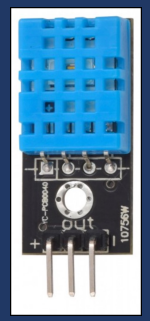

Node-RED: Case Study 2

Temperature & Humidity Monitoring System using ESP32 & DHT11

v1 mar2021

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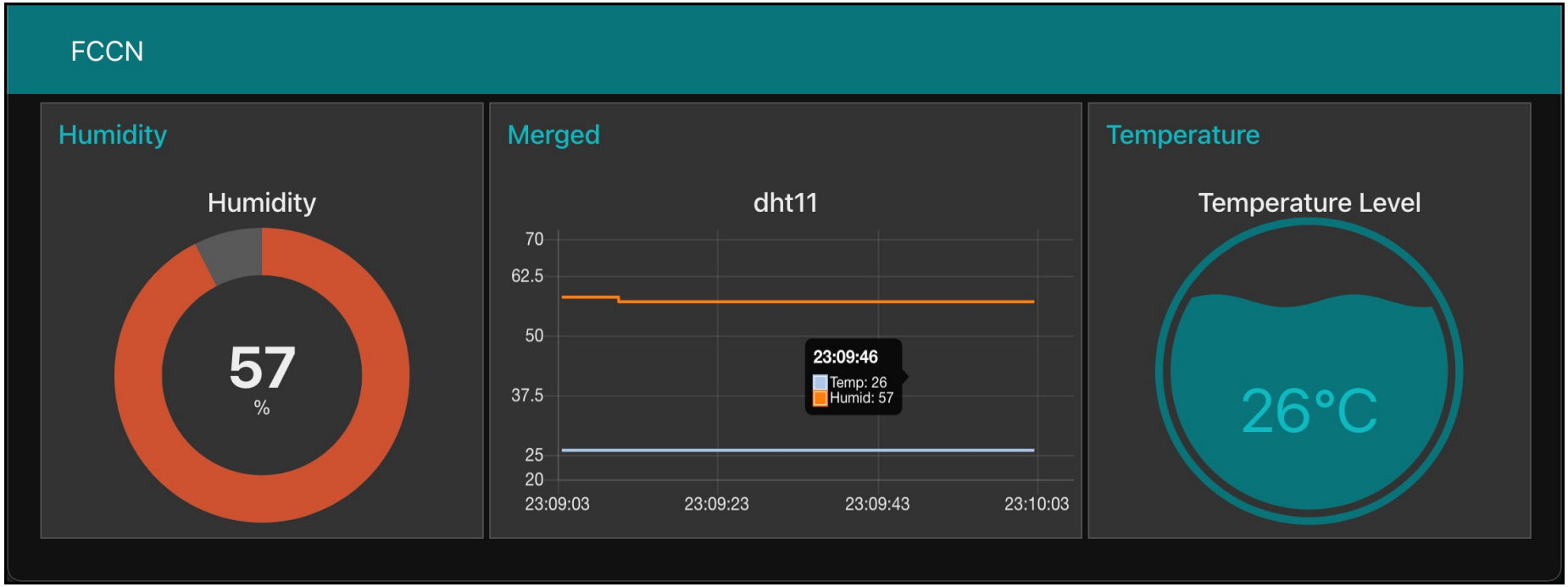
Scenario: To set up temperature & humidity monitoring system dashboard with the following conditions:

- a chart for temperature,
- a chart for humidity,
- a 2 line chart showing temperature & humidity value.



Requirement:

i. ESP32 x 1,
ii. DHT11 x1,
iii. NodeRED – PC or Pi.

Methods:

