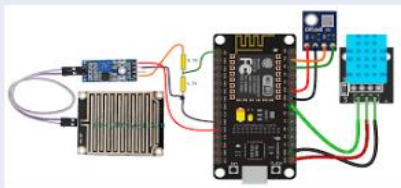
The website is reactive, i.e. it is compatible for both phones and for generic laptops, our navigation bar is compatible on small screens as well, illustrated in the next screenshot



The “ABOUT” tag takes us to the About page which simplifies our Research paper into a simpler page for telling you about our website.

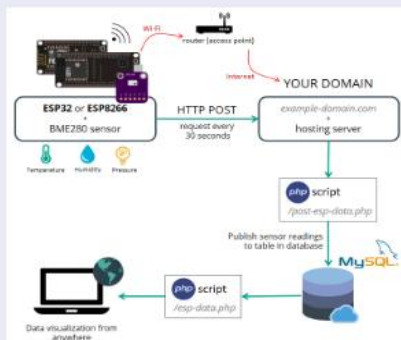
What is "WEATHER MONITORING STATION"?

The internet of things is a system of interrelated computing devices, mechanical and digital machines, that provide unique identifiers with the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. All those improvements are developed to facilitate human work and make lifestyles simpler than earlier. An NodeMCU-based based weather monitoring system implementation is proposed to monitor temperature, humidity, pressure, rain intensity, air quality, and altitude, based in geographically distant areas. The weather monitoring system is based on sensory inputs, that periodically update data to the cloud.



Circuit Information

The circuit consists of Arduino based code configured with our ESP8266 based NodeMCU V3 to receive data from our DHT11(Humidity),BMP 180(Temperature,Pressure,Altitude),MQ2(Air Quality)



Cloud Connection Path

The ESP 8266 uses PHP server side scripting and back-end HTTP data configuration to send data to our ThingSpeak and MySQL cloud

Weather Data - last 100

#	Time	Temp	Hum	Press	Alt	RA
46	2019-05-16 18:07:47 clear sky	16.48	51	1015	6.70	40
45	2019-05-16 18:05:15 clear sky	16.50	51	1015	6.70	40
44	2019-05-16 18:02:43 clear sky	16.50	51	1015	6.70	40
43	2019-05-16 18:00:11 clear sky	16.50	51	1015	6.70	40
42	2019-05-16 18:02:07 clear sky	16.50	51	1015	6.70	40
41	2019-05-16 18:07:05 clear sky	16.50	51	1015	6.70	40
40	2019-05-16 18:01:07 clear sky	16.50	48	1016	6.70	40
39	2019-05-16 18:04:01 clear sky	16.50	48	1016	6.70	40
38	2019-05-16 18:11:51 clear sky	16.50	48	1016	6.70	40
37	2019-05-16 18:03:48 clear sky	16.50	48	1016	6.70	40
36	2019-05-16 18:11:41 clear sky	16.55	48	1016	6.70	40
35	2019-05-16 18:09:21 clear sky	16.55	48	1016	6.70	40
34	2019-05-16 18:11:11 clear sky	16.55	48	1016	7.70	40
33	2019-05-16 18:06:20 clear sky	16.55	48	1016	7.70	40
32	2019-05-16 18:01:24 clear sky	16.50	48	1016	7.70	40
31	2019-05-16 17:56:10 clear sky	16.50	48	1016	7.70	40
30	2019-05-16 17:51:17 clear sky	16.43	48	1016	7.70	40
29	2019-05-16 17:46:14 clear sky	16.43	48	1016	7.70	40

SQL Data

JSON data is posted by the ESP8266, using PHP server-side scripting language. This is then inserted into the database using INSERT, after extracting the necessary values from it. This data is then pulled out from this database using the READ command into "SQL Data"(accessible on the home page)



