Temperature-based Smart Fan

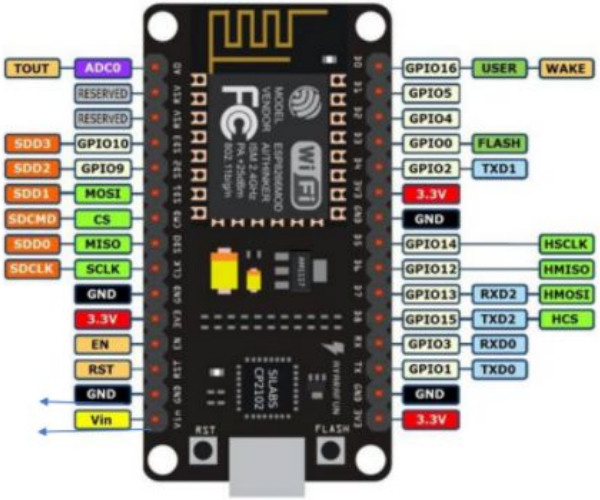
Group 11

Esam Uddin
Mihirkumar Patel
Ashwin Shanmugam

Description

- A temperature based smart fan based on the created IoT platform
- Device that modulates the speed of the fan based on the temperature and humidity data.
- Publish the temperature data on the Iot Platform.

