

SPRINT - 4

Date	13 NOV 2022
Team ID	PNT2022TMID01880
Project Name	Smart Waste Management System for Metropolitan Cities

1, Simulate python code in Python IDE software to transmit data to IBM Watson IOT platform

Python code:

smartbin.py:

```
#Project: Smart Waste Management System for Metropolitan cities
#Team ID: PNT2022TMID01880

#Installing necessary libraries
import wiotp.sdk.device
import time
import random
import requests
import math

#Configuration details for connecting python script to IBM Watson
IoT Platform
myConfig = { "identity": {
"orgId": "1hx03x",
"typeId": "cloud",
"deviceId":"232323"
},
"auth": {
"token": "12345678"
} }

def myCommandCallback(cmd):
print("Message received from IBM IoT Platform: %s" % cmd.data)
#Connecting the client to ibm watson iot platform
client =
wiotp.sdk.device.DeviceClient(config=myConfig,logHandlers= None)
client.commandCallback = myCommandCallback
client.connect()
print("CONNECTED");
```

```
while True:
    res = requests.get('https://ipinfo.io/')
    data = res.json()
    loc = data['loc'].split(',')
    theta = random.uniform(0,2*math.pi)
    area = (0.05**2)*math.pi
    radius = math.sqrt(random.uniform(0,area/math.pi))
    latitude,longitude = [float(loc[0])+radius*math.cos(theta),
float(loc[1])+radius*math.sin(theta)]
    binlevel=random.randint(10,100)
    distance = random.randint(10,100)
    if binlevel>80:
        myData={'Distance':distance, 'latitude':latitude,
        'longitude':longitude,'binlevel':binlevel}
        client.publishEvent(eventId="status", msgFormat="json",
        data=myData, qos=0, onPublish=None)
        client.commandCallback = myCommandCallback
        print("BIN IS FULL...")
        print("SENDING THE DATA...")
        time.sleep(2)
    else :
        print("BIN IS IN NORMAL LEVEL...")
        time.sleep(2)
    #Disconnect the client connection
    client.disconnect()
```

Python IDE output:

```
C:\Users\TAMIL MUHIHAN\Desktop\New folder\sample.py (3.10.4)
File Edit Format Run Options Window Help
#Project: Smart Waste Management System for Metropolitan cities #Team ID: PNT2022TMID01880

#Installing necessary libraries
import wiotp.sdk.device
import time
import random
import requests
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#Configuration details for connecting python script to IBM Watson IoT Platform
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},
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        "token": "12345678"
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def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data)

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while True:
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    data = res.json()
    loc = data['loc'].split(',')
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    area = (0.05**2)*math.pi
    radius = math.sqrt(random.uniform(0,area/math.pi))
    latitude, longitude = [float(loc[0])+radius*math.cos(theta), float(loc[1]+radius*math.sin(theta))]

    binlevel=random.randint(10,100)
    distance = random.randint(10,100)
    if binlevel>80:
        myData={'Distance':distance, 'latitude':latitude, 'longitude':longitude}
        client.publishEvent(eventId="status", msgFormat="json", data=myData, contentType="text/json")
```

2. Data is transferred to IBM Watson IoT platform.

IBM Platform output:

← → ↻ 1hx03x.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM-EPBL/IBM-Pr... IBM-Project-1125... http://www.google... IBM

IBM Watson IoT Platform

⋮

⚙️

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Browse

ActionDevice TypesInterfaces

Add Device

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.

