

# PROJECT DEVELOPMENT PHASE

## PROJECT DEVELOPMENT DELIVERY OF SPRINT 4

Date	19 Nov 2022
Team ID	PNT2022TMID38592
Project Name	Smart Farmer IOT Enabled SmartFarming Application
Marks	

## SPRINT DESCRIPTION

In this Sprint we are about to describe about the Application we have developed and the Final Testing of the Python Code.

## PYTHON CODE

```
agri1.py - C:\Users\nsimm\AppData\Local\Programs\Python\Python37\agri1.py (3.7.0rc1)
File Edit Format Run Options Window Help

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

#Narasimhan IBM
organization = "591w3i"
deviceType = "device_1"
deviceId = "12345"
authMethod = "token"
authToken = "123456789"

#Gpio

def mycommandCallback(cmd):
    print("Command Received: %s" %cmd.data['command'])
    status = cmd.data['command']
    if status=="motoron":
        print("MOTOR is ON")
    elif status=="motoroff":
        print("MOTOR is OFF")
    else:
        print("please send proper command")

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

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

#CONNECT
deviceCli.connect()

while True:
    temperature=random.randint(0,100)
    humidity=random.randint(0,100)
    moisture=random.randint(0,100)

    data={'temperature':temperature,'humidity':humidity,'moisture':moisture}

    def myOnPublishCallback():
        print("Published Temperature = %s C"%temperature,"Humidity = %s %%" %humidity,"Moisture = %s %%" %moisture, "to IBM Watson")

    success = deviceCli.publishEvent("IoTSensor","json",data,qos=0, on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to IoT")
        time.sleep(10)

    deviceCli.commandCallback = mycommandCallback

#Disconnect
deviceCli.disconnect()
```