Hardware Components



ESP8266

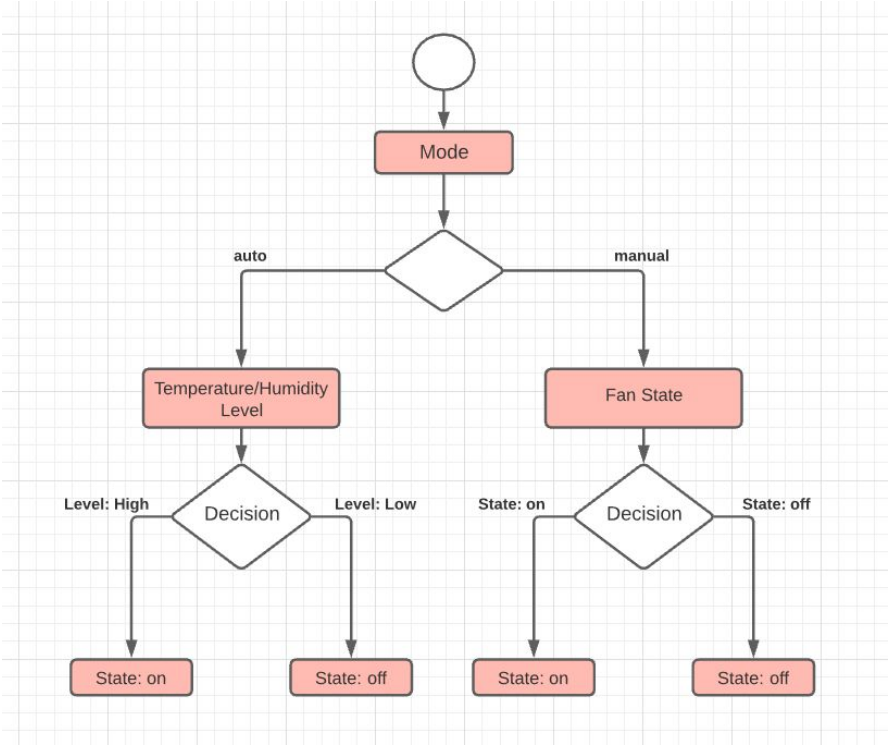
Servo Motor

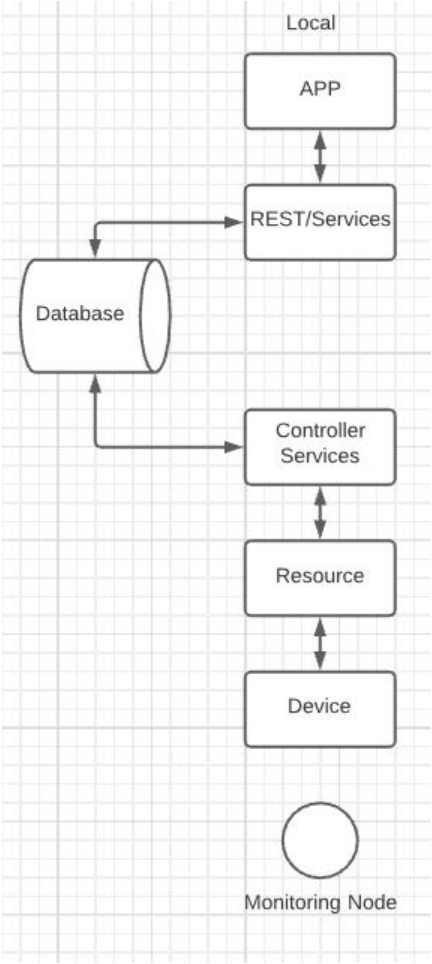
DHT11

System Functionalities

- Detects temperature between the range of 0 to 30 ° C
- Starts the fan when the temperature exceeds 22 ° C
- Dynamically updates the temperature on the IoT Platform.
- User can manually change the state of the fan remotely from the web application.
- Switch between manual and automatic mode.