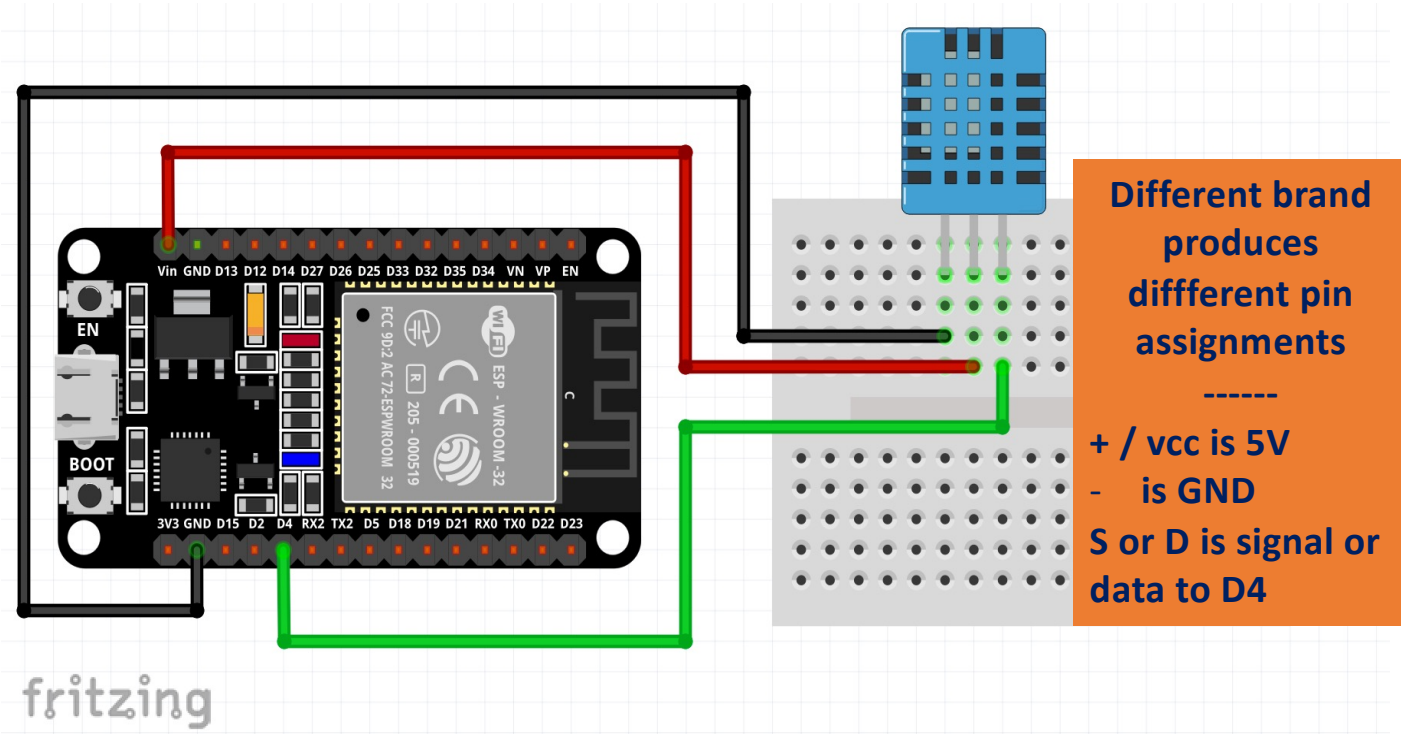
i. Do wiring connection & upload the sketch into microcontroller. Troubleshoot any errors.
ii. NodeRED configuration: Layout, Nodes & nodes properties
iii. Test the system

Microcontroller: a. The Schematic Diagram.

>Connect your board to PC / laptop.

>Make sure correct board name & port is selected.

>Always check your wiring especially the power supply. This might save your money from replacing a burnt device.



