

## SPRINT 4

Team ID	PNT2022TMID46404
Project Name	Smart Farmer - IOT Enabled Smart Farming Application

- ❖ Designing the modules and created all the features of the app.

The image displays two screenshots related to the development of a smart farming application.

**Top Screenshot: Node-RED Interface**

The Node-RED interface shows two flows. **Flow 1** is a sensor data processing flow:
 

- Temperature** sensor → **msg.payload** → **Temperature** node.
- Humidity** sensor → **msg.payload** → **Humidity** node.
- Soil moisture** sensor → **msg.payload** → **Soil moisture** node.
- A **switch** node routes data to an **http request** node, which then connects to a **msg.payload** node.
- A **[get] /data** node connects to a **data** node, which then connects to an **http** node.

**Flow 2** is a control flow:
 

- MOTOR ON** and **MOTOR OFF** nodes connect to an **IBM IoT** node.
- The **IBM IoT** node connects to a **msg.payload** node.
- A **[get] /command** node connects to an **http** node.

 The right sidebar shows a **debug** console with log messages:
 

```

11/19/2022, 8:15:49 AM node: 3d1a1cf95b6b4a4f
27bpe1smart_farmingIdfarm_todayeventIoTSensorfirstjs
msg.payload: Object
> { temp: 108, Humid: 93, Moist: 105 }

11/19/2022, 8:15:59 AM node: 3d1a1cf95b6b4a4f
27bpe1smart_farmingIdfarm_todayeventIoTSensorfirstjs
msg.payload: Object
> { temp: 104, Humid: 76, Moist: 69 }

11/19/2022, 8:16:09 AM node: 3d1a1cf95b6b4a4f
27bpe1smart_farmingIdfarm_todayeventIoTSensorfirstjs
msg.payload: Object
> { temp: 108, Humid: 62, Moist: 66 }
    
```

**Bottom Screenshot: IBM Watson IoT Platform Interface**

The IBM Watson IoT Platform interface shows a list of devices under the **smart\_farming** device type. The **farm\_today** device is highlighted as **Connected**.