🔍 Search by Device ID

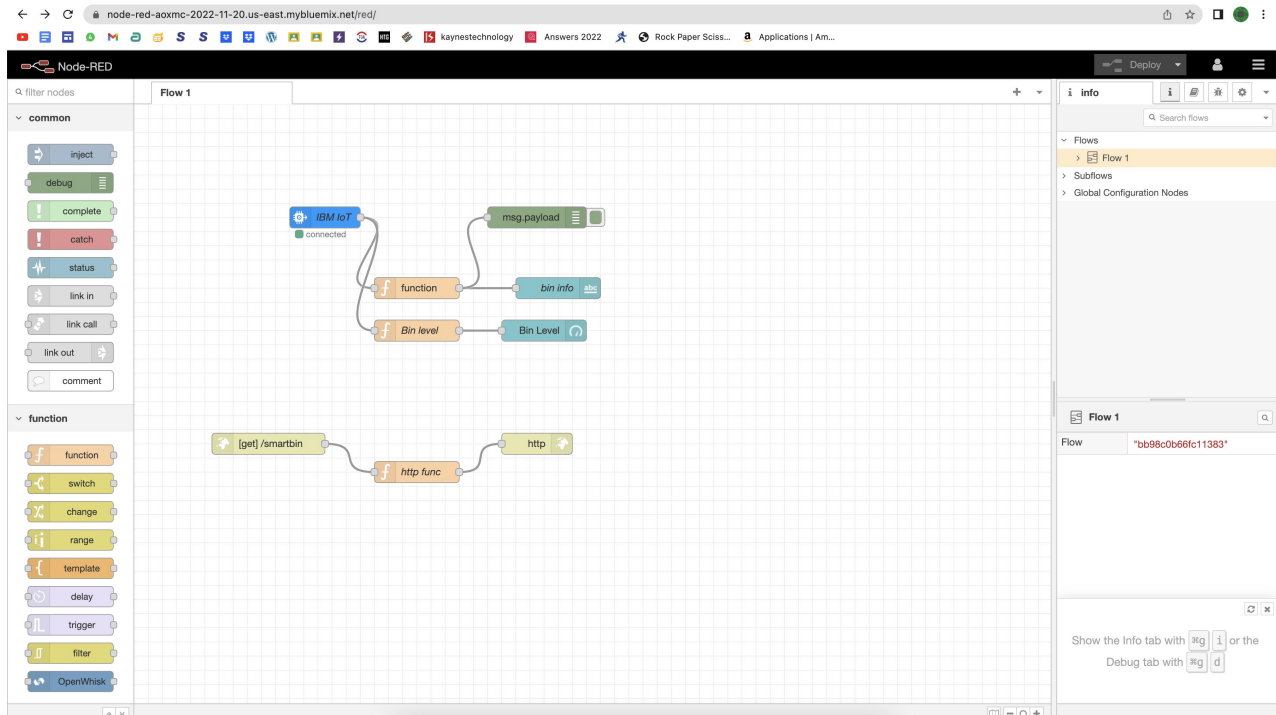
Device Simulator

🔍

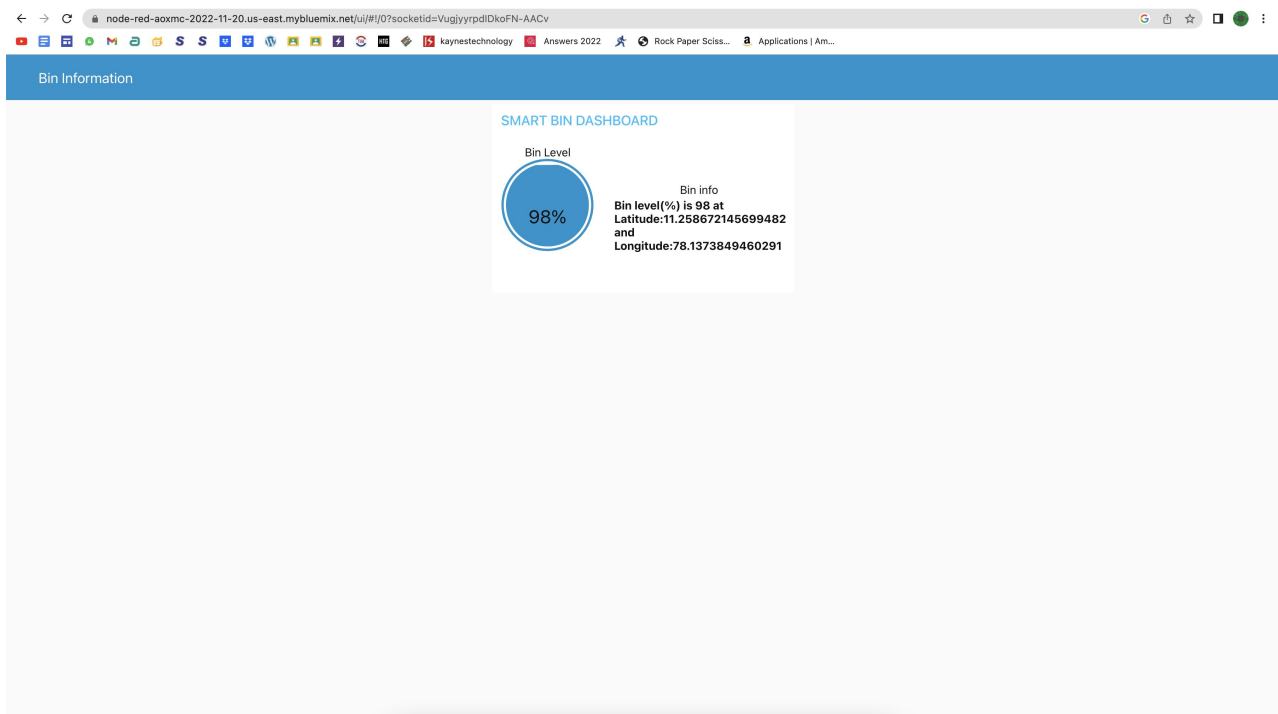
<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class				
▼ <input type="checkbox"/>	232323	Connected	cloud	Device	Nov 20, 2022 12:23 PM		7376191ec309@smartintenz.com	→ ...				
Identity	Device Information	Recent Events	State	Logs								
The recent events listed show the live stream of data that is coming and going from this device.												
Event	Value	Format	Last Received									
status	{"Distance":99,"latitude":11.237919061707885...	json	a few seconds ago									
status	{"Distance":75,"latitude":11.21336255027092,"...	json	a few seconds ago									
status	{"Distance":61,"latitude":11.225098748763434...	json	23 minutes ago									
status	{"Distance":66,"latitude":11.215185174421823...	json	23 minutes ago									
status	{"Distance":41,"latitude":11.206082076734994...	json	23 minutes ago									

