PROJECT DEVELOPMENT PHASE

SPRINT – 4

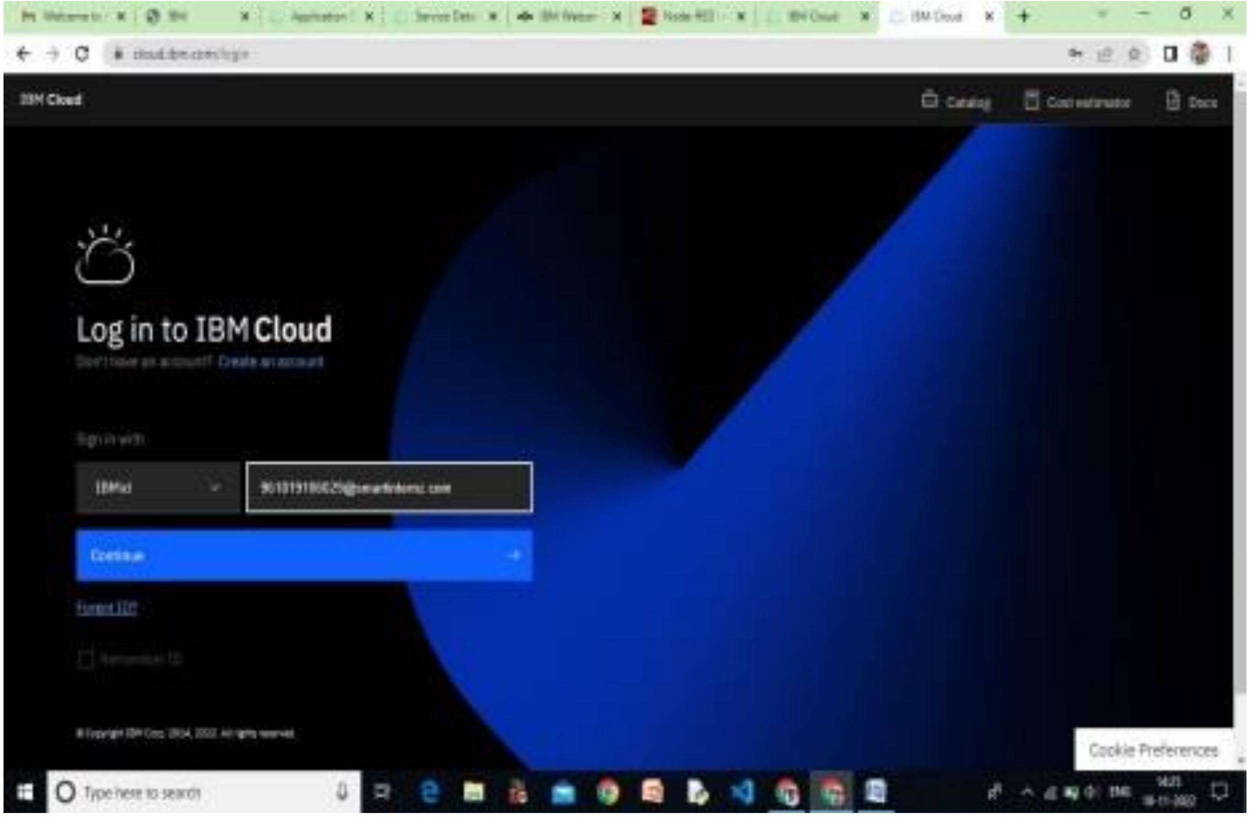
TEAM ID	**PNT2022TMID31677**
PROJECT NAME	**SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY**

RESOURCES PAGES

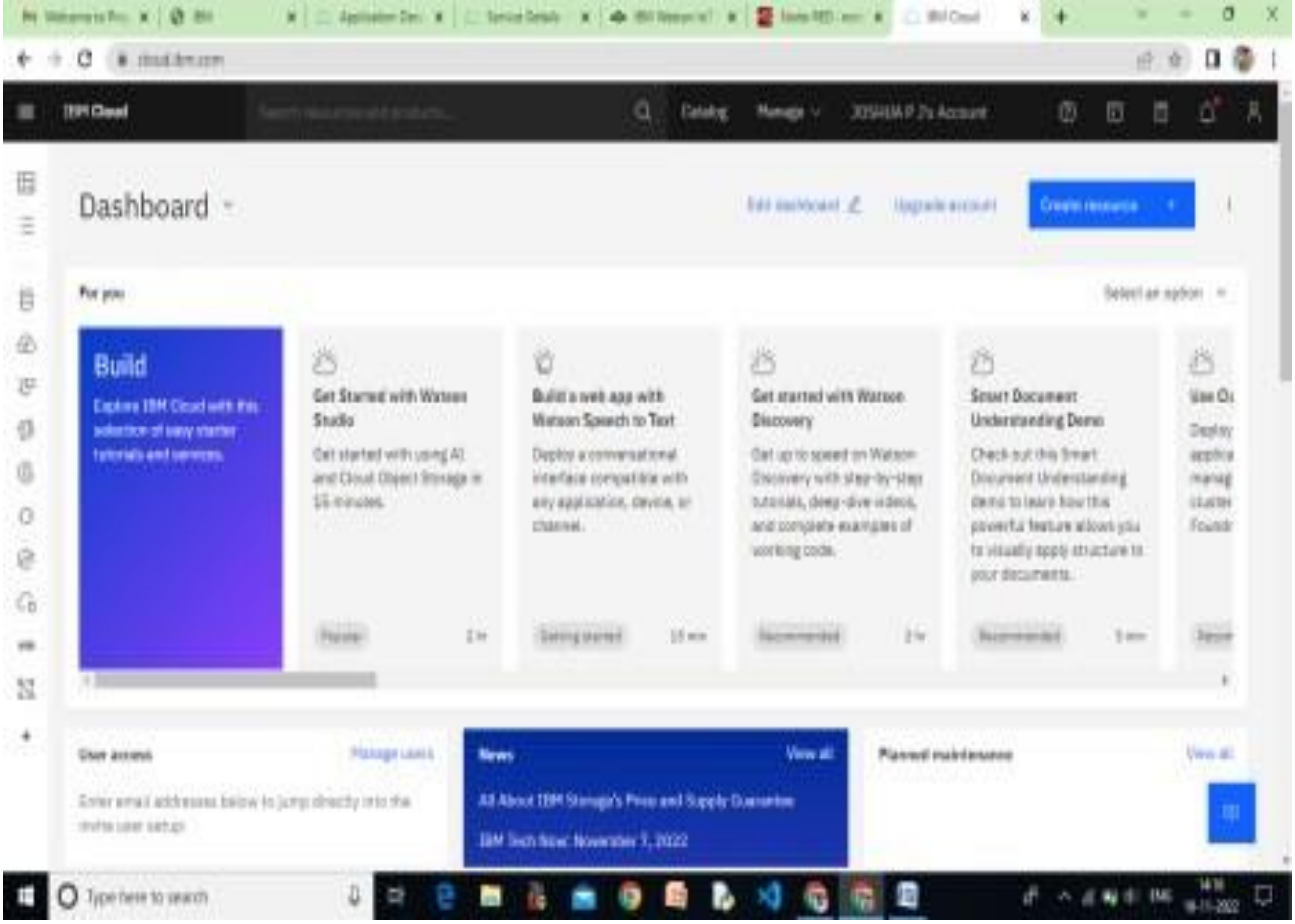
IBM CLOUD:

LOGIN TO THE WEBSITE: IBM CLOUD LOGIN

1. Enter the SI Mail id and create your password.



2. After Login page dashboard will be displayed and click the catalog and open internet of things.



Build

Explore IBM Cloud with this selection of easy starter tutorials and services.

Get Started with Watson Studio

Get started with using AI and Cloud Object Storage in 15 minutes.

Popular 2 hr

Build a web app with Watson Speech to Text

Deploy a conversational interface compatible with any application, device, or channel.

Getting started 15 min

Get started with Watson Discovery

Get up to speed on Watson Discovery with step-by-step tutorials, deep-dive videos, and complete examples of working code.

Recommended 2 hr

Smart Document Understanding Demo

Check out this Smart Document Understanding demo to learn how this powerful feature allows you to visually apply structure to your documents.

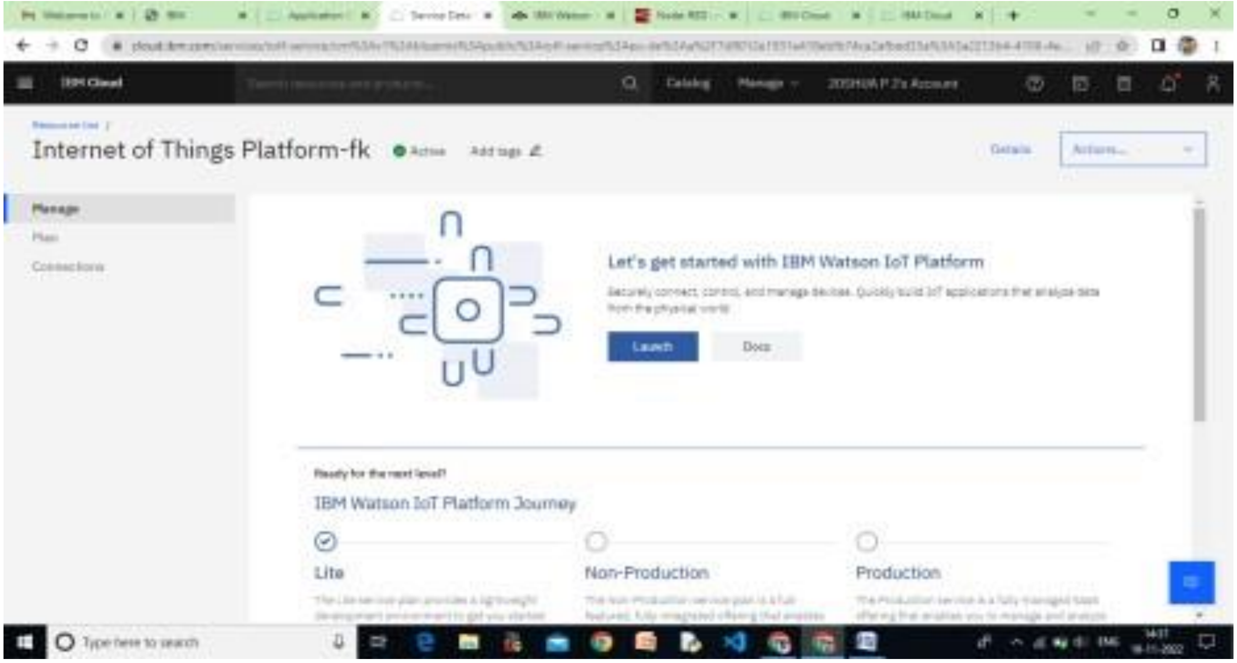
Recommended 5 min

Enter email addresses below to jump directly into the invite user setup

All About IBM Storage's Price and Supply Guarantee

IBM Tech Now: November 7, 2022

3. After that you will find this page and click the launch button:



Internet of Things Platform-fk ● Active Add tags

Manage
Plan
Connections

Let's get started with IBM Watson IoT Platform

Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.

