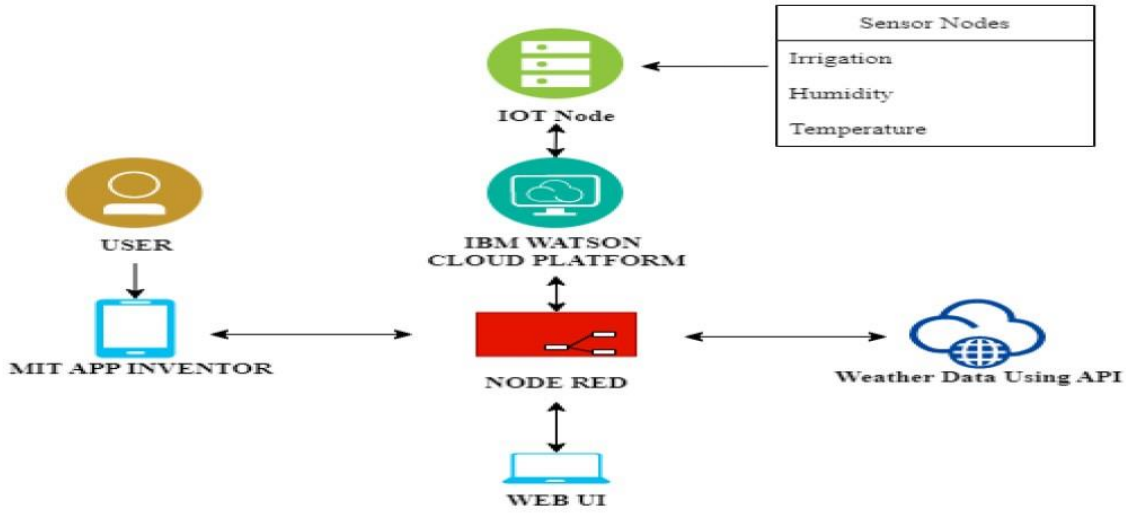
Project Development -Delivery of Sprint-4

Date	17 NOV 2022
Team ID	PNT2022TMID39327
Project Name	Project -Smart farmer-IOT enabled smart Farming Application

Flow Diagram



Python Code:

- **For Connecting IBM Cloud**
- **For NODE RED**
- **Weather Map Information**
- **MIT App Inventor**

```
#IBM Watson IOT Platform

#pip install wiotp-sdk import

wiotp.sdk.device import

time
```

```
import random import
requests, json

ms=0
# Enter your API key here
api_key = "a0db30a689a774b93ffcb58ef2eddfda"
# base_url variable to store url
base_url = "http://api.openweathermap.org/data/2.5/weather?"
# Give city name city_name
= 'Chennai, IN'
# complete_url variable to store #
complete url address
complete_url = base_url + "appid=" + api_key + "&q=" + city_name

status='motor off' myConfig
= {
   "identity": {
      "orgId": "17lsro",
      "typeId": "MyDeviceType",
      "deviceId":"12345"
   },
   "auth": {
      "token": "GkatKdiUS?UVHKvnAD"
   }
}
```

```
def myCommandCallback(cmd):
   print("Message received from IBM IoT Platform: %s" %
cmd.data['command'])            m=cmd.data['command']
if(m=="MOTOR ON"):#if motor is on        print("MOTOR
IS ON")          global status          status='motor on'
myData={'temperature':temp,
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api
_weather_description':api_weather_description}
      client.publishEvent(eventId="status", msgFormat="json", data=myData,
qos=0, onPublish=None)
      print("Published data Successfully: %s", myData)

      time.sleep(2)

   elif(m=="MOTOR OFF"):#if motor is off
print("MOTOR IS OFF")

      status='motor off'
myData={'temperature':temp,
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api
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      client.publishEvent(eventId="status", msgFormat="json", data=myData,
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      print("Published data Successfully: %s", myData)

      time.sleep(2)
```

```
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
    # get method of requests module     #
return  response  object        response  =
requests.get(complete_url)
    # json method of response object
    # convert json format data into
#  python  format  data         x  =
response.json()
    # Now x contains list of nested dictionaries
    # Check the value of "cod" key is equal to
    # "404", means city is found otherwise,
    # city is not found
if x["cod"] != "404":




y = x["main"]


        api_temperature = y["temp"]#getting api temperature data
```

```
        api_pressure = y["pressure"]#getting api pressure data


        api_humidity = y["humidity"] #getting api humidity data


z = x["weather"]


        api_weather_description = z[0]["description"]#getting api weather condition
data


    temp=random.randint(-20,125)#geneating ranom values for temperature
hum=random.randint(0,100)#geneating ranom values for humidity
soilmoisture=random.randint(0,1023)#analog sensor
sm_percentage=(soilmoisture/1023)*100
    sm_percentage=int(sm_percentage)#geneating ranom values for soilmoisture
    myData={'temperature':temp,
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api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api
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    client.publishEvent(eventId="status", msgFormat="json", data=myData,
qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)
client.commandCallback   =   myCommandCallback
time.sleep(2)
```