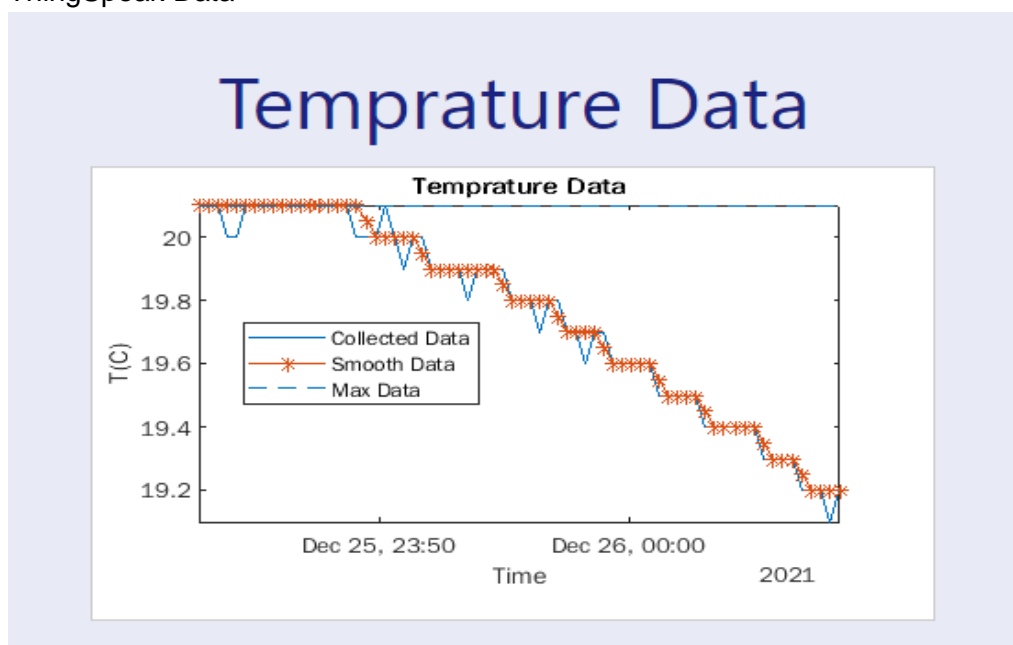
Graph Data

ThingSpeak acts as an open-source Internet of Things(IoT) application where data is sent from ESP8266, to analyze and visualize uploaded data using either MATLAB custom plots or ThingSpeak generated graphs. These are posted to our website using their specific URLs into "Graph Data"(accessible on the home page)

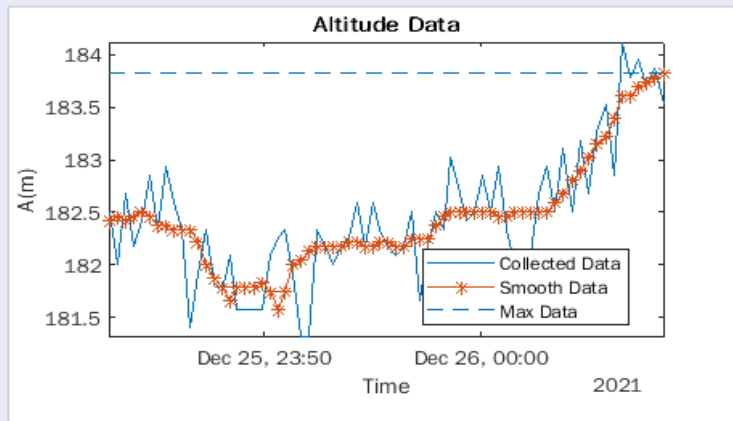
Similarly, as we can see every page has two extra buttons i.e. SQL Data and Graph Data. The SQL Data takes us to our webpage incorporated with SQL Data

Weather Station									
About									
GRAPH DATA									
Temperature	Humidity	Pressure	Altitude	Light	Rain	AirQuality	RealFeel	DewPoint	Timestamp
18.10	65.00	99108.00	186.15	1024	1024	570.00	19.11	11.10	2021-12-25 20:33:36
18.10	65.00	99114.00	185.81	1024	1024	570.00	19.11	11.10	2021-12-25 20:33:13
18.10	65.00	99102.00	186.15	1024	1024	565.00	19.11	11.10	2021-12-25 20:32:49
18.10	65.00	99108.00	186.24	1024	1024	560.00	19.11	11.10	2021-12-25 20:32:27
18.10	65.00	99114.00	185.14	1024	1024	577.00	19.11	11.10	2021-12-25 20:32:01
18.10	65.00	99112.00	185.47	1024	1024	570.00	19.11	11.10	2021-12-25 20:31:38
18.10	65.00	99108.00	185.64	1024	1024	560.00	19.11	11.10	2021-12-25 20:31:10
18.10	65.00	99106.00	185.98	1024	1024	570.00	19.11	11.10	2021-12-25 20:30:48
18.10	65.00	99110.00	186.49	1024	1024	573.00	19.11	11.10	2021-12-25 20:30:22

