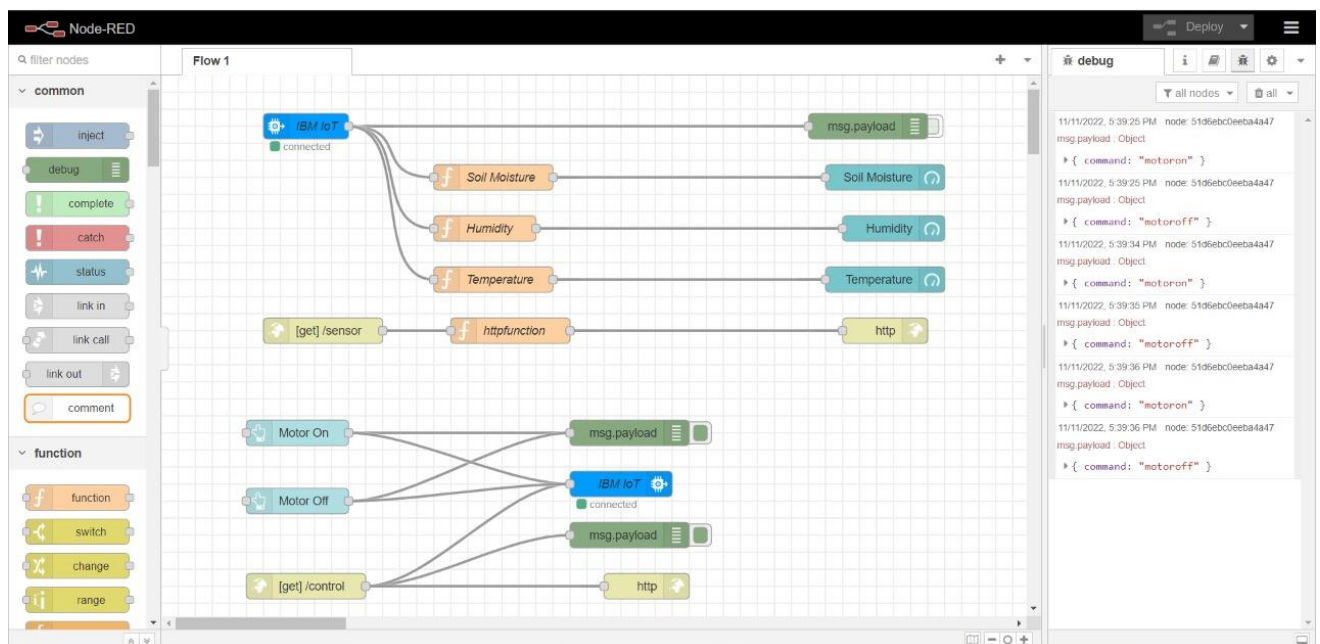
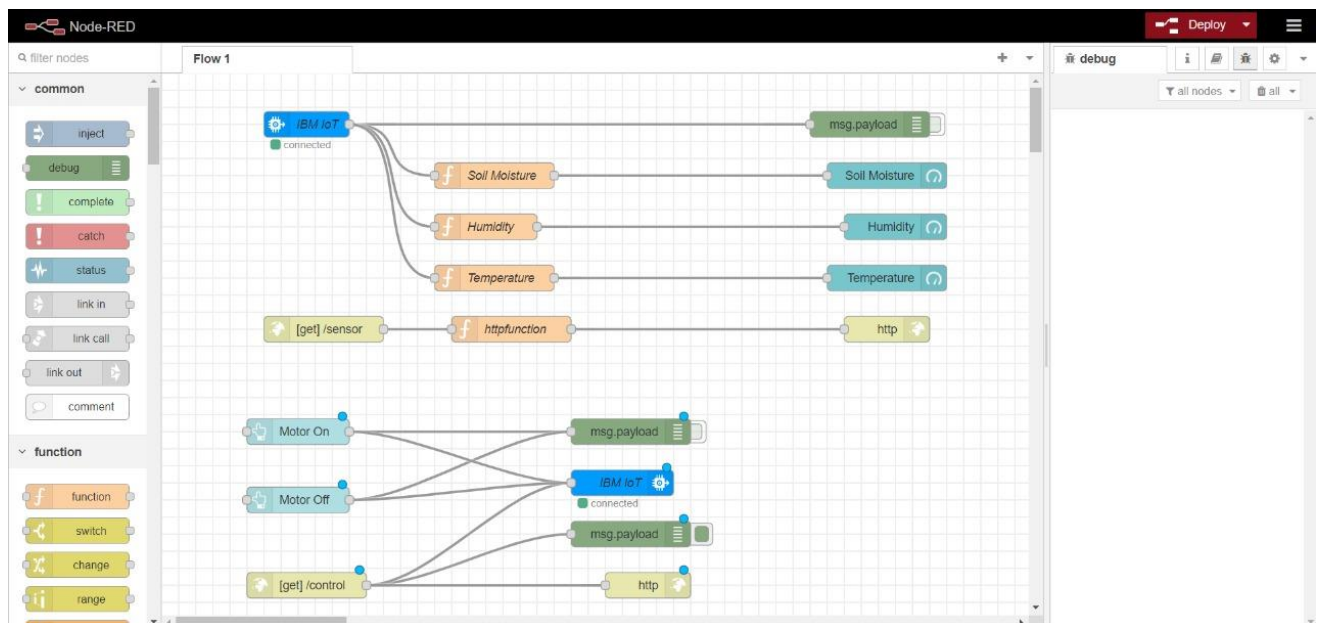