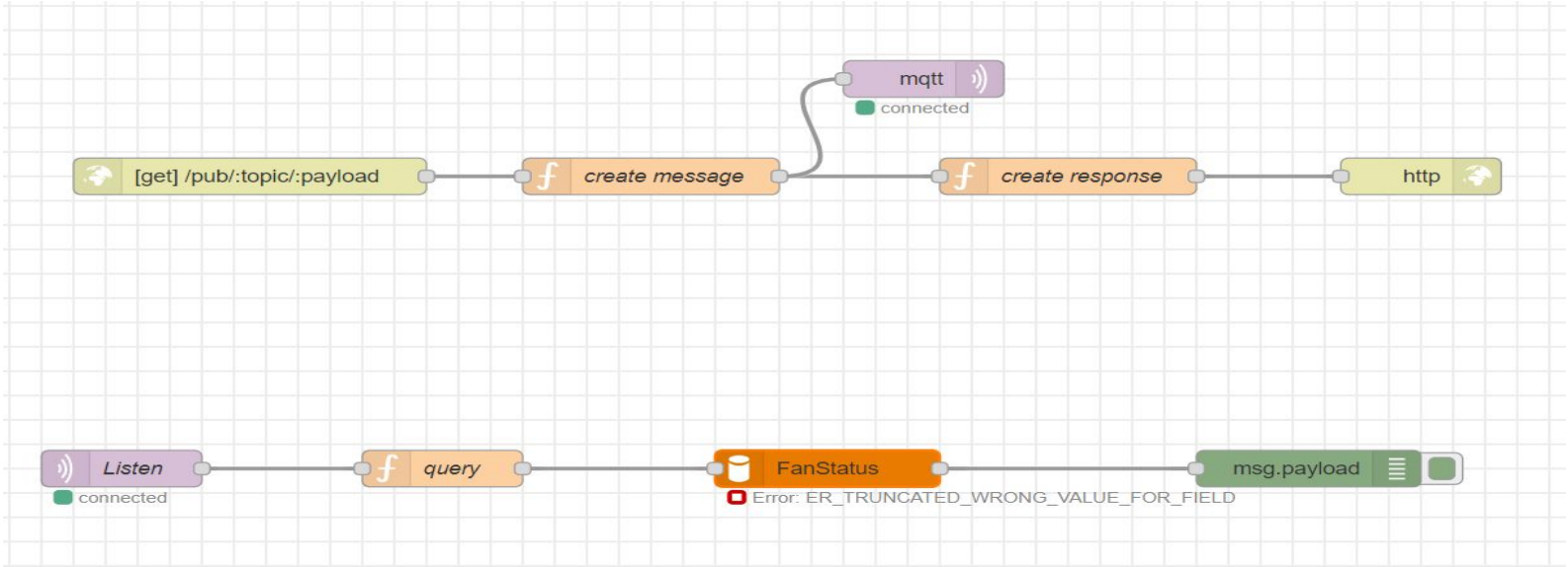
Architecture





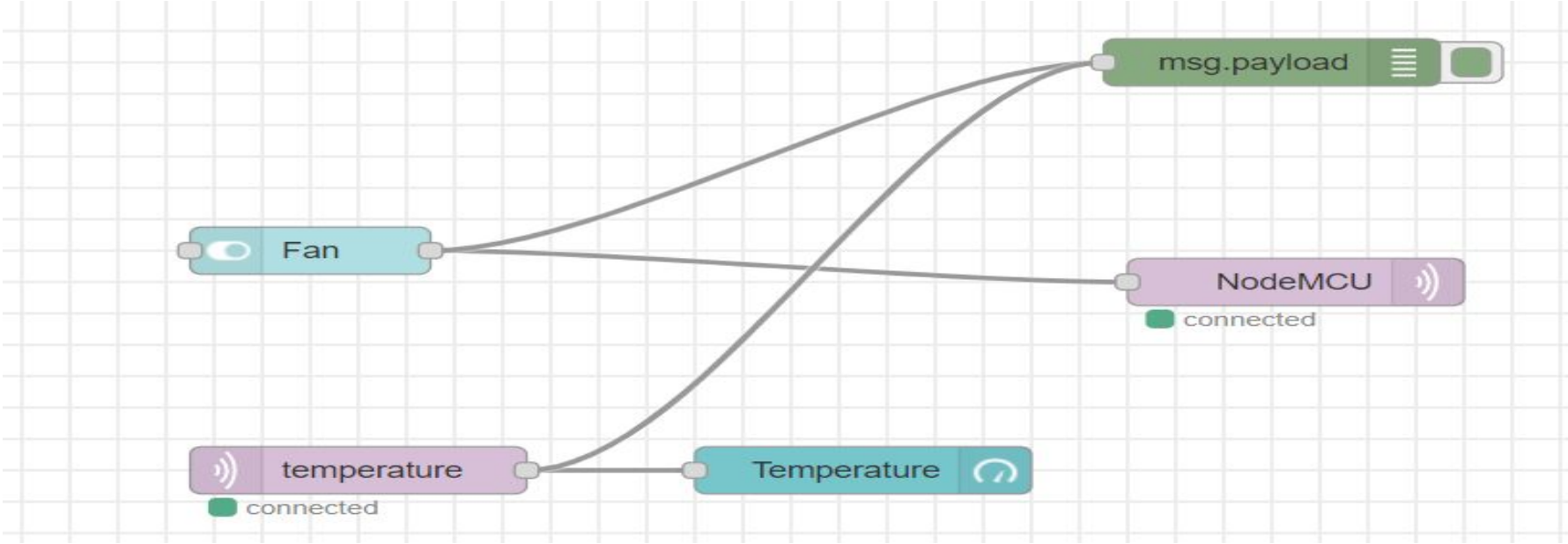
