

# **IOT    ENABLED    SMART FARMING APPLICATION.**

**Build A Web Application Using Node-RED**

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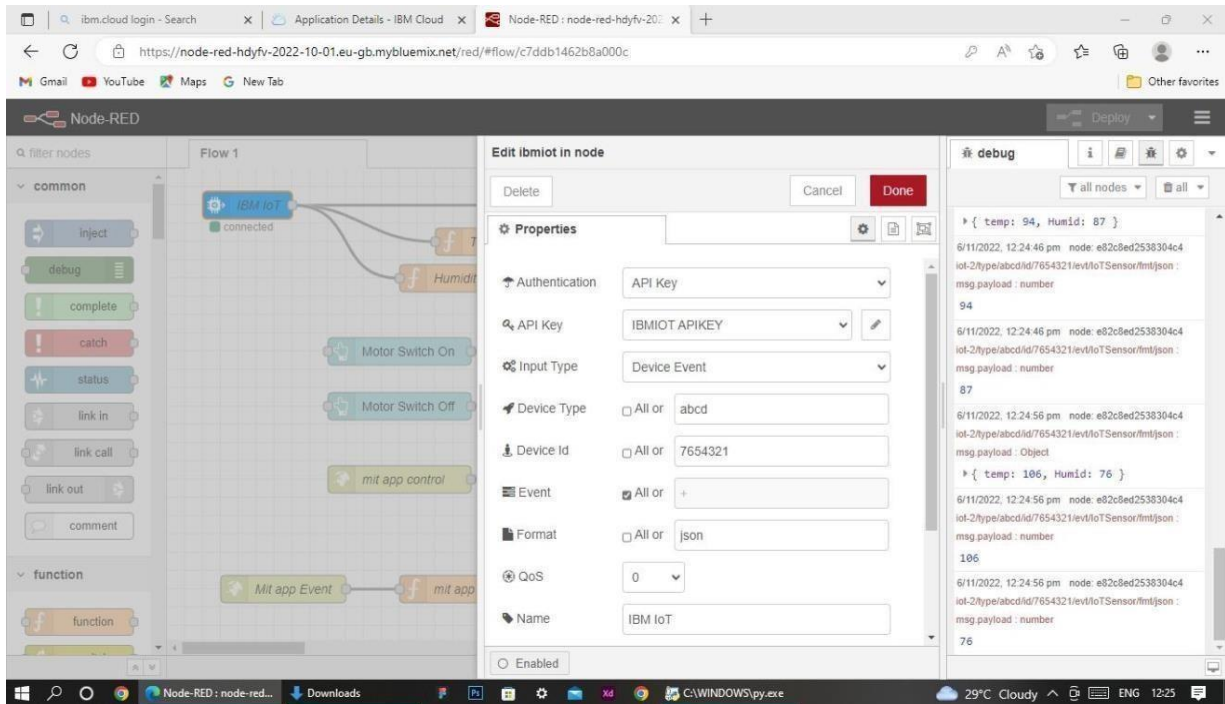
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## Configuration of Node-Red to collect IBM cloud data

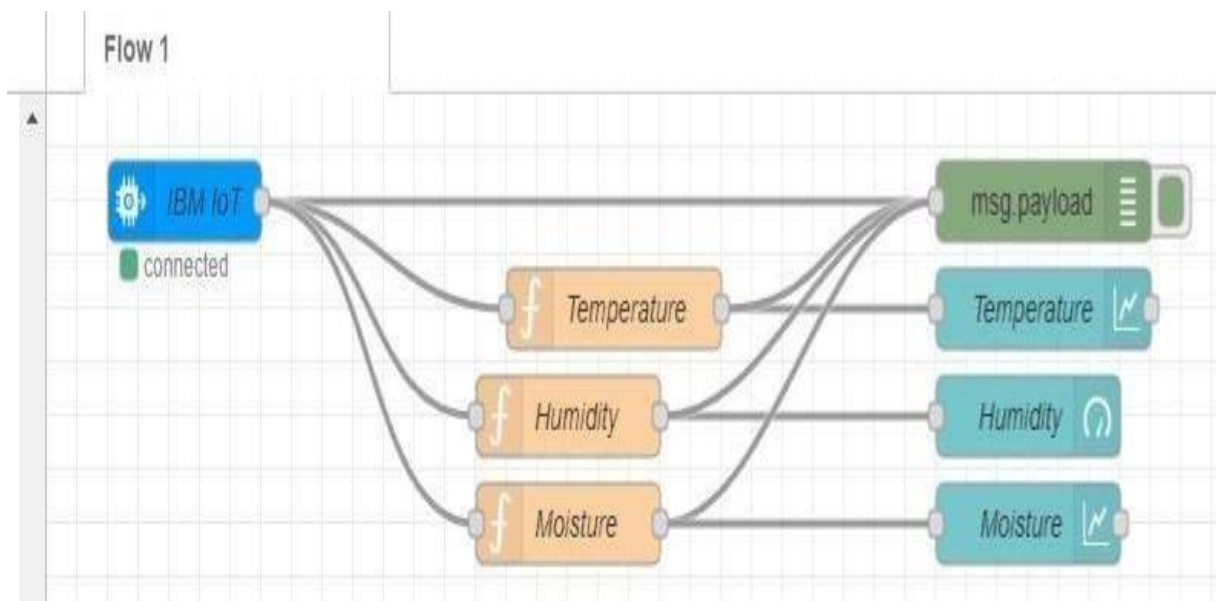
The node IBM IOT App In is added to Node-Red workflow. Then the appropriate device credentials obtained earlier are entered into the node to connect and fetch device telemetry to Node-Red



