Project Report

IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

TEAM ID: PNT2022TMID18367

TEAM LEAD: GURUARCHANA V

TEAM MEMBER 1: JEYA SHALOMI B

TEAM MEMBER 2: JEFINA MIRALIN J

TEAM MEMBER 3: GURUATCHAYA V

TABLE OF CONTENTS

CHAPTER -1

INTRODUCTION:

The main food for the human is agricultural products, agriculture is a science and technology for cultivation, Agricultural products of various crops will use various methods and techniques for growing crops. Unfortunately, most of the farmers use the traditional way of farming, but this can be overcome modern farming methods by apply technology to be automation agriculture, such as apply IoT in agriculture. By using IoT technology in agriculture will increase the productivity of the crop. IoT is asystem that combines sensors and software within these items connected to the internetto enable authorized people easy to access and interaction with them.

Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds etc. This leads to huge losses for the farmers. It is not possible for farmers to barricade entire fields or stay on field 24 hours and guard it. So here we pro-pose automatic crop protection system from animals. Agricultural is an important fieldof economic development. Farming needs to be adapted in order to be able to satisfy consumers, so using IoT (Internet of Things) to help in this field is one of the preferred alternatives in the present. In this research, the system monitoring of soil moisture, temperature and water control has been proposed.

1.1 OVERVIEW

In the world, the economy of many countries is dependent upon agriculture. Inspite of economic development agriculture is the backbone of the economy. Agriculture is the main stay of economy. It contributes to the gross domestic product. Agriculture meets food requirements of the people and produces several raw materials for industries. But because of animal interference and fire in agricultural lands, there will be huge loss of crops. Crop will be totally getting destroyed. There will be large amount of loss of farmer. To avoid these financial losses it is very important to protect agricultural field or farms from animal and fire. To overcome this problem, in our proposed work we shall design a system to prevent the entry of animals into the farm. An intelligent crop protection system helps the farmers in protecting the crop from the animals and birds which destroy the crop. This system also helps farmers to monitor the soil moisture levels in the field and also the temperature and humidity values near the field. The motors and sprinklers in the field can be controlled using the mobile application. Iot is a technology that allows us to add a device to an inert object that can measure an environmental parameters, generate associated data and transmit data through a communication network. The features are connectivity, security, scalability, dynamic range, integration and analyzing.

Project requirements:

Node-RED, IBM Cloud, IBM Watson IoT, Node.js, IBM Device, IBM IoT Simulator, Python 3.7.

1.2 PURPOSE

IoT based farming improves the entire agriculture system by monitoring the field in real-time. With the help of IoT in agriculture not only saves the time but also reduces the extravagant use of resources such as water and electricity. Sometimes due to over or less supply of water in the agricultural field crops may not grow proper. Using IoT supply of water and growth of plants can be satisfied to a greater extent. The flow of water can be controlled from the application

CHAPTER-2

LITERATURE SURVEY

- **Abhiram MSD, Jyothsnavi Kuppili, N.Alivelu Manga-- —Smart Farming System using IoT for Efficient Crop Growth‖,[2020].**
  Discussion: In this paper IoT technology is used to sense and analyze the temperature, humidity level, soil moisture level and the rain condition and DC motor is controlled using NodeMCU. All these values are sent to the smart phone using Wi-Fi. Due to the usage of this system, adequate water is pumped and rain is also utilized efficiently. This system is very much helpful to farmers as they need to regularly pump water and check the status of each crop. From anywhere in the world, farmers can know the values of humidity, temperature and soil moisture and if the DC motor is ON through the blynk app present in their smartphones.

- **Mohit Korche, Sarthak Tokse, Shubham Shirbhate, Vaibhav Thakre, S. P. Jolhe—"Smart Crop Protection System‖[2021]**
  Discussion: In this paper,the project carries a great social relevance as it aims to address this problem. This project will help farmers in protecting their orchards and fields and save them from significant financial losses and will save them from the unproductive efforts that they endure for the protection their fields. This will also help them in achieving better crop yields thus leading to their economic wellbeing.

- **K.B. Pavan Kumar, T. Bhavitha, S. Karishma, M. Pavithra, M. Prashanth Kumar—"IOT BASED CROP MONITORING FROM ANIMALS‖[2019].**
  Discussion: The proposed design is an automatic system that aids the user in irrigation process. It keeps notifying the farmer through an on-board LCD display and messages that is sent to the User PC. This proposed design is also helpful for the Users who are facing power failure issues to maintain a uniform water supply due to power failure or inadequate and non-uniform water supply. Theautomatic irrigation system also keeps the Users too updated with all the background activities through a Node MCU. This device can be a turning point forour society.

