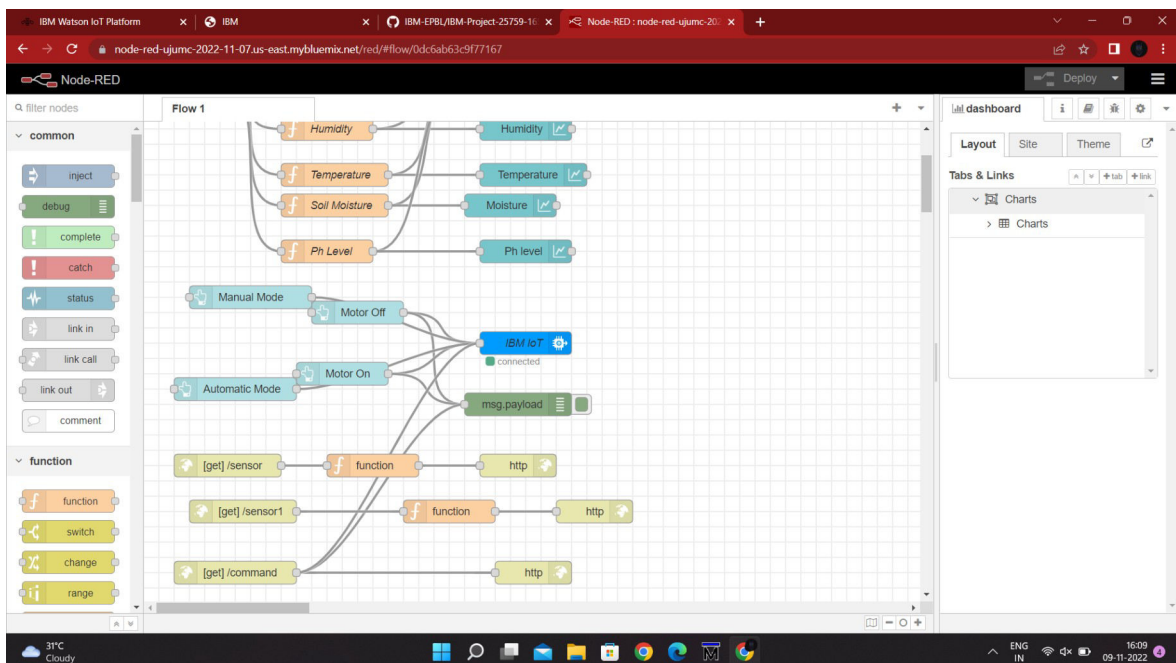
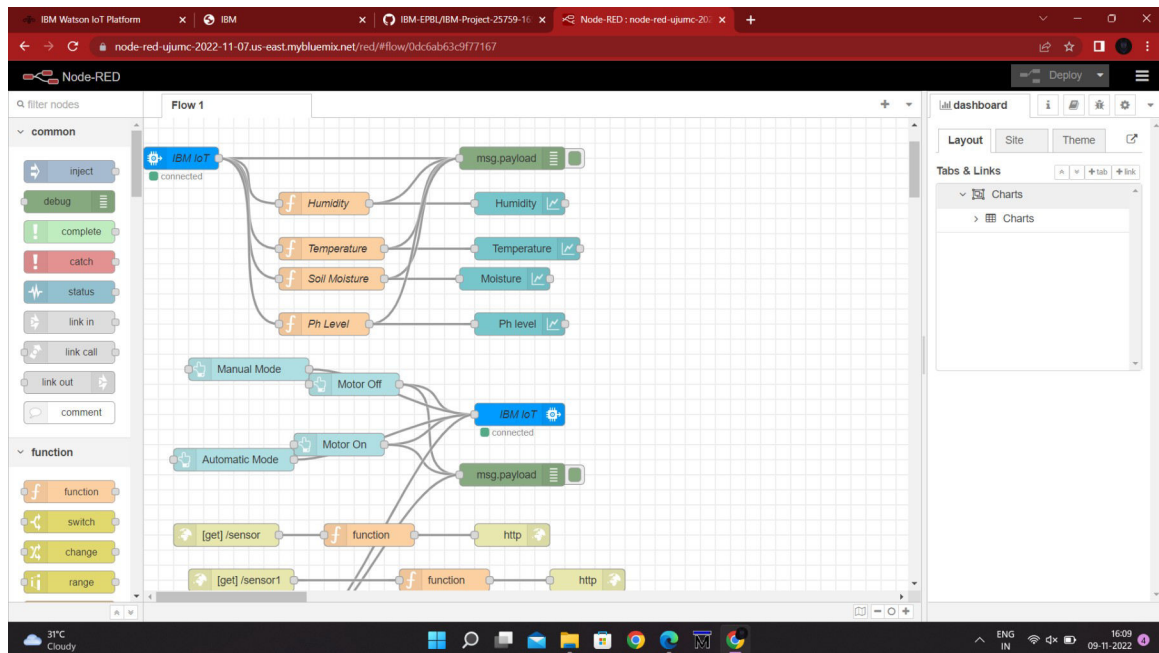