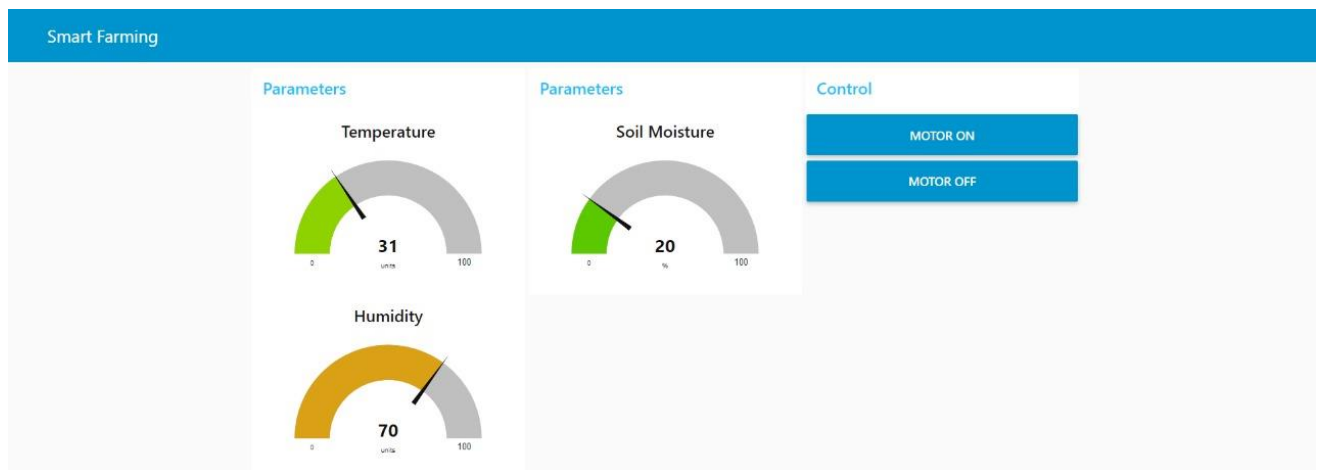
SPRINT 3

Date	12 November 2022
Team ID	PNT2022TMID53609
Project Name	Smart Farmer – IOT Enabled Smart Farming Application
Maximum Marks	8 Marks

Creation of Node red service for device commands:

In addition to the palettes used in the Sprint-2, additional palettes such as buttons have been included to control devices by giving commands and the output is printed in the debug whenever a specific command is given.





Development of Python script to subscribe command from the IBM IOT platform:

```
import time
```

```
import sys
```

```
import ibmiotf.application
```

```
import ibmiotf.device
```

```
import random
```

```
#Provide your IBM Watson Device Credentials
```

```
organization = "nckdv7"
```

```
deviceType = "NodeMCU"
```

```
deviceId = "12345"
```

```
authMethod = "token"
```

```
authToken = "12345678"
```

```
# Initialize GPIO
```

```
def myCommandCallback(cmd):
```

```
    print("Command received: %s" % cmd.data['command'])
```

```
    status=cmd.data['command']
```

```

    if status=="motoron":
        print("Motor is ON")
    else:
        print("Motor is OFF")
    #print(cmd)

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-
method": authMethod, "auth-token": authToken}

    deviceCli = ibmiotf.device.Client(deviceOptions)

    #.....

except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an
event of type "greeting" 10 times

deviceCli.connect()

while True:
    #Get Sensor Data from DHT11
    temp=random.randint(0,100)
    pulse=random.randint(0,100)
    moisture= random.randint(0,100)
    humidity=random.randint(0,100);
    lat = 17
    lon = 18

    data = { 'temperature' : temp, 'humidity' : humidity, 'Moisture' : moisture}

