

## Source code 2

### Node-Red

```
[{  
  "id": "6a097760.653918",  
  "type": "tab",  
  "label": "IBMIOT(smart Agriculture)",  
  "disabled": false,  
  "info": ""  
}, {  
  "id": "4fdd8d20.76a9b4",  
  "type": "ibmiot in",  
  "z": "6a097760.653918",  
  "authentication": "87654321",  
  "apiKey": "a-kd5ld-oixaiqhnhq",  
  "inputType": "evt",  
  "logicalInterface": "",  
  "ruleId": "",  
  "deviceId": "12345678",  
  "applicationId": "",  
  "deviceType": "ibm",  
  "eventType": "+",  
  "commandType": "",  
  "format": "json",
```

```
"name": "IBM IoT",
"service": "registered",
"allDevices": "",
"allApplications": "",
"allDeviceTypes": "",
"allLogicalInterfaces": "",
"allEvents": true,
"allCommands": "",
"allFormats": "",
"qos": 0,
"x": 130,
"y": 440,
"wires": [
    ["8d0c40d3.848cd", "6aa78b4a.da3eb4", "5642999c.ed7868",
"c396573b.e8d738"]
]
}, {
    "id": "c396573b.e8d738",
    "type": "debug",
    "z": "6a097760.653918",
    "name": "",
    "active": false,
    "tosidebar": true,
    "console": false,
    "tostatus": false,
```

```
"complete": "payload",
"targetType": "msg",
"x": 770,
"y": 360,
"wires": []
}, {
  "id": "8a49f2d5.e9d07",
  "type": "ui_gauge",
  "z": "6a097760.653918",
  "name": "",
  "group": "28e6141.0c047ec",
  "order": 0,
  "width": "6",
  "height": "4",
  "gtype": "gage",
  "title": "Humidity",
  "label": "%Percentage",
  "format": "{{value}}",
  "min": 0,
  "max": "100",
  "colors": ["#00b500", "#e6e600", "#ca3838"],
  "seg1": "",
  "seg2": "",
  "x": 800,
  "y": 540,
```

```
    "wires": []
  }, {
    "id": "9e820fb2.1ded5",
    "type": "ui_gauge",
    "z": "6a097760.653918",
    "name": "",
    "group": "28e6141.0c047ec",
    "order": 0,
    "width": "6",
    "height": "4",
    "gtype": "gage",
    "title": "Temperature",
    "label": "°C Celcius",
    "format": "{{value}}",
    "min": 0,
    "max": "100",
    "colors": ["#00b500", "#e6e600", "#ca3838"],
    "seg1": "",
    "seg2": "",
    "x": 770,
    "y": 660,
    "wires": []
  }, {
    "id": "6aa78b4a.da3eb4",
    "type": "function",
```

```
"z": "6a097760.653918",
"name": "Temperature",
"func": "msg.payload=msg.payload.d.temperature;\nreturn msg;",
"outputs": 1,
"noerr": 0,
"x": 410,
"y": 560,
"wires": [
  ["c396573b.e8d738", "9e820fb2.1ded5", "687d6f13.98f7c"]
]
}, {
  "id": "8d0c40d3.848cd",
  "type": "function",
  "z": "6a097760.653918",
  "name": "Humidity",
  "func": "msg.payload=msg.payload.d.humidity;\nreturn msg;",
  "outputs": 1,
  "noerr": 0,
  "x": 420,
  "y": 500,
  "wires": [
    ["c396573b.e8d738", "8a49f2d5.e9d07", "a4f00796.520788"]
  ]
}, {
  "id": "5642999c.ed7868",
```

```
"type": "function",
"z": "6a097760.653918",
"name": "SoilMoisture",
"func": "msg.payload=msg.payload.d.objectTemp;\nreturn msg;",
"outputs": 1,
"noerr": 0,
"x": 430,
"y": 440,
"wires": [
  ["c396573b.e8d738", "dad1ab68.86f798", "9888ac53.4a285"]
], {
  "id": "dad1ab68.86f798",
  "type": "ui_gauge",
  "z": "6a097760.653918",
  "name": "",
  "group": "28e6141.0c047ec",
  "order": 2,
  "width": "6",
  "height": "4",
  "gtype": "gage",
  "title": "Soil Moisture",
  "label": "% Percentage",
  "format": "{{value}}",
  "min": 0,
```

```
"max": "100",
"colors": ["#00b500", "#e6e600", "#ca3838"],
"seg1": "",
"seg2": "",
"x": 810,
"y": 420,
"wires": []
}, {
  "id": "9de2a117.06e1d",
  "type": "http request",
  "z": "6a097760.653918",
  "name": "",
  "method": "GET",
  "ret": "obj",
  "paytoqs": false,
  "url":
"http://api.openweathermap.org/data/2.5/weather?q=Ponda,IN&appid
=c17ea99bbf41216723c2071ce90c3633",
  "tls": "",
  "persist": false,
  "proxy": "",
  "authType": "",
  "x": 510,
  "y": 240,
  "wires": [
```

```
["c396573b.e8d738", "91b4e81a.972888", "4bcf3c9.21fd4c4",  
"2c496973.5626d6", "3552343c.1a23ac"]