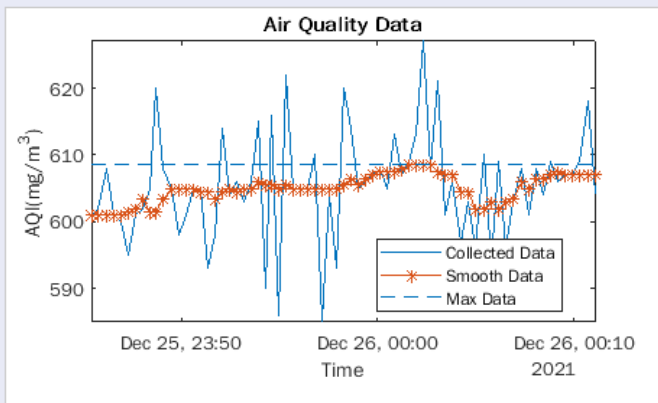
Similarly, if we click the Graph Data dynamic link we will be taken to our HTML page with ThingSpeak Data



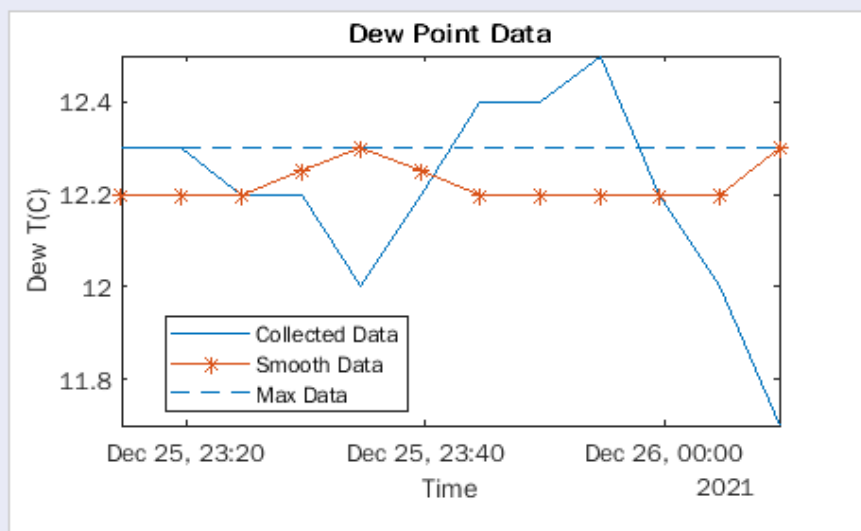
Altitude Data



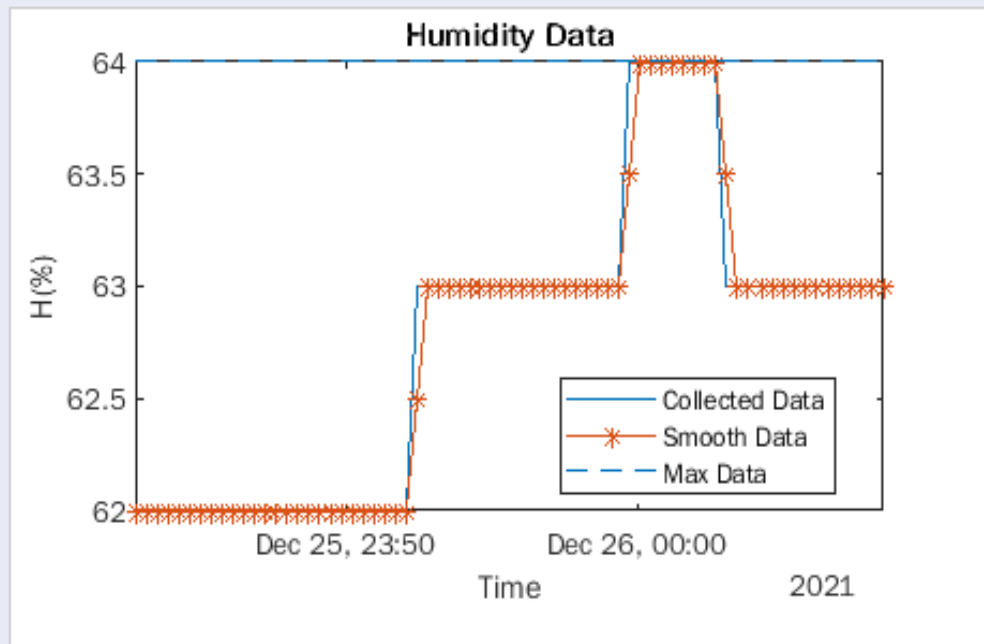