# PYTHON EXECUTED OUTPUT

```
Python 3.7.0rc1 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0rc1 (v3.7.0rc1:dfad32267, Jun 12 2018, 07:05:25) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
-- RESTART: C:\Users\nsimman\AppData\Local\Programs\Python\Python37\python.exe --
2022-11-17 15:16:22.003 abmccf.device.Client INFO Connected successfully: d:591w3i:device_1:12345
Published Temperature = 40 C Humidity = 33 % Moisture = 32 % to IBM Watson
Published Temperature = 97 C Humidity = 2 % Moisture = 43 % to IBM Watson
Published Temperature = 45 C Humidity = 72 % Moisture = 52 % to IBM Watson
Command Received: motoron
MOTOR is ON
Command Received: motoroff
MOTOR is OFF
Published Temperature = 8 C Humidity = 56 % Moisture = 19 % to IBM Watson
Command Received: motoron
MOTOR is ON
Published Temperature = 26 C Humidity = 56 % Moisture = 61 % to IBM Watson
Command Received: motoroff
MOTOR is OFF
Published Temperature = 19 C Humidity = 54 % Moisture = 11 % to IBM Watson
Published Temperature = 32 C Humidity = 89 % Moisture = 42 % to IBM Watson
Published Temperature = 35 C Humidity = 91 % Moisture = 7 % to IBM Watson
Published Temperature = 77 C Humidity = 75 % Moisture = 53 % to IBM Watson
Published Temperature = 100 C Humidity = 60 % Moisture = 26 % to IBM Watson
Published Temperature = 11 C Humidity = 19 % Moisture = 22 % to IBM Watson
Published Temperature = 3 C Humidity = 65 % Moisture = 90 % to IBM Watson
Published Temperature = 7 C Humidity = 45 % Moisture = 100 % to IBM Watson
Published Temperature = 64 C Humidity = 80 % Moisture = 61 % to IBM Watson
Published Temperature = 6 C Humidity = 12 % Moisture = 21 % to IBM Watson
Published Temperature = 75 C Humidity = 15 % Moisture = 43 % to IBM Watson
Published Temperature = 87 C Humidity = 13 % Moisture = 34 % to IBM Watson
Published Temperature = 89 C Humidity = 14 % Moisture = 68 % to IBM Watson
Published Temperature = 55 C Humidity = 71 % Moisture = 20 % to IBM Watson
Published Temperature = 71 C Humidity = 76 % Moisture = 40 % to IBM Watson
Published Temperature = 76 C Humidity = 41 % Moisture = 77 % to IBM Watson
Published Temperature = 21 C Humidity = 100 % Moisture = 60 % to IBM Watson
Published Temperature = 65 C Humidity = 29 % Moisture = 97 % to IBM Watson
Published Temperature = 33 C Humidity = 42 % Moisture = 84 % to IBM Watson
Published Temperature = 13 C Humidity = 2 % Moisture = 5 % to IBM Watson
Published Temperature = 62 C Humidity = 19 % Moisture = 60 % to IBM Watson
Published Temperature = 21 C Humidity = 6 % Moisture = 19 % to IBM Watson
Published Temperature = 77 C Humidity = 19 % Moisture = 67 % to IBM Watson
Published Temperature = 38 C Humidity = 39 % Moisture = 32 % to IBM Watson
Published Temperature = 58 C Humidity = 69 % Moisture = 24 % to IBM Watson
Published Temperature = 93 C Humidity = 71 % Moisture = 90 % to IBM Watson
Published Temperature = 88 C Humidity = 22 % Moisture = 98 % to IBM Watson
Published Temperature = 82 C Humidity = 88 % Moisture = 53 % to IBM Watson
Published Temperature = 93 C Humidity = 36 % Moisture = 40 % to IBM Watson
Published Temperature = 4 C Humidity = 82 % Moisture = 47 % to IBM Watson
Published Temperature = 64 C Humidity = 21 % Moisture = 29 % to IBM Watson
Published Temperature = 49 C Humidity = 81 % Moisture = 53 % to IBM Watson
Published Temperature = 29 C Humidity = 97 % Moisture = 61 % to IBM Watson
Published Temperature = 92 C Humidity = 69 % Moisture = 10 % to IBM Watson
Published Temperature = 92 C Humidity = 63 % Moisture = 9 % to IBM Watson
Published Temperature = 36 C Humidity = 33 % Moisture = 30 % to IBM Watson
Published Temperature = 35 C Humidity = 85 % Moisture = 29 % to IBM Watson
Published Temperature = 100 C Humidity = 2 % Moisture = 14 % to IBM Watson
Published Temperature = 12 C Humidity = 98 % Moisture = 21 % to IBM Watson
Published Temperature = 64 C Humidity = 62 % Moisture = 0 % to IBM Watson
Published Temperature = 34 C Humidity = 51 % Moisture = 51 % to IBM Watson
Published Temperature = 92 C Humidity = 39 % Moisture = 95 % to IBM Watson
Published Temperature = 14 C Humidity = 95 % Moisture = 89 % to IBM Watson
Published Temperature = 92 C Humidity = 99 % Moisture = 85 % to IBM Watson
Published Temperature = 90 C Humidity = 6 % Moisture = 14 % to IBM Watson
Published Temperature = 5 C Humidity = 27 % Moisture = 15 % to IBM Watson
```

We have successfully developed the python code and executed it. The code runs with the Temperature, Humidity and pH Value also displayed in the IBM IoT Platform.

IBM Watson IoT Platform

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ID: 591w3i

Browse

Action

Device Types

Interfaces

Add Device

Browse Devices

All Devices

Diagnose

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

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class
12345	Connected	device_1	Device	16 Nov 2022 11:20 AM		nsimman1987@gmail.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.