```

```
#print data

def myOnPublishCallback():

    print ("Published Temperature = %s C" % temp, "Humidity = %s %% " %
humidity, "Soil Moisture = %s %% " % moisture,"to IBM Watson")


    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)

    if not success:

        print("Not connected to IoTF")


        time.sleep(1)

        deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud

deviceCli.disconnect()
```

Python output:

 *Python 3.7.0 Shell*

File Edit Shell Debug Options Window Help

```
Published Temperature = 85 C Humidity = 81 % Soil Moisture = 42 % to IBM Watson
Published Temperature = 88 C Humidity = 66 % Soil Moisture = 3 % to IBM Watson
Published Temperature = 50 C Humidity = 97 % Soil Moisture = 63 % to IBM Watson
Published Temperature = 24 C Humidity = 33 % Soil Moisture = 50 % to IBM Watson
Published Temperature = 73 C Humidity = 29 % Soil Moisture = 56 % to IBM Watson
Published Temperature = 23 C Humidity = 1 % Soil Moisture = 90 % to IBM Watson
Published Temperature = 31 C Humidity = 12 % Soil Moisture = 38 % to IBM Watson
Published Temperature = 91 C Humidity = 62 % Soil Moisture = 58 % to IBM Watson
Published Temperature = 15 C Humidity = 49 % Soil Moisture = 70 % to IBM Watson
Published Temperature = 51 C Humidity = 81 % Soil Moisture = 84 % to IBM Watson
Published Temperature = 61 C Humidity = 17 % Soil Moisture = 37 % to IBM Watson
Published Temperature = 91 C Humidity = 87 % Soil Moisture = 70 % to IBM Watson
Published Temperature = 35 C Humidity = 6 % Soil Moisture = 95 % to IBM Watson
Published Temperature = 52 C Humidity = 41 % Soil Moisture = 63 % to IBM Watson
Published Temperature = 40 C Humidity = 51 % Soil Moisture = 86 % to IBM Watson
Published Temperature = 33 C Humidity = 21 % Soil Moisture = 38 % to IBM Watson
Published Temperature = 29 C Humidity = 48 % Soil Moisture = 22 % to IBM Watson
Published Temperature = 45 C Humidity = 32 % Soil Moisture = 23 % to IBM Watson
Published Temperature = 98 C Humidity = 38 % Soil Moisture = 8 % to IBM Watson
Published Temperature = 44 C Humidity = 71 % Soil Moisture = 16 % to IBM Watson
Command received: motoron
Motor is ON
Published Temperature = 62 C Humidity = 2 % Soil Moisture = 34 % to IBM Watson
Published Temperature = 21 C Humidity = 14 % Soil Moisture = 82 % to IBM Watson
Published Temperature = 35 C Humidity = 2 % Soil Moisture = 5 % to IBM Watson
Published Temperature = 34 C Humidity = 78 % Soil Moisture = 44 % to IBM Watson
Command received: motoroff
Motor is OFF
Published Temperature = 93 C Humidity = 81 % Soil Moisture = 87 % to IBM Watson
Command received: motoron
Motor is ON
Command received: motoroff
Motor is OFF
Published Temperature = 54 C Humidity = 36 % Soil Moisture = 81 % to IBM Watson
Published Temperature = 56 C Humidity = 76 % Soil Moisture = 56 % to IBM Watson
Published Temperature = 70 C Humidity = 53 % Soil Moisture = 74 % to IBM Watson
Published Temperature = 58 C Humidity = 22 % Soil Moisture = 68 % to IBM Watson
Command received: motoron
Motor is ON
Published Temperature = 93 C Humidity = 34 % Soil Moisture = 11 % to IBM Watson
Command received: motoroff
Motor is OFF
Published Temperature = 86 C Humidity = 67 % Soil Moisture = 38 % to IBM Watson
Published Temperature = 49 C Humidity = 70 % Soil Moisture = 61 % to IBM Watson
Published Temperature = 94 C Humidity = 48 % Soil Moisture = 77 % to IBM Watson
Published Temperature = 59 C Humidity = 6 % Soil Moisture = 11 % to IBM Watson
Published Temperature = 16 C Humidity = 6 % Soil Moisture = 41 % to IBM Watson
|
```