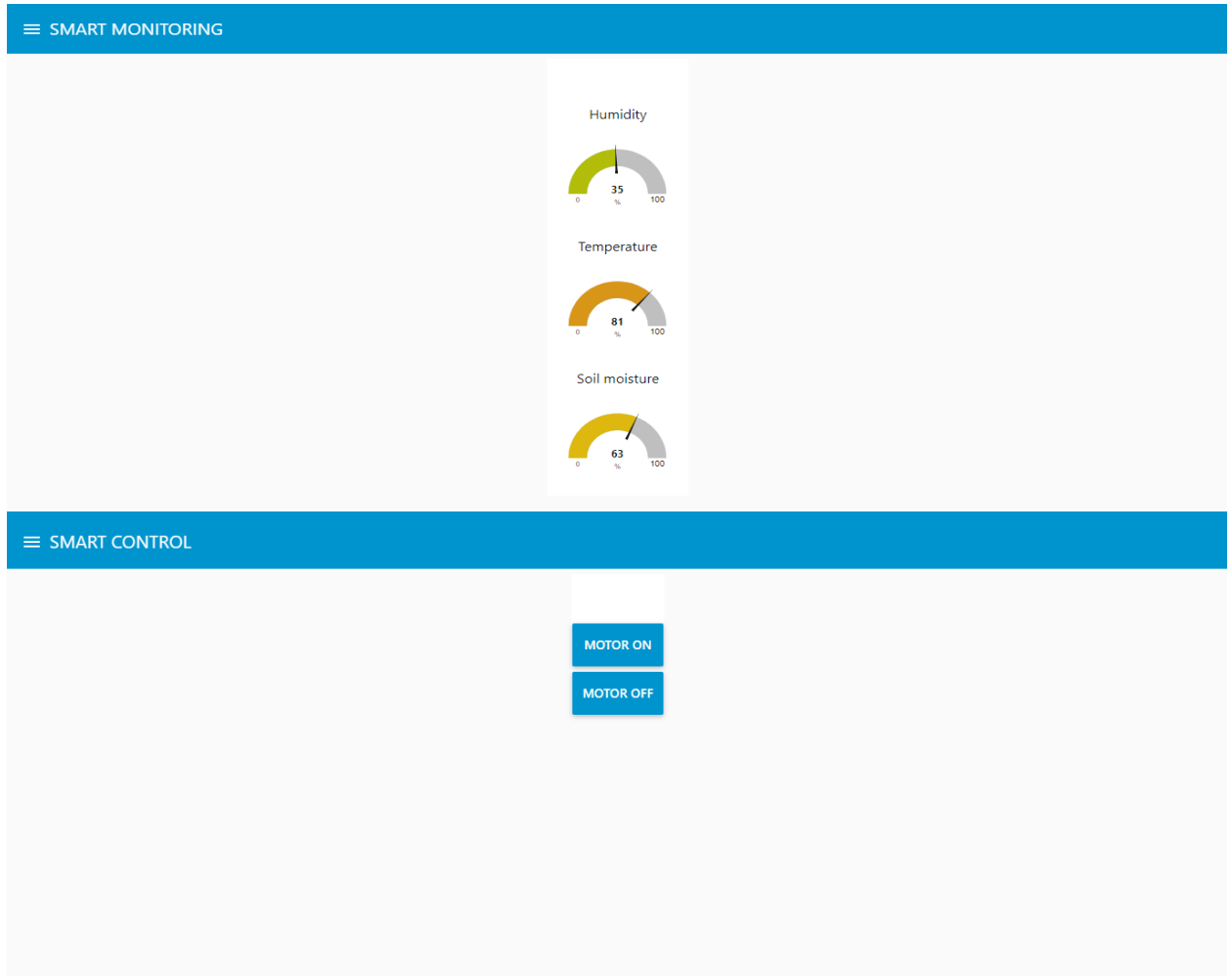
Device ID	Status	Device Type	Class ID	Date Added
Soil_moisture	Disconnected	Soil_Monitoring	Device	Nov 15, 2022 3:58 AM
Weather_today	Disconnected	Weather_device	Device	Nov 14, 2022 11:31 PM
farm_today	Connected	smart_farming	Device	Nov 16, 2022 11:08 PM

The **Recent Events** section shows a stream of data from the **farm\_today** device:

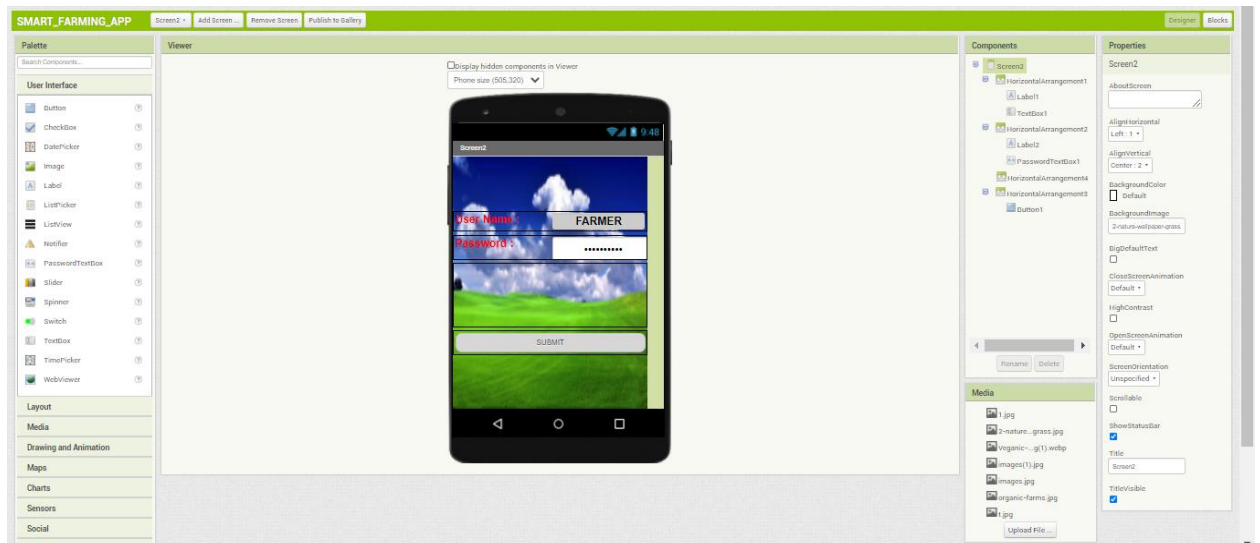
Event	Value	Format	Last Received
event_1	{ "Temperature": 92, "Humidity": 26, "soil moisture": ... }	json	a few seconds ago
event_1	{ "Temperature": 88, "Humidity": 34, "soil moisture": ... }	json	a few seconds ago
IoT Sensor	{ "temp": 101, "Humid": 76, "Moist": 6 }	json	a few seconds ago
event_1	{ "Temperature": 4, "Humidity": 80, "soil moisture": ... }	json	a few seconds ago
event_1	{ "Temperature": 7, "Humidity": 95, "soil moisture": ... }	json	a few seconds ago