Launch Docs

Ready for the next level?

IBM Watson IoT Platform Journey

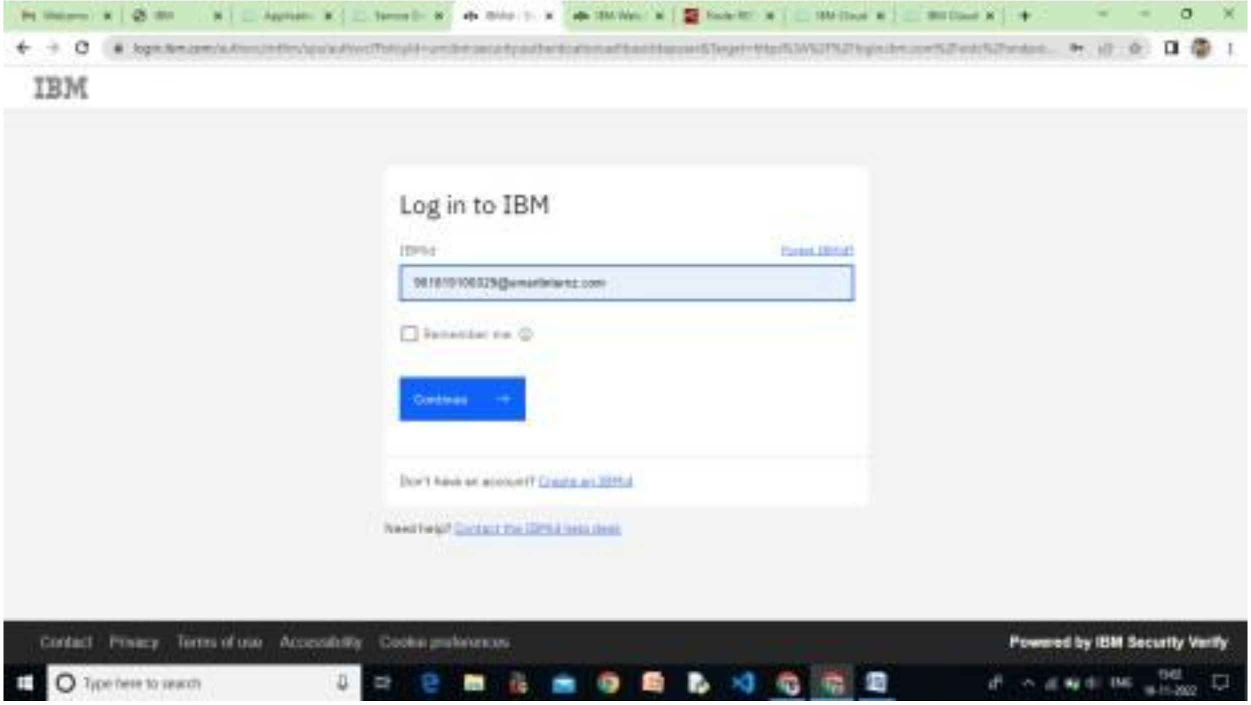
Lite

Non-Production

Production

TO LOGIN TO IBM WATSON:

1. After that log in to the Page and give your SI Mail id and password



IBM

Log in to IBM

IBMid: 961819106329@smartinternz.com

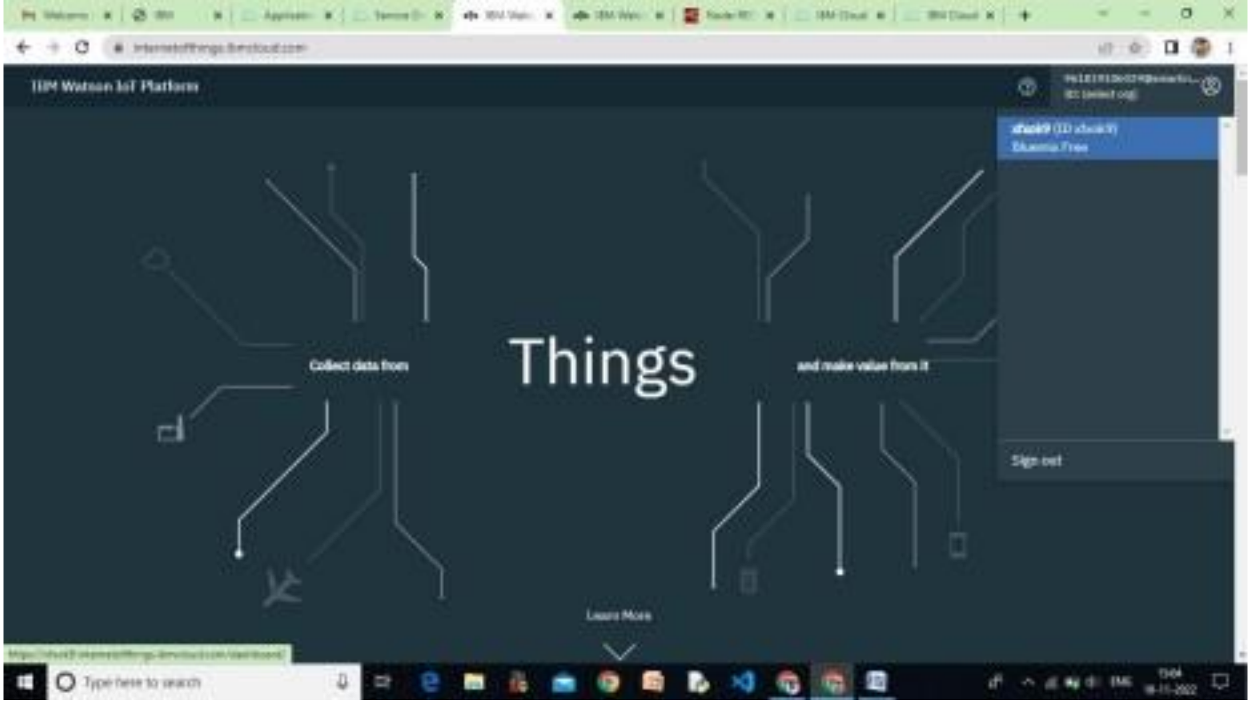
□ Remember me

Continue →

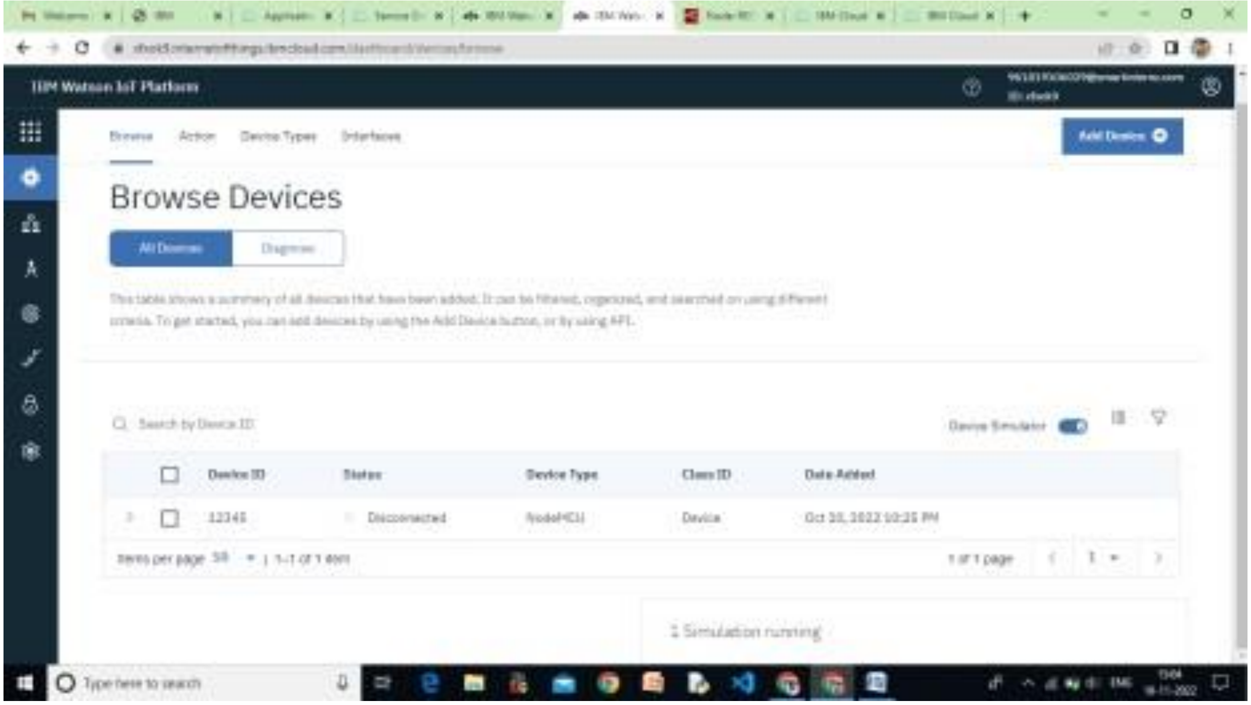
Don't have an account? Create an IBMid

Need help? Contact the IBMid help desk

2. Then sign in the right-side corner id given in the IBM Watson:



3.After that you will find the Browse Device Page:



Browse Devices

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

□	Device ID	Status	Device Type	Class ID	Date Added
□	12345	Disconnected	NodeMCU	Device	Oct 30, 2022 10:25 PM

Items per page 50 | 1-1 of 1 item 1 of 1 page

1 Simulation running

4.Create a Device by entering all the required details given below and click finish:

Organization ID: xfxok9

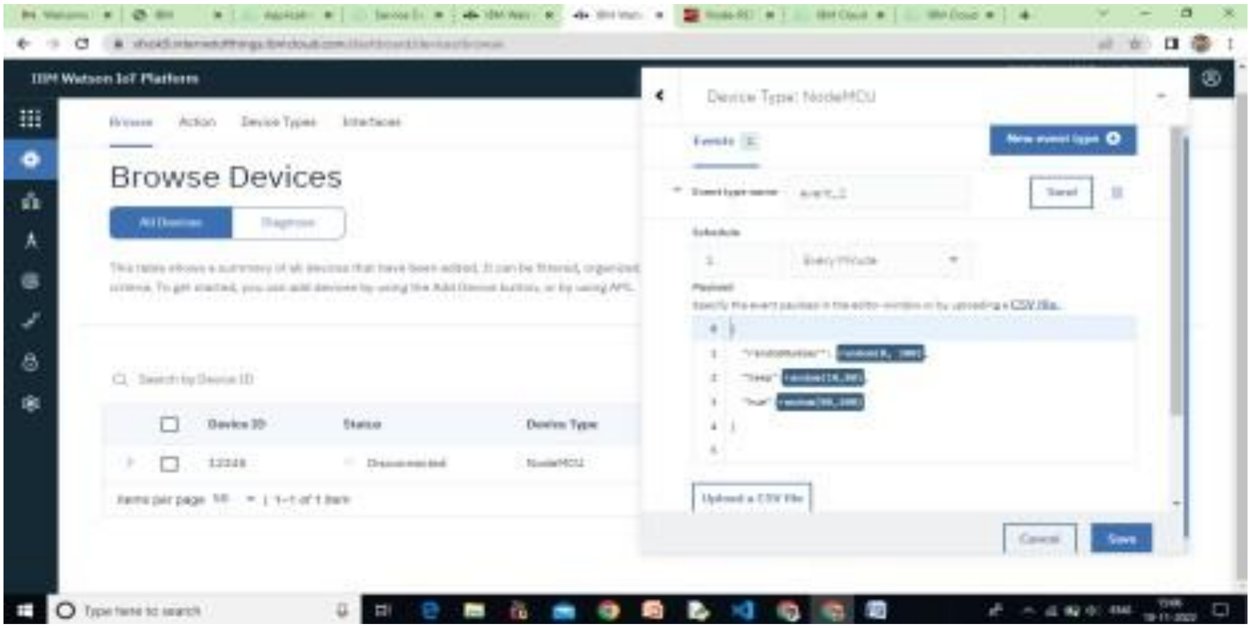
Device Type: NodeMCU

Device ID: 6385476358

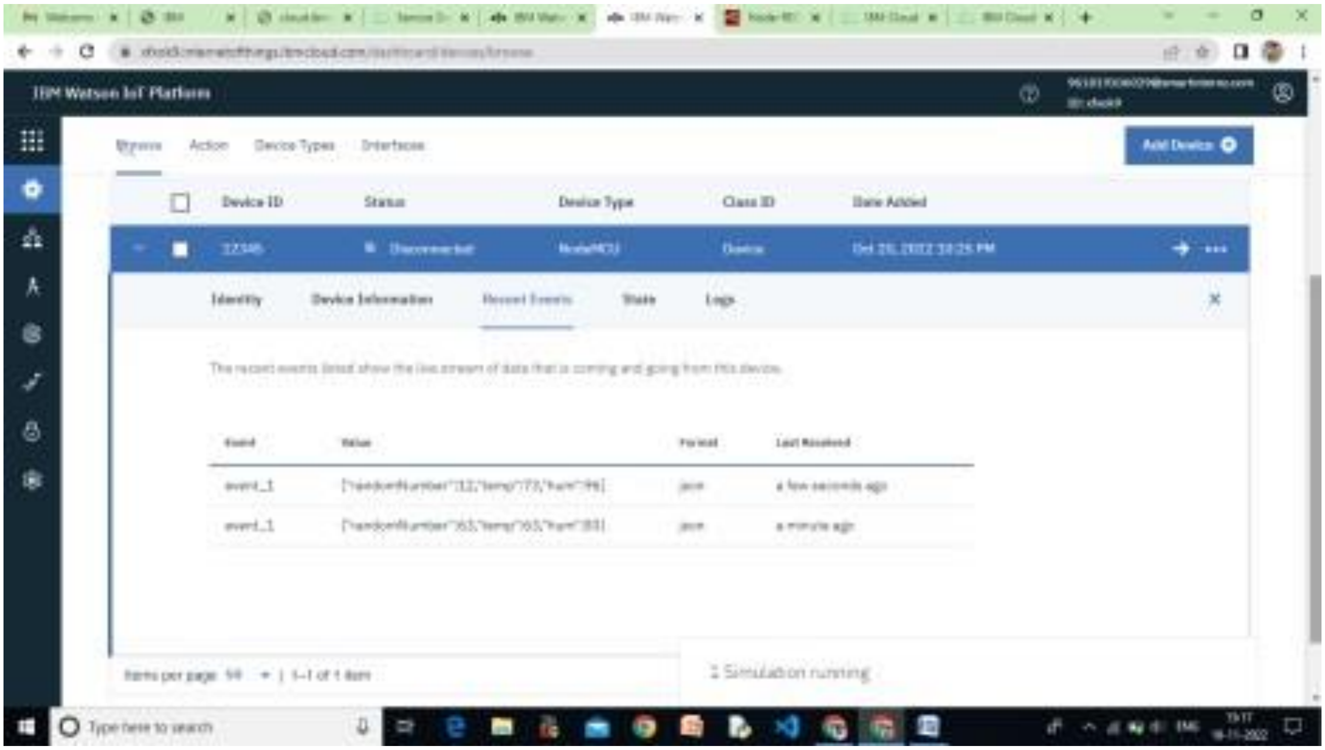
Authentication Method: use-token-auth

Authentication Token: 9384731286

5.And then you will receive this page by stimulating the created device:



STATUS PAGE (RESULT):



IBM Watson IoT Platform

Browse Action Device Types Interfaces

Add Device

Device ID	Status	Device Type	Class ID	Date Added
12345	Disconnected	NodeMCU	Device	Oct 28, 2022 10:28 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.

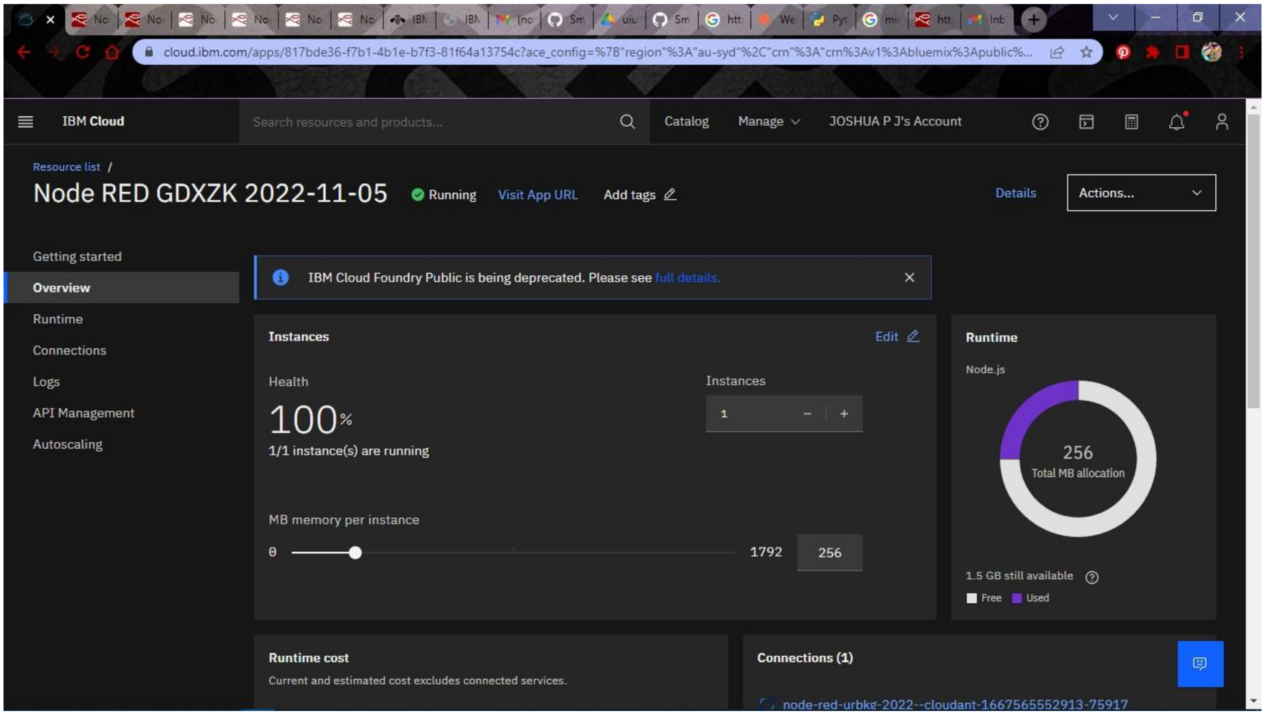
Event	Value	Format	Last Received
event_1	{"randomNumber":112,"temp":73,"hum":96}	json	a few seconds ago
event_1	{"randomNumber":163,"temp":63,"hum":83}	json	a minute ago

Items per page: 50 | 1–1 of 1 item

1 Simulation running

NODE RED :

- Here, click the Visit AppURL:



cloud.ibm.com/apps/817bde36-f7b1-4b1e-b7f3-81f64a13754c?ace_config=%7B"region"%3A"au-syd"%2C"crn"%3A"crn%3Av1%3Abluemix%3Apublic%...