Different brand produces diffferent pin assignments

+ / vcc is 5V

- is GND

S or D is signal or data to D4

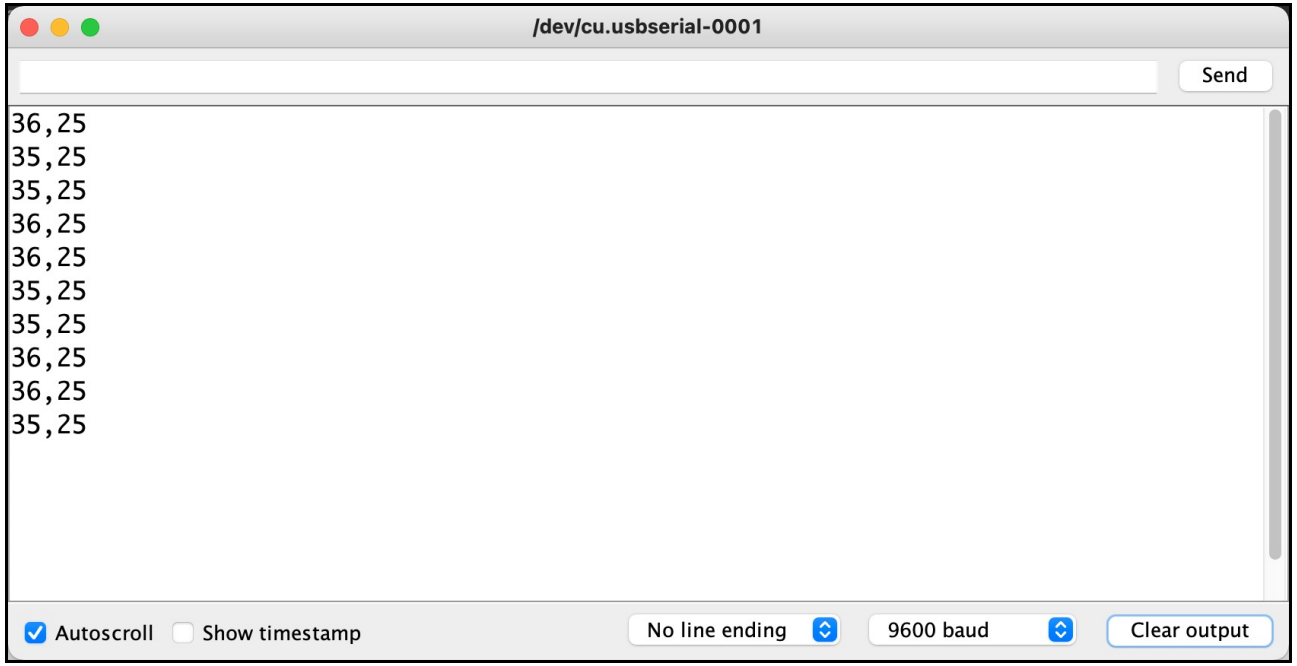
Microcontroller: b. The sketch.

```
1  #include <dht11.h>
2  dht11 DHT;
3  #define DHT11_PIN 4
4
5  void setup(){
6    Serial.begin(9600);
7    }
8
9  void loop(){
10   int chk;
11   chk = DHT.read(DHT11_PIN);    // READ DATA
12
13  // DISPLAY DATA
14   Serial.print(DHT.humidity,1);
15   Serial.print(",");
16   Serial.println(DHT.temperature,1);
17
18   delay(1000);
19 }
```

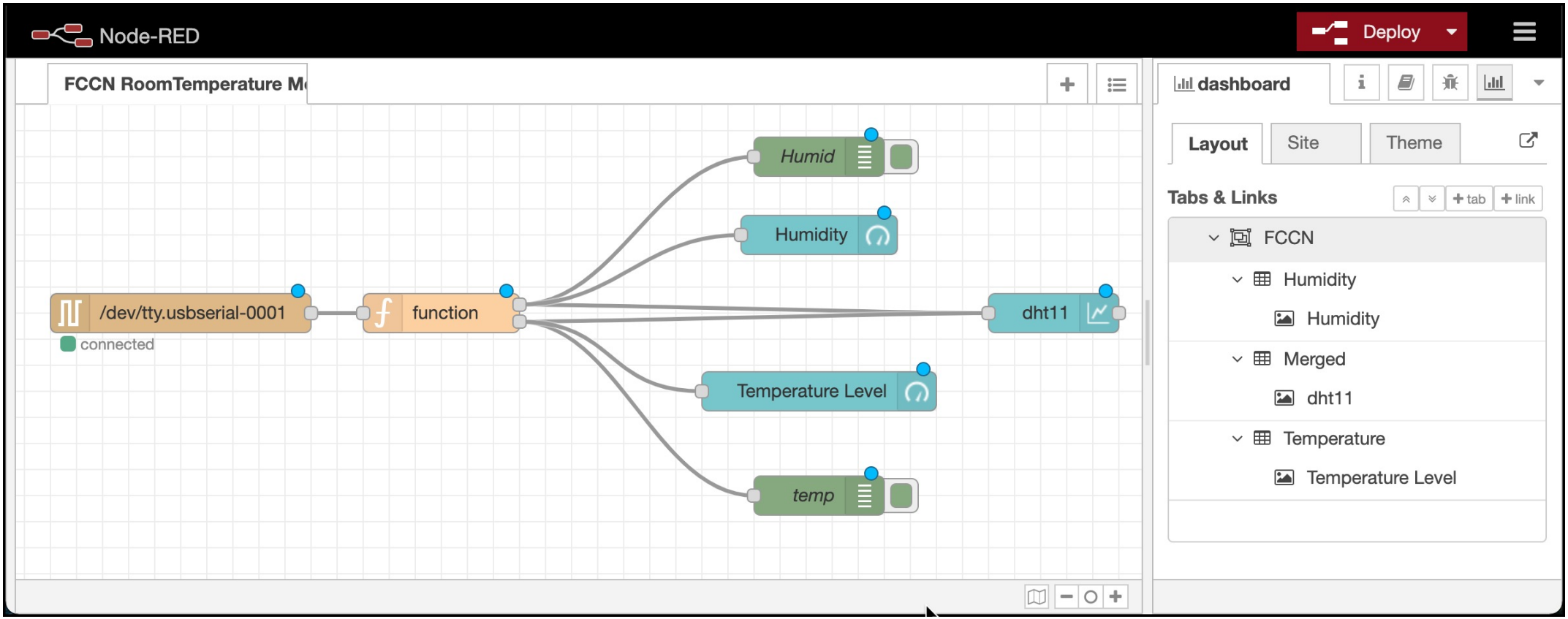
Microcontroller: c. Expected Output.