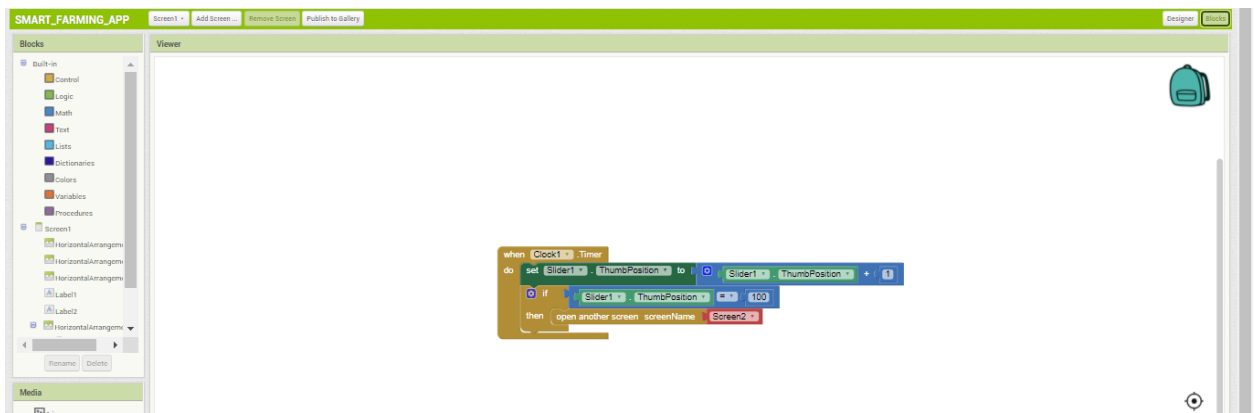
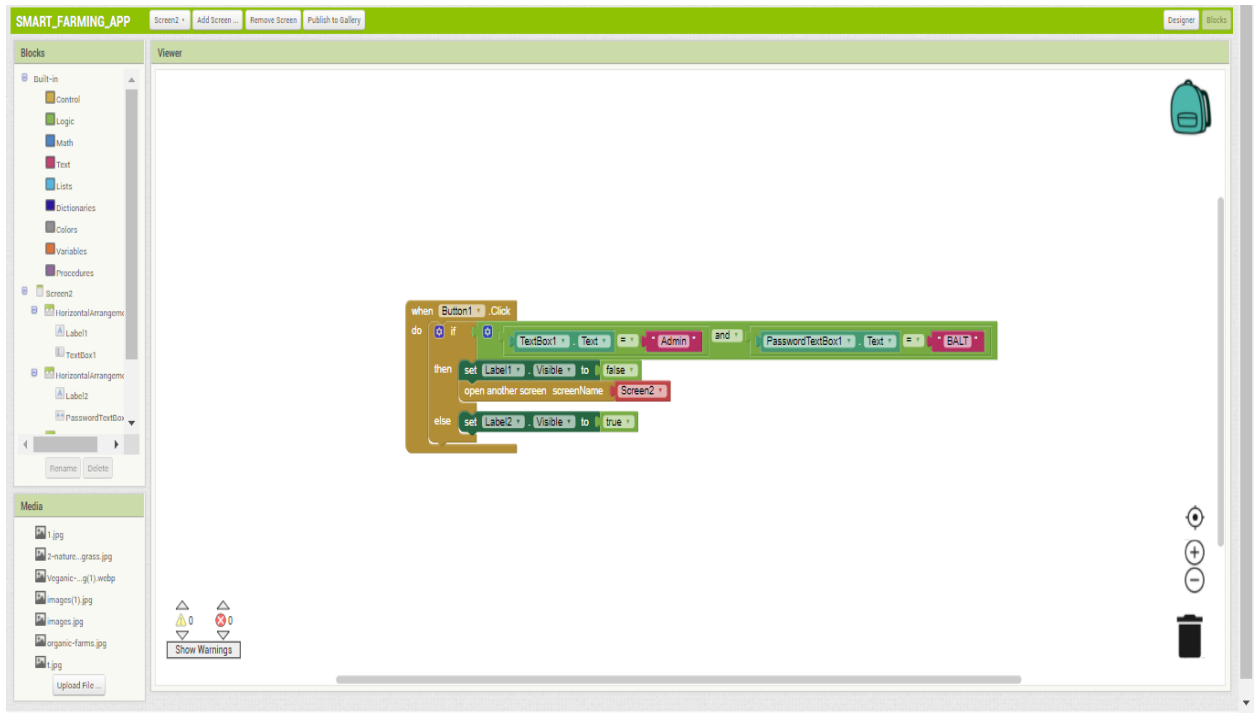
The right sidebar shows the **Simulations** section, indicating **1/50 Simulations Running**. It lists the **smart\_farming** device type with **1 Event** and the **Soil\_Monitoring** device type with **1 Event**. Buttons for **Create Simulated Device** and **Use Registered Device** are visible.

