Project Development Phase Sprint IV

Date	15 November 2022
Team ID	PNT2022TMID08204
Project Name	Project - Signs with smart connectivity for Better road safety

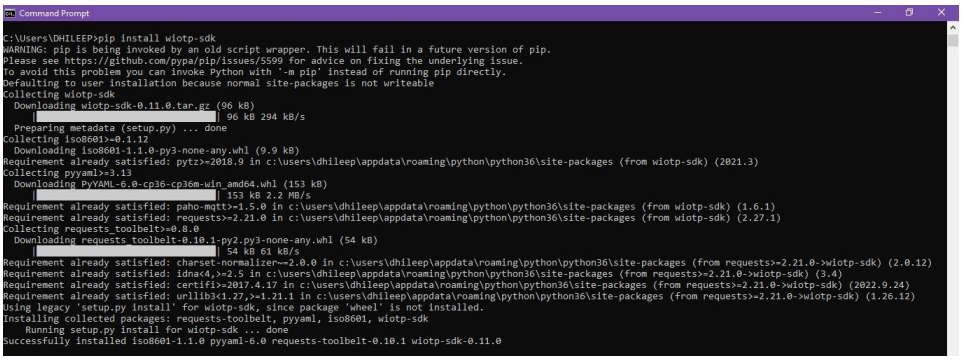
Code for print the random temperature, Road signs, Speed limit, Message :

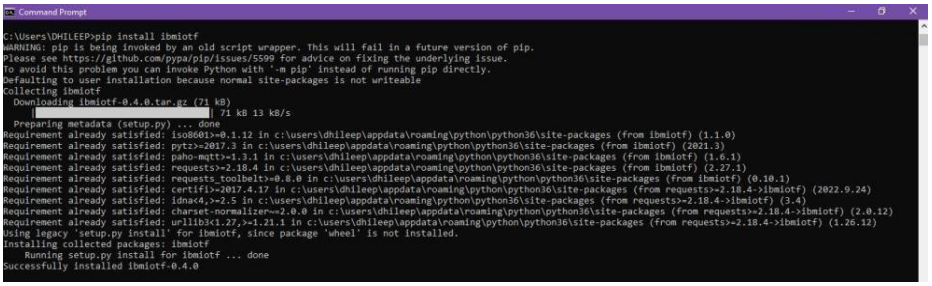
(RandomValues.py)

```
import wiotp.sdk.device
import time import random
import
ibmiotf.application
import ibmiotf.device
import requests, json
myConfig = {
    #Configuration
    "identity": {
        "orgId": "a4aah7",
        "typeId": "raspberrypi",
        "deviceId":"861895"
    },
    #API Key
    "auth": {
        "token": "12345678"
    }
}

#Receiving callbacks from IBM IOT platform
def myCommandCallback(cmd):
print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
m=cmd.data['command']
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
#OpenWeatherMap Credentials
BASE_URL = "https://api.openweathermap.org/data/2.5/weather?"
CITY = "Salem, IN"
URL = BASE_URL + "q=" + CITY + "&units=metric"+"&appid=" + "f58e4720c739a54c439aba9b05176839"
while True:
    response = requests.get(URL) if
    response.status_code == 200:
        data = response.json()
      main     =     data['main']
      temperature  =  main['temp']
      humidity = main['humidity']
      pressure = main['pressure']
      report = data['visibility']

      #messge part
      msg=random.randint(0,5)
      if msg==1: message="GO SLOW, SCHOOL ZONE
      AHEAD”
      elif msg==2: message="NEED HELP, POLICE
          STATION AHEAD"
```