3. Node-RED Connection setup for data transmission from IBM Watson IoT platform to Node-RED dashboard and viewing in Web UI .

Node-RED:

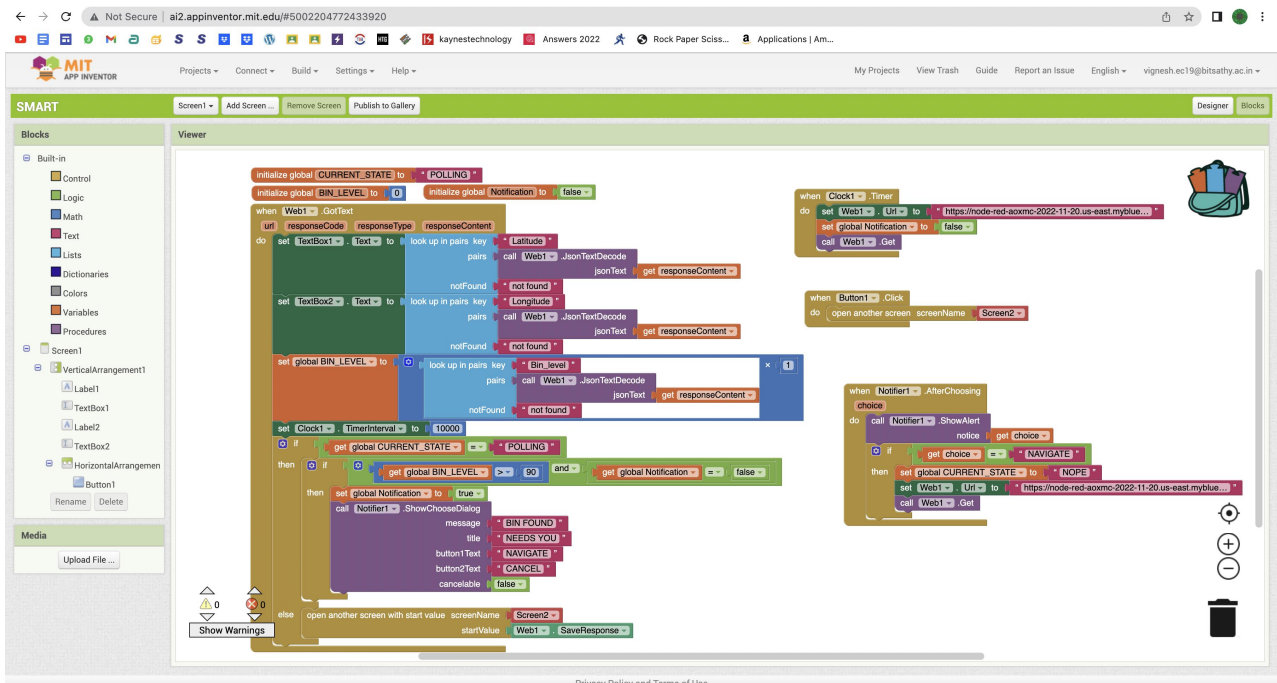
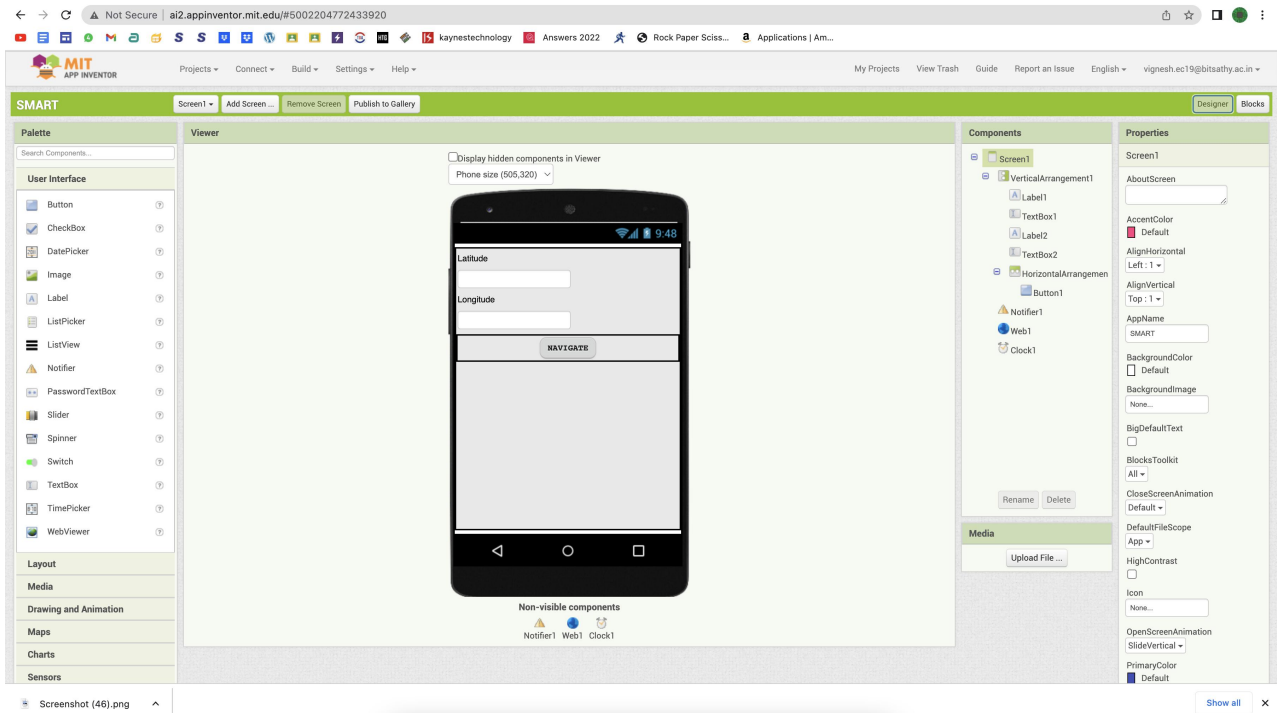


Web UI:

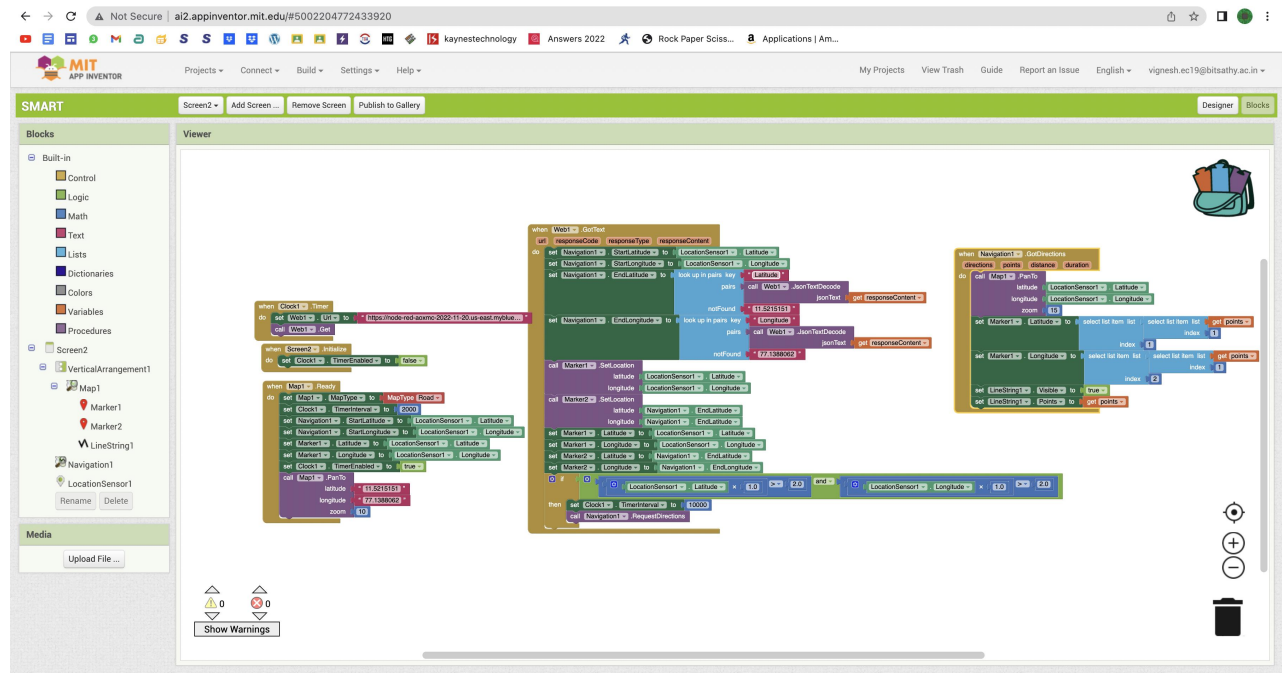
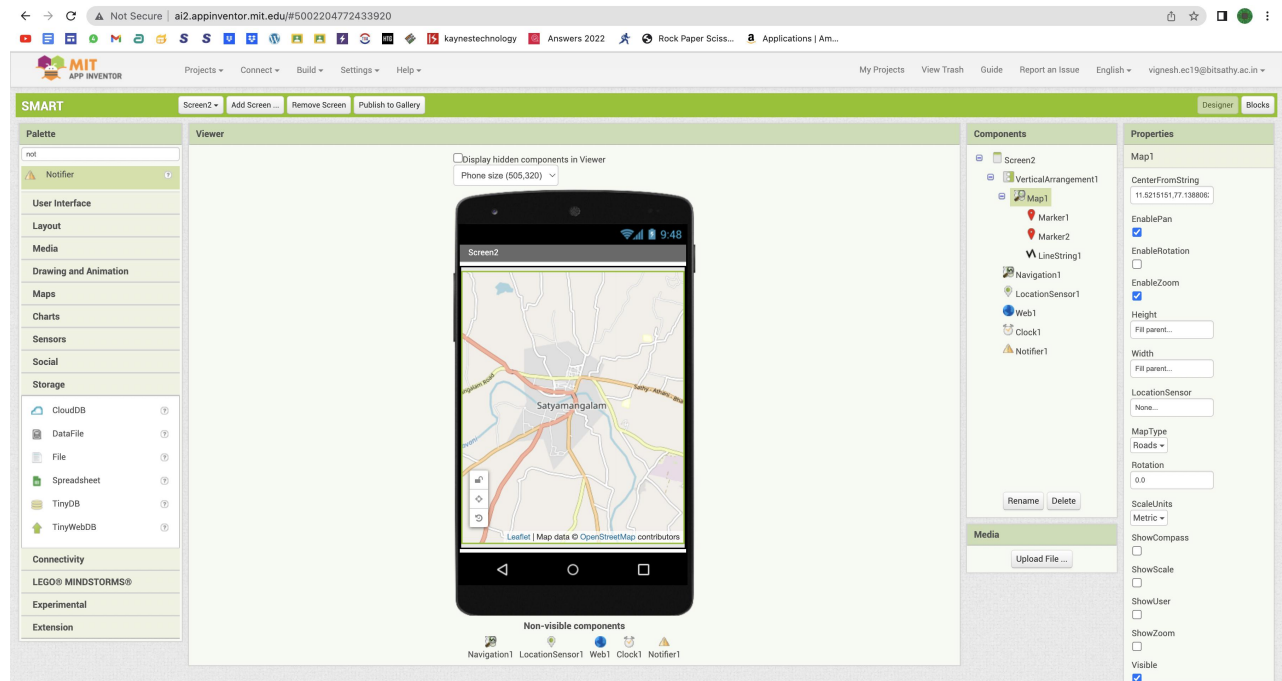


4. App is created using MIT App inventor

Home Screen:



Navigation Screen:



5. Created Application using MIT Inventor and installed in phone

Sample Outputs