Air Quality Data



Dew Point Data

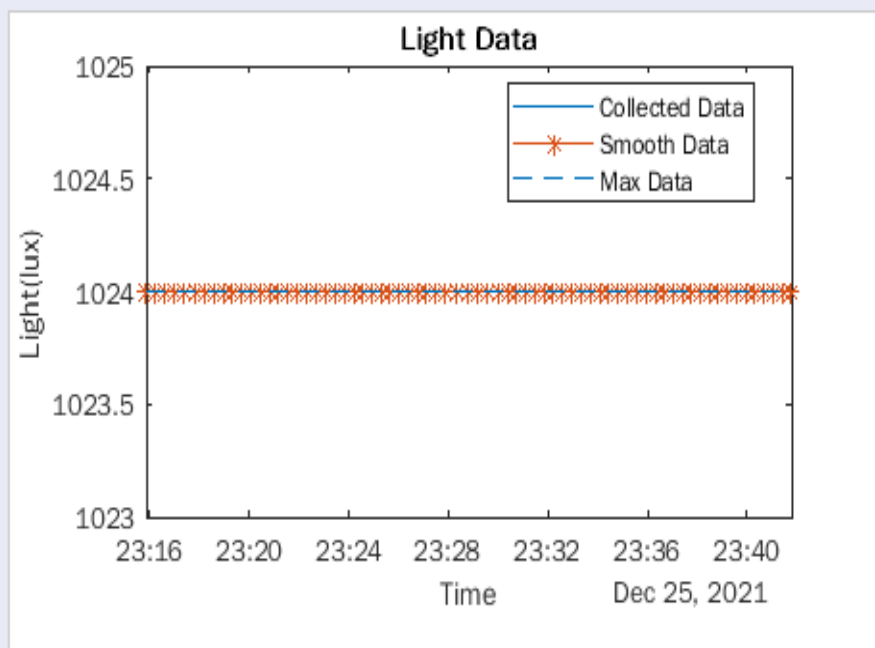


Humidity Data

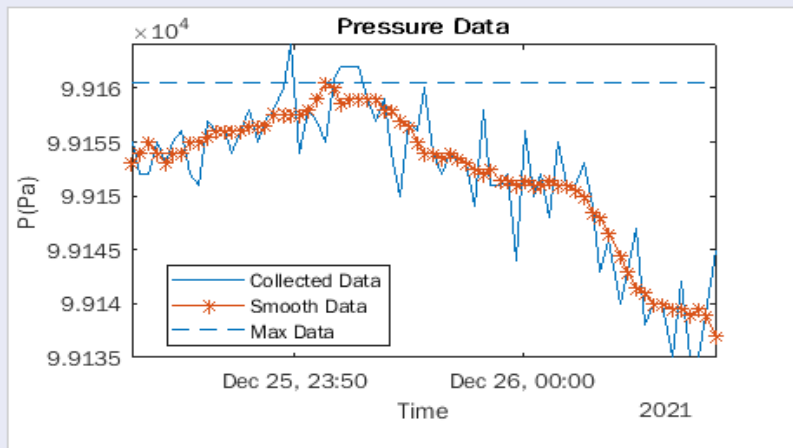


Light Intensity Data

Note : The data here will be updated as soon as there is decreased light to its required value.