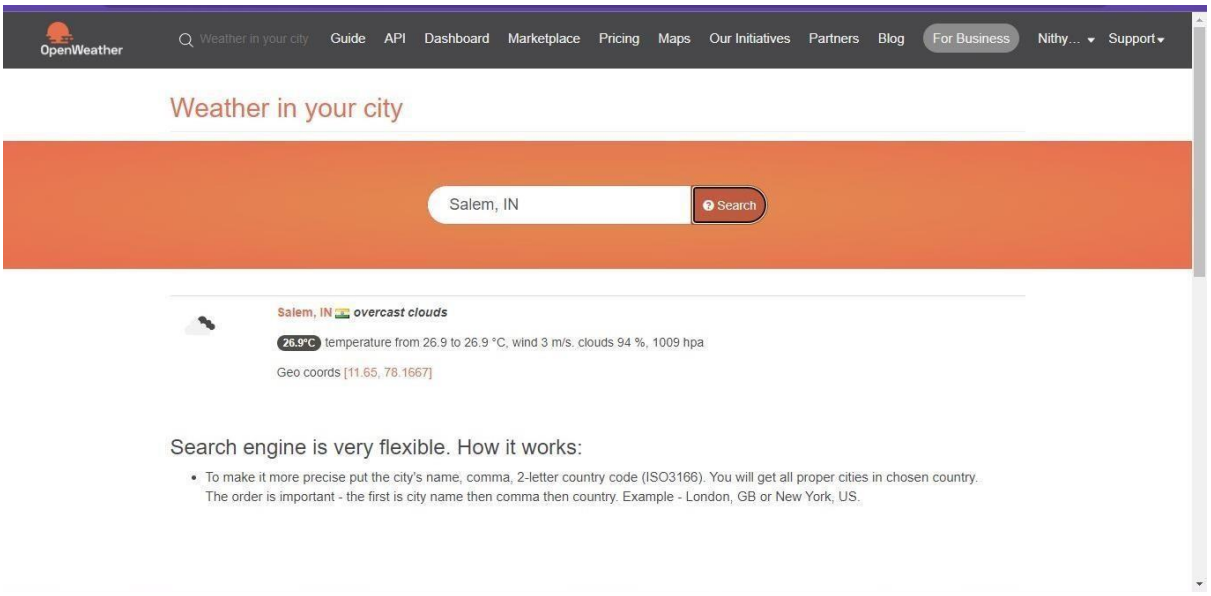
```
      elif msg==3: message="EMERGENCY,
          HOSPITAL NEARBY"
      elif msg==4: message="DINE IN, RESTAURENT
          AVAILABLE"
      elif msg==5:
          message="PETROL BUNK NEARBY"
      else:
          message=""

       #Speed Limit part
      speed=random.randint(0,150) if
      speed>=100:
          speedMsg=" Limit Exceeded"
      elif speed>=60 and speed<100:
          speedMsg="Moderate"
      else:
           speedMsg="Slow"

       #Diversion part
      sign=random.randint(0,5) if
      sign==1: signMsg="Right
      Diversion"
      elif sign==2: signMsg="Speed
          Breaker"
      elif sign==3: signMsg="Left
          Diversion"
      elif sign==4:
          signmsg="U Turn"
       else:
            signMsg=""

        #Visibility  if  temperature  <  24:
       visibility="Fog Ahead, Drive Slow"
       elif temperature < 20:
           visibility="Bad Weather"
       else: visibility="Clear
           Weather"
   else: print("Error in the HTTP
      request")
      myData={'Temperature':temperature
      , 'Message':message,
       'Sign':signMsg, 'Speed':speedMsg,
'Visibility':visibility} client.publishEvent(eventId="status", msgFormat="json", data=myData,
   qos=0, onPublish=None)
#PUBLISHING TO IOT WATSON print("Published data
   Successfully: ", myData)
     print("----------------------------------------------------------------------------------------------------------------------------------------------------------------
  ----------------------------------------------------------------------------------------------------------------------------------------------------------------
  ----------------------------------------------------------------------")
   client.commandCallback = myCommandCallback time.sleep(5)
client.disconnect()
```

Import wiotp-sdk & ibmiotf :