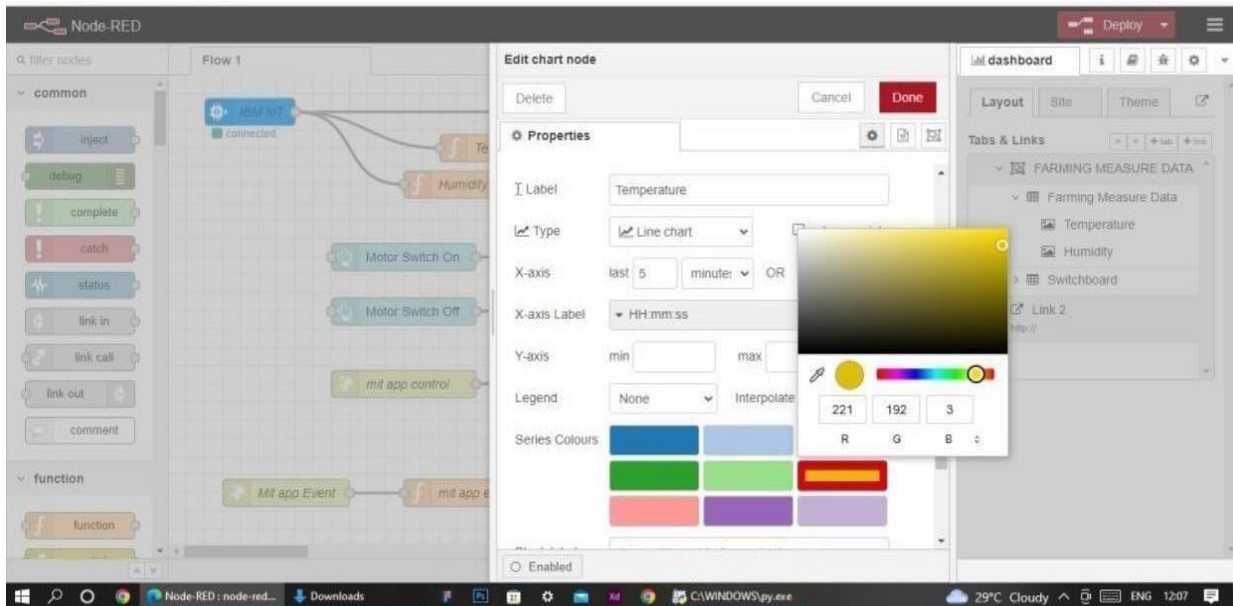
- Once it is connected Node-Red receives data from the device
- Display the data using debug node for verification
- Connect function node and write the Java script code to get each reading separately.
- The Java script code for the function node is:  
`msg.payload=msg.payload.d.temperature return msg;`
- Finally connect Gauge nodes from dashboard to see the data in UI

```
C:\WINDOWS\system32\cmd.exe
Published Temperature = 109 C Humidity = 64 % to IBM Watson
Published Temperature = 105 C Humidity = 86 % to IBM Watson
Published Temperature = 105 C Humidity = 83 % to IBM Watson
Published Temperature = 102 C Humidity = 86 % to IBM Watson
Published Temperature = 103 C Humidity = 60 % to IBM Watson
Published Temperature = 106 C Humidity = 83 % to IBM Watson
Published Temperature = 101 C Humidity = 85 % to IBM Watson
Published Temperature = 106 C Humidity = 84 % to IBM Watson
Published Temperature = 95 C Humidity = 74 % to IBM Watson
Published Temperature = 107 C Humidity = 73 % to IBM Watson
Published Temperature = 92 C Humidity = 96 % to IBM Watson
Published Temperature = 93 C Humidity = 82 % to IBM Watson
Published Temperature = 98 C Humidity = 80 % to IBM Watson
Published Temperature = 107 C Humidity = 71 % to IBM Watson
Published Temperature = 94 C Humidity = 87 % to IBM Watson
Published Temperature = 106 C Humidity = 76 % to IBM Watson
Published Temperature = 98 C Humidity = 81 % to IBM Watson
Published Temperature = 103 C Humidity = 95 % to IBM Watson
Published Temperature = 92 C Humidity = 66 % to IBM Watson
Published Temperature = 99 C Humidity = 76 % to IBM Watson
Published Temperature = 93 C Humidity = 68 % to IBM Watson
```

**Data received from the cloud in Node-Red console**



**Nodes connected in following manner to get each reading separately**



This is the Java script code I written for the function node to get Temperature separately.