IBM Cloud

Search resources and products...

Catalog Manage JOSHUA P J's Account

Resource list /

Node RED GDXZK 2022-11-05 Running Visit App URL Add tags

Details Actions...

Getting started
Overview
Runtime
Connections
Logs
API Management
Autoscaling

IBM Cloud Foundry Public is being deprecated. Please see full details.

Instances Edit

Health

100%

1/1 instance(s) are running

Instances: 1

MB memory per instance: 0 — 1792 256

Runtime

Node.js

256 Total MB allocation

1.5 GB still available

Free Used

Runtime cost

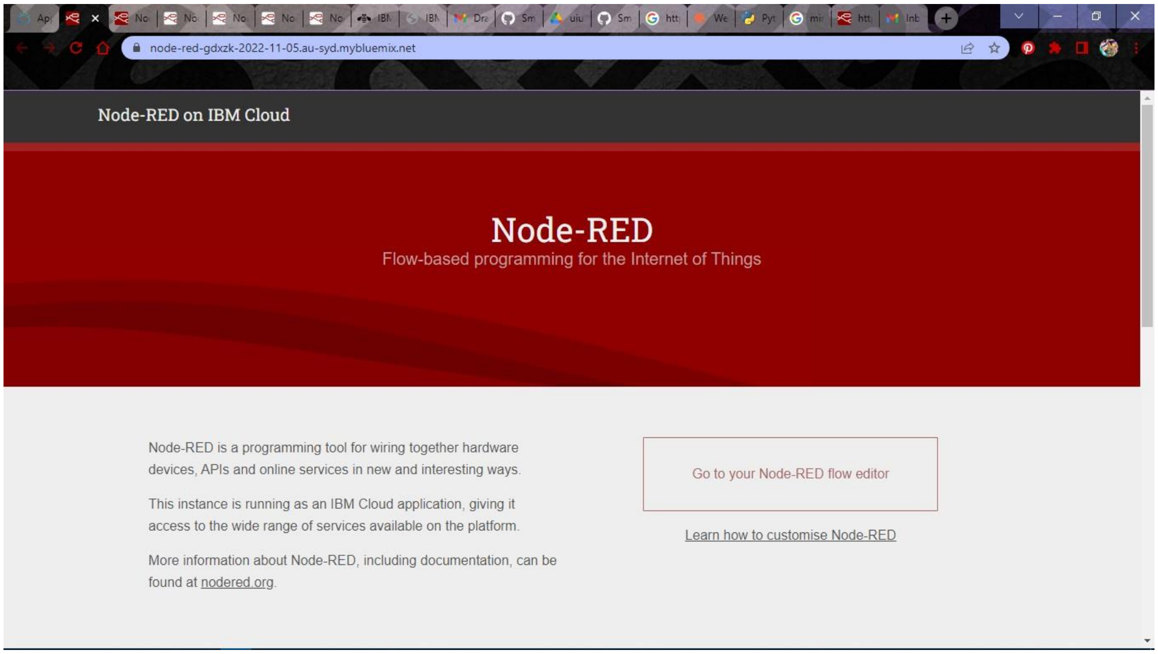
Current and estimated cost excludes connected services.

Connections (1)

node-red-urbkg-2022--cloudant-1667565552913-75917

LOGIN PAGE OF NODE RED:

After logging in, we get a page like this.
Here click “Go to your NODE RED flow editor”



node-red-gdxzk-2022-11-05.au-syd.mybluemix.net

Node-RED on IBM Cloud

Node-RED
Flow-based programming for the Internet of Things

Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.

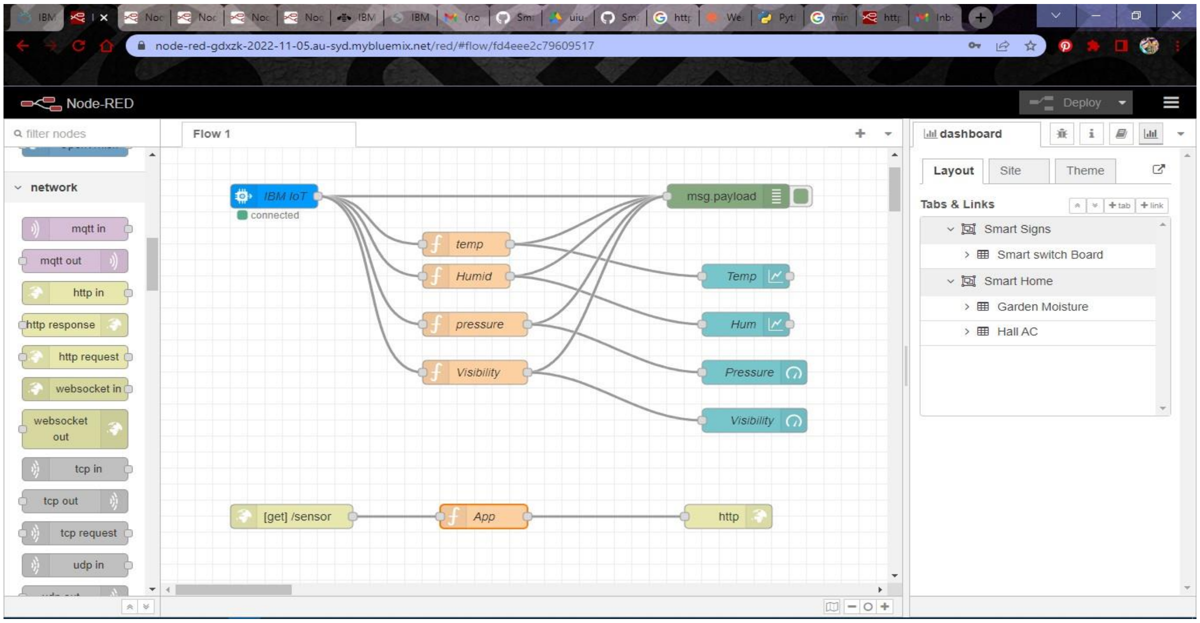
This instance is running as an IBM Cloud application, giving it access to the wide range of services available on the platform.

More information about Node-RED, including documentation, can be found at nodered.org.

Go to your Node-RED flow editor

Learn how to customise Node-RED

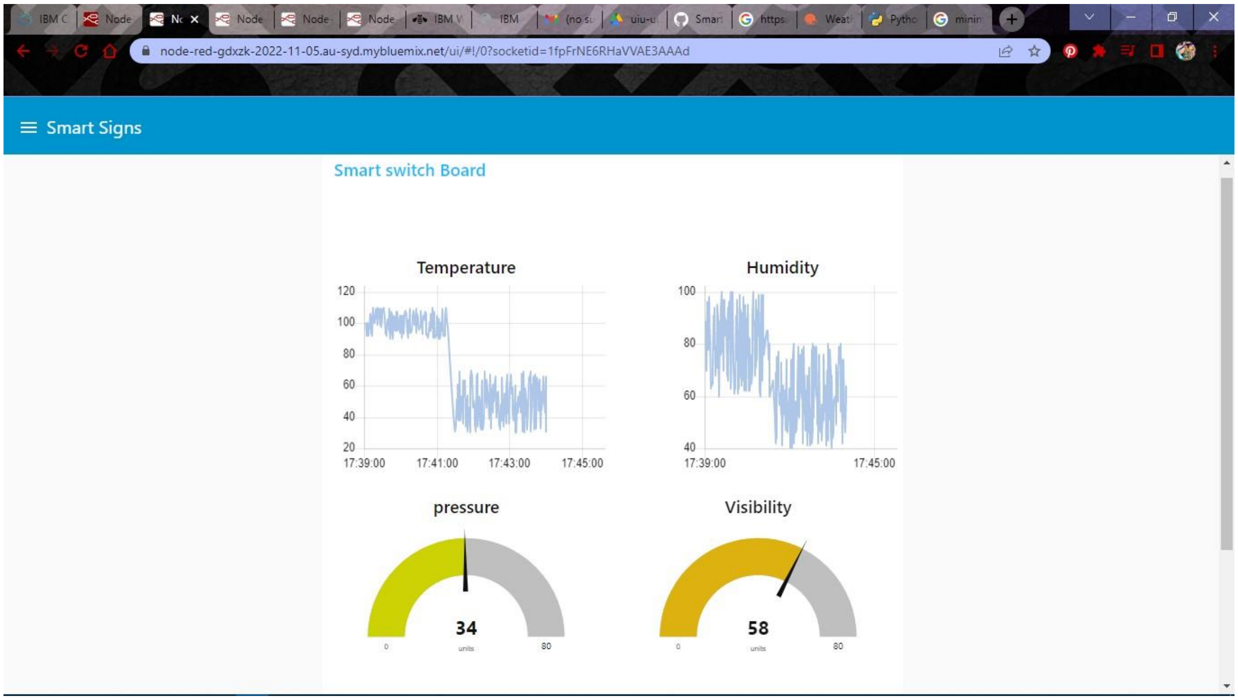
Developing Route based on the program :