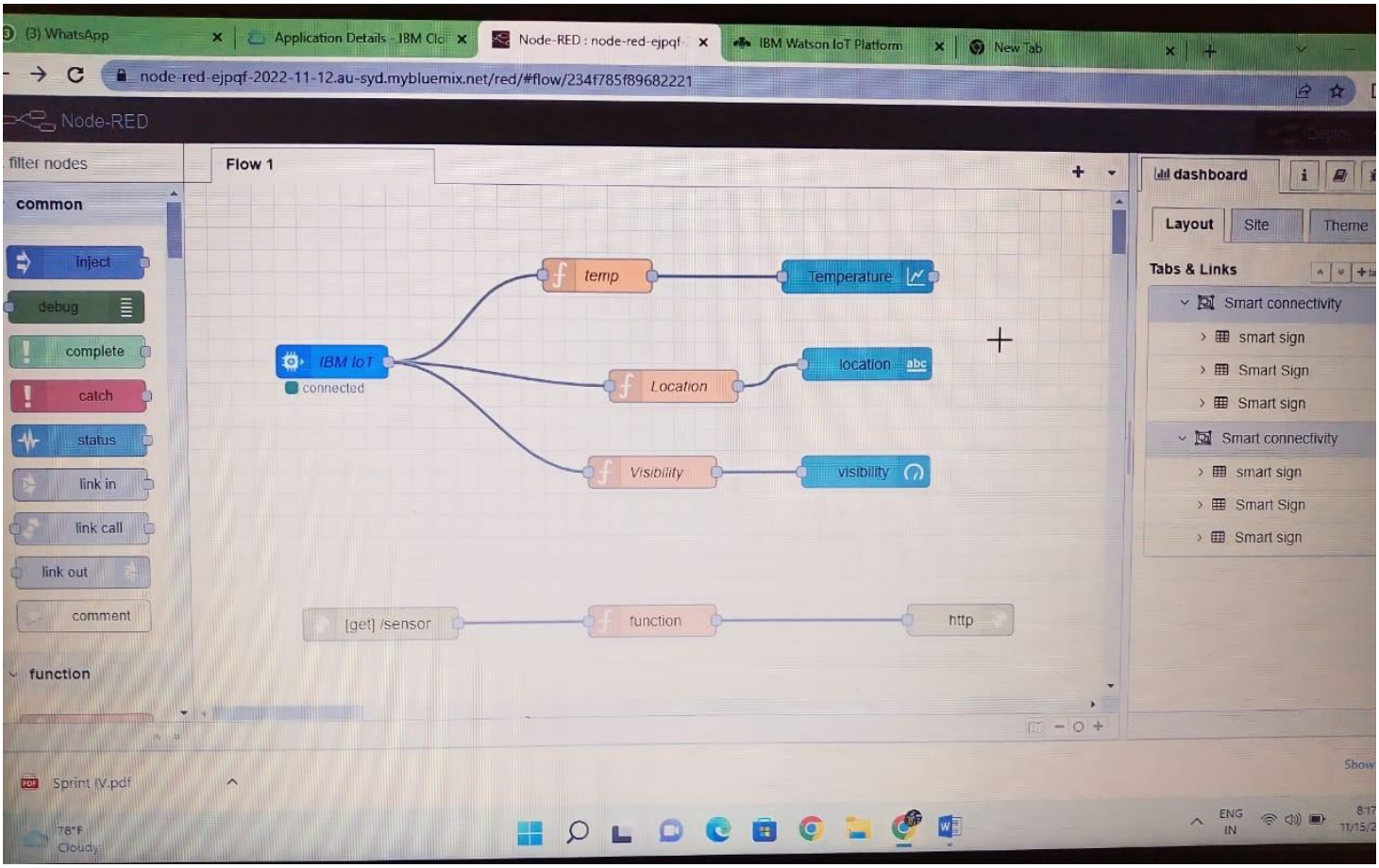