Architecture

- REST API



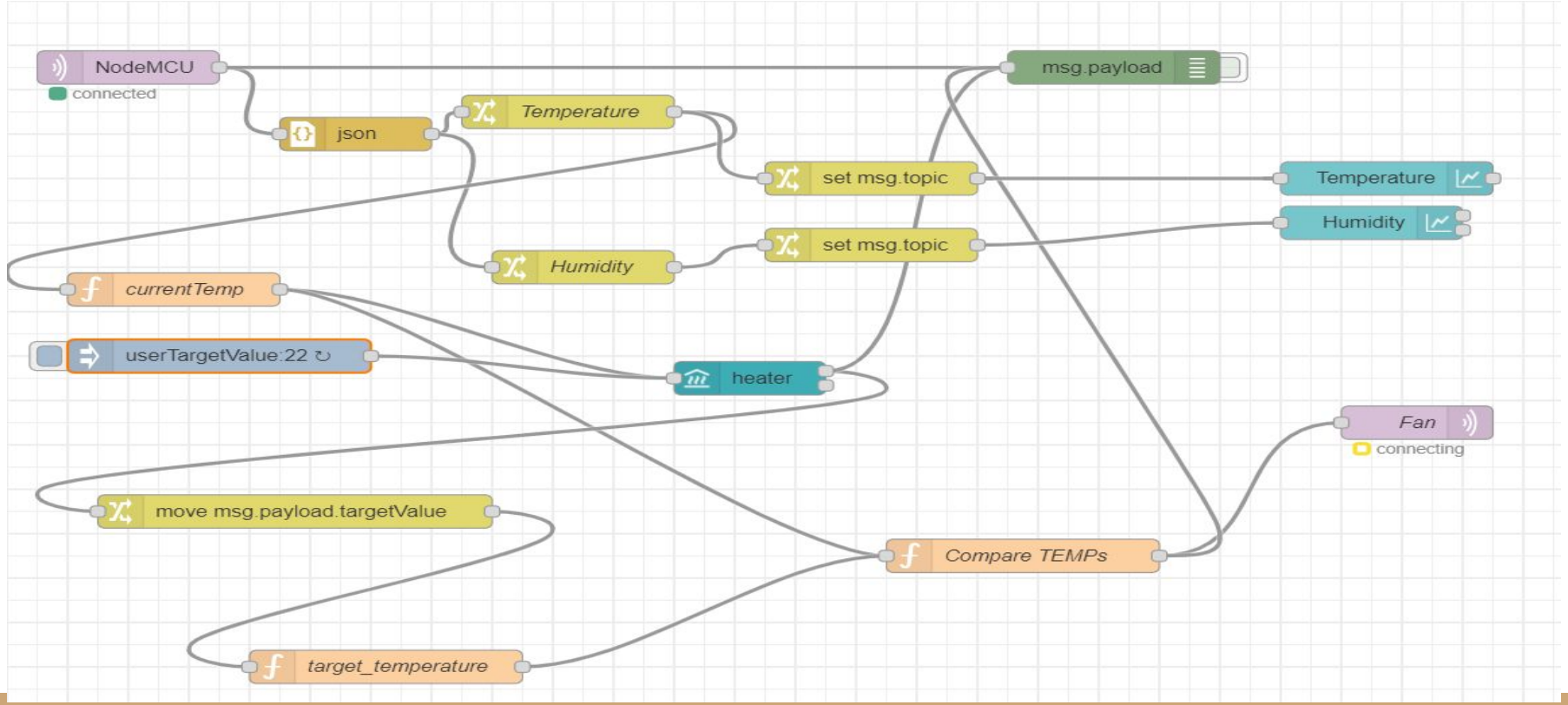
Architecture

Manual Mode :