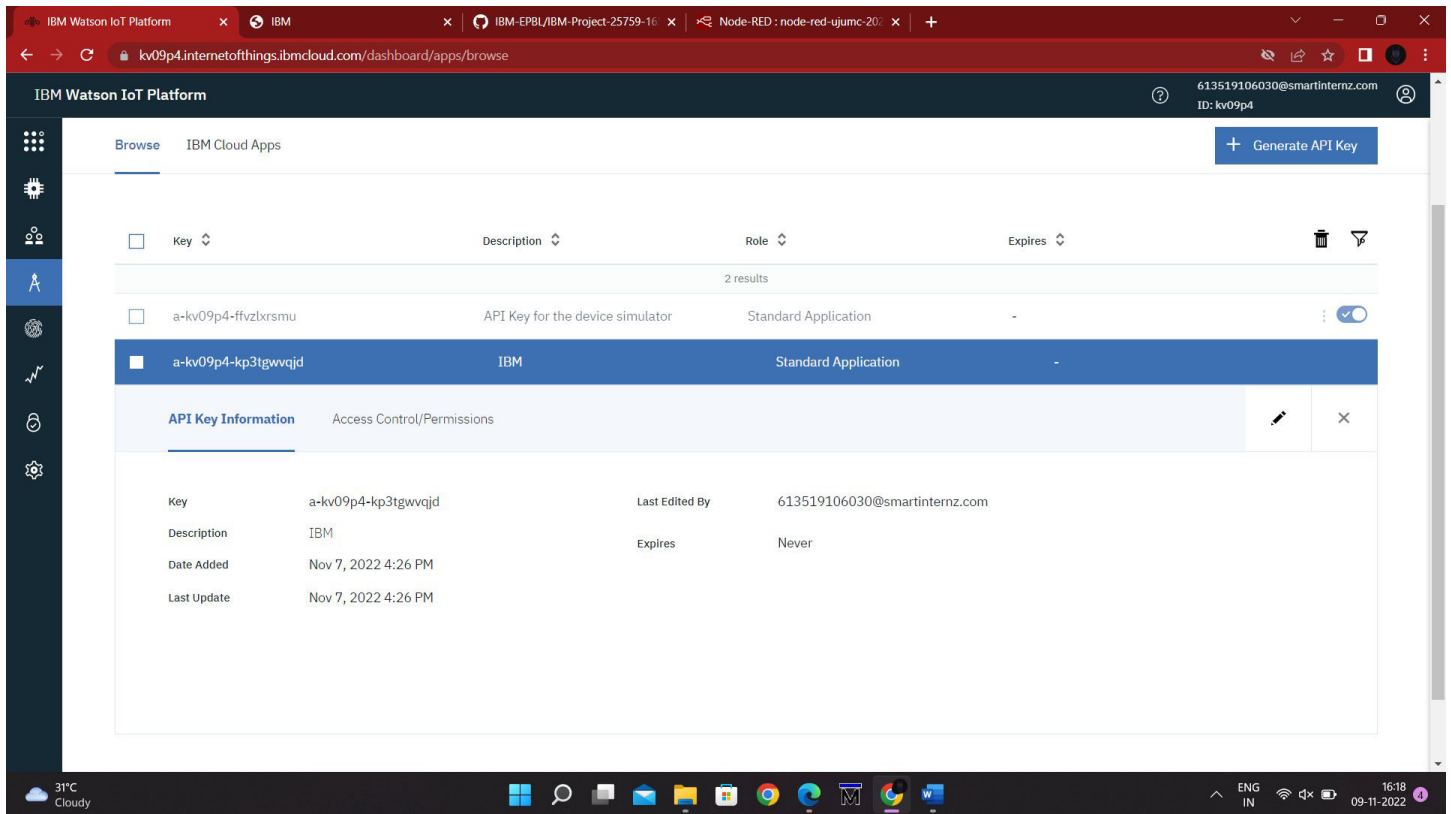
## Project Development-Delivery of Sprint 2