- **Mr.D.Meganathan, S.Arunkumar, R.Balaji, S.Bhuvaneswar—"SMART CROP PROTECTION SYSTEM FROM ANIMALS USING PIC‖[2020]**

  Discussion: This paper designed a system in which sound is played and by using LDR it detects light intensity, if it is less, it will focus the light. So that wild animals will not enter into the farm. It will run away. GSM module sends message to the farmer to alert him. From this it is concluded that the design system is very useful and affordable to the farmer. The design system will not be dangerous to animal and human being, and it protects farm.

- **Khampheth Bounnady, Poutthasone Sibounnavong, Khampasith Chanthavong, Savath Saypadith—"Smart Crop Cultivation Monitoring System by Using IoT‖[2019].**

  Discussion: In this research paper was propose the system for efficient crop monitoring for the agricultural fields. The system monitoring of soil moisture, temperature and water control has been proposed by using NodeMCU ESP8266, sensors and Cloud Computing. The proposed system was effective with growth rate, productivity and water saving, also farmer can monitoring and adjust some value in the system through the app. The proposed system is useful for a farmer who works on agriculture.

2.1 EXISTING PROBLEM

- In agriculture water is needed for the crops for their growth. If the Soil gets dry it is necessary to supply water. But sometime if the farmer doesn't visit the field, it is not possible to know the condition of soil.
- Sometimes over supply of water or less supply of water affects the growth of crops.
- Sometimes if the weather/temperature changes suddenly it is necessary to take certain actions.
- Specific crops grow better in specific conditions, they may get damaged due to bad weather.

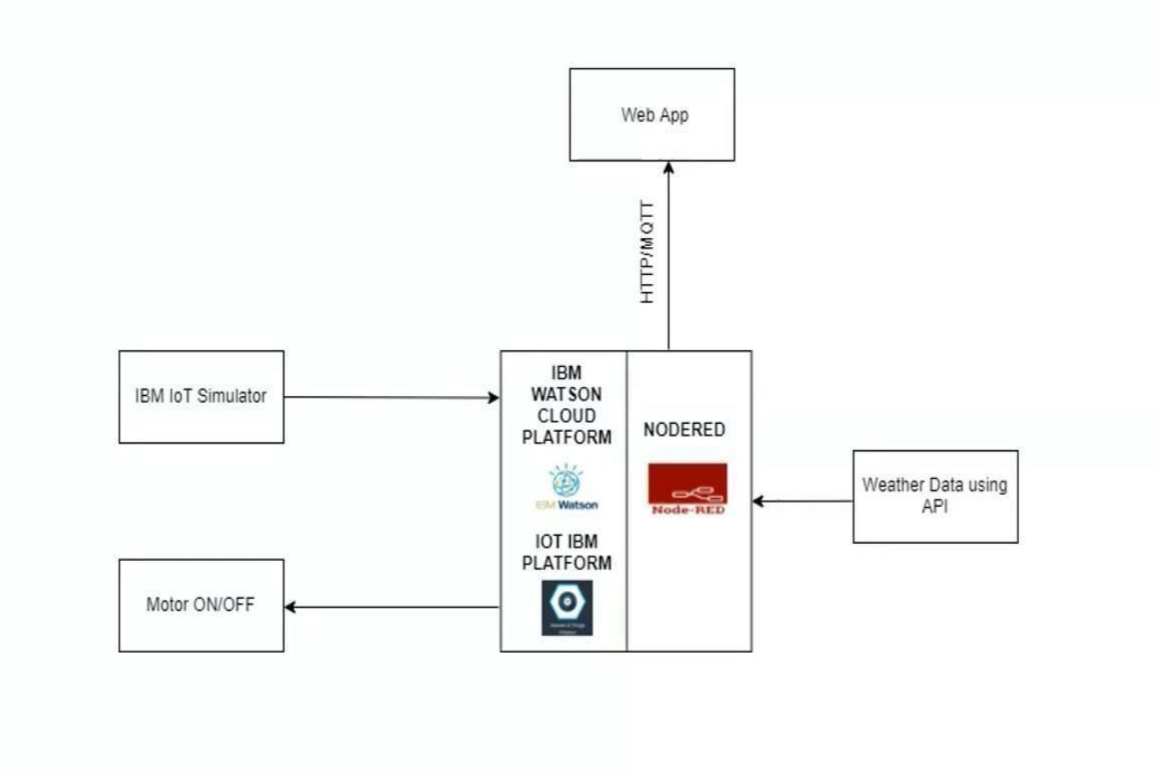
2.2 PROPOSED SOLUTION

- Soil Moisture can be checked by using the sensors that can sense the soil condition and send the moisture content in the soil over the cloud services to the web application.
- The supply of water can be controlled from anywhere by controlling the motor state (ON/OFF), using web application.
- Surrounding temperature can also be sensed by the sensors and displayed on the application.
- Real time weather conditions can also be known by using different weather APIs from different websites and displayed on our application.