>Upload the sketch, open Serial Monitor & adjust the baud rate option.

> Close the Serial Monitor to give a way for NodeRED Serial In node to communicate with ESP32.

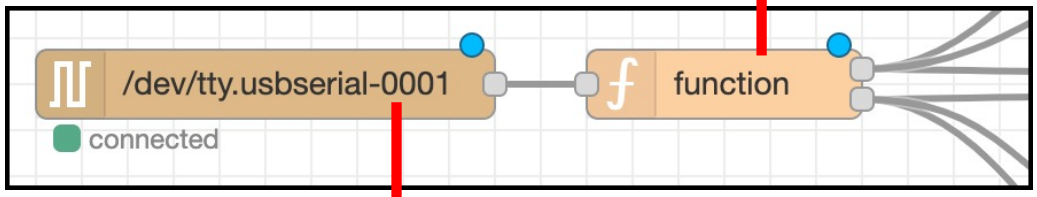


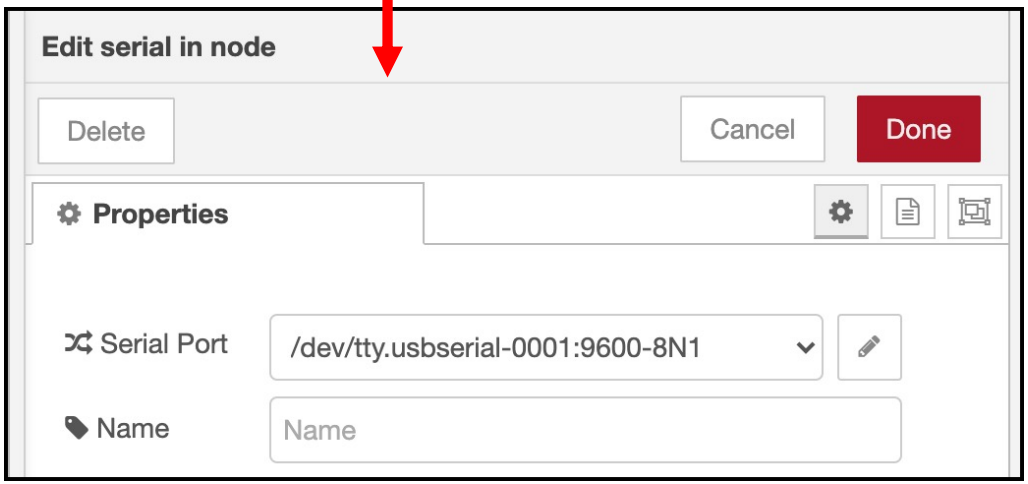
Node-RED: d. Layout.