### Creating Node-Red service:



## Connecting With IBM Cloud:

### Using IBM IOT node through API key:



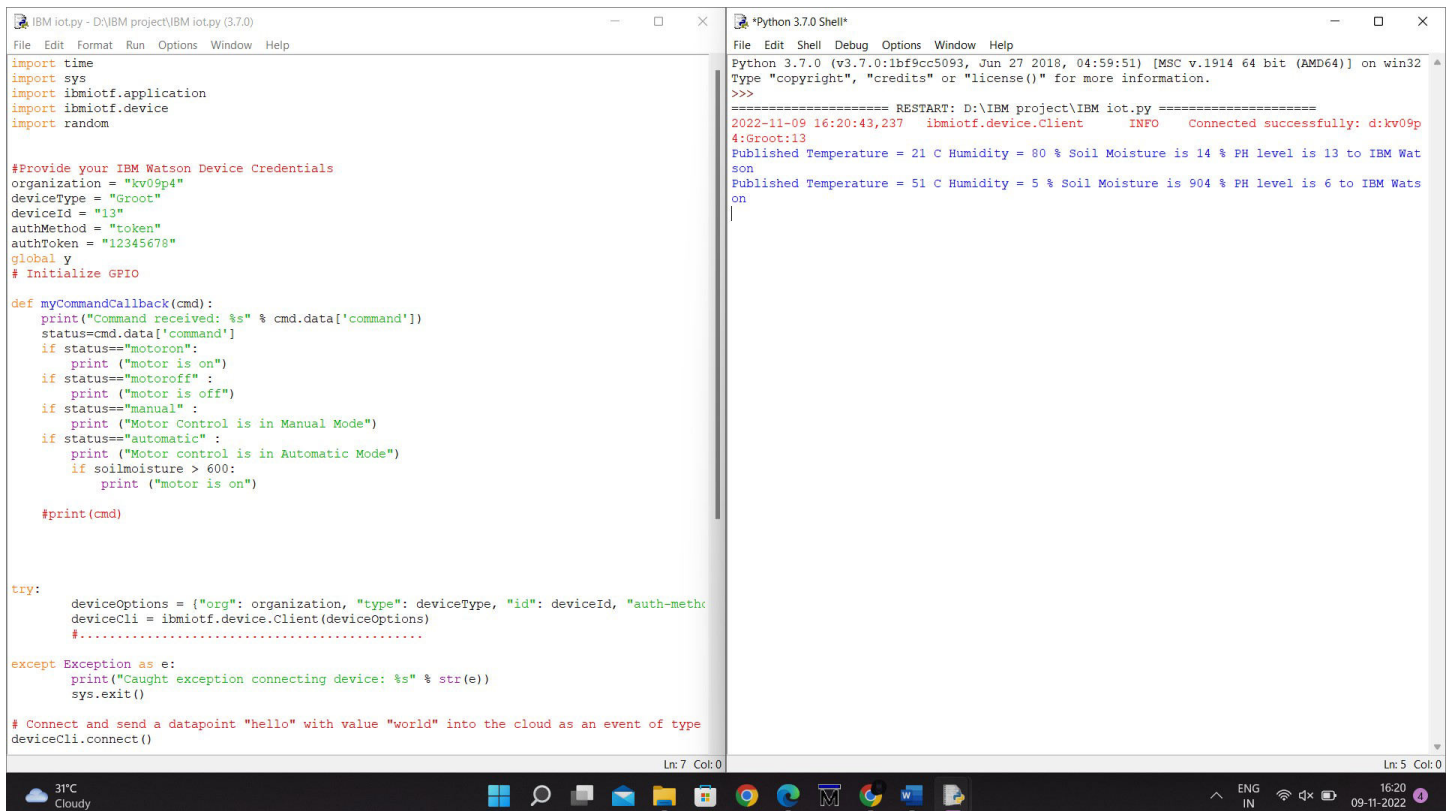
The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes the IBM logo and a user profile with the email 613519106030@smartinternz.com. The main content area is titled "IBM Cloud Apps" and displays a table of API keys. The table has columns for Key, Description, Role, and Expires. Two results are shown:

Key	Description	Role	Expires
a-kv09p4-ffvzkrsmu	API Key for the device simulator	Standard Application	-
a-kv09p4-kp3tgvwqjd	IBM	Standard Application	-

Below the table, the "API Key Information" for the selected key is displayed:

Key	Description	Date Added	Last Update	Last Edited By	Expires
a-kv09p4-kp3tgvwqjd	IBM	Nov 7, 2022 4:26 PM	Nov 7, 2022 4:26 PM	613519106030@smartinternz.com	Never

## Transferring Values from Python Code:



The screenshot shows a Python script in a text editor and its execution output in a terminal window.

**Python Script (left):**

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

#Provide your IBM Watson Device Credentials
organization = "kv09p4"
deviceType = "Groot"
deviceId = "13"
authMethod = "token"
authToken = "12345678"
global y
# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="motoron":
        print ("motor is on")
    if status=="motoroff":
        print ("motor is off")
    if status=="manual":
        print ("Motor Control is in Manual Mode")
    if status=="automatic":
        print ("Motor control is in Automatic Mode")
        if soilmoisture > 600:
            print ("motor is on")

    #print(cmd)

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod}
    deviceCli = ibmiotf.device.Client(deviceOptions)
    #.....

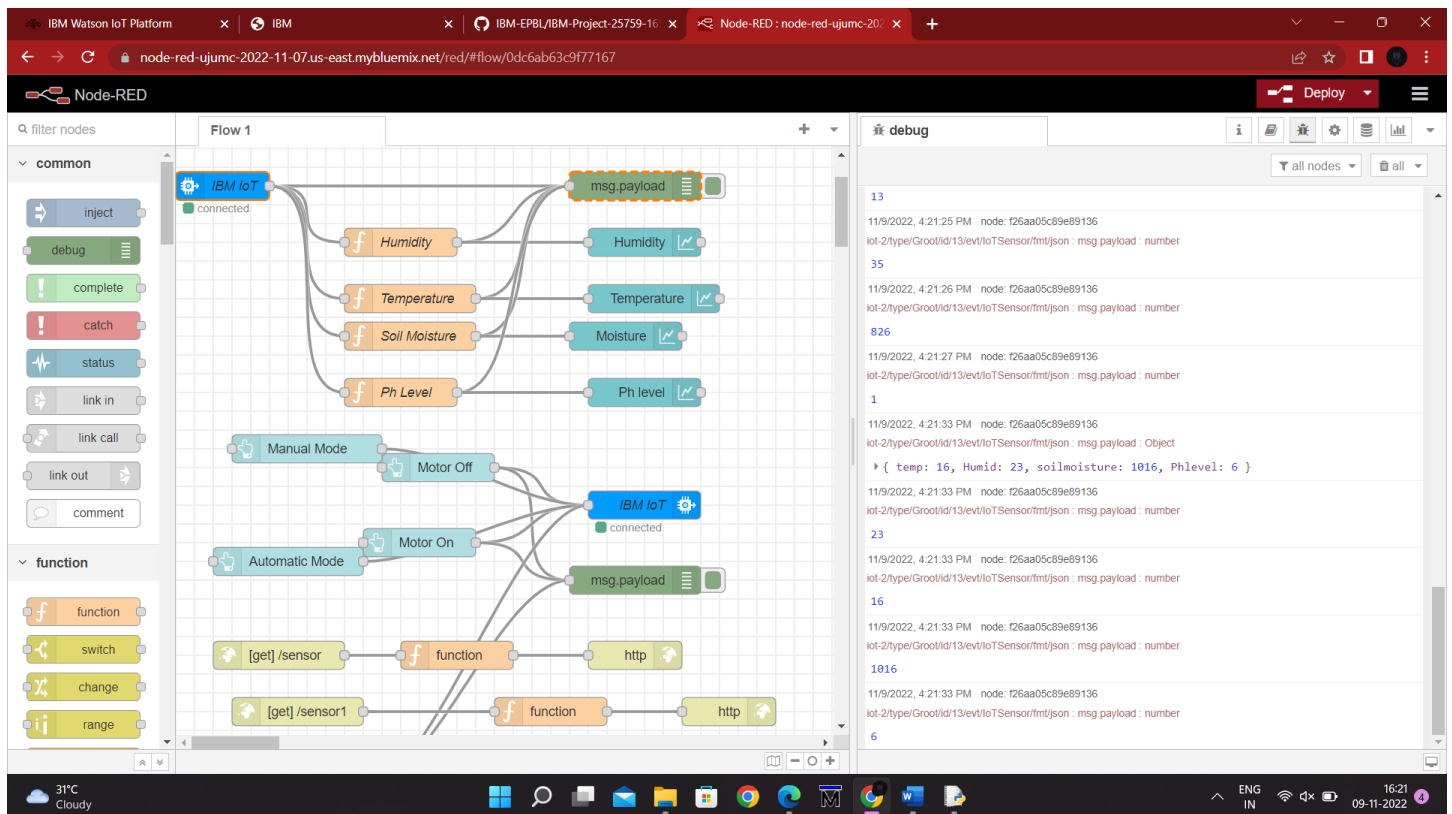
except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type
deviceCli.connect()
```

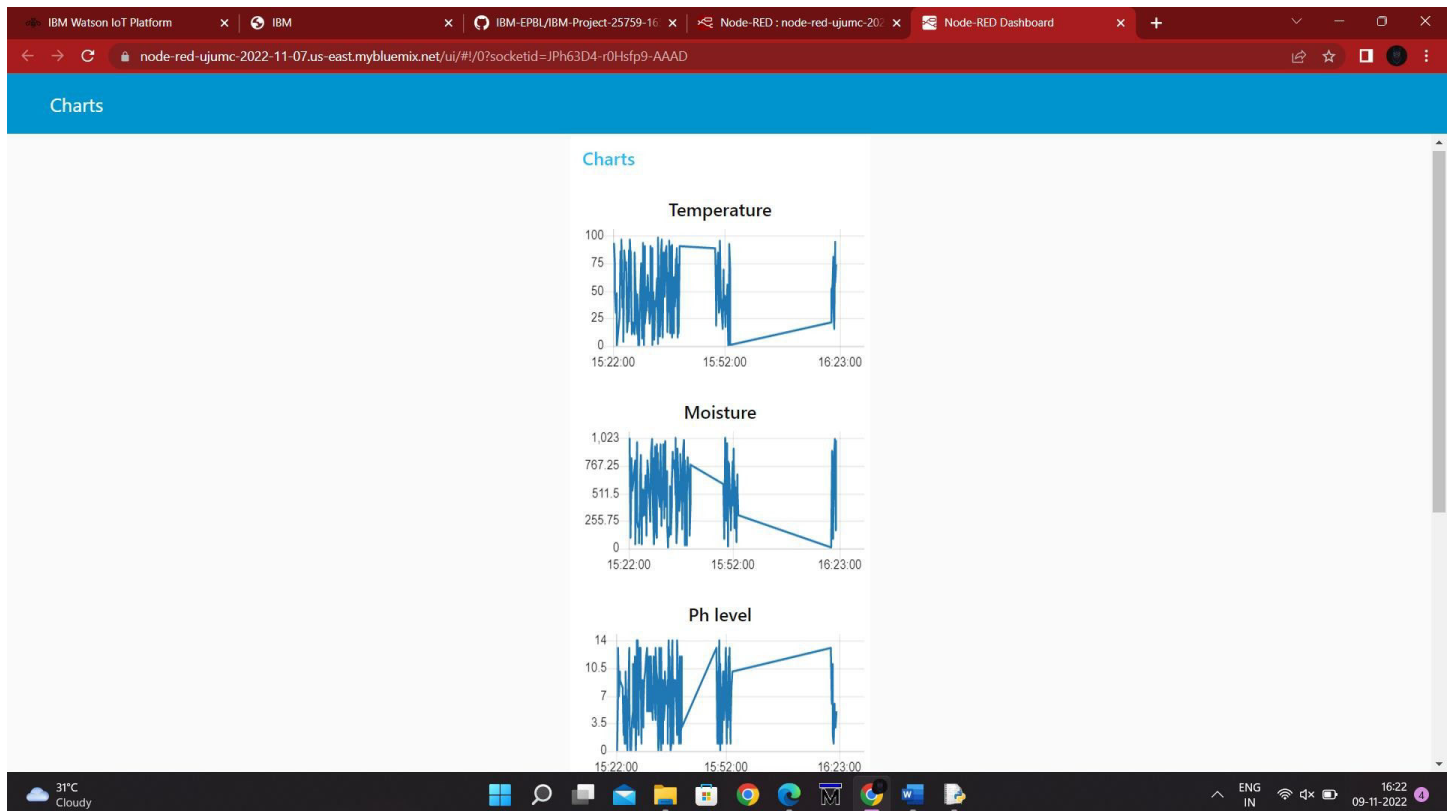
**Python Shell Output (right):**

```
Python 3.7.0 (tags/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: D:\IBM project\IBM iot.py =====
2022-11-09 16:20:43,237 ibmiotf.device.Client INFO Connected successfully: d:kv09p4:Groot:13
Published Temperature = 21 C Humidity = 80 % Soil Moisture is 14 % PH level is 13 to IBM Watson
Published Temperature = 51 C Humidity = 5 % Soil Moisture is 904 % PH level is 6 to IBM Watson
```

## Node-Red:



## Node-Red Dashboard:



node-red-ujumc-2022-11-07.us-east.mybluemix.net/ui/#/0?socketid=JPh63D4-r0Hsf9-AAAD

### Charts

#### Ph level

Time	Ph level
15:22:00	~10.5
15:52:00	~10.5
16:23:00	~13.5

MOTOR OFF

MOTOR ON

MANUAL MODE

AUTOMATIC MODE

#### Humidity

Time	Humidity
15:22:00	~75
15:52:00	~75
16:23:00	~85