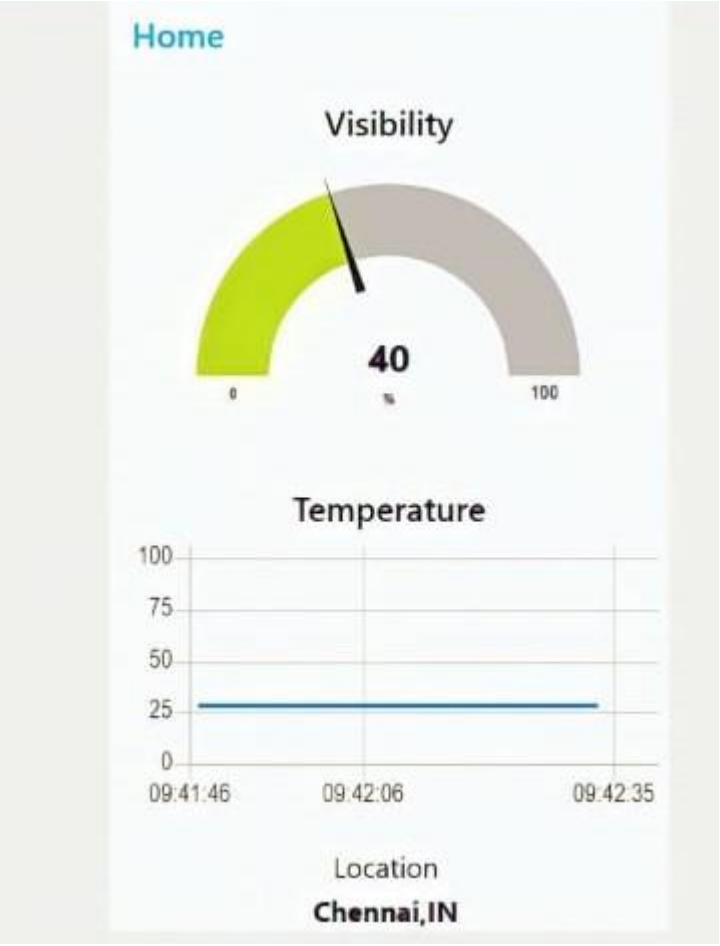
OpenWeatherMap - (Ex., Salem, IN) :