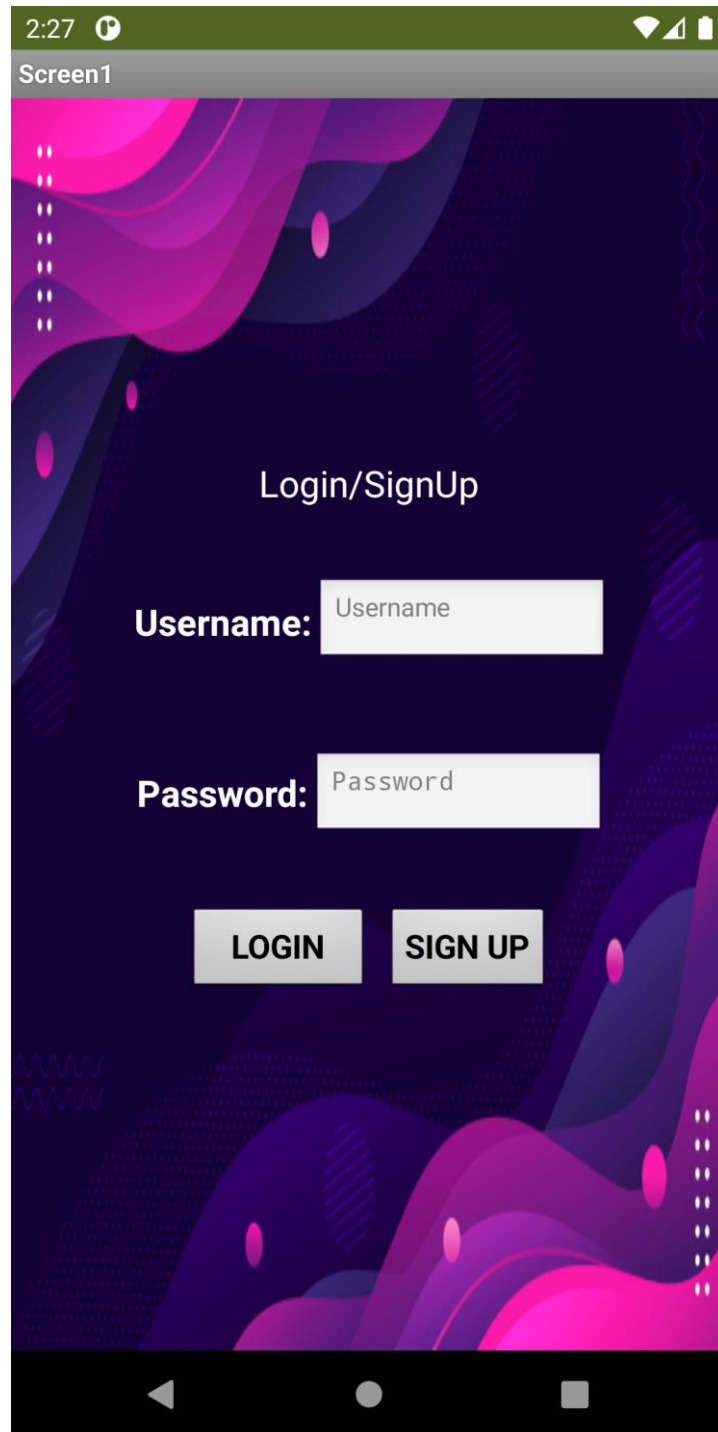
Event	Value	Format	Last Received
IoTSensor	["temperature":71,"humidity":59,"moisture":20]	json	a few seconds ago
IoTSensor	["temperature":5,"humidity":55,"moisture":4]	json	a few seconds ago
IoTSensor	["temperature":88,"humidity":23,"moisture":50]	json	a few seconds ago