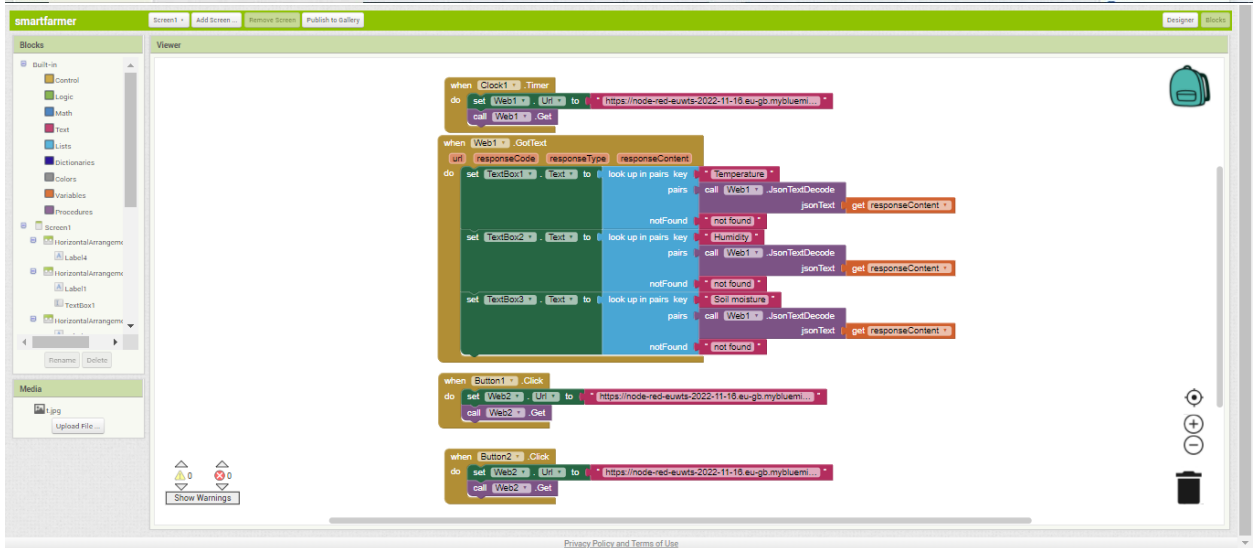
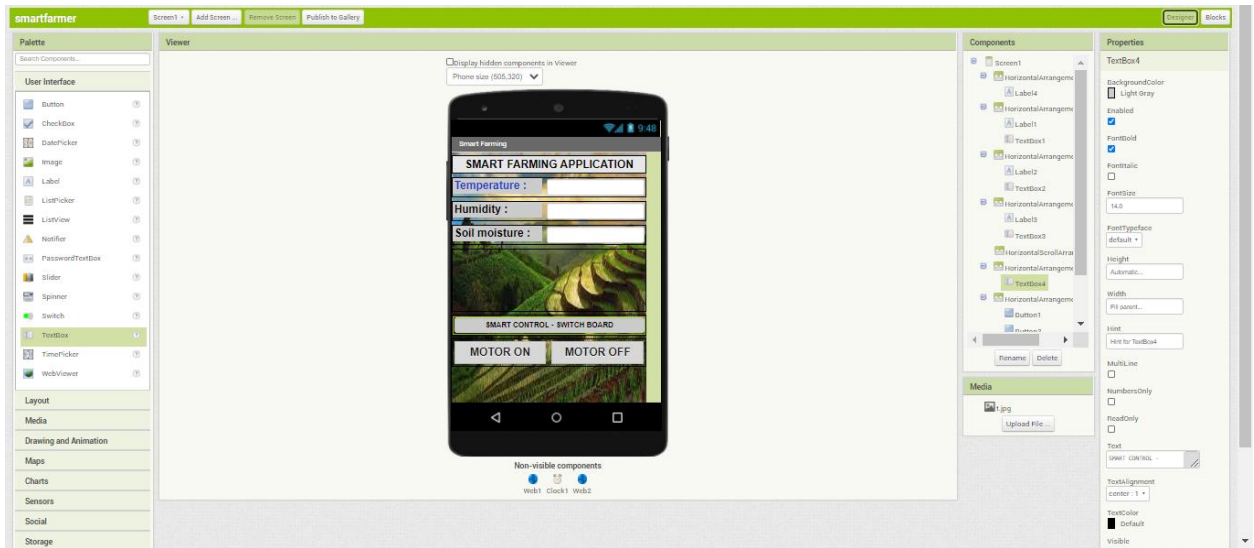
## Node-Red Dashboard:



## MIT APP Inventor:







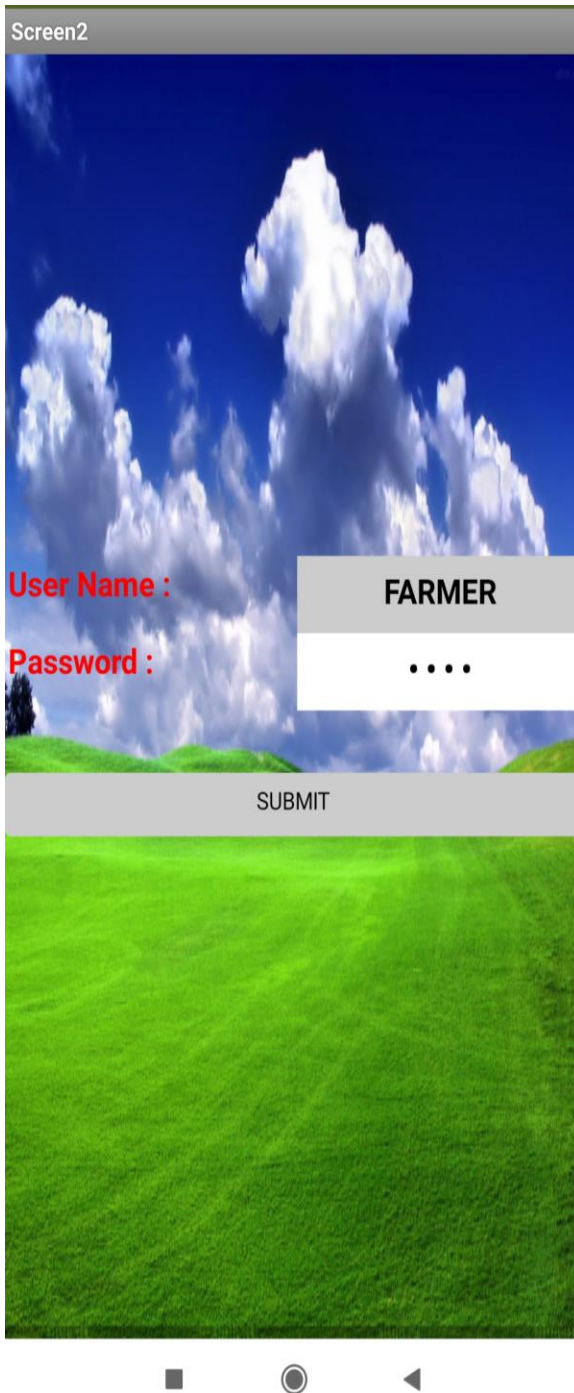
Screenshots of the mobile application:

**Page 1:**



Page 2:

Screen2



User Name :

FARMER

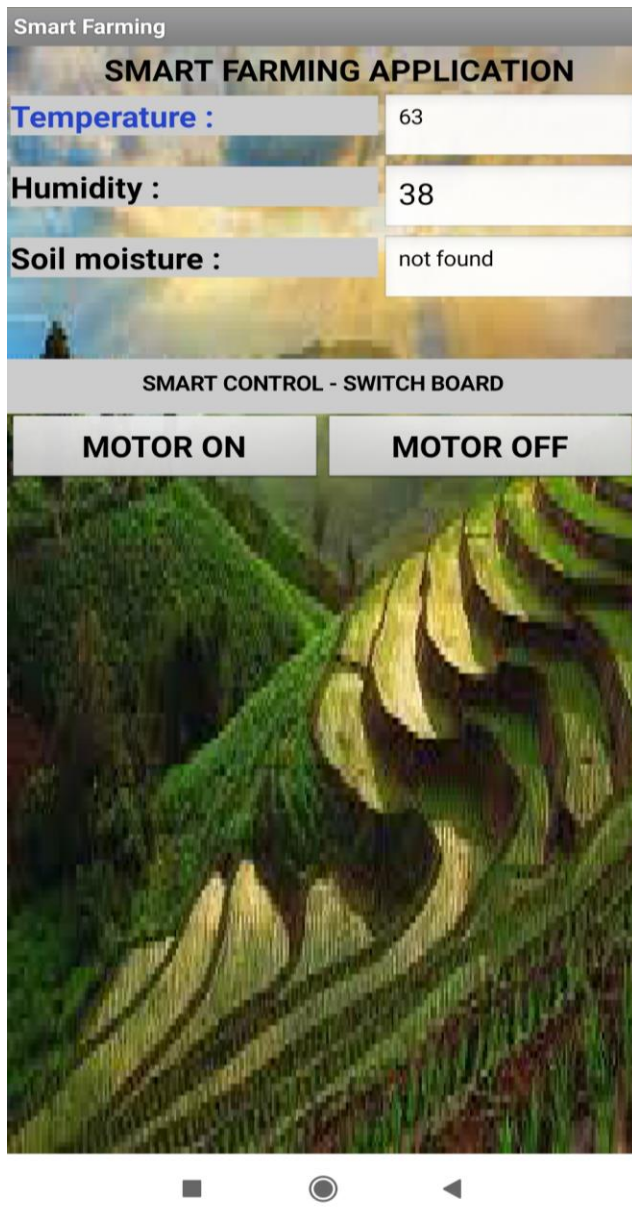
Password :

....