node-red-gdxzk-2022-11-05.au-syd.mybluemix.net/red/#flow/fd4eee2c79609517

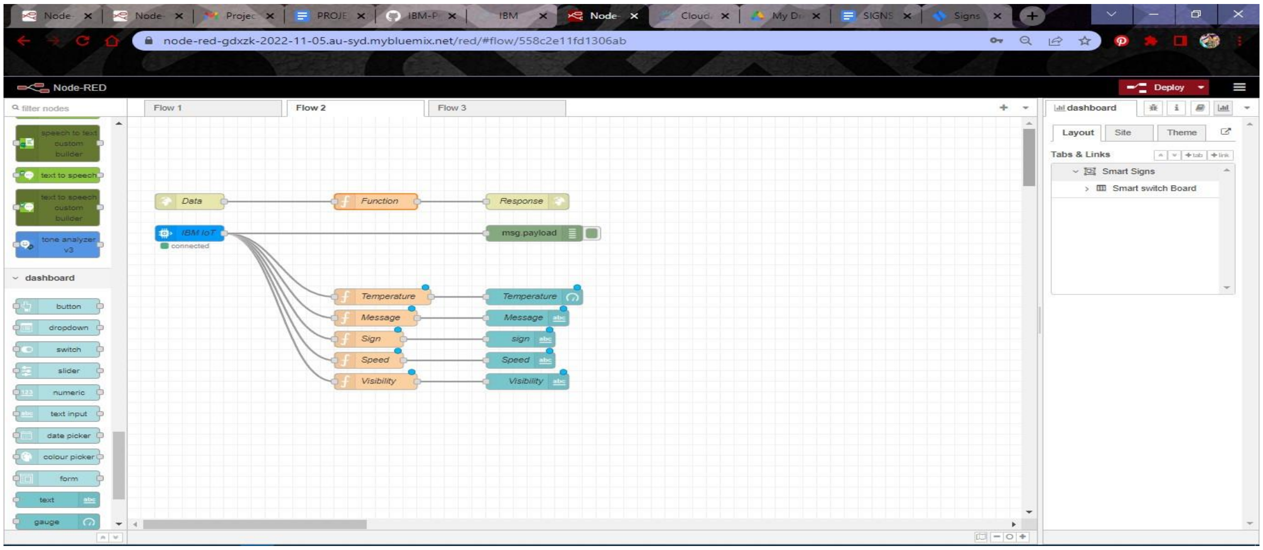
OUTPUT:

(The output will be displayed in graphical representation)



DEVELOPING ROUTE BASED ON THE PROGRAM:

Here based on the project the routing is developed by using appropriate nodes.



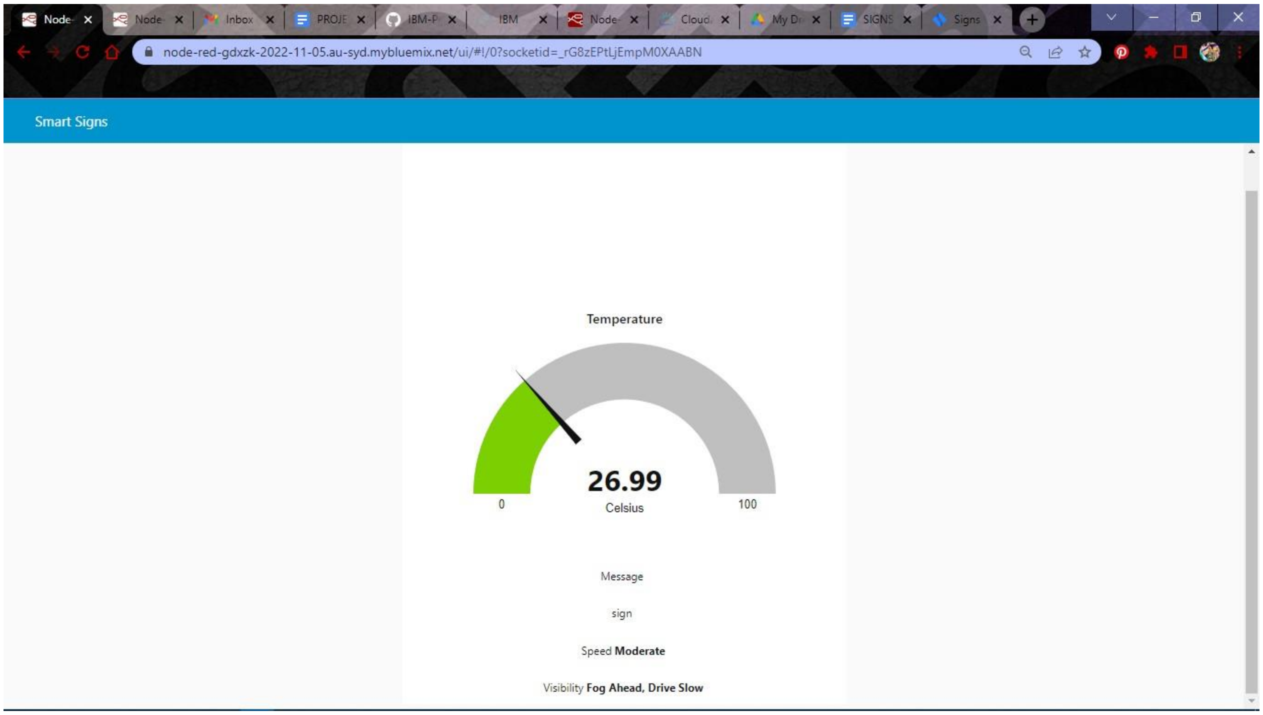
Reference link:
https://node-red-gdxzk-2022-11-05.au-syd.mybluemix.net/red/#flow/558c2e11fd1306ab

OUTPUT FOR NODE RED:

After making the proper connection between nodes the deploy button is enabled and the result is displayed on the node-red dashboard.

Reference link:
https://node-red-gdxzk-2022-11-05.au-syd.mybluemix.net/ui/#!/0?socketid=K3WuCimudoiryXYUAABD

It shows the result in a diagrammatic structure.


Node
Node
Inbox
PROJE
IBM-P
IBM
Node
Cloud
My Dr
SIGNS
Signs
node-red-gdxzk-2022-11-05.au-syd.mybluemix.net/ui/#!/0?socketid=_rG8zEPtLjEmpM0XAABN
0
100