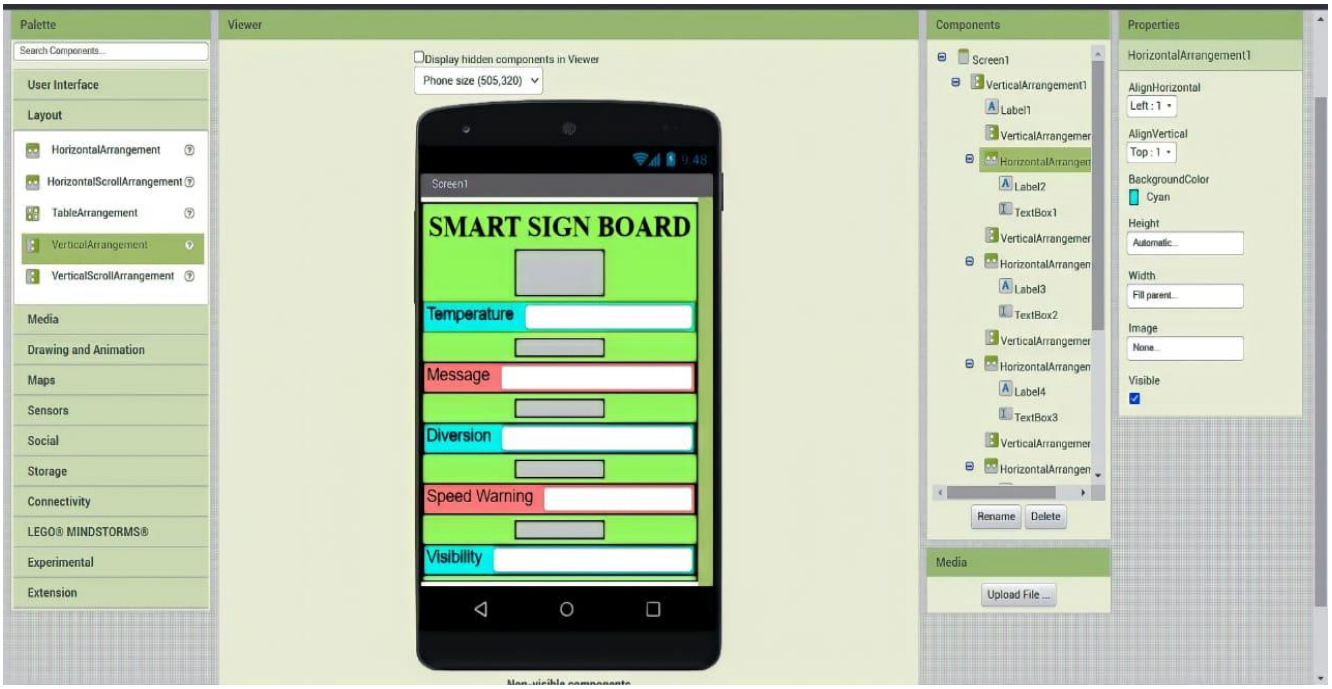


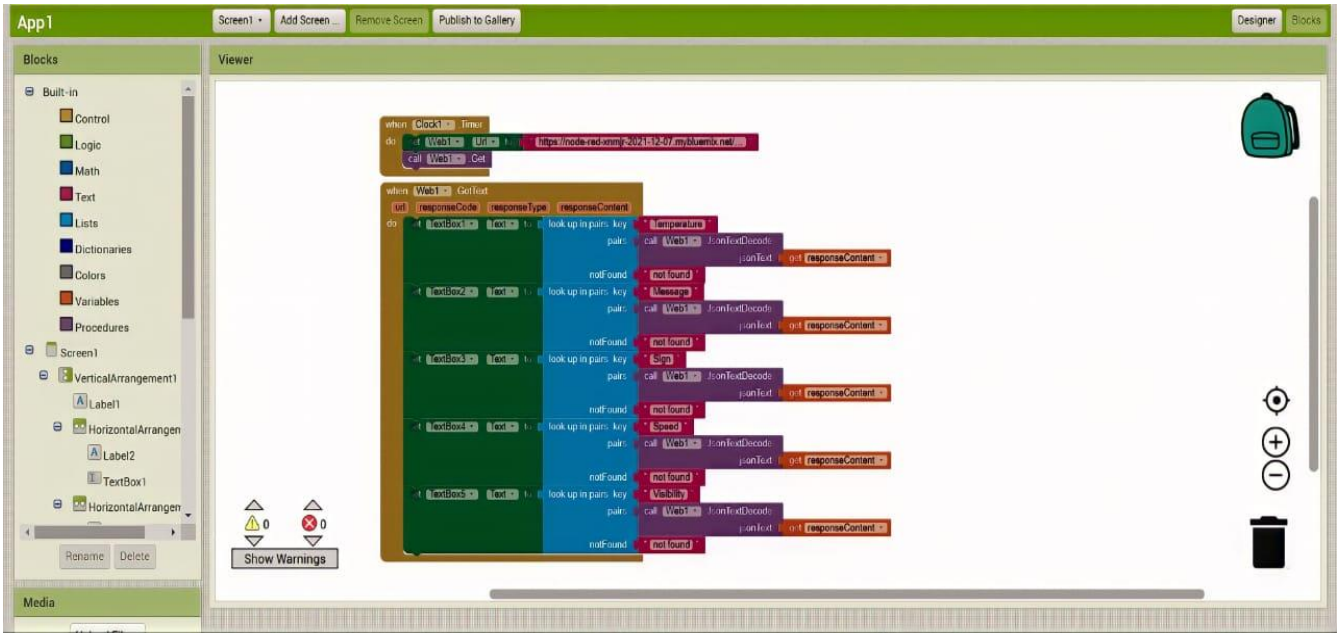
Python IDLE Output :