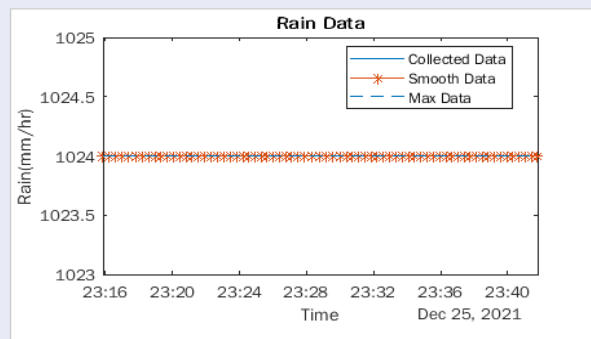


Pressure Data

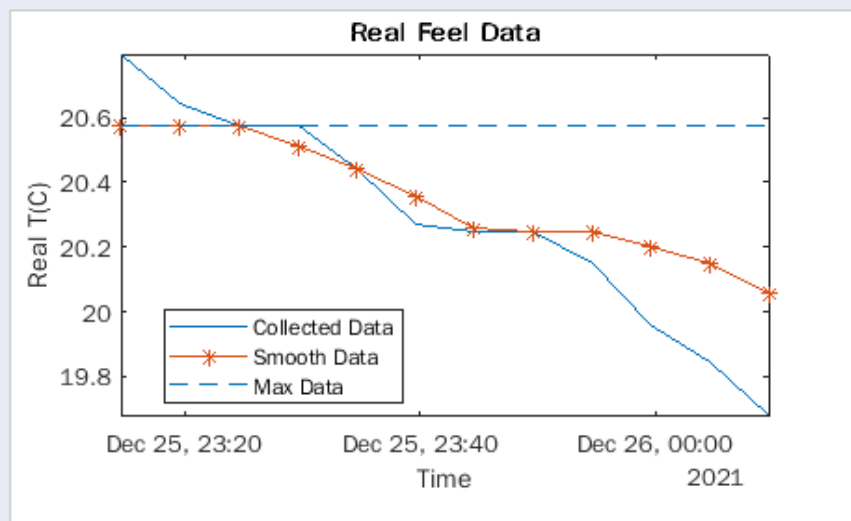


Rain Data

Note : The data here will be updated as soon as there is rain and then it decreases to its required value, for example 3mm of rain.



Real Feel Data

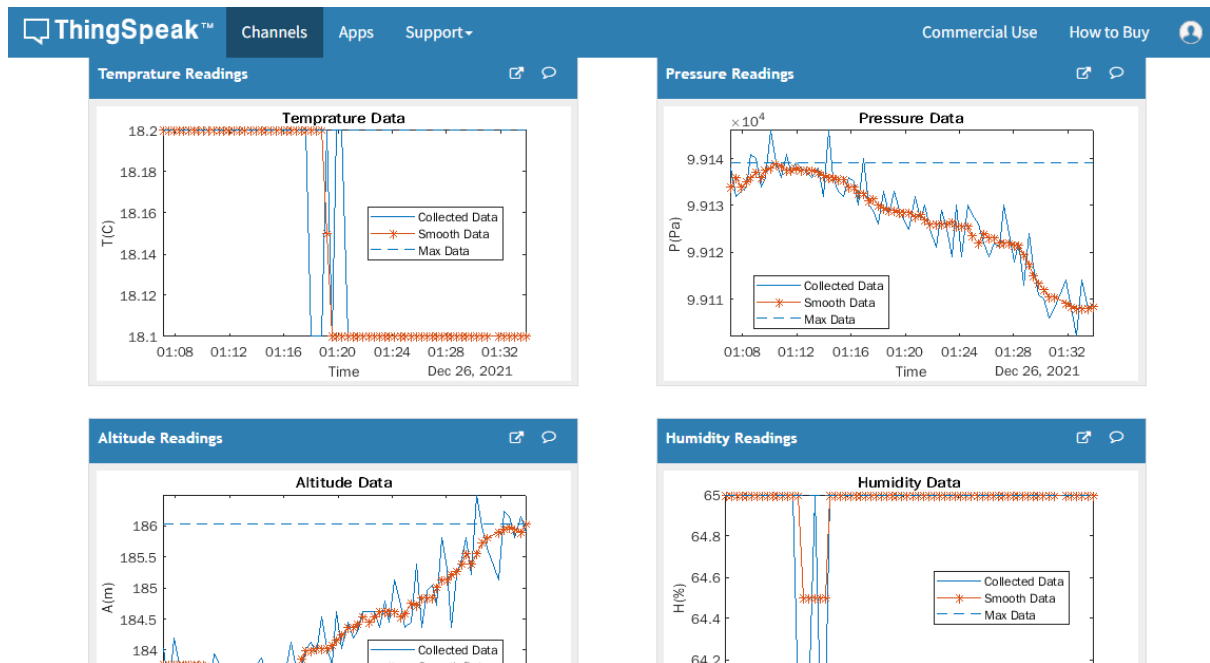


The data for SQL is extracted from our MySQL database which is similar to this format i.e.