Smart Signs

Temperature

26.99

Celsius

Message

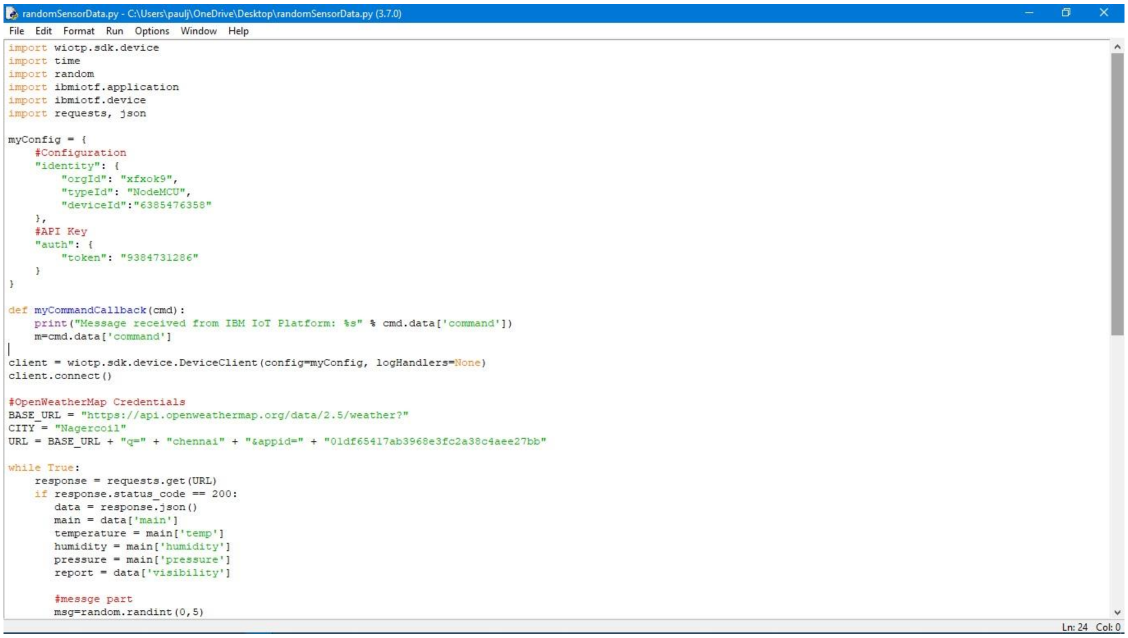
sign

Speed **Moderate**

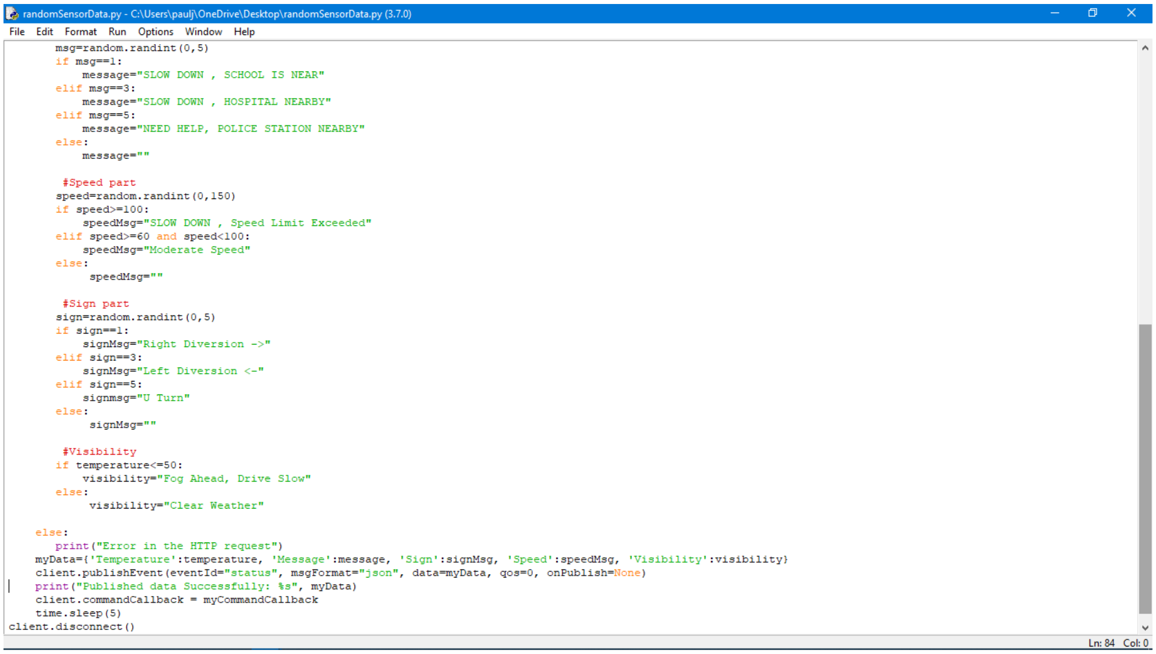
Visibility **Fog Ahead, Drive Slow**

CODE IN PYTHON IDLE :

PROGRAM:


randomSensorData.py - C:\Users\paulj\OneDrive\Desktop\randomSensorData.py (3.7.0)
File Edit Format Run Options Window Help
Ln: 24 Col: 0

```python
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
    #Configuration
    "identity": {
        "orgId": "xfxok9",
        "typeId": "NodeMCU",
        "deviceId":"6385476358"
    },
    #API Key
    "auth": {
        "token": "9384731286"
    }
}

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 = "Nagercoil"
URL = BASE_URL + "q=" + "chennai" + "&appid=" + "01df65417ab3968e3fc2a38c4aee27bb"

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)
```


randomSensorData.py - C:\Users\paulj\OneDrive\Desktop\randomSensorData.py (3.7.0)
File Edit Format Run Options Window Help
Ln: 84 Col: 0

```python
       msg=random.randint(0,5)
       if msg==1:
           message="SLOW DOWN , SCHOOL IS NEAR"
       elif msg==3:
           message="SLOW DOWN , HOSPITAL NEARBY"
       elif msg==5:
           message="NEED HELP, POLICE STATION NEARBY"
       else:
           message=""

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

        #Sign part
       sign=random.randint(0,5)
       if sign==1:
           signMsg="Right Diversion ->"
       elif sign==3:
           signMsg="Left Diversion <-"
       elif sign==5:
           signmsg="U Turn"
       else:
            signMsg=""

        #Visibility
       if temperature<=50:
           visibility="Fog Ahead, Drive Slow"
       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)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(5)
client.disconnect()
```

Program used in the code:

```
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
    #Configuration
    "identity": {
        "orgId": "xfxok9",
        "typeId": "NodeMCU",
        "deviceId":"6385476358"
    },
    #API Key
    "auth": {
        "token": "9384731286"
    }
}

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 = "Nagercoil"
URL = BASE_URL + "q=" + "chennai" + "&appid=" +
"01df65417ab3968e3fc2a38c4aee27bb"

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']

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            message="SLOW DOWN , HOSPITAL NEARBY"
        elif msg==5:
            message="NEED HELP, POLICE STATION NEARBY"
        else:
            message=""

         #Speed part
        speed=random.randint(0,150)
        if speed>=100:
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       elif speed>=60 and speed<100:
           speedMsg="Moderate Speed"
       else:
            speedMsg=""
        #Sign part
       sign=random.randint(0,5)
       if sign==1:
           signMsg="Right Diversion ->"
       elif sign==3:
           signMsg="Left Diversion <-"
       elif sign==5:
            signmsg="U Turn"
       else:
            signMsg=""

        #Visibility
       if temperature<=50:
           visibility="Fog Ahead, Drive Slow"
       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)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(5)
```
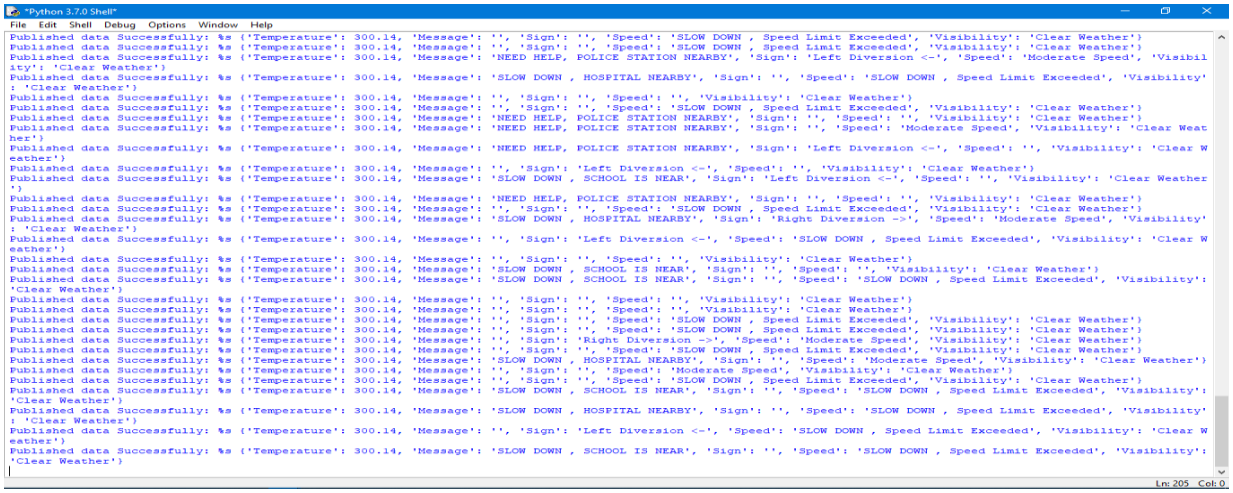

client.disconnect()

Output displayed in Python Idle:

The output of the code was displayed in python idle shell mode.



```
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': 'Left Diversion <-', 'Speed': 'Moderate Speed', 'Visibil
ity': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , HOSPITAL NEARBY', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility'
: 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': '', 'Speed': 'Moderate Speed', 'Visibility': 'Clear Weat
her'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': 'Left Diversion <-', 'Speed': '', 'Visibility': 'Clear W
eather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': 'Left Diversion <-', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': 'Left Diversion <-', 'Speed': '', 'Visibility': 'Clear Weather
'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'NEED HELP, POLICE STATION NEARBY', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , HOSPITAL NEARBY', 'Sign': 'Right Diversion ->', 'Speed': 'Moderate Speed', 'Visibility'
: 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': 'Left Diversion <-', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear W
eather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility':
'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': '', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather'}
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Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'Moderate Speed', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility':
'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , HOSPITAL NEARBY', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility'
: 'Clear Weather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': '', 'Sign': 'Left Diversion <-', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility': 'Clear W
eather'}
Published data Successfully: %s {'Temperature': 300.14, 'Message': 'SLOW DOWN , SCHOOL IS NEAR', 'Sign': '', 'Speed': 'SLOW DOWN , Speed Limit Exceeded', 'Visibility':
'Clear Weather'}
|
```
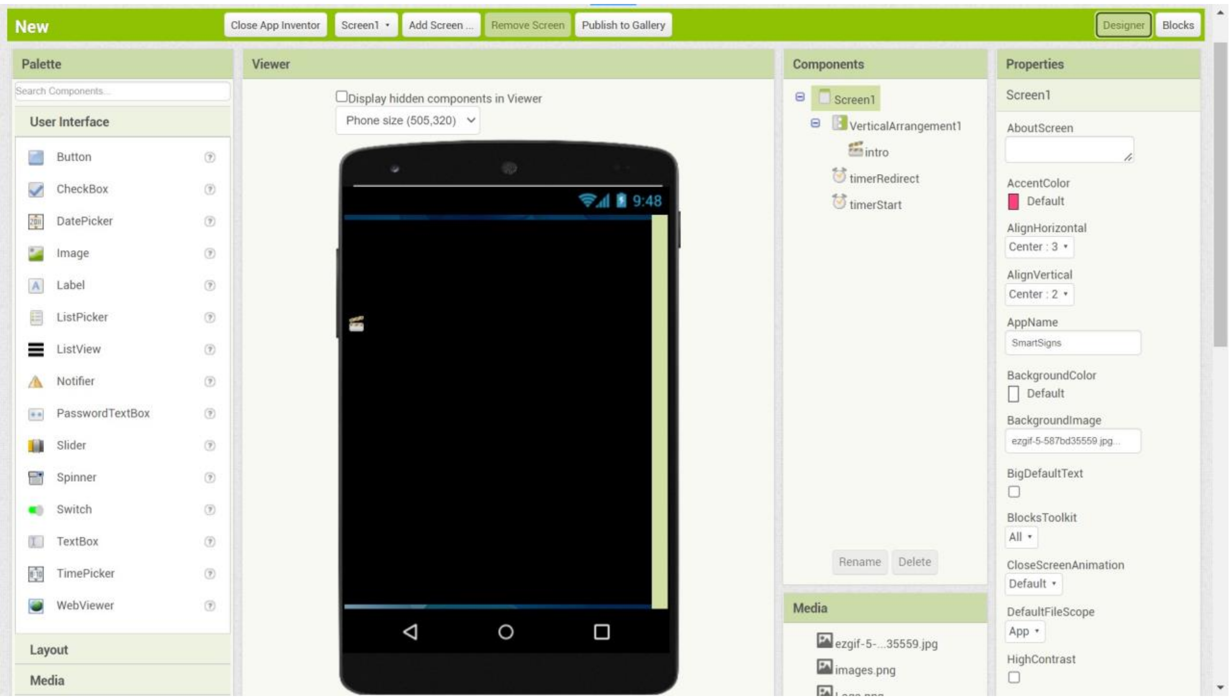

MIT APP INVENTOR:

For Screen 1:



☐ Display hidden components in Viewer

Phone size (505,320)

Components:

- Screen1
  - VerticalArrangement1
    - intro
  - timerRedirect
  - timerStart

Media:

- ezgif-5-...35559.jpg
- images.png

Properties: Screen1

AboutScreen

AccentColor: Default

AlignHorizontal: Center : 3 ▾

AlignVertical: Center : 2 ▾

AppName: SmartSigns

BackgroundColor: ☐ Default

BackgroundImage: ezgif-5-587bd35559.jpg...