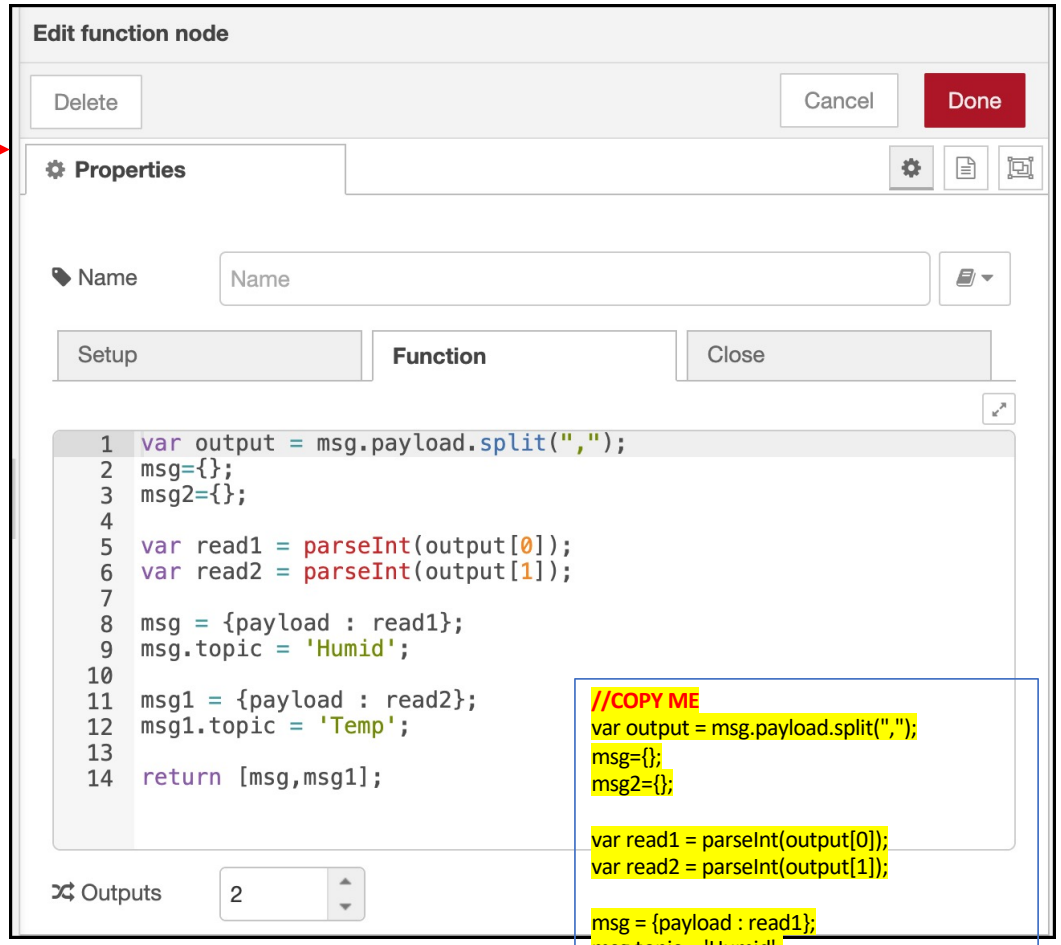


d2-cs2-31mar21-flows-e32-dht11-compressed.json

Node-RED: d. Layout.

