

## PROJECT DEVELOPMENT PHASE

### Delivery of Sprint - 4

Date	15 November 2022
Team ID	PNT2022TMID32826
Project Name	Smart farmer - IoT Enabled Smart Farming Application

```
Smart_Farming.py - C:\Users\A S ABISHEK\AppData\Local\Programs\Python\Python37\Smart_Farming.py (3.7.0)
File Edit Format Run Options Window Help

import wiotp.sdk.device
import time
import os
import datetime
import random
myConfig={
    "identity":{
        "orgId":"uq23sr",
        "typeId":"Smart_Farming",
        "deviceId":"32826"
    },
    "auth": {
        "token":"3wNLT00lg8VpEJEpsq"
    }
}
client=wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platfmd: %s" % cmd.data['command'])
    m=cmd.data['command']
    if(m=="motoron"):
        print("Motor is switched ON")
    elif(m=="motoroff"):
        print("Motor is switched OFF")
    print(" ")
while True:
    soil=random.randint(0,100)
    temp=random.randint(-20,125)
    hum=random.randint(0,100)
    myData={'soil_moisture':soil,'temperature':temp,'humidity':hum}
    client.publishEvent(eventId="status",msgFormat="json",data=myData,qos=0,onPublish=None)
    print("Published data successfully",myData)
    time.sleep(2)
    client.commandCallback=myCommandCallback
client.disconnect()
```

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\*Python 3.7.0 Shell\*

File Edit Shell Debug Options Window Help

Python 3.7.0 (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: C:\Users\A S ABISHEK\AppData\Local\Programs\Python\Python37\Smart\_Farming.py

2022-11-10 16:04:42,463 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:uq23sr:Smart\_Farming:32826Published data successfully

{'soil\_moisture': 37, 'temperature': 1, 'humidity': 35}

Published data successfully {'soil\_moisture': 89, 'temperature': 94, 'humidity': 24}

Published data successfully {'soil\_moisture': 57, 'temperature': 28, 'humidity': 90}

Published data successfully {'soil\_moisture': 65, 'temperature': -18, 'humidity': 4}

Published data successfully {'soil\_moisture': 87, 'temperature': 81, 'humidity': 92}

Published data successfully {'soil\_moisture': 62, 'temperature': -16, 'humidity': 33}

Published data successfully {'soil\_moisture': 99, 'temperature': 105, 'humidity': 62}

Published data successfully {'soil\_moisture': 41, 'temperature': 114, 'humidity': 78}