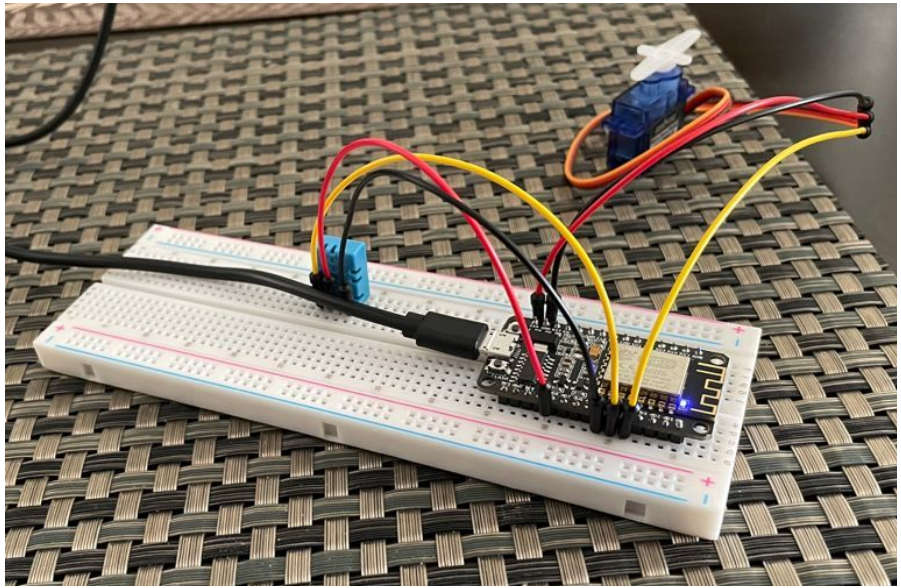
Architecture

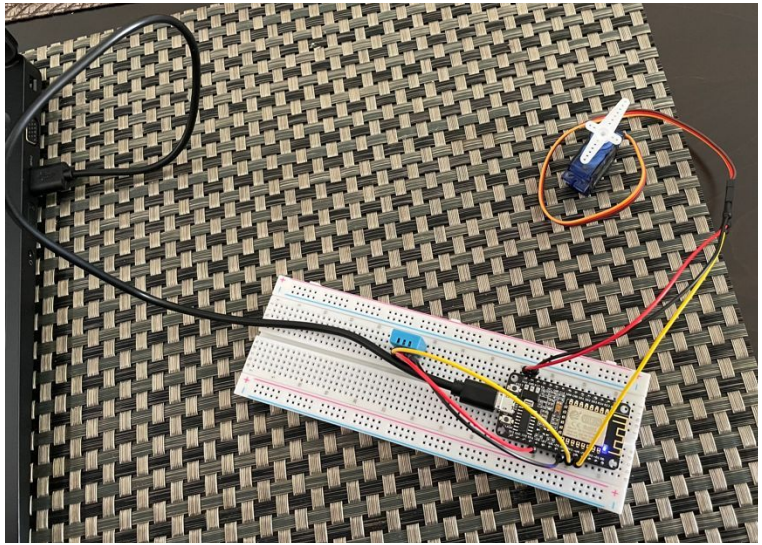
Auto Mode :