SUBMIT



Page 3:



## Python code output:

```
*Python 3.7.0 Shell"
File Edit Shell Debug Options Window Help
Published Temperature = 107 C Humidity = 69 % Soilmoisture= 19 deg c to IBM Watson
Published Temperature = 95 C Humidity = 79 % Soilmoisture= 61 deg c to IBM Watson
Published Temperature = 108 C Humidity = 100 % Soilmoisture= 83 deg c to IBM Watson
Published Temperature = 106 C Humidity = 72 % Soilmoisture= 39 deg c to IBM Watson
Published Temperature = 107 C Humidity = 60 % Soilmoisture= 25 deg c to IBM Watson
Published Temperature = 107 C Humidity = 86 % Soilmoisture= 32 deg c to IBM Watson
Published Temperature = 94 C Humidity = 62 % Soilmoisture= 104 deg c to IBM Watson
Published Temperature = 102 C Humidity = 71 % Soilmoisture= 58 deg c to IBM Watson
Published Temperature = 101 C Humidity = 63 % Soilmoisture= 58 deg c to IBM Watson
Published Temperature = 102 C Humidity = 76 % Soilmoisture= 38 deg c to IBM Watson
Published Temperature = 95 C Humidity = 79 % Soilmoisture= 42 deg c to IBM Watson
Published Temperature = 97 C Humidity = 79 % Soilmoisture= 66 deg c to IBM Watson
Published Temperature = 106 C Humidity = 61 % Soilmoisture= 89 deg c to IBM Watson
Published Temperature = 97 C Humidity = 70 % Soilmoisture= 98 deg c to IBM Watson
Published Temperature = 92 C Humidity = 100 % Soilmoisture= 34 deg c to IBM Watson
Published Temperature = 99 C Humidity = 93 % Soilmoisture= 18 deg c to IBM Watson
Published Temperature = 110 C Humidity = 85 % Soilmoisture= 55 deg c to IBM Watson
Published Temperature = 96 C Humidity = 61 % Soilmoisture= 76 deg c to IBM Watson
Published Temperature = 109 C Humidity = 83 % Soilmoisture= 102 deg c to IBM Watson
Published Temperature = 103 C Humidity = 99 % Soilmoisture= 94 deg c to IBM Watson
Published Temperature = 104 C Humidity = 65 % Soilmoisture= 83 deg c to IBM Watson
Published Temperature = 107 C Humidity = 61 % Soilmoisture= 22 deg c to IBM Watson
Published Temperature = 109 C Humidity = 86 % Soilmoisture= 59 deg c to IBM Watson
Published Temperature = 95 C Humidity = 89 % Soilmoisture= 100 deg c to IBM Watson
Published Temperature = 103 C Humidity = 93 % Soilmoisture= 92 deg c to IBM Watson
Published Temperature = 95 C Humidity = 81 % Soilmoisture= 104 deg c to IBM Watson
Published Temperature = 92 C Humidity = 78 % Soilmoisture= 10 deg c to IBM Watson
Command received: motor on
please send proper command
Command received: motor off
please send proper command
Published Temperature = 94 C Humidity = 86 % Soilmoisture= 36 deg c to IBM Watson
Published Temperature = 95 C Humidity = 93 % Soilmoisture= 81 deg c to IBM Watson
Published Temperature = 107 C Humidity = 75 % Soilmoisture= 10 deg c to IBM Watson
Published Temperature = 108 C Humidity = 65 % Soilmoisture= 19 deg c to IBM Watson
Published Temperature = 101 C Humidity = 96 % Soilmoisture= 45 deg c to IBM Watson
Published Temperature = 105 C Humidity = 82 % Soilmoisture= 15 deg c to IBM Watson
Command received: motor on
please send proper command
Published Temperature = 94 C Humidity = 86 % Soilmoisture= 105 deg c to IBM Watson
Published Temperature = 101 C Humidity = 83 % Soilmoisture= 19 deg c to IBM Watson
```