CHAPTER -3

THEORITICAL ANALYSIS

3.1 BLOCK DIAGRAM



3.2 HARDWARE / SOFTWARE DESIGNING.

1. Create a device in IBM Cloud.
2. Connect the device to IBM Simulator to get the weather conditions.
3. Build Node-RED flow to build a web application to display the weather conditions and control the devices.
4. Get the real time weather condition data from open weather map and integrate it in the Node-RED.
5. Control the working of the web application to the devices by python coding.

CHAPTER – 4

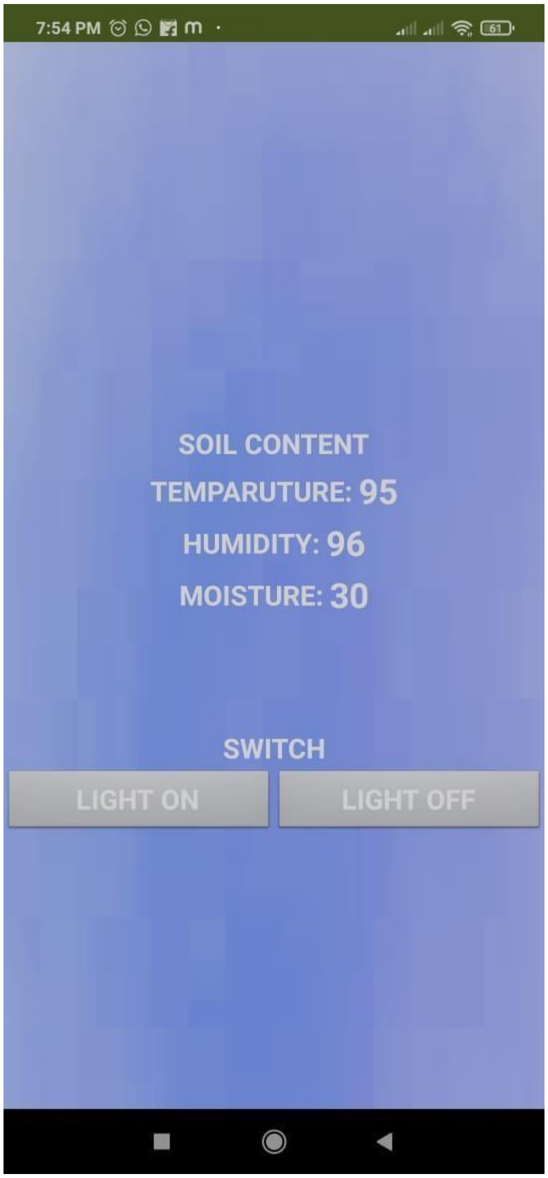
EXPERIMENTAL INVESTIGATION

In this project we send the weather data through IoT Simulator (MIT APP INVERTER) shown in fig(a) instead of real soil and temperature conditions. Simulator passes the data through IBM Cloud to the web application. The data is displayed on the Dash board show in fig (D & E). Web Application is build using Node-RED. We have represented this graphically.

Web Application is also used to control the devices further like motor, pumps, lights, or any other devices in the agricultural field. In this project the output is passed using python code and the control action is displayed in python code console window in fig(F).