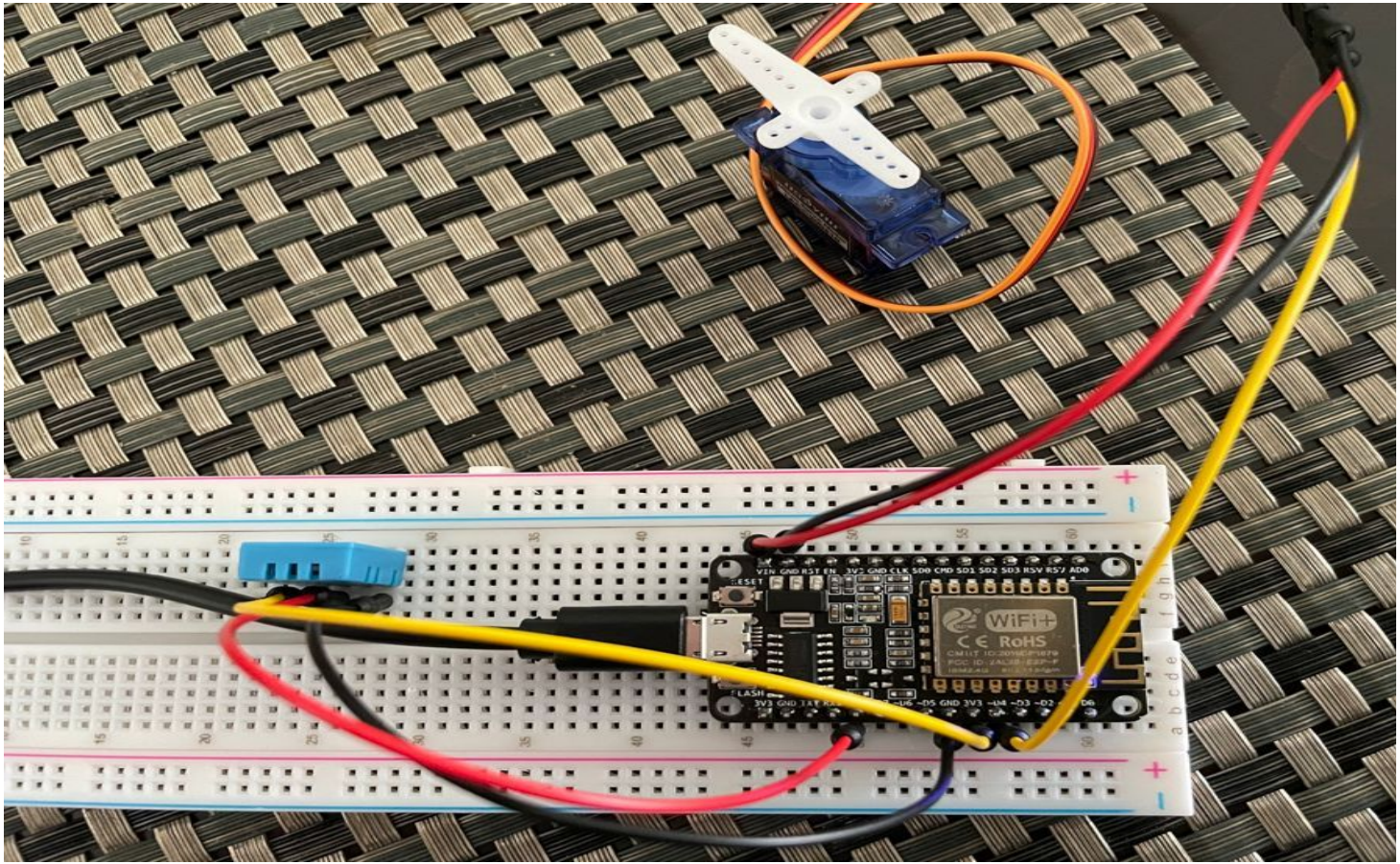


Design Decisions

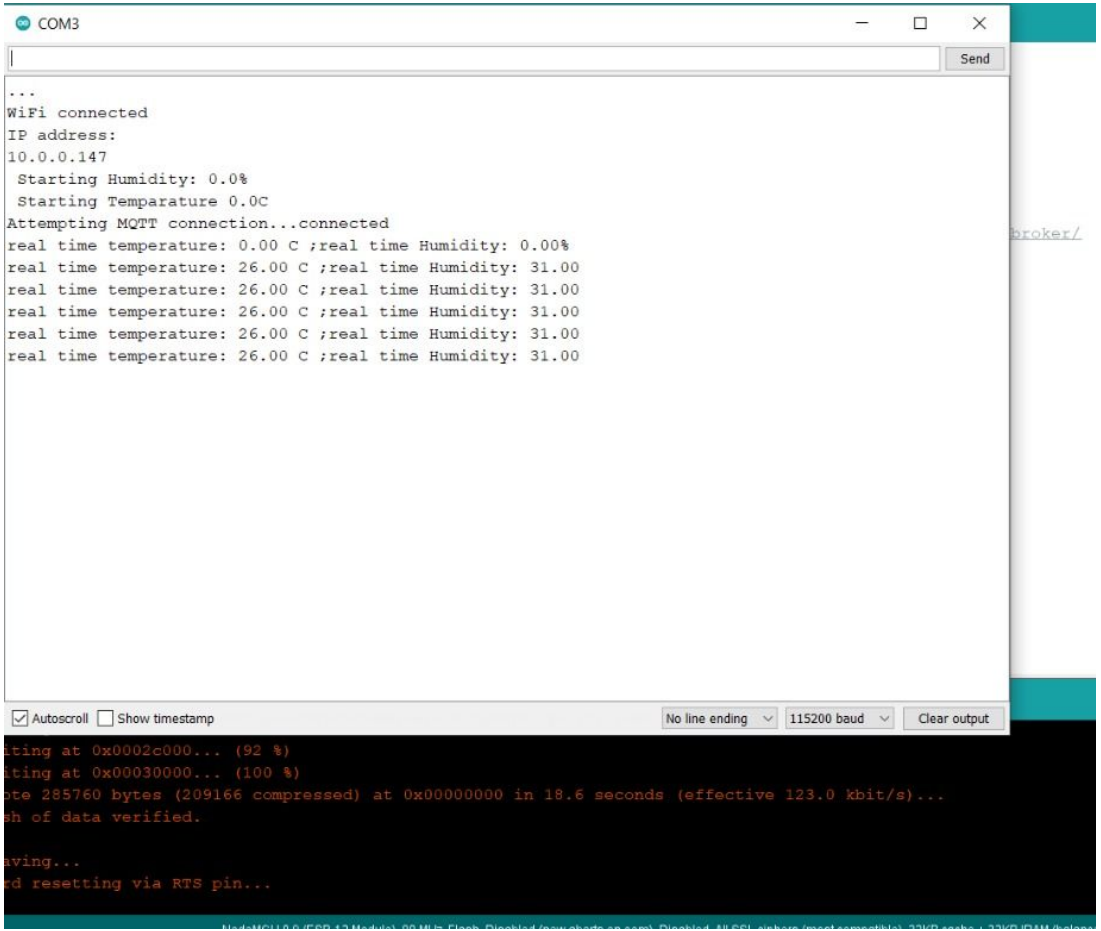
- IOT platform was built using the LAMP stack.
- No longer using Django framework
- DHT11 sensor failure; reordered