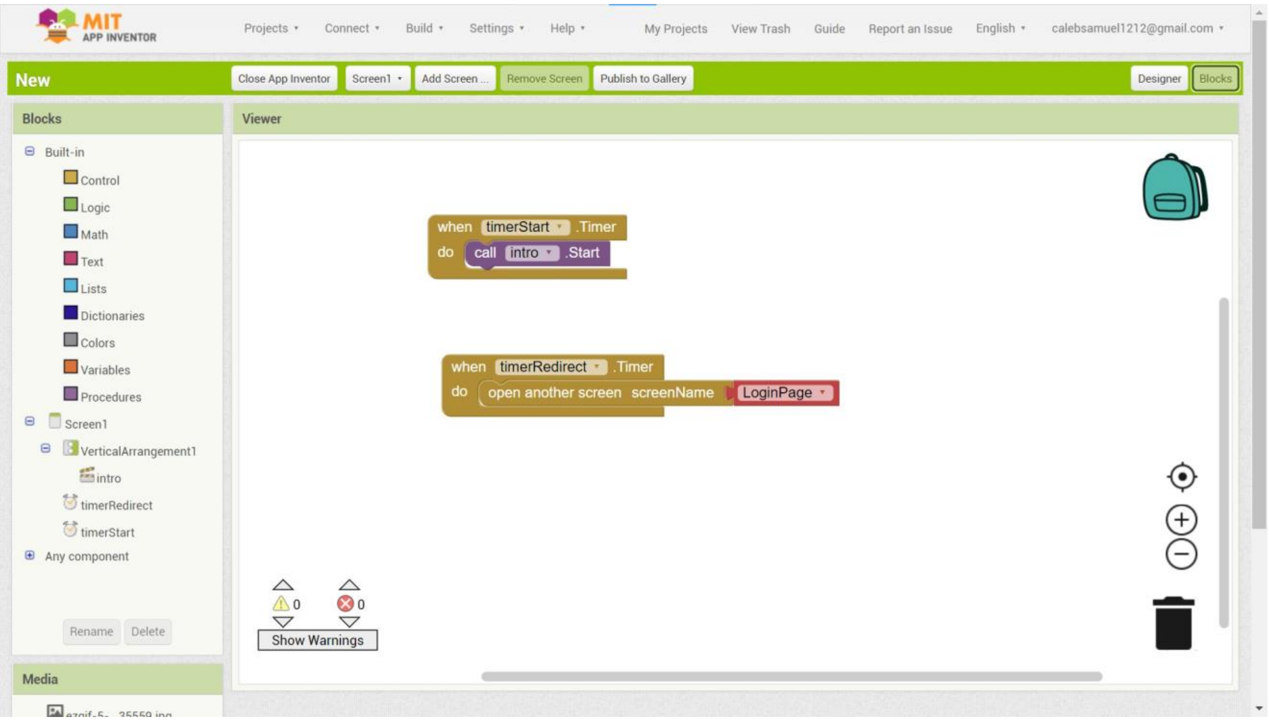
BigDefaultText: ☐

BlocksToolkit: All ▾

CloseScreenAnimation: Default ▾

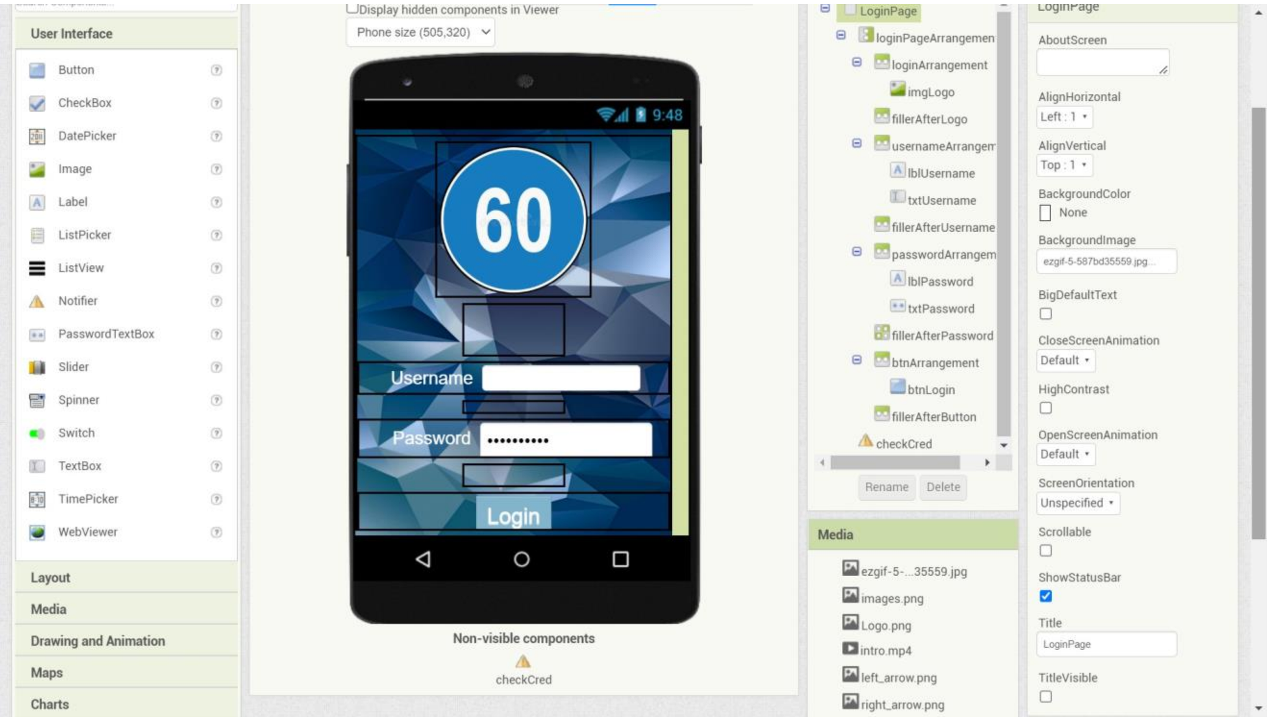
DefaultFileScope: App ▾

HighContrast: ☐



```
when timerStart .Timer
do  call intro .Start

when timerRedirect .Timer
do  open another screen  screenName  "LoginPage"
```

For Screen 2 :



AboutScreen

AlignHorizontal
Left : 1

AlignVertical
Top : 1

BackgroundColor
□ None

BackgroundImage
ezgif-5-587bd35559.jpg...