+ Options														
<div><div></div><div></div><div></div></div>				id	Temperature	Humidity	Pressure	Altitude	Light	Rain	AirQuality	RealFeel	DewPoint	reading_time
<input type="checkbox"/>				1	20.80	58.00	99161.00	181.24	1024	1024	513.00	20.94	12.30	2021-12-25 18:10:49
<input type="checkbox"/>				2	20.90	58.00	99167.00	181.58	1024	1024	510.00	20.94	12.30	2021-12-25 18:11:11
<input type="checkbox"/>				3	20.90	58.00	99160.00	181.58	1024	1024	513.00	-1.00	-1.00	2021-12-25 18:11:33
<input type="checkbox"/>				4	20.90	58.00	99166.00	181.49	1024	1024	512.00	-1.00	-1.00	2021-12-25 18:11:56
<input type="checkbox"/>				5	20.80	58.00	99154.00	181.83	1024	1024	508.00	-1.00	-1.00	2021-12-25 18:12:19
<input type="checkbox"/>				6	20.90	58.00	99165.00	181.32	1024	1024	514.00	-1.00	-1.00	2021-12-25 18:12:41
<input type="checkbox"/>				7	20.80	58.00	99166.00	181.32	1024	1024	511.00	-1.00	-1.00	2021-12-25 18:13:03
<input type="checkbox"/>				8	20.80	58.00	99158.00	181.75	1024	1024	516.00	-1.00	-1.00	2021-12-25 18:13:25
<input type="checkbox"/>				9	20.80	58.00	99160.00	181.41	1024	1024	516.00	-1.00	-1.00	2021-12-25 18:13:47
<input type="checkbox"/>				10	20.80	58.00	99160.00	181.66	1024	1024	516.00	-1.00	-1.00	2021-12-25 18:14:09
<input type="checkbox"/>				11	20.70	58.00	99161.00	181.49	1024	1024	517.00	-1.00	-1.00	2021-12-25 18:14:31
<input type="checkbox"/>				12	20.70	58.00	99172.00	181.24	1024	1024	516.00	20.80	12.30	2021-12-25 18:14:52
<input type="checkbox"/>				13	20.60	59.00	99164.00	181.32	1024	1024	500.00	20.80	12.30	2021-12-25 18:15:14
<input type="checkbox"/>				14	20.60	59.00	99165.00	181.66	1024	1024	505.00	20.80	12.30	2021-12-25 18:15:37
<input type="checkbox"/>				15	20.60	59.00	99160.00	182.09	1024	1024	519.00	20.80	12.30	2021-12-25 18:16:00
<input type="checkbox"/>				16	20.60	59.00	99167.00	181.58	1024	1024	502.00	20.80	12.30	2021-12-25 18:16:22
<input type="checkbox"/>				17	20.60	59.00	99154.00	182.09	1024	1024	502.00	20.80	12.30	2021-12-25 18:16:44
<input type="checkbox"/>				18	20.60	59.00	99152.00	182.09	1024	1024	502.00	20.80	12.30	2021-12-25 18:17:06
<div><div></div><div></div><div></div></div>				id	Temperature	Humidity	Pressure	Altitude	Light	Rain	AirQuality	RealFeel	DewPoint	reading_time
<input type="checkbox"/>				101	20.10	62.00	99158.00	181.75	1024	1024	602.00	20.25	12.40	2021-12-25 18:48:08
<input type="checkbox"/>				102	20.10	62.00	99155.00	182.09	1024	1024	605.00	20.25	12.40	2021-12-25 18:48:30
<input type="checkbox"/>				103	20.10	62.00	99157.00	181.58	1024	1024	620.00	20.25	12.40	2021-12-25 18:48:52
<input type="checkbox"/>				104	20.00	62.00	99158.00	181.58	1024	1024	608.00	20.25	12.40	2021-12-25 18:49:16
<input type="checkbox"/>				105	20.00	62.00	99160.00	181.58	1024	1024	605.00	20.25	12.40	2021-12-25 18:49:38
<input type="checkbox"/>				106	20.00	62.00	99164.00	181.58	1024	1024	598.00	20.25	12.40	2021-12-25 18:50:00
<input type="checkbox"/>				107	20.10	62.00	99154.00	182.09	1024	1024	601.00	20.25	12.40	2021-12-25 18:50:23
<input type="checkbox"/>				108	20.00	62.00	99158.00	182.25	1024	1024	605.00	20.25	12.40	2021-12-25 18:50:45
<input type="checkbox"/>				109	19.90	62.00	99157.00	182.34	1024	1024	605.00	20.25	12.40	2021-12-25 18:51:07
<input type="checkbox"/>				110	20.00	62.00	99155.00	181.92	1024	1024	593.00	20.25	12.40	2021-12-25 18:51:29
<input type="checkbox"/>				111	20.00	62.00	99161.00	181.32	1024	1024	598.00	20.25	12.40	2021-12-25 18:51:51
<input type="checkbox"/>				112	19.90	62.00	99162.00	181.32	1024	1024	614.00	20.25	12.40	2021-12-25 18:52:12
<input type="checkbox"/>				113	19.90	63.00	99162.00	182.34	1024	1024	604.00	20.25	12.40	2021-12-25 18:52:34
				114	19.90	63.00	99162.00	182.17	1024	1024	606.00	20.25	12.40	2021-12-25 18:52:57