### Configuration of Node-Red to collect data from Open Weather

- The Node-Red also receive data from the Open Weather API by HTTP GET request. An inject trigger is added to perform HTTP request for every certain interval.
- HTTP request node is configured with URL
- The data we receive from Open Weather after request is in below JSON

**format:** {"coord":{"lon":79.85,"lat":14.13},"weather":[{"id":803,"main":"Clouds","description":"brokenclouds","icon":"04n"}],"base":"stations","main":{"temp":307.59,"feels\_like":305.5,"temp\_min":307.59,"temp\_max":307.59,"pressure":1002,"humidity":35,"sea\_level":1002,"grnd\_level":1000},"wind":{"speed":6.23,"deg":170},"clouds":{"all":68},"dt":1589991979,"sys":{"country":"IN","sunrise":1589933553,"sun

```
set":1589979720},"timezone":19800,"id":1270791,"name":"Gūdūr","cod":20 0}
```

In order to parse the JSON string we use Java script functions and get each parameters

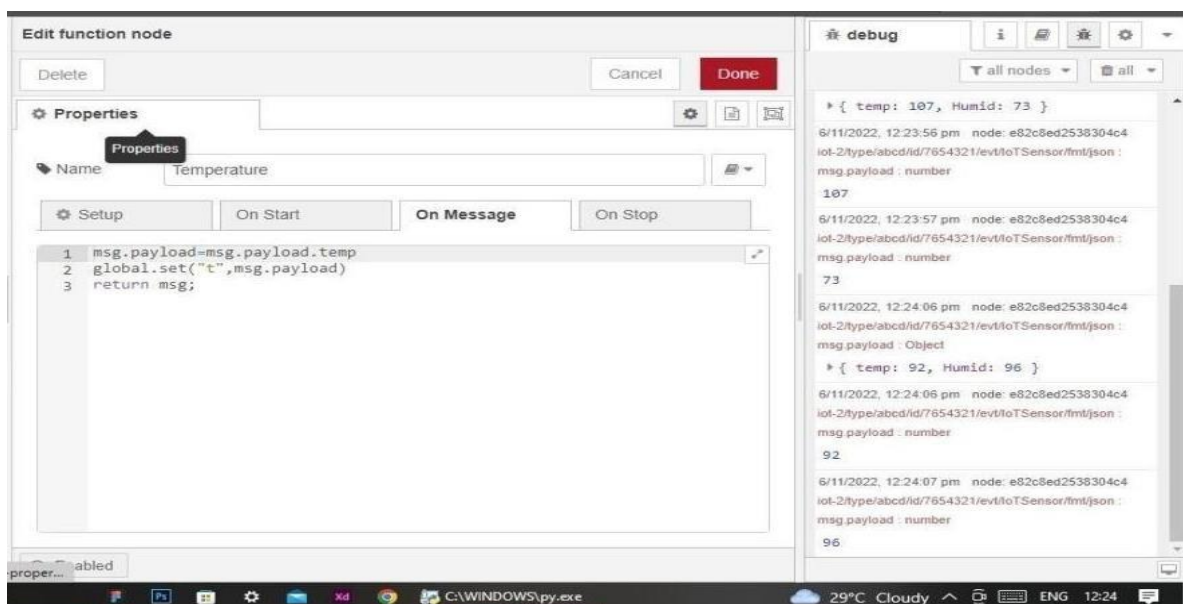
```
var temperature = msg.payload.main.temp;
```

```
temperature = temperature-273.15;
```

```
return {payload : temperature.toFixed(2)};
```

In the above Java script code we take temperature parameter into a new variable and convert it from kelvin to Celsius

Then we add Gauge and text nodes to represent data visually in UI.



MIT App Inventor | Service Details - IBM Cloud | Node-RED : node-red-hdyfv-20 | Node-RED Dashboard

https://node-red-hdyfv-2022-10-01.eu-gb.mybluemix.net/red/#flow/c7ddb1462b8a000c

Node-RED

filter nodes

Flow 1

msg.payload

Temperature

Humidity

Moisture

Motor Switch On

Motor Switch Off

mit app control

MIT IoT

msg.payload

http

MIT app Event

mit app event

http

debug

all nodes

all

```
iot-2/type/abcd/id/7654321/ev/IoTSensor/fmt/json :
msg.payload : Object
{ temp: 90, Humid: 85, Mois: 59 }

7/11/2022, 7:18:13 pm node: e82c8ed2538304c4
iot-2/type/abcd/id/7654321/ev/IoTSensor/fmt/json :
msg.payload : number
90

7/11/2022, 7:18:13 pm node: e82c8ed2538304c4
iot-2/type/abcd/id/7654321/ev/IoTSensor/fmt/json :
msg.payload : number
85

7/11/2022, 7:18:13 pm node: e82c8ed2538304c4
iot-2/type/abcd/id/7654321/ev/IoTSensor/fmt/json :
msg.payload : number
59

7/11/2022, 7:19:11 pm node: b09e99c70495fd3
msg.payload : Object
{ command: "motoron" }

7/11/2022, 7:19:12 pm node: b09e99c70495fd3
msg.payload : Object
{ command: "motoroff" }
```

Node-RED : node-red... | Downloads | ibmiotpublishscri...

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