Items per page 50

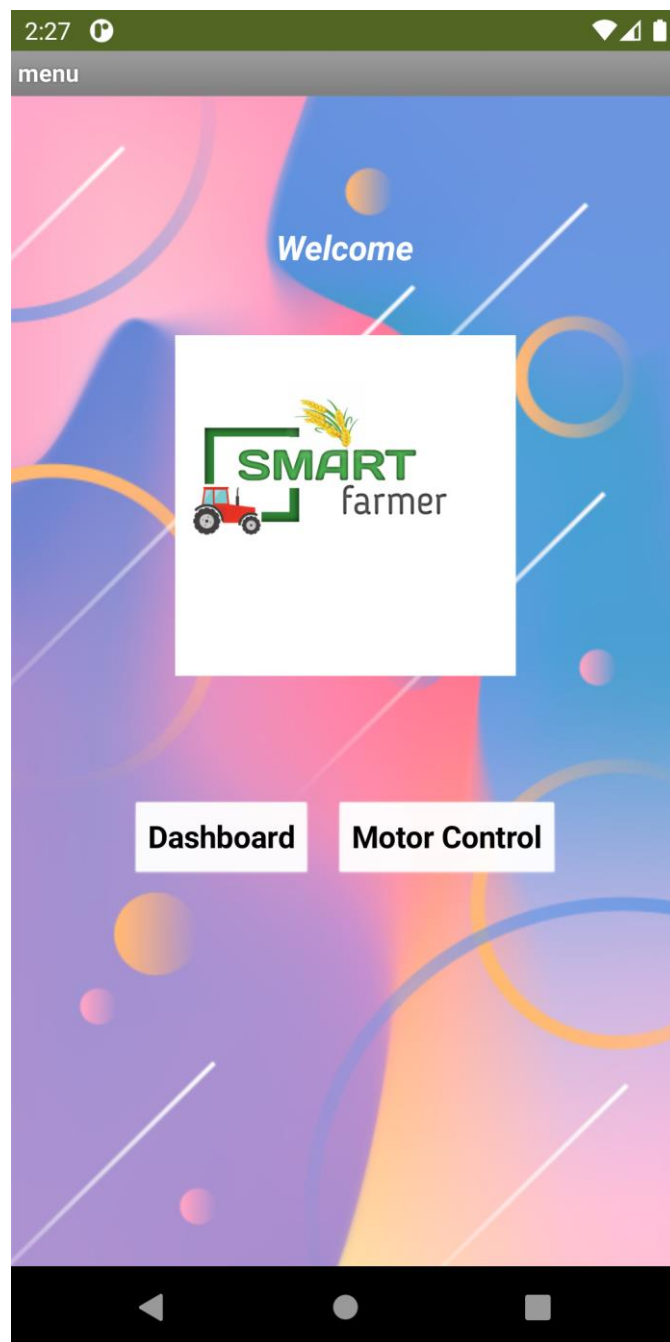
1 of 1 page

## APPLICATION SCREENS

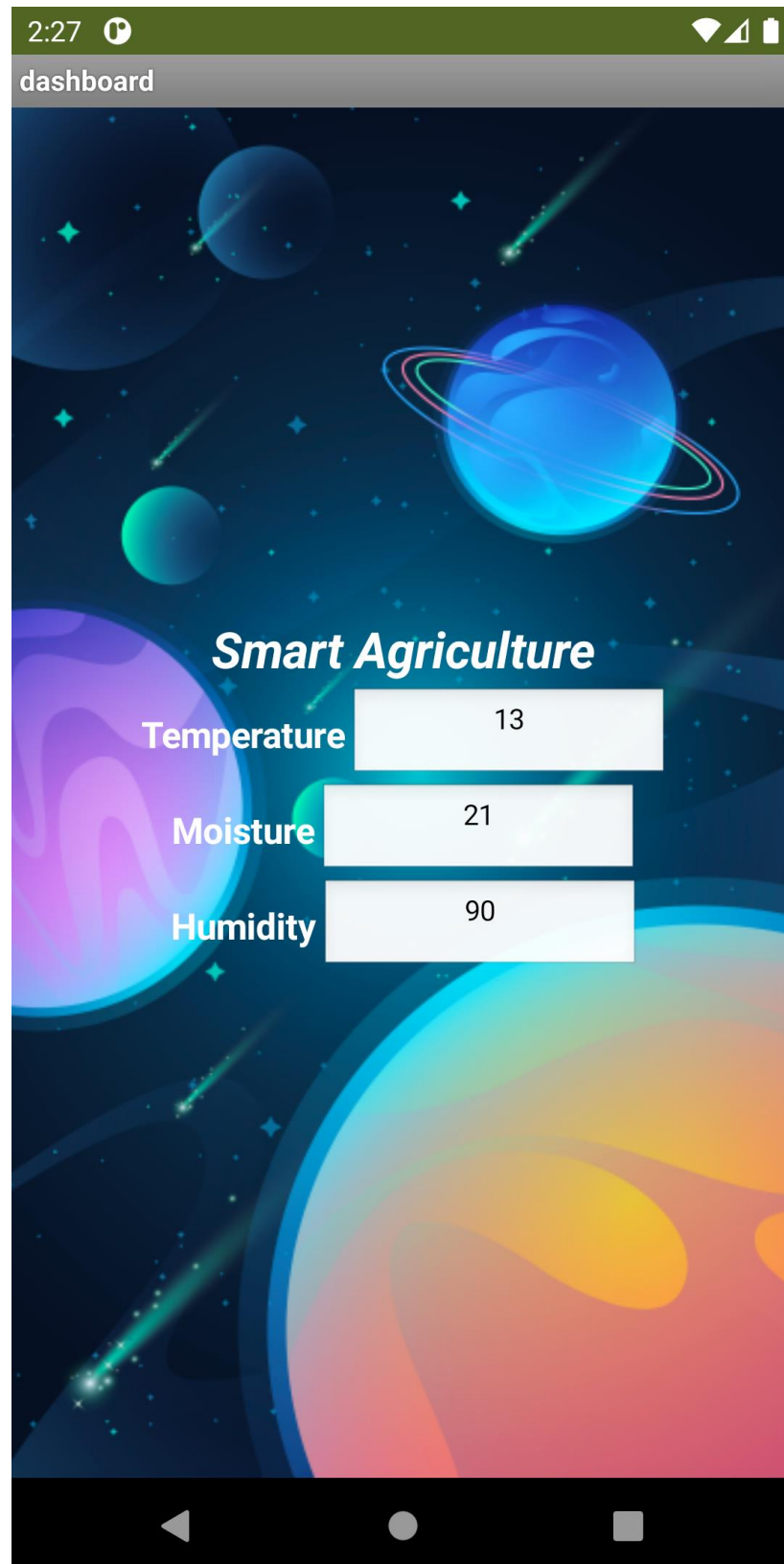
HERE WE DISPLAYED SCREEN 1 OF OUR CREATED APPLICATION



HERE WE DISPLAYED SCREEN 2 OF OUR CREATED APPLICATION



HERE WE DISPLAYED SCREEN 3 OF OUR CREATED APPLICATION

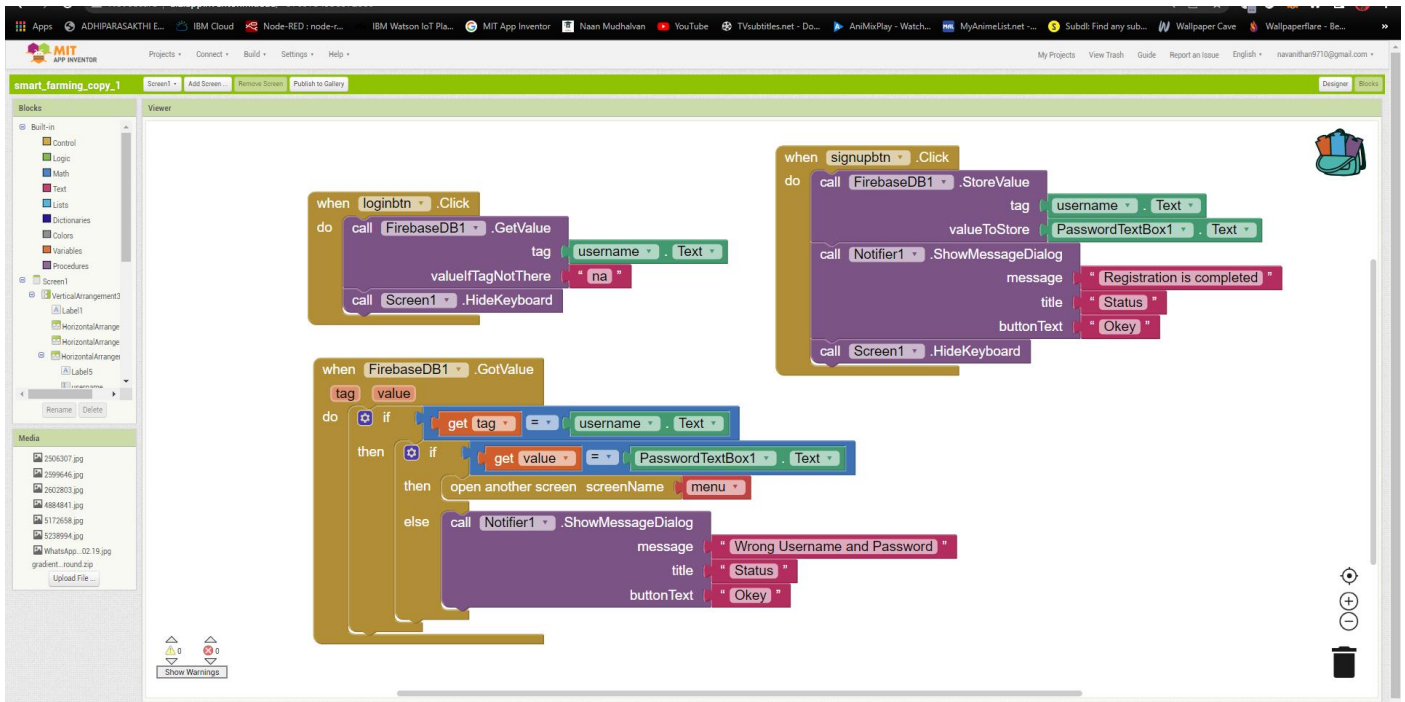


HERE WE DISPLAYED SCREEN 4 OF OUR CREATED APPLICATION

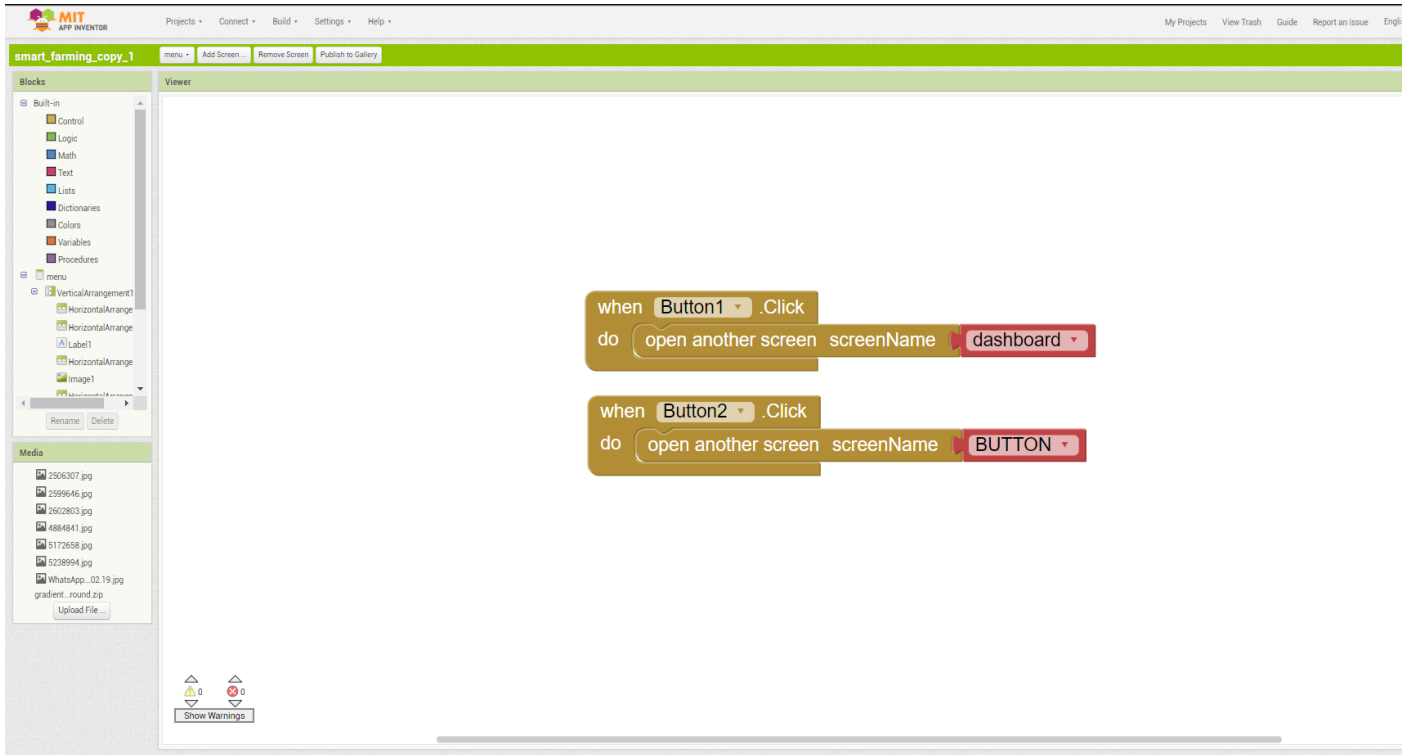


# BLOCKS FUNCTIONS USED IN OUR APPLICATION

## SCREEN 1



## SCREEN 2





## SCREEN 3

The screenshot displays