time.sleep(2) client.disconnect()

python code with cmments.py - C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -1\python code with cmments.py (3.8.10)

File Edit Format Run Options Window Help

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    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(2)

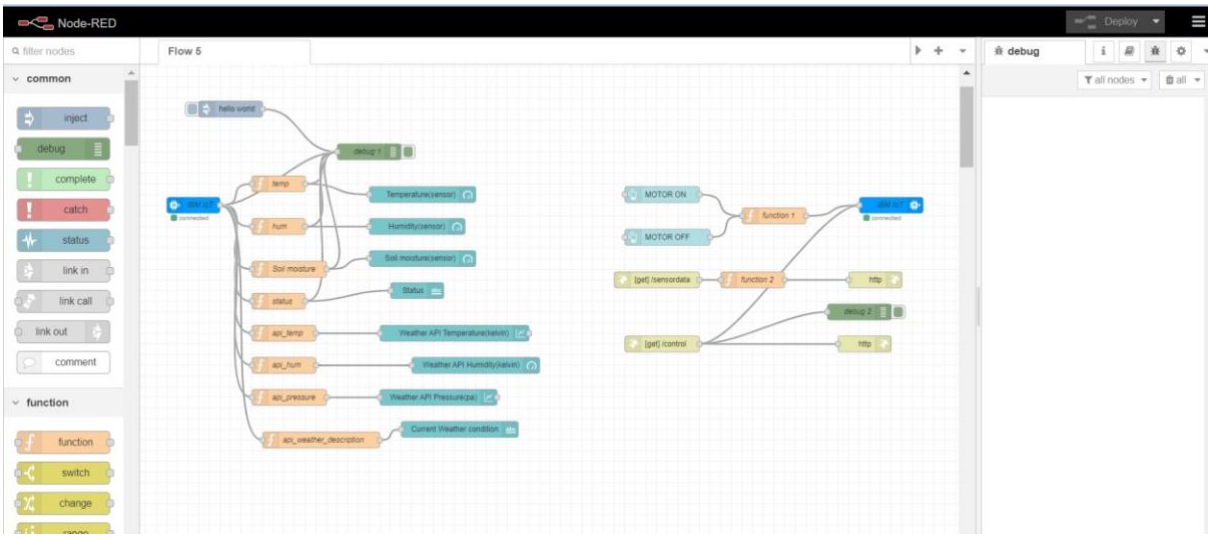
time.sleep(2)
client.disconnect()
```

Running Module

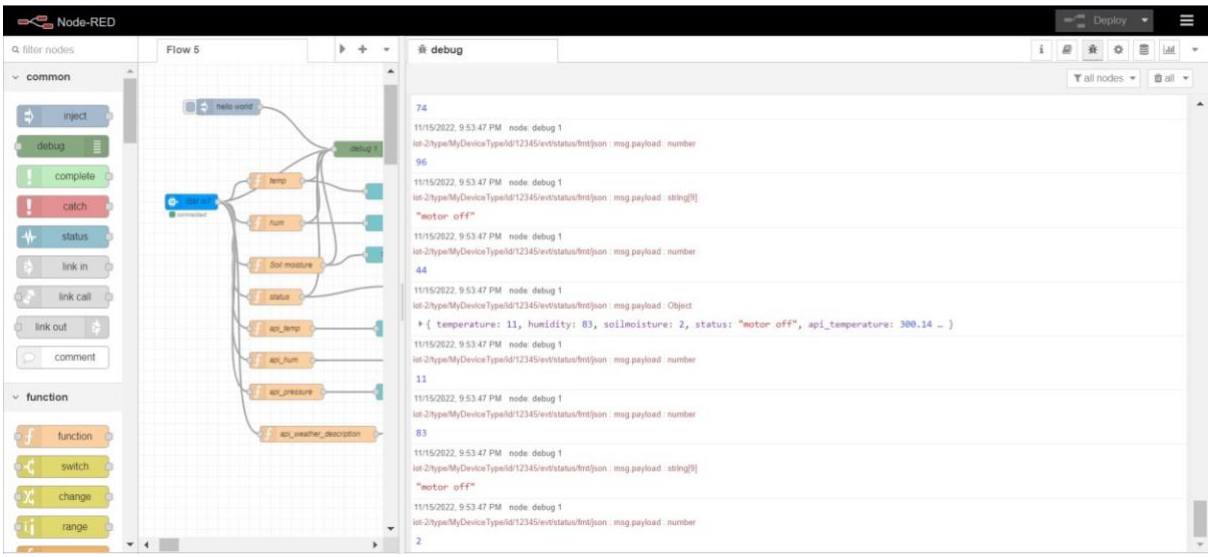
NODE RED Flow Connections

- **Interfacing IBM Cloud**
- **Intefacing & Getting Sensor Datas**