BigDefaultText
□

CloseScreenAnimation
Default

HighContrast
□

OpenScreenAnimation
Default

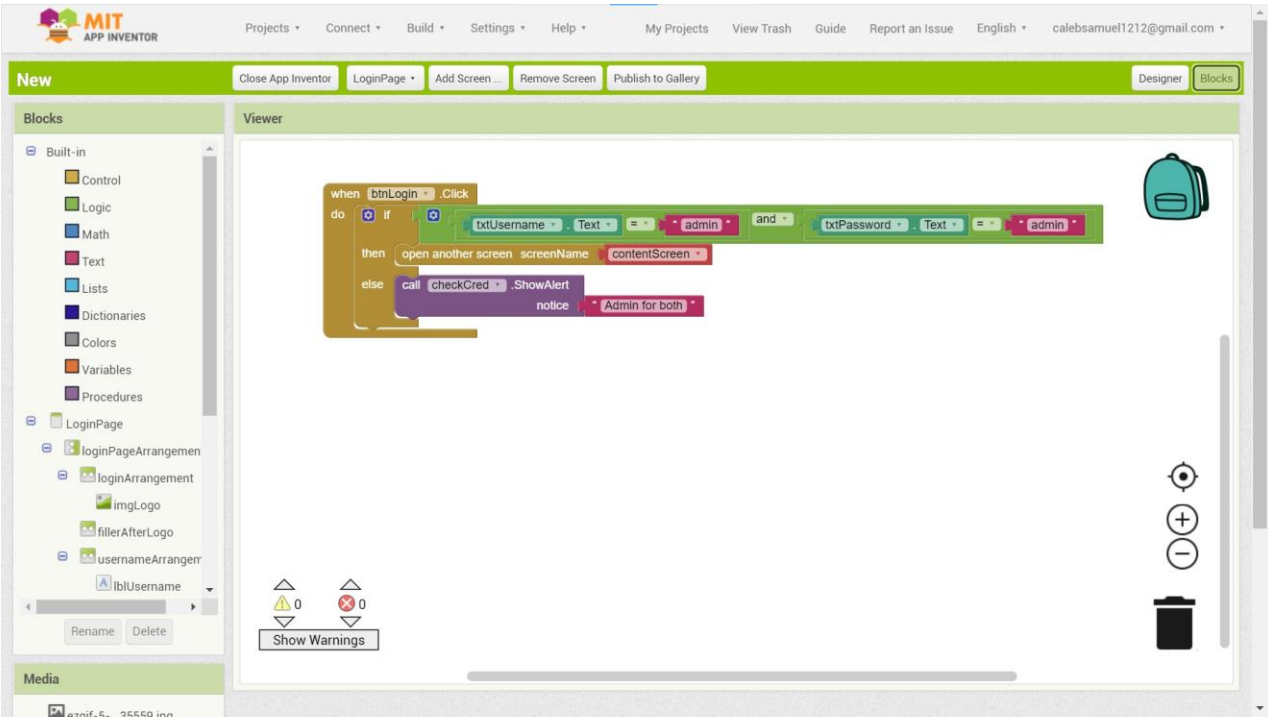
ScreenOrientation
Unspecified

Scrollable
□

ShowStatusBar
☑

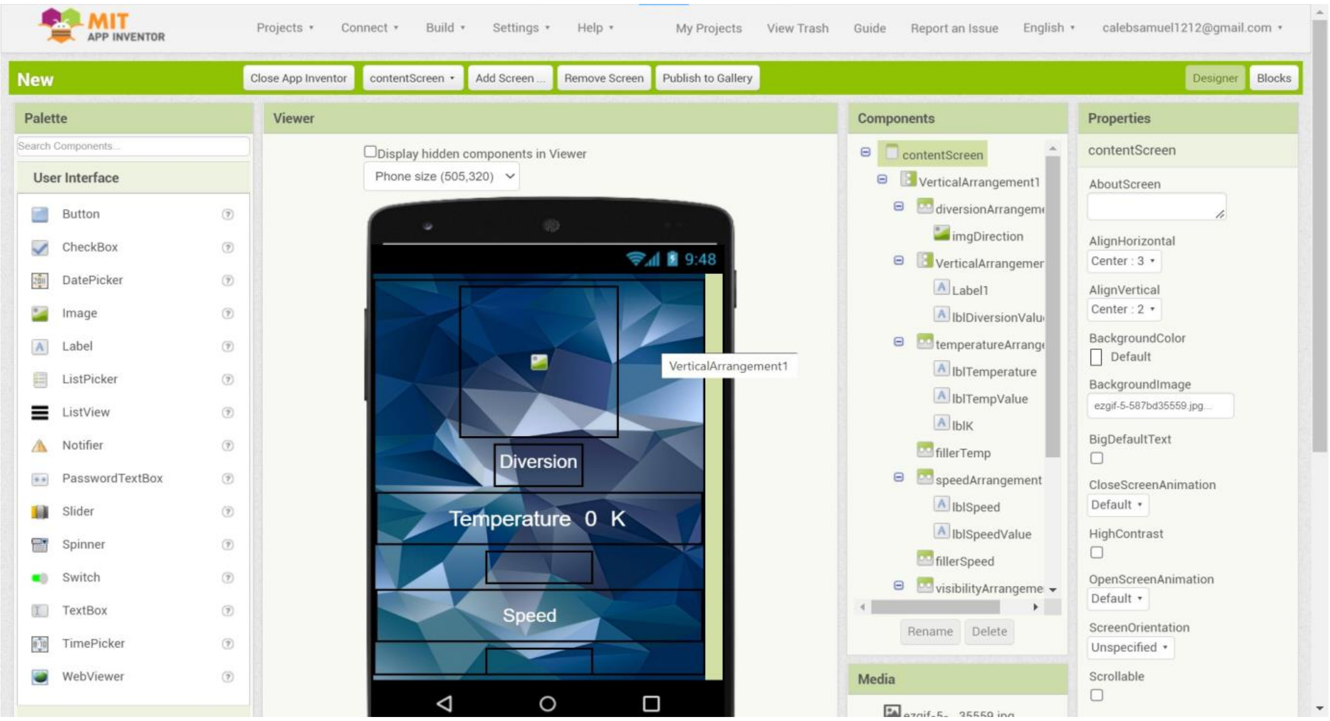
Title
LoginPage

TitleVisible
□



```
when btnLogin .Click
do  if  txtUsername . Text  =  "admin"  and  txtPassword . Text  =  "admin"
    then  open another screen  screenName  "contentScreen"
    else  call checkCred .ShowAlert
                          notice  "Admin for both"
```

For Screen 3 :



contentScreen

AboutScreen

AlignHorizontal
Center : 3 ▾

AlignVertical
Center : 2 ▾

BackgroundColor
□ Default

BackgroundImage
ezgif-5-587bd35559.jpg...

BigDefaultText
□

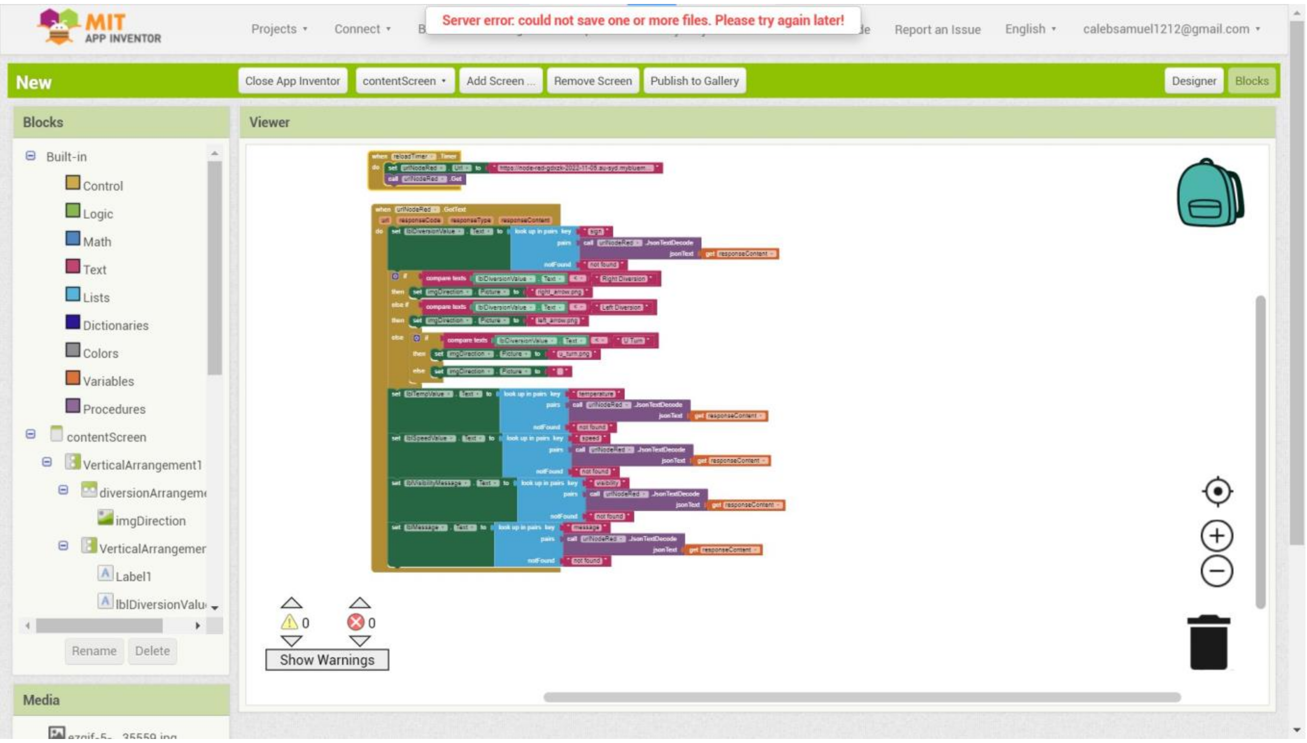
CloseScreenAnimation
Default ▾

HighContrast
□

OpenScreenAnimation
Default ▾

ScreenOrientation
Unspecified ▾

Scrollable
□



Server error: could not save one or more files. Please try again later!

```
when reloadTimer .Timer
do  set urlNodeRed . Url to " https://node-red-gdizk-2022-11-08.au-syd.mybluem... "
    call urlNodeRed .Get

when urlNodeRed .GotText
 url  responseCode  responseType  responseContent
do  set lblDiversionValue . Text to  look up in pairs  key " sign "
                                                       pairs  call urlNodeRed .JsonTextDecode
                                                                                     jsonText  get responseContent
                                                       notFound " not found "
    if      compare texts  lblDiversionValue . Text  =  " Right Diversion "
    then    set imgDirection . Picture to " right_arrow.png "
    else if compare texts  lblDiversionValue . Text  =  " Left Diversion "
    then    set imgDirection . Picture to " left_arrow.png "
    else    if   compare texts  lblDiversionValue . Text  =  " U Turn "
            then set imgDirection . Picture to " u_turn.png "
            else set imgDirection . Picture to " "
    set lblTempValue . Text to  look up in pairs  key " temperature "
                                                  pairs  call urlNodeRed .JsonTextDecode
                                                                                jsonText  get responseContent
                                                  notFound " not found "
    set lblSpeedValue . Text to  look up in pairs  key " speed "
                                                   pairs  call urlNodeRed .JsonTextDecode
                                                                                 jsonText  get responseContent
                                                   notFound " not found "
    set lblVisibilityMessage . Text to  look up in pairs  key " visibility "
                                                          pairs  call urlNodeRed .JsonTextDecode
                                                                                        jsonText  get responseContent
                                                          notFound " not found "
    set lblMessage . Text to  look up in pairs  key " message "
                                                pairs  call urlNodeRed .JsonTextDecode
                                                                              jsonText  get responseContent
                                                notFound " not found "
```