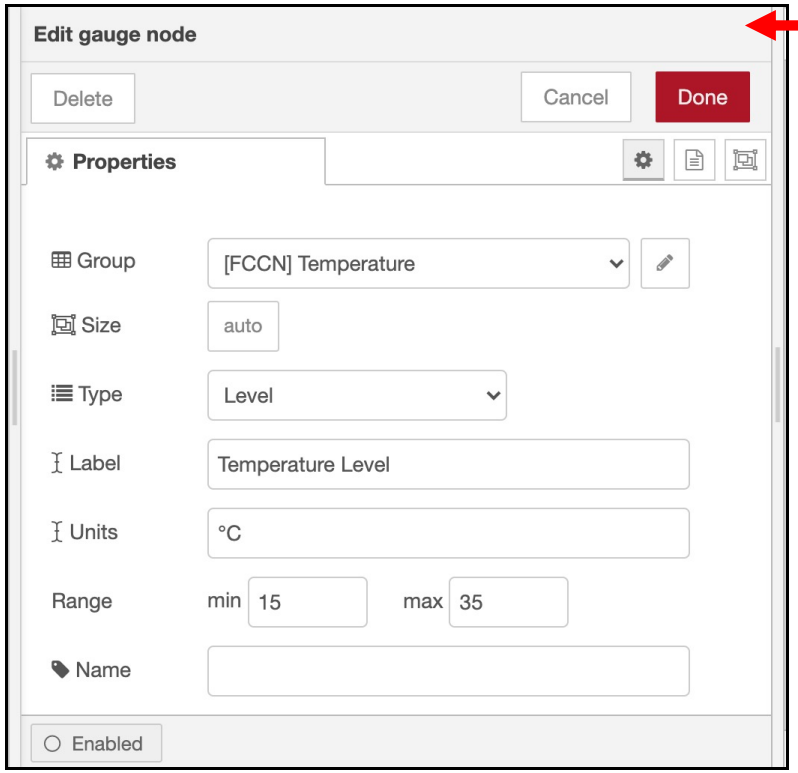


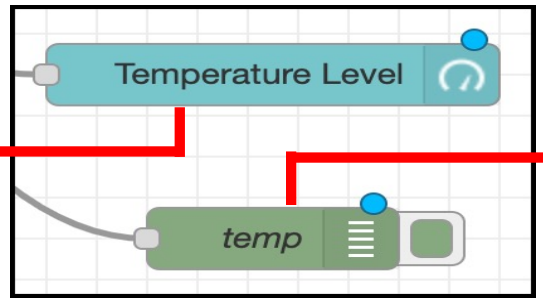


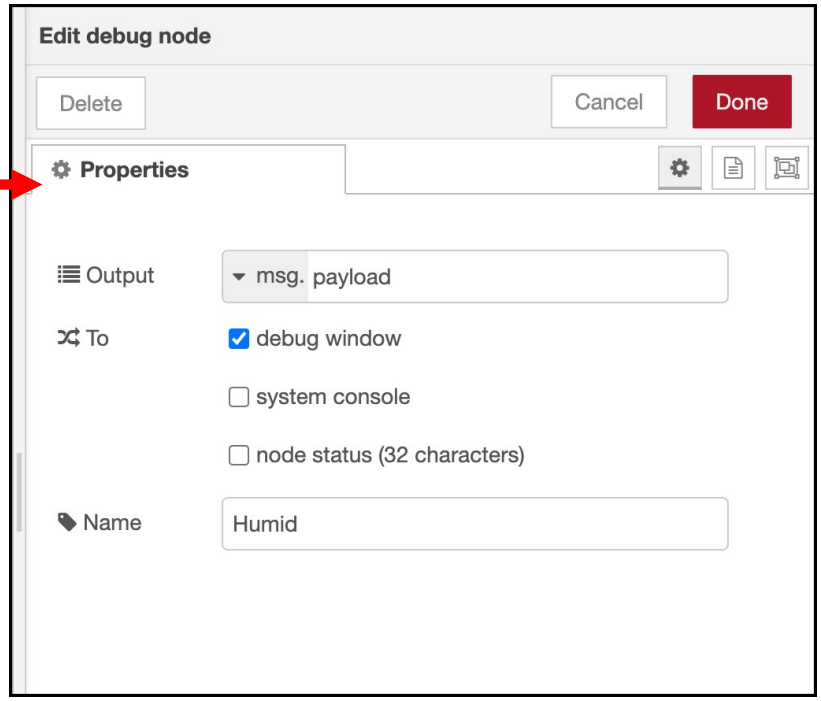



```
//COPY ME
var output = msg.payload.split(",");
msg={};
msg2={};

var read1 = parseInt(output[0]);
var read2 = parseInt(output[1]);

msg = {payload : read1};
msg.topic = 'Humid';

msg1 = {payload : read2};
msg1.topic = 'Temp';

return [msg,msg1];
```