- **Connecting MIT App Inventor**

- **Weather Map Parameters**



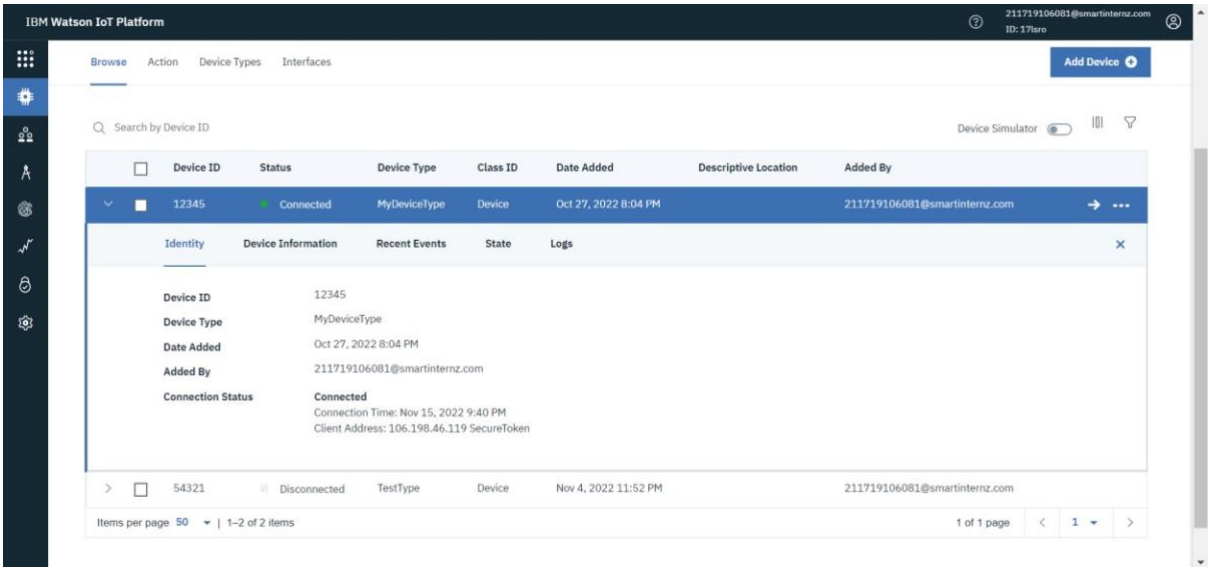
Live Publish Data Output Of Node Red



Web API Output

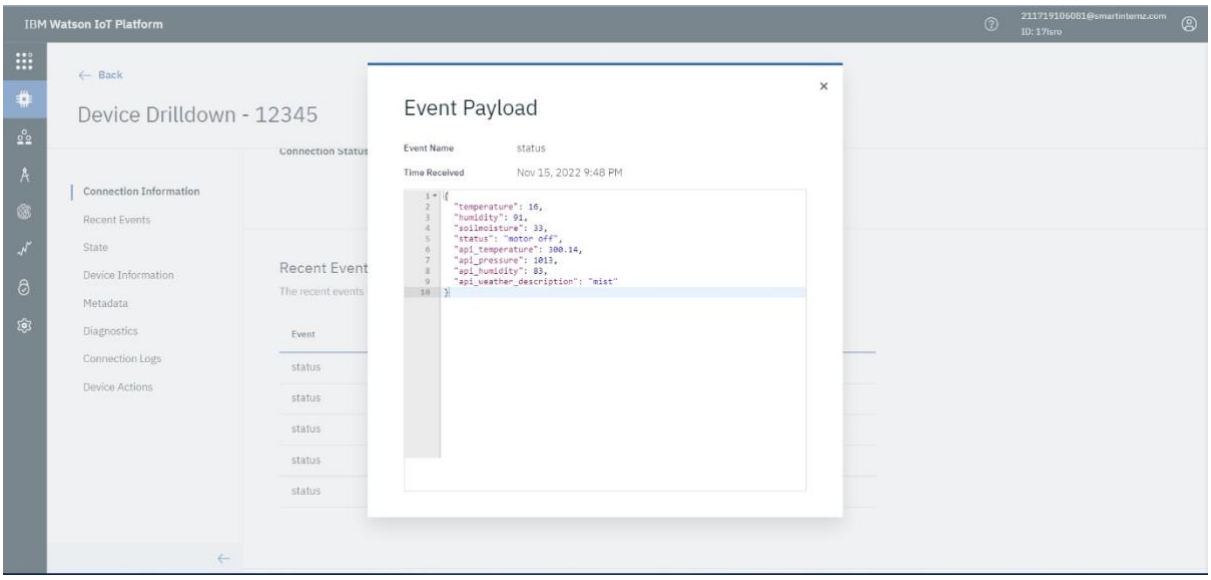
IBM Watson IoT Platform

- **Device Connected Details**



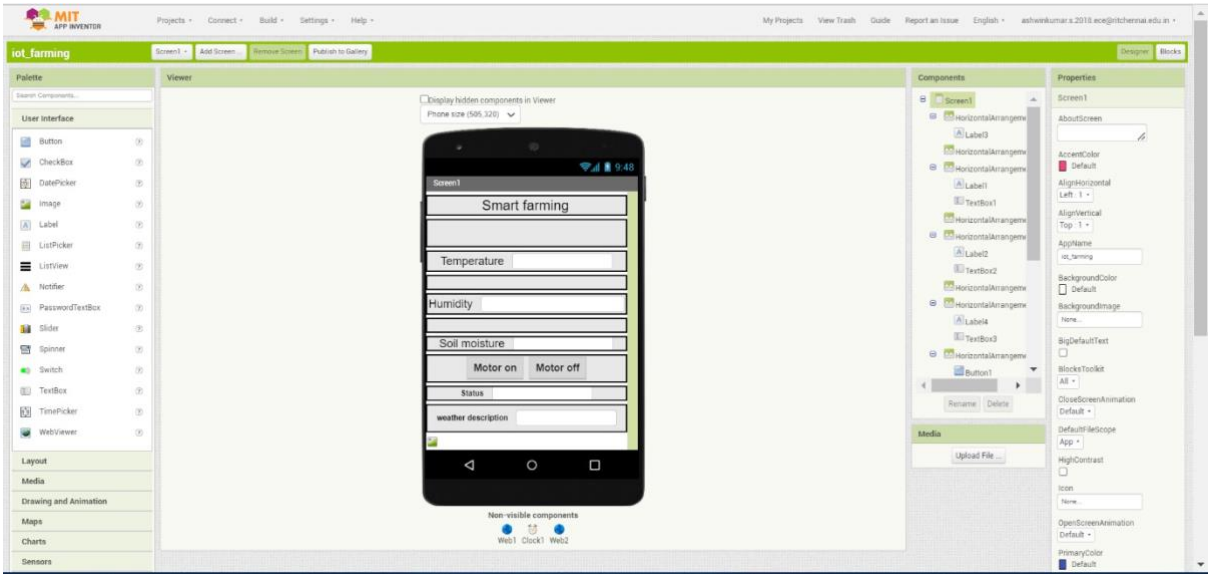