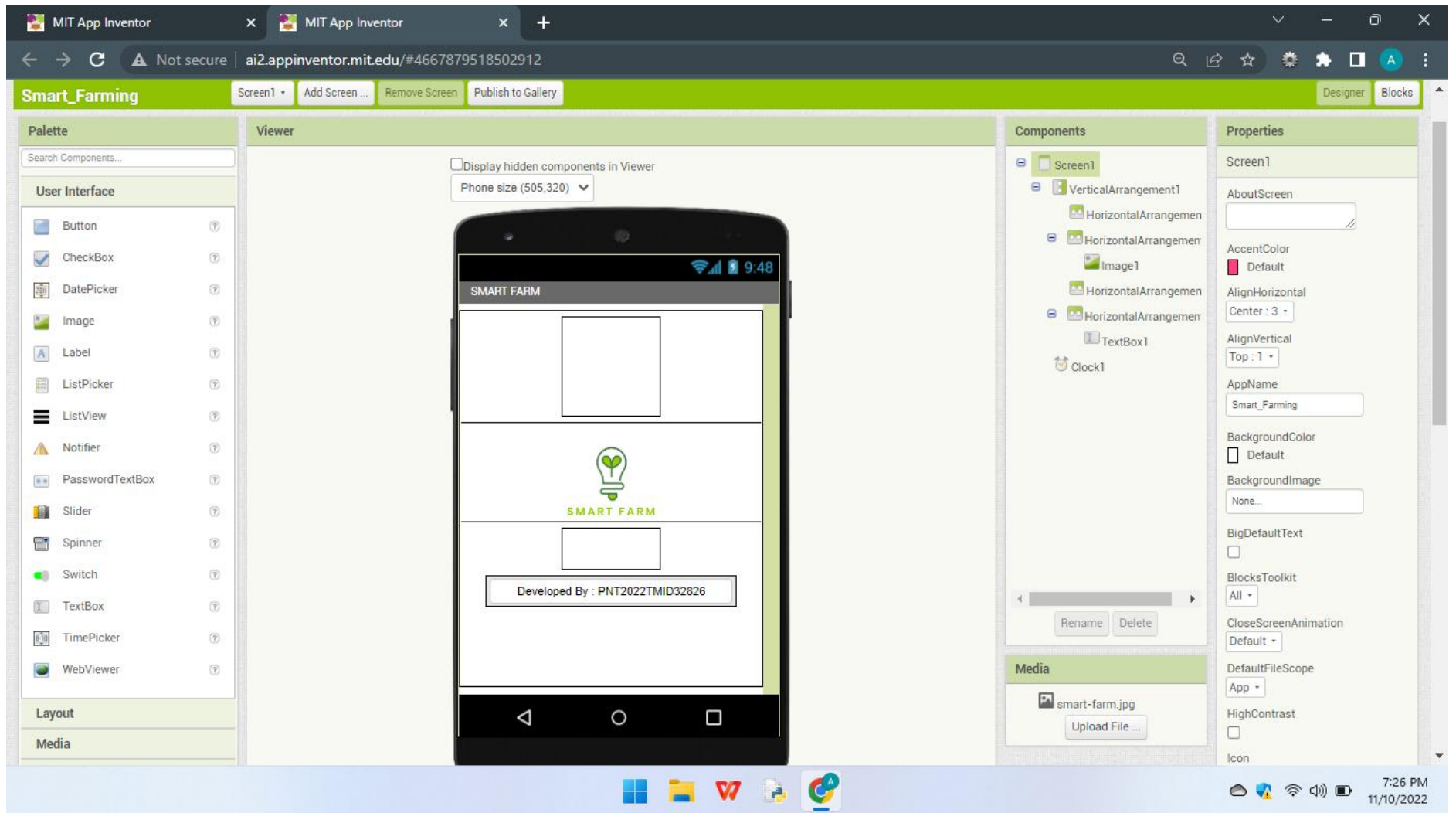
Published data successfully {'soil\_moisture': 26, 'temperature': -15, 'humidity': 49}

Published data successfully {'soil\_moisture': 55, 'temperature': 84, 'humidity': 87}

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Smart\_Farming

Screen1 Add Screen ... Remove Screen Publish to Gallery

Designer Blocks

Blocks

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen1
  - VerticalArrangement1
    - HorizontalArrangement1
      - Image1
    - HorizontalArrangement2
    - HorizontalArrangement3
    - HorizontalArrangement4

