SPRINT3

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PROJECT NAME: IOT Based Smart Crop Protection System for Agriculture

CREATING WEB APPLICATION IN NODE-RED:

PYTHON SCRIPT

```python
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "ncgqpp"
deviceType = "arduino"
deviceId = "12345"
authMethod = "token"
authToken = "1234567890"

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    print(cmd)

    status=cmd.data['command']
    if status=="motoron":
        print ("motor is on")
    elif status == "motoroff":
        print ("motor is off")
    else :
        print ("please send proper command")

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()
time.sleep(2)

def myOnPublishCallback():
    print ("Published Temperature = %s C" % temp, "Humidity = %s %%" %pulse,"SoilMoisture = %s %%" % soil,"to IBM Watson")
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=None)
    time.sleep(1)

while True:
        #Get Sensor Data from DHT11
        temp=random.randint(0,100)
```

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```python
while True:
        #Get Sensor Data from DHT11
        temp=random.randint(0,100)
        pulse=random.randint(0,100)
        soil=random.randint(0,100)
        data = { 'temp' : temp, 'pulse': pulse ,'soil':soil}

        myOnPublishCallback()

if not success:
    print("Not connected to IoTF")
    time.sleep(5)

deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```
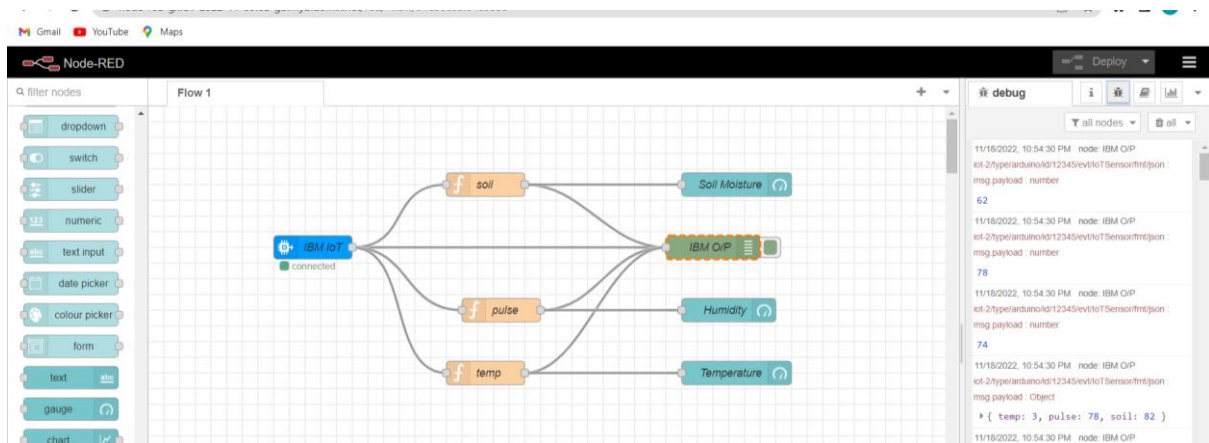
PYTHON OUTPUT

```
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
    RESTART: C:/Users/dhosh/AppData/Local/Programs/Python/Python37/ibmproject.py
2022-11-18 22:52:27,569   ibmiotf.device.Client     INFO    Connected successfully: d:ncgqpp:arduino:12345
Published Temperature = 93 C Humidity = 38 % SoilMoisture = 51 % to IBM Watson
Published Temperature = 52 C Humidity = 89 % SoilMoisture = 88 % to IBM Watson
Published Temperature = 56 C Humidity = 30 % SoilMoisture = 65 % to IBM Watson
Published Temperature = 83 C Humidity = 21 % SoilMoisture = 33 % to IBM Watson
Published Temperature = 17 C Humidity = 83 % SoilMoisture = 2 % to IBM Watson
Published Temperature = 47 C Humidity = 62 % SoilMoisture = 77 % to IBM Watson