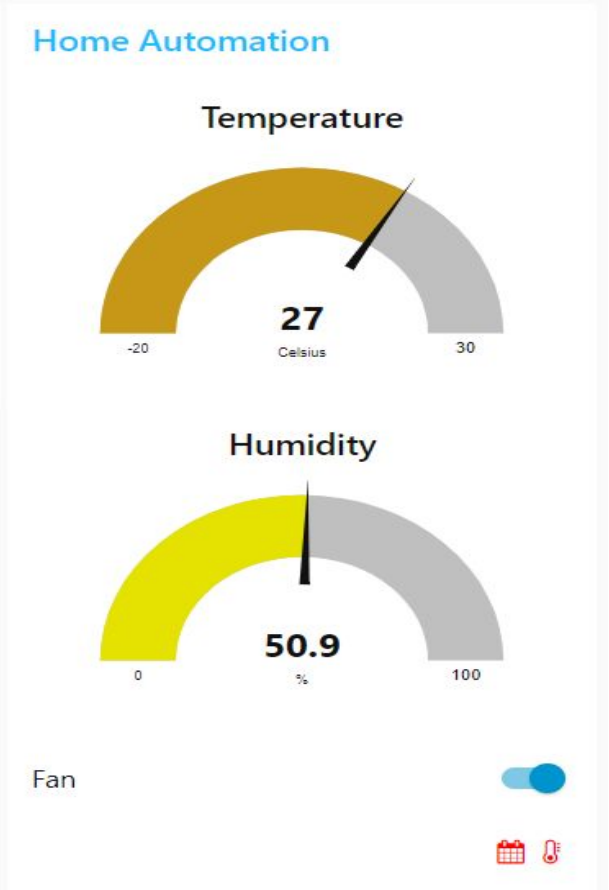



WiFi
RoHS

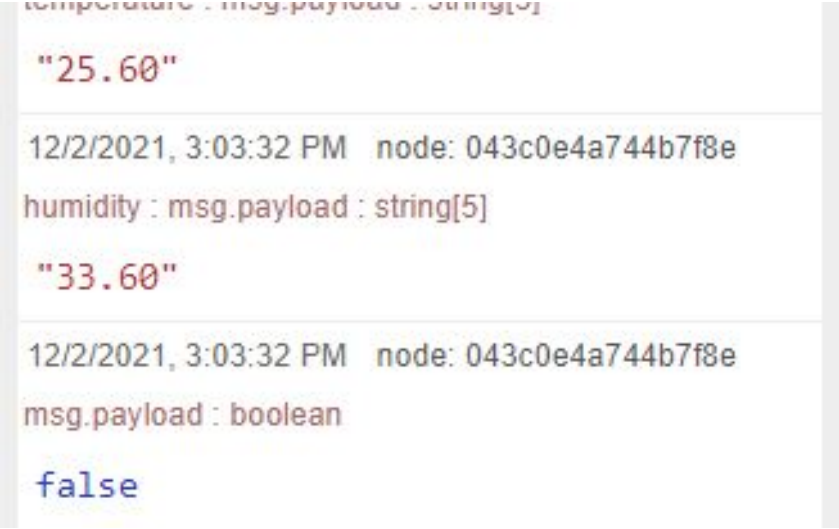
Output

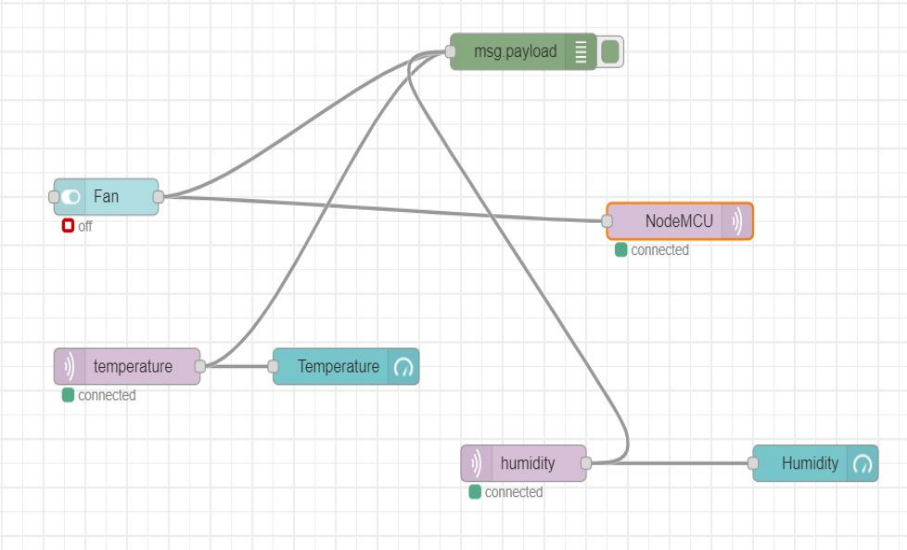

COM3
Send
...
WiFi connected
IP address:
10.0.0.147
Starting Humidity: 0.0%
Starting Temparature 0.0C
Attempting MQTT connection...connected
real time temperature: 0.00 C ;real time Humidity: 0.00%
real time temperature: 26.00 C ;real time Humidity: 31.00
real time temperature: 26.00 C ;real time Humidity: 31.00
real time temperature: 26.00 C ;real time Humidity: 31.00
real time temperature: 26.00 C ;real time Humidity: 31.00
real time temperature: 26.00 C ;real time Humidity: 31.00
Autoscroll
Show timestamp
No line ending
115200 baud
Clear output
broker/

Output