Viewer

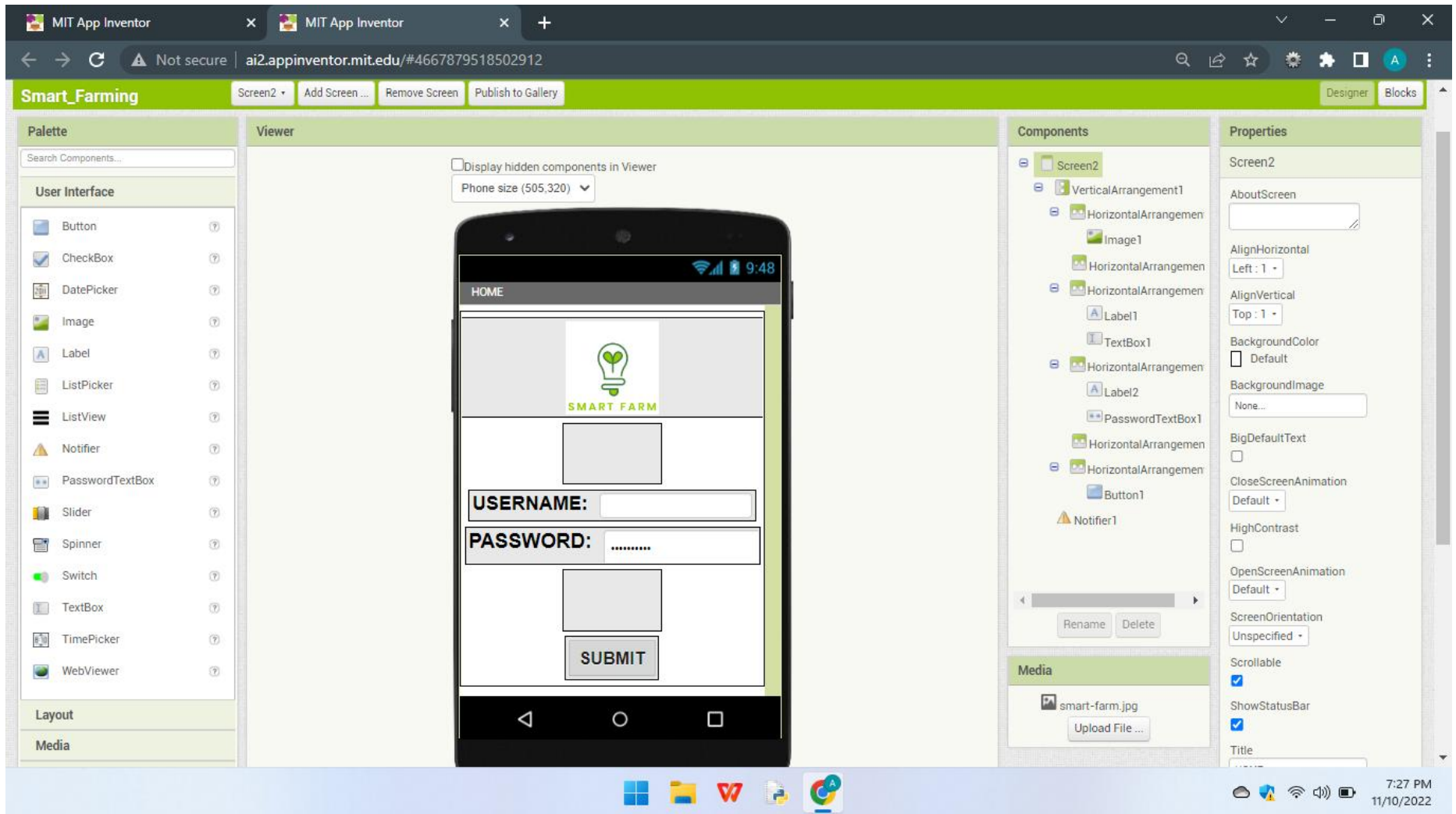
when Clock1.Timer

do

- set Clock1.TimerEnabled to false
- open another screen screenName Screen2

Show Warnings

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### Smart\_Farming

Screen2 Add Screen ... Remove Screen Publish to Gallery

Designer Blocks

#### Blocks

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen2
  - VerticalArrangement1
    - HorizontalArrangement
      - Image1
      - HorizontalArrangement
      - HorizontalArrangement
      - Label1