the MIT App Inventor web interface for a project named "smart\_farming\_copy\_1". The interface includes a top navigation bar with links for Projects, Connect, Build, Settings, and Help. A sidebar on the left contains a "Blocks" panel with categories like Control, Logic, Text, Lists, Dictionaries, Colors, Variables, and Procedures, as well as a "Media" panel with image and audio files. The main workspace shows a flowchart with the following logic:

- when Clock1.Timer** (Trigger)
  - do** (Loop)
    - set Web1.Uri to https://node-red-exvog-2022-11-06.eu-gb.mybluemix.net** (Text)
    - call Web1.Get** (Web)
- when Web1.GoToText** (Trigger)
  - url** (Text) **responseCode** (Text) **responseType** (Text) **responseContent** (Text)
  - do** (Loop)
    - set temp.Text to look up in pairs key temperature** (Text)
    - pairs** (List)
      - call Web1.JsonTextDecode** (Web)
      - jsonText** (Text) **get responseContent** (Text)
    - notFound** (Text) **not found** (Text)
  - set moisture.Text to look up in pairs key moisture** (Text)
  - pairs** (List)
    - call Web1.JsonTextDecode** (Web)
    - jsonText** (Text) **get responseContent** (Text)
  - notFound** (Text) **not found** (Text)
  - set humidity.Text to look up in pairs key humidity** (Text)
  - pairs** (List)
    - call Web1.JsonTextDecode** (Web)
    - jsonText** (Text) **get responseContent** (Text)
  - notFound** (Text) **not found** (Text)

The flowchart is designed to fetch temperature, moisture, and humidity data from a web API and display it in text labels. The interface also features a "Show Warnings" button at the bottom left and a "Designer" button at the top right.

## SCREEN 4