Home Automation
Temperature
27
Celsius
-20
30
Humidity
50.9
%
0
100
Fan

Output


"25.60"
12/2/2021, 3:03:32 PM node: 043c0e4a744b7f8e
humidity : msg.payload : string[5]
"33.60"
12/2/2021, 3:03:32 PM node: 043c0e4a744b7f8e
msg.payload : boolean
false


msg.payload
Fan
off
NodeMCU
connected
temperature
connected
Temperature
humidity
connected
Humidity

Output

humidity : msg.payload : string[5]

"70.60"

12/2/2021, 3:05:57 PM node: 043c0e4a744b7f8e

humidity : msg.payload : string[5]

"33.60"

12/2/2021, 3:05:57 PM node: 043c0e4a744b7f8e

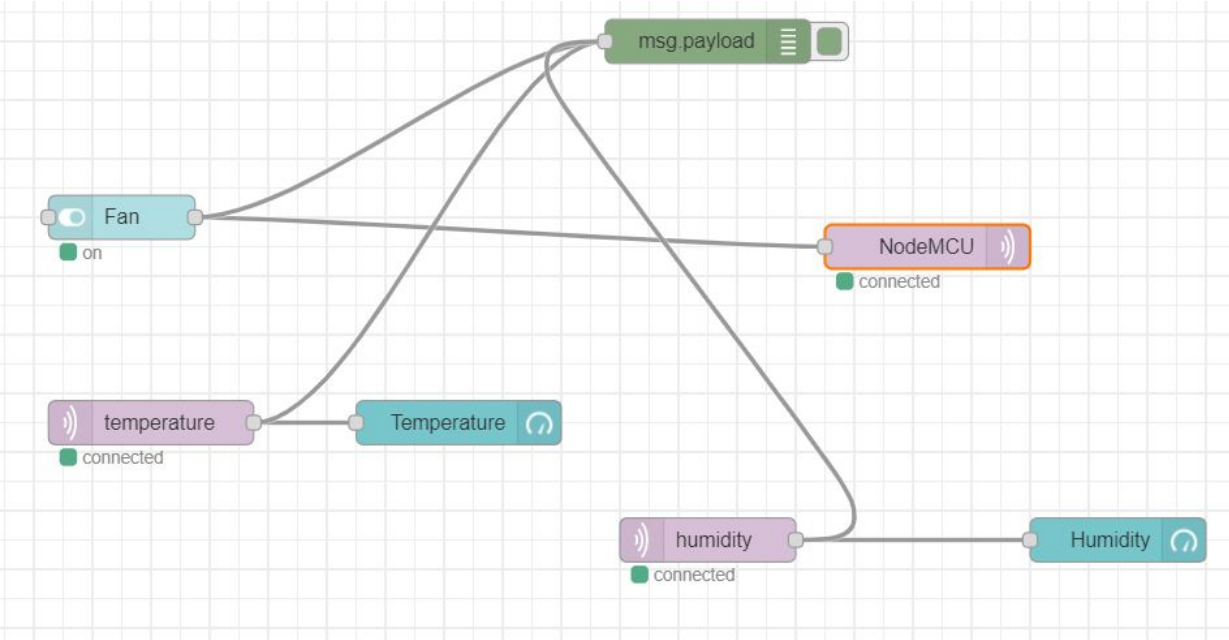
msg.payload : boolean

true

12/2/2021, 3:05:57 PM node: 043c0e4a744b7f8e

temperature : msg.payload : string[5]

"25.60"



Demo