Rename Delete

#### Viewer

when Button1 .Click

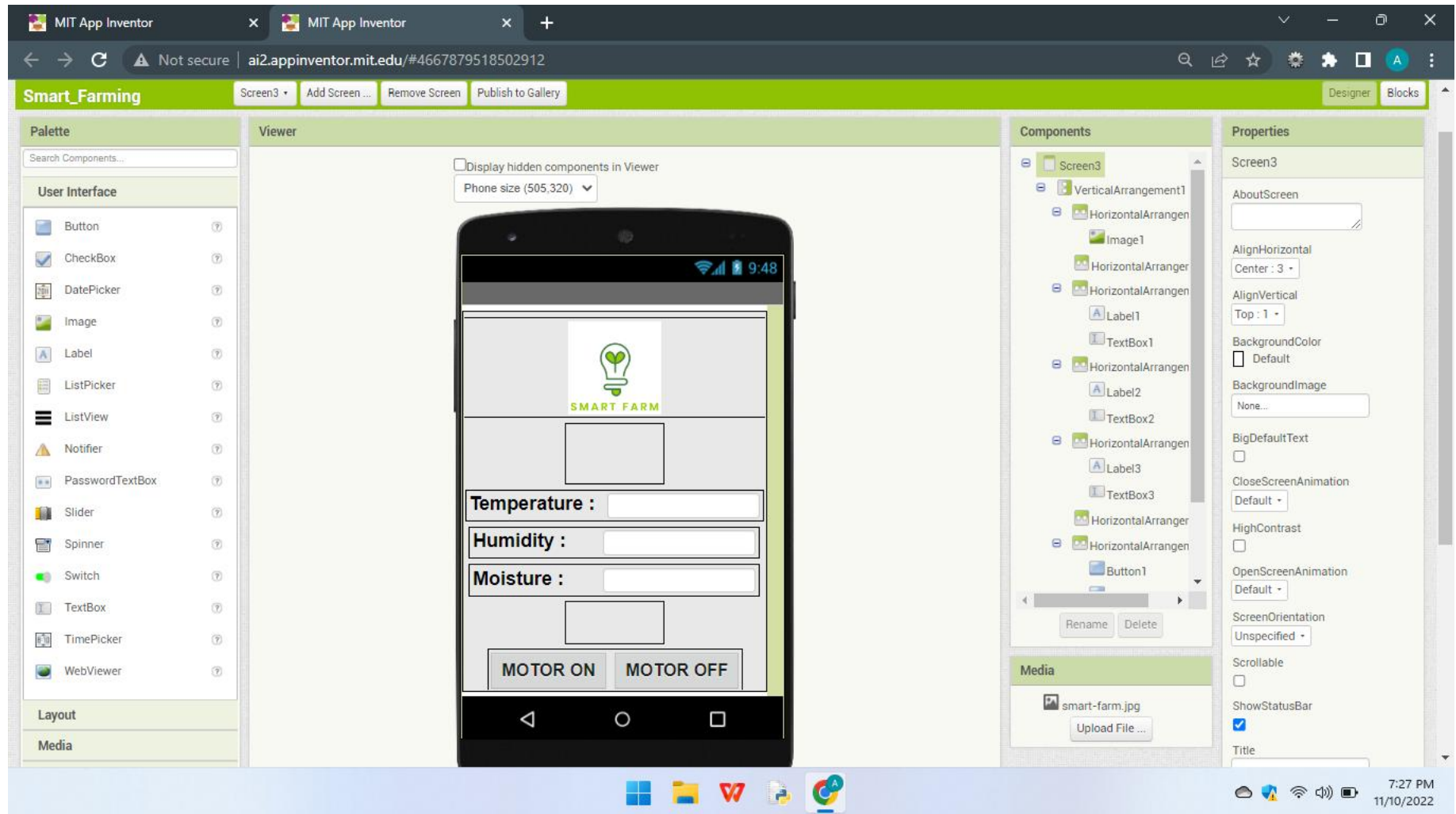
do

- if
  - TextBox1 .Text = "Smart\_Farmer" and PasswordTextBox1 .Text = "Smart\_Farmer"
  - then open another screen screenName Screen3
  - else call Notifier1 .ShowAlert notice "Check Your Credentials!!"

0 0

Show Warnings

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### Smart\_Farming

Screen3 Add Screen ... Remove Screen Publish to Gallery

Designer Blocks

**Blocks**

- Built-in
  - Control
  - Logic
  - Math
  - Text
  - Lists
  - Dictionaries
  - Colors
  - Variables
  - Procedures
- Screen3
  - VerticalArrangement1
    - HorizontalArrangement1
      - Image1
      - HorizontalArrangement1
        - HorizontalArrangement1
          - Label1

Rename Delete

**Viewer**

when Clock1.Timer

do

- set Web1.Url to https://node-red-zncis-2022-11-04.au-syd.mybluem...
- call Web1.Get

when Web1.GotText

url	responseCode	responseType	responseContent
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	"humidity"	
	pairs	call Web1.JsonTextDecode	jsonText get responseContent
	notFound	"not found"	
set TextBox3.Text to	look up in pairs key	"moisture"	
	pairs	call Web1.JsonTextDecode	jsonText get responseContent
	notFound	"not found"	

Show Warnings

7:25 PM 11/10/2022



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Smart\_Farming

Screen3

Add Screen ...