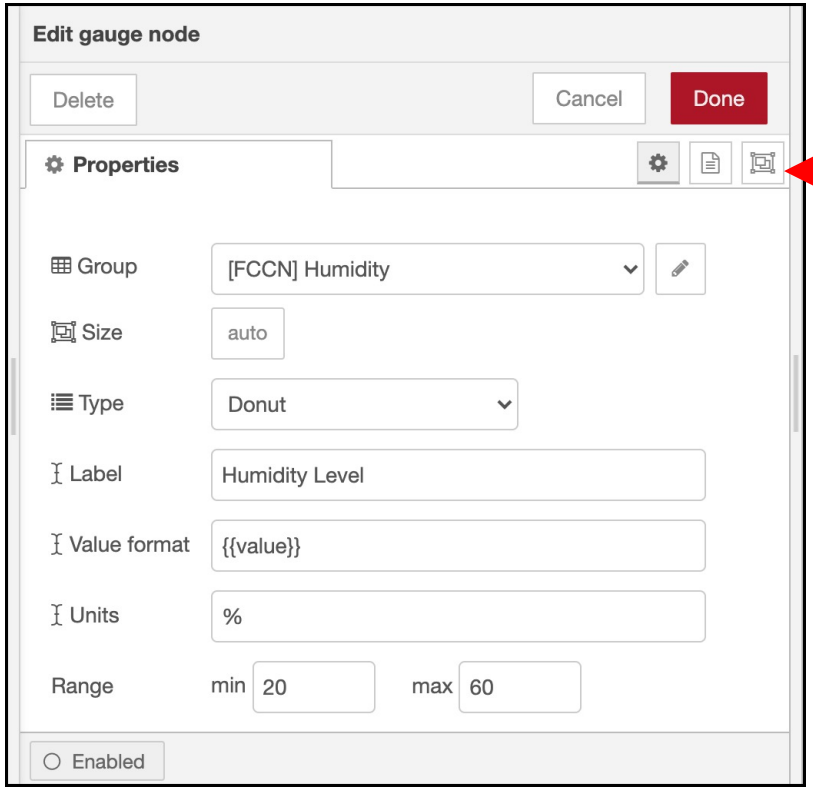
Node-RED: d. Layout.