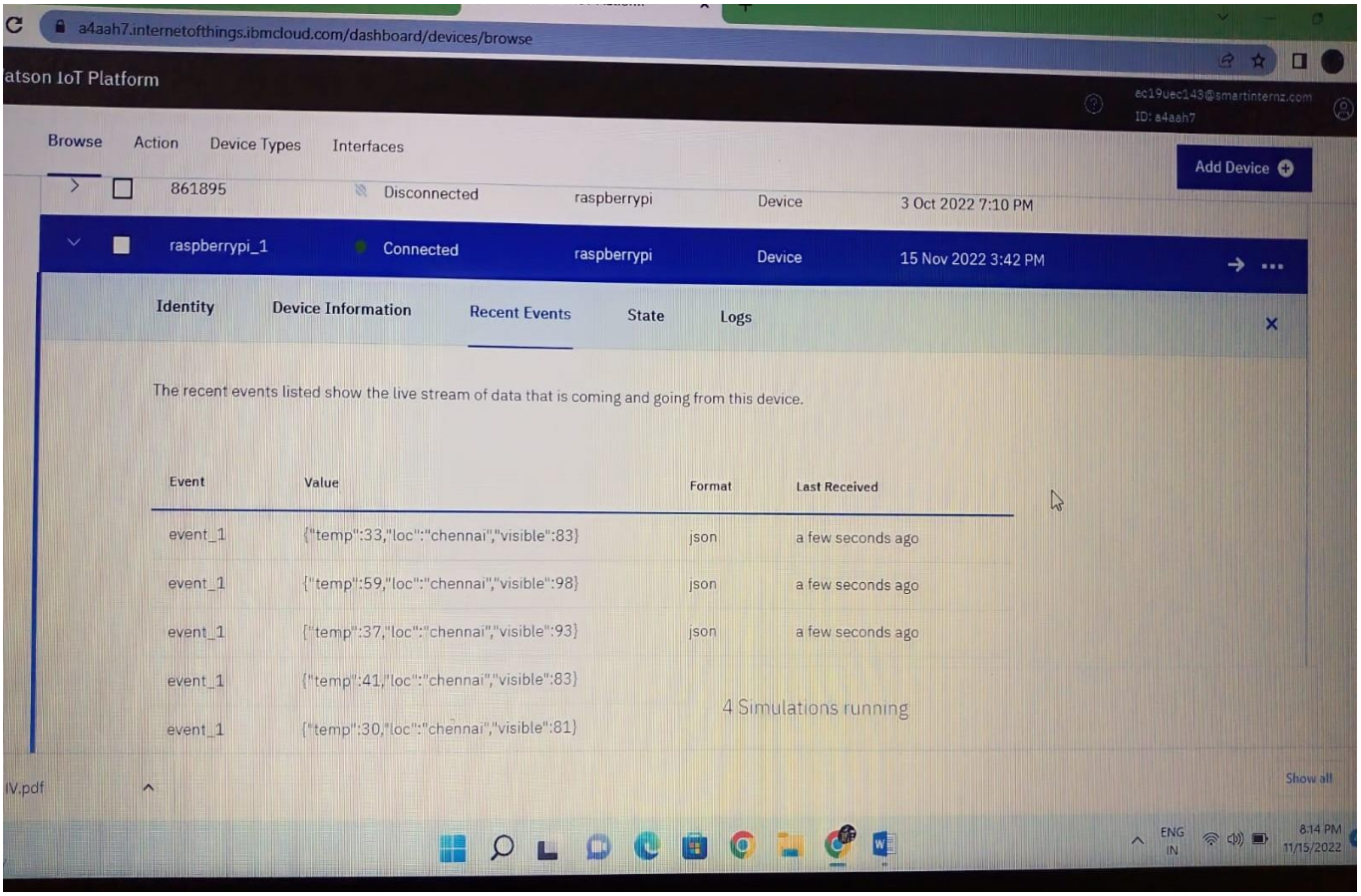

Python 3.6.5 Shell
File Edit Shell Debug Options Window Help
Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Speed Breaker', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: {'Temperature': 26.03, 'Message': 'GO SLOW, SCHOOL / COLLEGE ZONE AHEAD', 'Sign': 'Right Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Published data Successfully: {'Temperature': 26.03, 'Message': 'PETROL BUNK NEARBY', 'Sign': 'Speed Breaker', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Speed Breaker', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: {'Temperature': 26.03, 'Message': '', 'Sign': '', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: {'Temperature': 26.03, 'Message': 'NEED HELP, POLICE STATION AHEAD', 'Sign': 'Left Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Ln: 24 Col: 0