```

```
]
```

```
}, {
```

```
  "id": "cbdf50d7.8bd57",
```

```
  "type": "inject",
```

```
  "z": "6a097760.653918",
```

```
  "name": "",
```

```
  "topic": "",
```

```
  "payload": "",
```

```
  "payloadType": "date",
```

```
  "repeat": "5",
```

```
  "crontab": "",
```

```
  "once": true,
```

```
  "onceDelay": "5",
```

```
  "x": 150,
```

```
  "y": 300,
```

```
  "wires": [
```

```
    ["9de2a117.06e1d"]
```

```
  ]
```

```
}, {
```

```
  "id": "f8fb8426.88b758",
```

```
  "type": "ibmiot out",
```

```
  "z": "6a097760.653918",
```

```
  "authentication": "87654321",
```



```
"apiKey": "a-kd5lkd-oixaiqhnqh",
"outputType": "cmd",
"deviceId": "12345678",
"deviceType": "ibm",
"eventCommandType": "command",
"format": "json",
"data": "Data",
"qos": 0,
"name": "IBM IoT",
"service": "registered",
"x": 560,
"y": 100,
"wires": []
}, {
  "id": "2deb666d.10728a",
  "type": "ui_button",
  "z": "6a097760.653918",
  "name": "",
  "group": "d251626d.10cec",
  "order": 2,
  "width": 0,
  "height": 0,
  "passthru": false,
  "label": "Motor on",
  "tooltip": ""
```

```
"color": "",
"bgcolor": "",
"icon": "",
"payload": "{\"command\":\"motoron\"}",
"payloadType": "json",
"topic": "",
"x": 160,
"y": 60,
"wires": [
  ["f8fb8426.88b758", "c396573b.e8d738"]
], {
  "id": "154a1e0e.e80672",
  "type": "ui_button",
  "z": "6a097760.653918",
  "name": "",
  "group": "d251626d.10cec",
  "order": 3,
  "width": 0,
  "height": 0,
  "passthru": false,
  "label": "Motoroff",
  "tooltip": "",
  "color": "",
  "bgcolor": "",
```

```
"icon": "",
"payload": "{\"command\":\"motoroff\"}",
"payloadType": "json",
"topic": "",
"x": 160,
"y": 160,
"wires": [
  ["f8fb8426.88b758", "c396573b.e8d738"]
], {
  "id": "6329ceb0.9a74",
  "type": "ui_text",
  "z": "6a097760.653918",
  "group": "a9434212.30379",
  "order": 0,
  "width": 0,
  "height": 0,
  "name": "",
  "label": "Temperature",
  "format": "{{msg.payload}}",
  "layout": "row-spread",
  "x": 970,
  "y": 140,
  "wires": []
}, {
```

```
"id": "5d4cb33b.861edc",
"type": "ui_text",
"z": "6a097760.653918",
"group": "a9434212.30379",
"order": 1,
"width": 0,
"height": 0,
"name": "",
"label": "Humidity",
"format": "{{msg.payload}}",
"layout": "row-spread",
"x": 980,
"y": 200,
"wires": []
}, {
  "id": "d85fe3cc.9ca31",
  "type": "ui_text",
  "z": "6a097760.653918",
  "group": "a9434212.30379",
  "order": 0,
  "width": 0,
  "height": 0,
  "name": "",
  "label": "Region",
  "format": "{{msg.payload}}",
```

```
"layout": "row-spread",
"x": 980,
"y": 260,
"wires": []
}, {
  "id": "e00de3f6.29978",
  "type": "ui_text",
  "z": "6a097760.653918",
  "group": "a9434212.30379",
  "order": 3,
  "width": 0,
  "height": 0,
  "name": "",
  "label": "Weather Description",
  "format": "{{msg.payload}}",
  "layout": "row-spread",
  "x": 1020,
  "y": 320,
  "wires": []
}, {
  "id": "9888ac53.4a285",
  "type": "ui_chart",
  "z": "6a097760.653918",
  "name": "",
  "group": "309c8230.4f9bde",
```

```
"order": 3,  
"width": 0,  
"height": 0,  
"label": "Soil moisture",  
"chartType": "line",  
"legend": "false",  
"xformat": "HH:mm:ss",  
"interpolate": "linear",  
"nodata": "",  
"dot": false,  
"ymin": "",  
"ymax": "",  
"removeOlder": 1,  
"removeOlderPoints": "",  
"removeOlderUnit": "3600",  
"cutout": 0,  
"useOneColor": false,  
"useUTC": false,  
"colors": ["#1f77b4", "#aec7e8", "#ff7f0e", "#2ca02c", "#98df8a",  
"#d62728", "#ff9896", "#9467bd", "#c5b0d5"],  
"useOldStyle": false,  
"outputs": 1,  
"x": 820,  
"y": 460,  
"wires": [
```

```
    []  
  ]  
, {  
  "id": "a4f00796.520788",  
  "type": "ui_chart",  
  "z": "6a097760.653918",  
  "name": "",  
  "group": "309c8230.4f9bde",  
  "order": 4,  
  "width": 0,  
  "height": 0,  