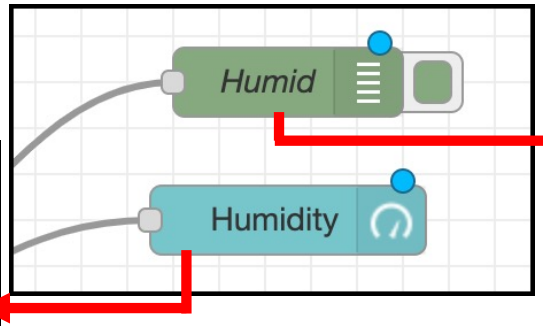


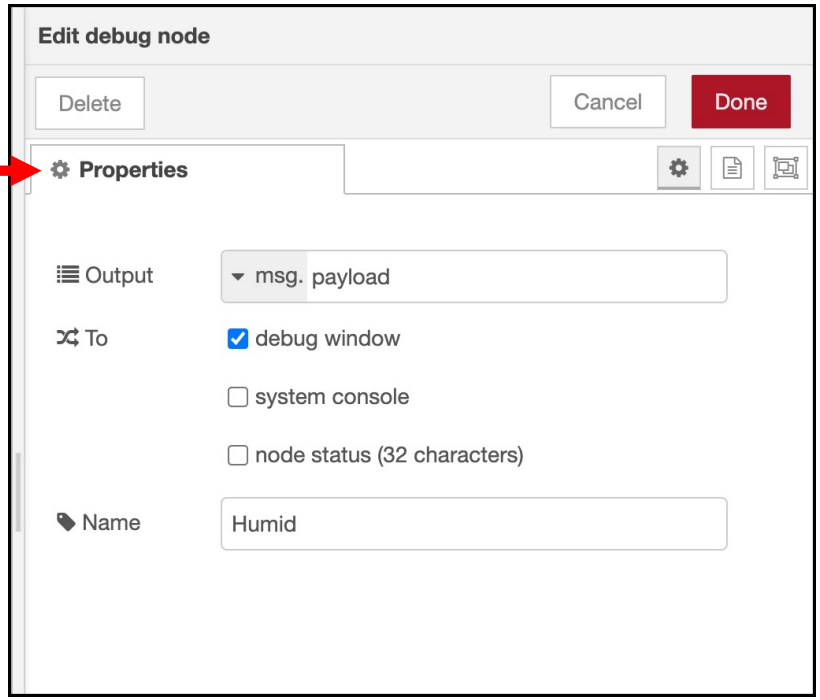




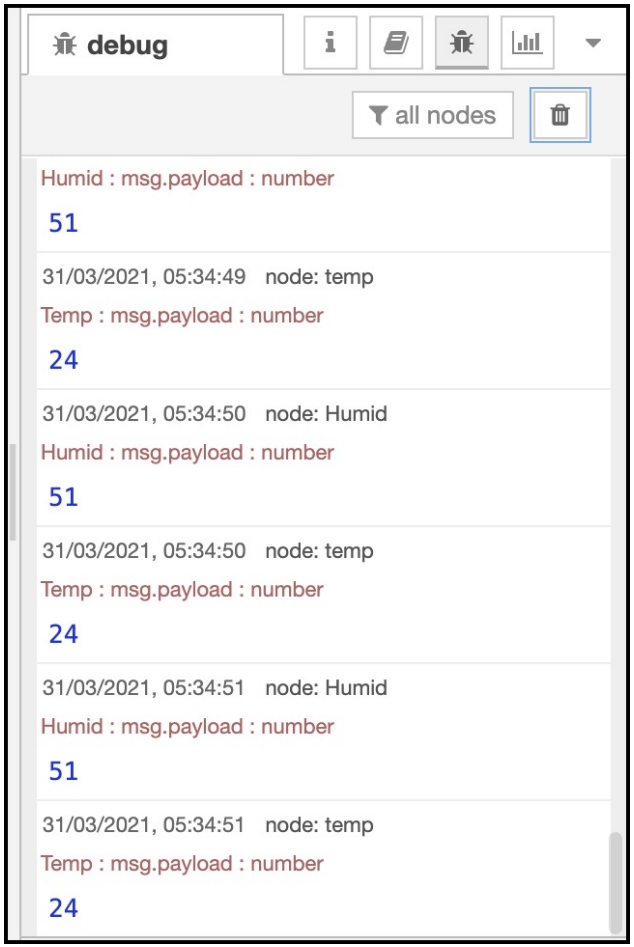
Node-RED: d. Layout.

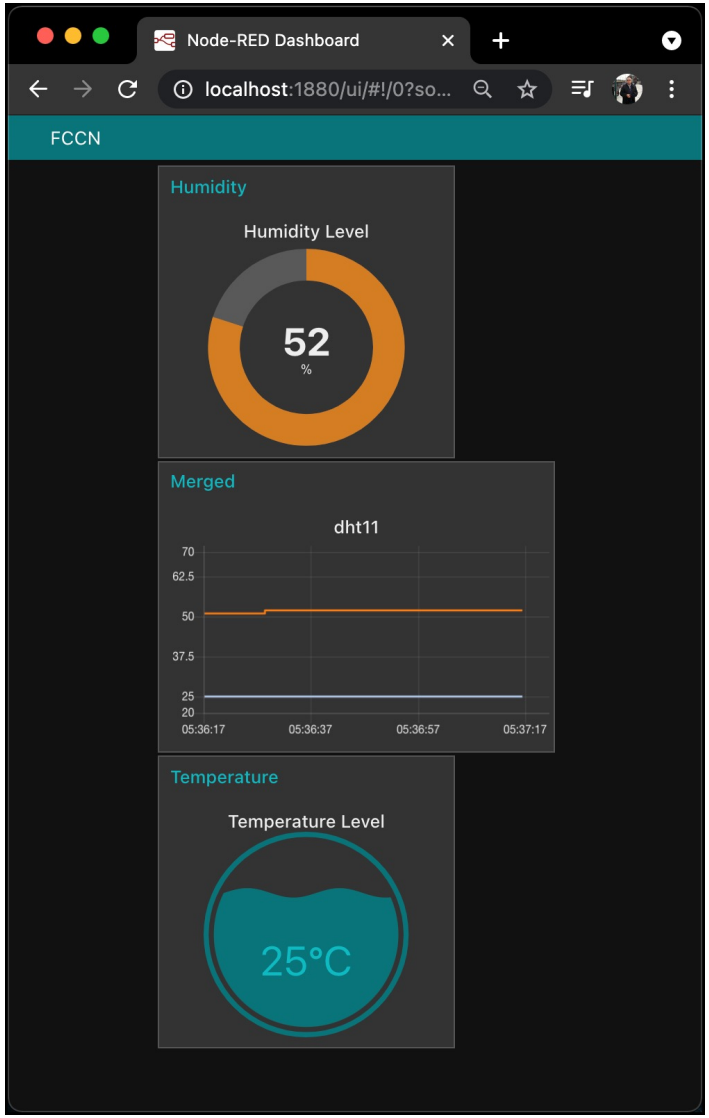






Node-RED: d. Layout.





QUESTIONS?

Questions?

TQ & BYE

END