(3) WhatsApp
Application Details - IBM Clo
Node-RED : node-red-ejpqf-
IBM Watson IoT Platform
New Tab
node-red-ejpqf-2022-11-12.au-syd.mybluemix.net/red/#flow/234f785f89682221
Node-RED
filter nodes
common
inject
debug
complete
catch
status
link in
link call
link out
comment
function
Flow 1
IBM IoT
connected
temp
Temperature
Location
location
Visibility
visibility
[get] /sensor
function
http
dashboard
Layout
Site
Theme
Tabs & Links
Smart connectivity
smart sign
Smart Sign
Smart sign
Smart connectivity
smart sign
Smart Sign
Smart sign
Sprint IV.pdf
78°F
Cloudy
ENG
IN


Home
Visibility
40
%
0
100
Temperature
100
75
50
25
0
09:41:46
09:42:06
09:42:35
Location
Chennai,IN


Palette
Search Components...
User Interface
Layout
HorizontalArrangement
HorizontalScrollArrangement
TableArrangement
VerticalArrangement
VerticalScrollArrangement
Media
Drawing and Animation
Maps
Sensors
Social
Storage
Connectivity
LEGO® MINDSTORMS®
Experimental
Extension
Viewer
Display hidden components in Viewer
Phone size (505,320)
Screen1
SMART SIGN BOARD
Temperature
Message
Diversion
Speed Warning
Visibility
Components
Screen1
VerticalArrangement1
Label1
Label2
TextBox1
Label3
TextBox2
Label4
TextBox3
Rename
Delete
Media
Upload File ...
Properties
HorizontalArrangement1
AlignHorizontal
Left : 1
AlignVertical
Top : 1
BackgroundColor
Cyan
Height
Automatic...
Width
Fill parent...
Image
None...
Visible


App1
Screen1
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Blocks
Built-in
Control
Logic
Math
Text
Lists
Dictionaries
Colors
Variables
Procedures
Screen1
VerticalArrangement1
Label1
HorizontalArrangen
Label2
TextBox1
HorizontalArrangen
Rename
Delete
Media
Viewer
when Clock1 .Timer
do set Web1 . Url to https://node-red-xmmjf-2021112-07.mybluemix.net/
call Web1 .Get
when Web1 .GotText
url responseCode responseType responseContent
do set TextBox1 . Text to look up in pairs key temperature
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound not found
set TextBox2 . Text to look up in pairs key Message
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound not found
set TextBox3 . Text to look up in pairs key Slip
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound not found
set TextBox4 . Text to look up in pairs key Speed
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound not found
set TextBox5 . Text to look up in pairs key Visibility
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound not found
0
0
Show Warnings


a4aah7.internetofthings.ibmcloud.com/dashboard/devices/browse
atson IoT Platform
ec19uec143@smartinternz.com
ID: a4aah7
Browse
Action
Device Types
Interfaces
Add Device
861895
Disconnected
raspberrypi
Device
3 Oct 2022 7:10 PM
raspberrypi_1
Connected
raspberrypi
Device
15 Nov 2022 3:42 PM
Identity
Device Information
Recent Events
State
Logs
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
event_1
{"temp":33,"loc":"chennai","visible":83}
json
a few seconds ago
event_1
{"temp":59,"loc":"chennai","visible":98}
json
a few seconds ago
event_1
{"temp":37,"loc":"chennai","visible":93}
json
a few seconds ago
event_1
{"temp":41,"loc":"chennai","visible":83}
event_1
{"temp":30,"loc":"chennai","visible":81}
4 Simulations running
IV.pdf
Show all
ENG
IN
8:14 PM
11/15/2022