Remove Screen

Publish to Gallery

Designer

Blocks

Control

Logic

Math

Text

Lists

Dictionaries

Colors

Variables

Procedures

Screen3

VerticalArrangement1

HorizontalArrangement1

Image1

HorizontalArrangement2

HorizontalArrangement3

Label1

Rename

Delete

Viewer

when Button1 .Click

do

set Web2 . Url to https://node-red-zncis-2022-11-04.au-syd.mybluem...

call Web2 .Get

when Button2 .Click

do

set Web2 . Url to https://node-red-zncis-2022-11-04.au-syd.mybluem...

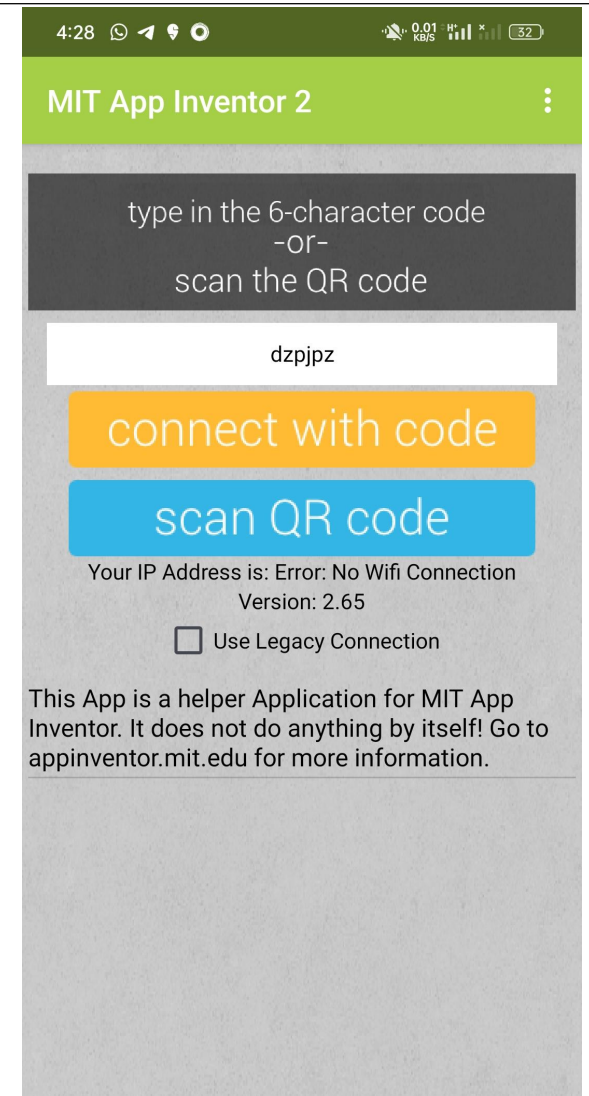
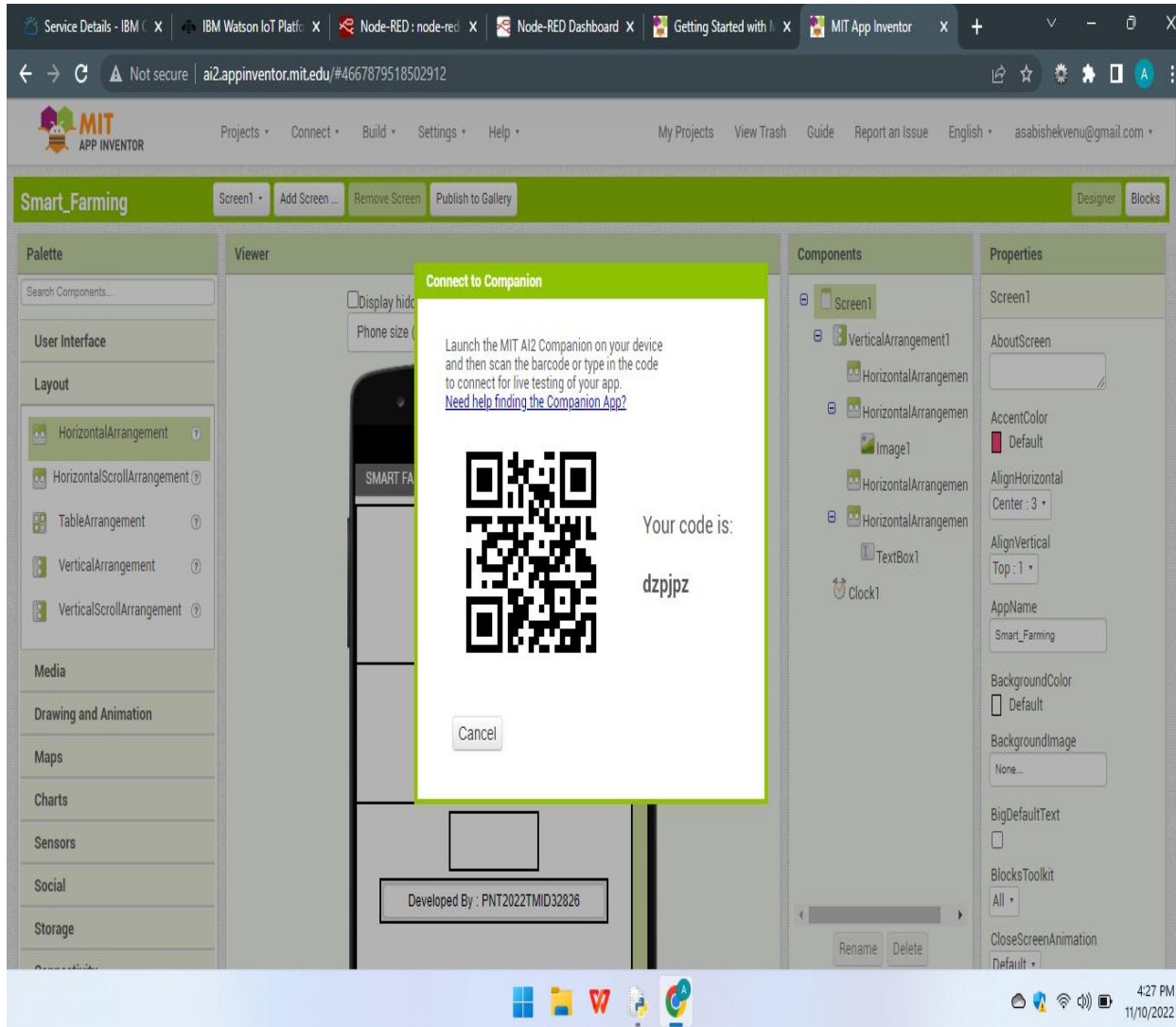
call Web2 .Get