Live Date Output Of IBM Watson Iot Platform

- **Sensor Output Data**
- **Weather Condition**
- **Weather Map Parameters In Current Location**

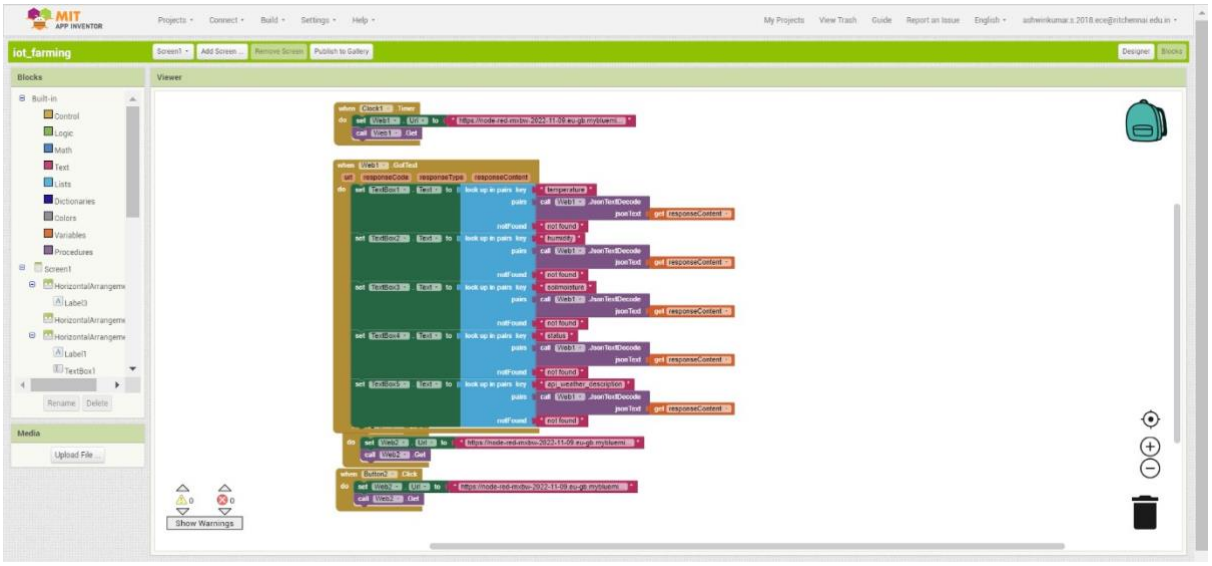


MIT APP INVENTOR

- **Design**



Back End Process(Block)



Mobile Application Ouput