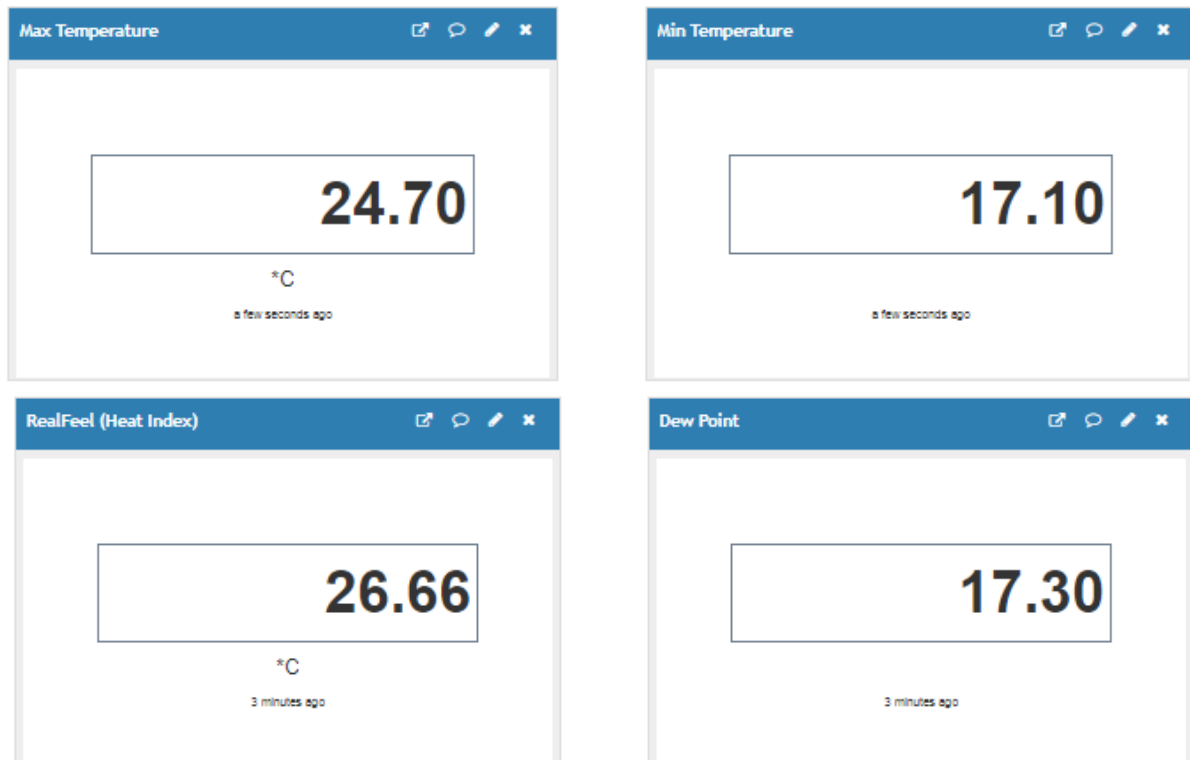
Note; All this data is real time and sent from NodeMCU

Next page, shows the data on ThingSpeak Cloud



The thingspeak data has HTML links that can be incorporated into our website.

The following is the cloud graphs comprising of Max Min temperature, realfeel and dew point. We calculated the max min temperature from the last 24 hour readings.



The ThingSpeak also provide a feature called ThingTweet by using which we can send weather reports and alerts to twitter account. The tweets include alerts about air quality, rain and realfeel. The screenshot of twitter profile and tweet send by our channel to twitter is,



Figure. Weather IOT Twitter Profile

The example of tweet send by ThingSpeak to alert user that the realfeel exceed beyond the safe limit is,



Figure: Tweet Alert