0

0

Show Warnings

7:26 PM 11/10/2022





Developed By : PNT2022TMID32826



Temperature : 60  
Humidity : 48  
Moisture : 17

MOTOR ON MOTOR OFF



USERNAME: Smart\_Farmer  
PASSWORD: .....

SUBMIT

## After Clicking MOTOR ON and MOTOR OFF Command in Mobile App:

```
*Python 3.7.0 Shell*
File Edit Shell Debug Options Window Help
Published data successfully {'soil_moisture': 27, 'temperature': 88, 'humidity': 95}
Published data successfully {'soil_moisture': 81, 'temperature': 120, 'humidity': 95}
Published data successfully {'soil_moisture': 52, 'temperature': 124, 'humidity': 33}
Published data successfully {'soil_moisture': 70, 'temperature': 123, 'humidity': 1}
Published data successfully {'soil_moisture': 17, 'temperature': 60, 'humidity': 48}
Published data successfully {'soil_moisture': 4, 'temperature': 103, 'humidity': 19}
Published data successfully {'soil_moisture': 74, 'temperature': -2, 'humidity': 89}
Published data successfully {'soil_moisture': 62, 'temperature': 92, 'humidity': 21}
Published data successfully {'soil_moisture': 11, 'temperature': 74, 'humidity': 56}
Published data successfully {'soil_moisture': 38, 'temperature': 50, 'humidity': 86}
Published data successfully {'soil_moisture': 14, 'temperature': 116, 'humidity': 54}
Published data successfully {'soil_moisture': 60, 'temperature': 100, 'humidity': 67}
Published data successfully {'soil_moisture': 71, 'temperature': 101, 'humidity': 78}
Published data successfully {'soil_moisture': 41, 'temperature': 121, 'humidity': 56}
Published data successfully {'soil_moisture': 78, 'temperature': 98, 'humidity': 49}
Published data successfully {'soil_moisture': 39, 'temperature': 73, 'humidity': 48}
Published data successfully {'soil_moisture': 61, 'temperature': 55, 'humidity': 89}
Published data successfully {'soil_moisture': 80, 'temperature': 85, 'humidity': 69}
Published data successfully {'soil_moisture': 21, 'temperature': 106, 'humidity': 62}
Published data successfully {'soil_moisture': 16, 'temperature': -4, 'humidity': 15}
Published data successfully {'soil_moisture': 18, 'temperature': 111, 'humidity': 6}
Published data successfully {'soil_moisture': 86, 'temperature': -2, 'humidity': 79}
Published data successfully {'soil_moisture': 91, 'temperature': 39, 'humidity': 52}
Published data successfully {'soil_moisture': 5, 'temperature': 55, 'humidity': 25}
Published data successfully {'soil_moisture': 41, 'temperature': -20, 'humidity': 90}
Published data successfully {'soil_moisture': 99, 'temperature': 117, 'humidity': 79}
Message received from IBM IoT Platform: motoron
Motor is switched ON

Published data successfully {'soil_moisture': 4, 'temperature': 3, 'humidity': 45}
Message received from IBM IoT Platform: motoroff
Motor is switched OFF

Published data successfully {'soil_moisture': 56, 'temperature': 113, 'humidity': 48}
Published data successfully {'soil_moisture': 45, 'temperature': 25, 'humidity': 99}
Published data successfully {'soil_moisture': 72, 'temperature': -11, 'humidity': 55}

Ln: 799 Col: 84
```



Service Details - IBM C x IBM Watson IoT Platf x Node-RED : node-red x Node-RED Dashboard x Getting Started with x MIT App Inventor x

node-red-zncis-2022-11-04.au-syd.mybluemix.net/red/#flow/f23f5cad061e8487

Node-RED Deploy

filter nodes

Flow 1

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch

Flow 1 Diagram:

```
graph LR
    IoT[IBM IoT] --> SM[Soil Moisture]
    IoT --> Hum[Humidity]
    IoT --> Temp[Temperature]
    SM --> SM_Widget[Soil Moisture]
    Hum --> Hum_Widget[Humidity]
    Temp --> Temp_Widget[Temperature]
    Temp --> Payload1[msg.payload]
    Payload1 --> HTTP1[http]
    GET1[get /data] --> Data[data]
    Data --> HTTP1
    MOT_ON[MOTOR ON] --> IoT2[IBM IoT]
    MOT_ON --> Payload2[msg.payload]
    MOT_OFF[MOTOR OFF] --> IoT2
    MOT_OFF --> Payload2
    GET2[get /command] --> IoT2
    GET2 --> Payload2
    GET2 --> HTTP2[http]
```

debug

all nodes

117

10/11/2022, 16:31:54 node: 47237c95f9032d61  
msg.payload : Object  
{ command: "motoron" }

10/11/2022, 16:31:54 node: c7bc968f68e5d4e5  
iot-2/type/Smart\_Farming/id/32826/evt/status/fmt/json :  
msg.payload : number  
4

10/11/2022, 16:31:54 node: c7bc968f68e5d4e5  
iot-2/type/Smart\_Farming/id/32826/evt/status/fmt/json :  
msg.payload : number  
45

10/11/2022, 16:31:54 node: c7bc968f68e5d4e5  
iot-2/type/Smart\_Farming/id/32826/evt/status/fmt/json :  
msg.payload : number  
3

10/11/2022, 16:31:54 node: 47237c95f9032d61  
msg.payload : Object  
{ command: "motoroff" }

10/11/2022, 16:31:54 node: c7bc968f68e5d4e5  
iot-2/type/Smart\_Farming/id/32826/evt/status/fmt/json :

4:32 PM 11/10/2022