Published Temperature = 49 C Humidity = 10 % SoilMoisture = 32 % to IBM Watson
Published Temperature = 69 C Humidity = 53 % SoilMoisture = 32 % to IBM Watson
Published Temperature = 13 C Humidity = 60 % SoilMoisture = 65 % to IBM Watson
Published Temperature = 11 C Humidity = 66 % SoilMoisture = 31 % to IBM Watson
Published Temperature = 57 C Humidity = 84 % SoilMoisture = 26 % to IBM Watson
Published Temperature = 32 C Humidity = 96 % SoilMoisture = 50 % to IBM Watson
Published Temperature = 0 C Humidity = 59 % SoilMoisture = 42 % to IBM Watson
Published Temperature = 52 C Humidity = 44 % SoilMoisture = 4 % to IBM Watson
Published Temperature = 95 C Humidity = 42 % SoilMoisture = 11 % to IBM Watson
Published Temperature = 98 C Humidity = 87 % SoilMoisture = 66 % to IBM Watson
Published Temperature = 4 C Humidity = 57 % SoilMoisture = 89 % to IBM Watson
Published Temperature = 16 C Humidity = 38 % SoilMoisture = 3 % to IBM Watson
Published Temperature = 52 C Humidity = 80 % SoilMoisture = 35 % to IBM Watson
Published Temperature = 49 C Humidity = 39 % SoilMoisture = 50 % to IBM Watson
Published Temperature = 39 C Humidity = 25 % SoilMoisture = 0 % to IBM Watson
Published Temperature = 57 C Humidity = 26 % SoilMoisture = 68 % to IBM Watson
Published Temperature = 75 C Humidity = 67 % SoilMoisture = 89 % to IBM Watson
Published Temperature = 52 C Humidity = 88 % SoilMoisture = 40 % to IBM Watson
Published Temperature = 84 C Humidity = 28 % SoilMoisture = 18 % to IBM Watson
Published Temperature = 3 C Humidity = 97 % SoilMoisture = 91 % to IBM Watson
Published Temperature = 96 C Humidity = 61 % SoilMoisture = 84 % to IBM Watson
Published Temperature = 51 C Humidity = 32 % SoilMoisture = 51 % to IBM Watson
Published Temperature = 6 C Humidity = 92 % SoilMoisture = 41 % to IBM Watson
Published Temperature = 62 C Humidity = 100 % SoilMoisture = 16 % to IBM Watson
Published Temperature = 52 C Humidity = 48 % SoilMoisture = 17 % to IBM Watson
Published Temperature = 58 C Humidity = 39 % SoilMoisture = 89 % to IBM Watson
```
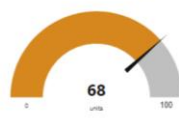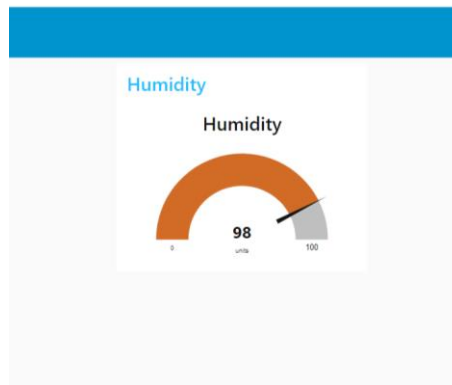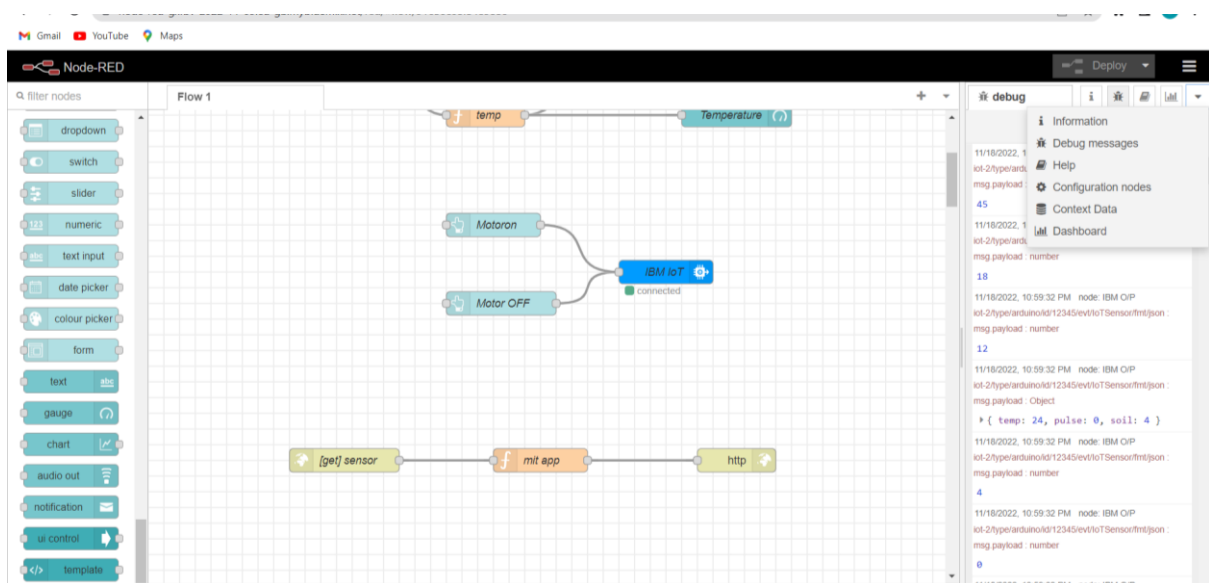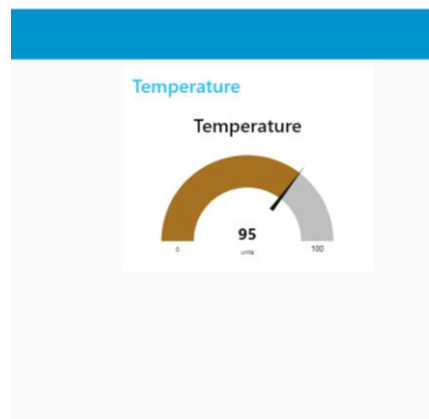
NODE-RED:

OUTPUT: SOIL MOISTURE

HUMIDITY:

TEMPERATURE:

OUTPUT:

switch board

MOTORON

switch board

MOTOR OFF


```
*Python 3.7.0 Shell*
File  Edit  Shell  Debug  Options  Window  Help
Published Temperature = 110 C Humidity = 97 % to IBM Watson
Published Temperature = 106 C Humidity = 97 % to IBM Watson
Published Temperature = 95 C Humidity = 99 % to IBM Watson
Published Temperature = 101 C Humidity = 93 % to IBM Watson
Published Temperature = 108 C Humidity = 69 % to IBM Watson
Published Temperature = 102 C Humidity = 83 % to IBM Watson
Published Temperature = 94 C Humidity = 86 % to IBM Watson
Published Temperature = 98 C Humidity = 64 % to IBM Watson
Published Temperature = 98 C Humidity = 100 % to IBM Watson
Published Temperature = 104 C Humidity = 76 % to IBM Watson
Published Temperature = 105 C Humidity = 65 % to IBM Watson
Published Temperature = 91 C Humidity = 92 % to IBM Watson
Published Temperature = 96 C Humidity = 69 % to IBM Watson
Published Temperature = 109 C Humidity = 67 % to IBM Watson
Published Temperature = 106 C Humidity = 81 % to IBM Watson
Published Temperature = 91 C Humidity = 100 % to IBM Watson
Published Temperature = 100 C Humidity = 79 % to IBM Watson
Published Temperature = 98 C Humidity = 62 % to IBM Watson
Published Temperature = 106 C Humidity = 84 % to IBM Watson
Published Temperature = 91 C Humidity = 71 % to IBM Watson
Published Temperature = 105 C Humidity = 96 % to IBM Watson
Published Temperature = 101 C Humidity = 71 % to IBM Watson
Published Temperature = 98 C Humidity = 95 % to IBM Watson
Published Temperature = 96 C Humidity = 62 % to IBM Watson
Published Temperature = 92 C Humidity = 92 % to IBM Watson
Published Temperature = 91 C Humidity = 89 % to IBM Watson
Command received:  motoroff
please send proper command
Published Temperature = 91 C Humidity = 79 % to IBM Watson
Published Temperature = 99 C Humidity = 64 % to IBM Watson
Published Temperature = 104 C Humidity = 92 % to IBM Watson
Published Temperature = 101 C Humidity = 93 % to IBM Watson
Published Temperature = 101 C Humidity = 83 % to IBM Watson
Published Temperature = 101 C Humidity = 84 % to IBM Watson
Published Temperature = 101 C Humidity = 60 % to IBM Watson
Published Temperature = 110 C Humidity = 78 % to IBM Watson
Published Temperature = 105 C Humidity = 60 % to IBM Watson
Published Temperature = 100 C Humidity = 76 % to IBM Watson
Command received: motoron
motor is on
Published Temperature = 109 C Humidity = 88 % to IBM Watson
                                                              Ln: 81  Col: 0
```