  "label": "Humidity",  
  "chartType": "line",  
  "legend": "false",  
  "xformat": "HH:mm:ss",  
  "interpolate": "linear",  
  "nodata": "",  
  "dot": false,  
  "ymin": "",  
  "ymax": "",  
  "removeOlder": 1,  
  "removeOlderPoints": "",  
  "removeOlderUnit": "3600",  
  "cutout": 0,  
  "useOneColor": false,
```

```
"useUTC": false,
"colors": ["#1f77b4", "#aec7e8", "#ff7f0e", "#2ca02c", "#98df8a",
"#d62728", "#ff9896", "#9467bd", "#c5b0d5"],
"useOldStyle": false,
"outputs": 1,
"x": 800,
"y": 580,
"wires": [
  []
]
}, {
  "id": "687d6f13.98f7c",
  "type": "ui_chart",
  "z": "6a097760.653918",
  "name": "",
  "group": "309c8230.4f9bde",
  "order": 5,
  "width": 0,
  "height": 0,
  "label": "Temperature",
  "chartType": "line",
  "legend": "false",
  "xformat": "HH:mm:ss",
  "interpolate": "linear",
  "nodata": ""
```



```
"dot": false,
"ymin": "",
"ymax": "",
"removeOlder": 1,
"removeOlderPoints": "",
"removeOlderUnit": "3600",
"cutout": 0,
"useOneColor": false,
"useUTC": false,
"colors": ["#1f77b4", "#aec7e8", "#ff7f0e", "#2ca02c", "#98df8a",
"#d62728", "#ff9896", "#9467bd", "#c5b0d5"],
"useOldStyle": false,
"outputs": 1,
"x": 810,
"y": 700,
"wires": [
    []
]
}, {
    "id": "91b4e81a.972888",
    "type": "change",
    "z": "6a097760.653918",
    "name": "Temperature",
    "rules": [{
        "t": "set",
```

```
"p": "payload",
"pt": "msg",
"to": "payload.main.temp",
"tot": "msg"
}],
"action": "",
"property": "",
"from": "",
"to": "",
"reg": false,
"x": 750,
"y": 120,
"wires": [
  ["6329ceb0.9a74"]
]
}, {
  "id": "4bcf3c9.21fd4c4",
  "type": "change",
  "z": "6a097760.653918",
  "name": "Humidity",
  "rules": [{
    "t": "set",
    "p": "payload",
    "pt": "msg",
    "to": "payload.main.humidity",
```

```
    "tot": "msg"
  }],
  "action": "",
  "property": "",
  "from": "",
  "to": "",
  "reg": false,
  "x": 740,
  "y": 180,
  "wires": [
    ["5d4cb33b.861edc"]
  ]
}, {
  "id": "2c496973.5626d6",
  "type": "change",
  "z": "6a097760.653918",
  "name": "Region",
  "rules": [{
    "t": "set",
    "p": "payload",
    "pt": "msg",
    "to": "payload.name",
    "tot": "msg"
  }],
  "action": "",
```

```
"property": "",
"from": "",
"to": "",
"reg": false,
"x": 740,
"y": 240,
"wires": [
  ["d85fe3cc.9ca31"]
], {
  "id": "3552343c.1a23ac",
  "type": "change",
  "z": "6a097760.653918",
  "name": "Weather Description",
  "rules": [{
    "t": "set",
    "p": "payload",
    "pt": "msg",
    "to": "payload.weather.0.description",
    "tot": "msg"
  }],
  "action": "",
  "property": "",
  "from": "",
  "to": "",
```

```
"reg": false,
"x": 780,
"y": 300,
"wires": [
  ["e00de3f6.29978"]
], {
  "id": "233183d6.16ba7c",
  "type": "ibmiot",
  "z": "",
  "name": "",
  "keepalive": "60",
  "serverName": "",
  "cleansession": true,
  "appId": "",
  "shared": false
}, {
  "id": "28e6141.0c047ec",
  "type": "ui_group",
  "z": "",
  "name": "Smart Agriculture",
  "tab": "d669ffca.1402d",
  "order": 6,
  "disp": true,
  "width": "6",
```

```
"collapse": false
}, {
  "id": "d251626d.10cec",
  "type": "ui_group",
  "z": "",
  "name": "Motor Commands",
  "tab": "d669ffca.1402d",
  "order": 1,
  "disp": true,
  "width": "6",
  "collapse": false
}, {
  "id": "a9434212.30379",
  "type": "ui_group",
  "z": "",
  "name": "Weather Forecast",
  "tab": "d669ffca.1402d",
  "order": 3,
  "disp": true,
  "width": "6",
  "collapse": false
}, {
  "id": "309c8230.4f9bde",
  "type": "ui_group",
  "z": "",
```

```
"name": "Graphical Representation",
"tab": "d669ffca.1402d",
"order": 5,
"disp": true,
"width": "6",
"collapse": false
}, {
  "id": "d669ffca.1402d",
  "type": "ui_tab",
  "z": "",
  "name": "Smart Agriculture",
  "icon": "dashboard",
  "disabled": false,
  "hidden": false
}]
```