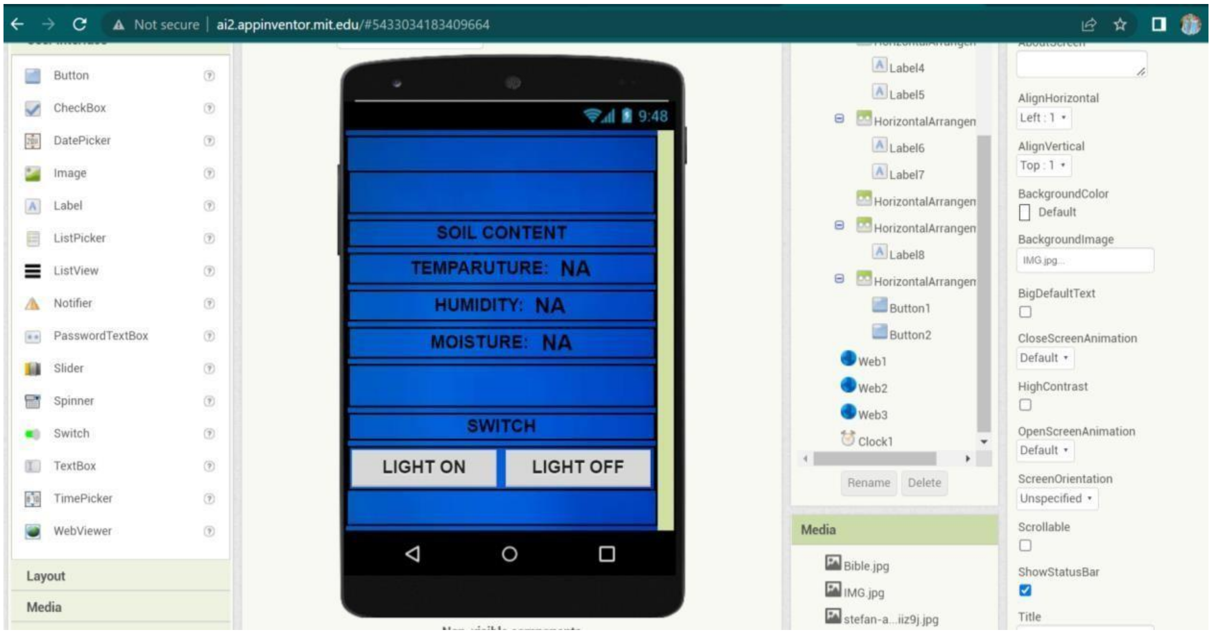
All the figures are mentioned below,

Experimental analysis in MIT APP INVERTER in mobile phone.

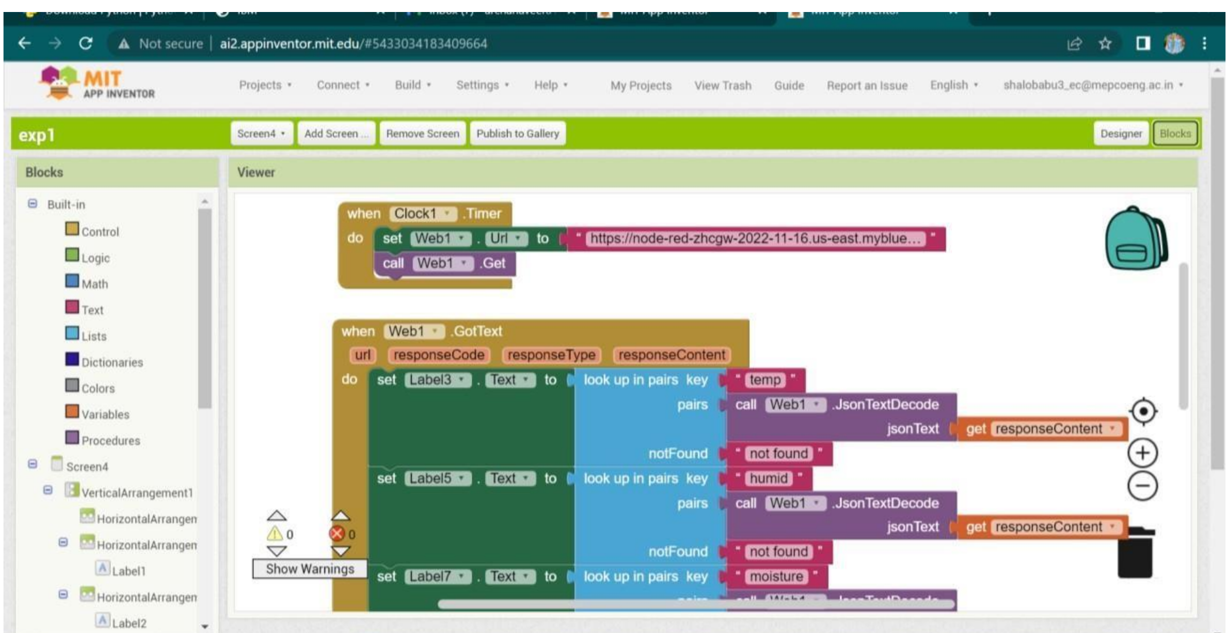


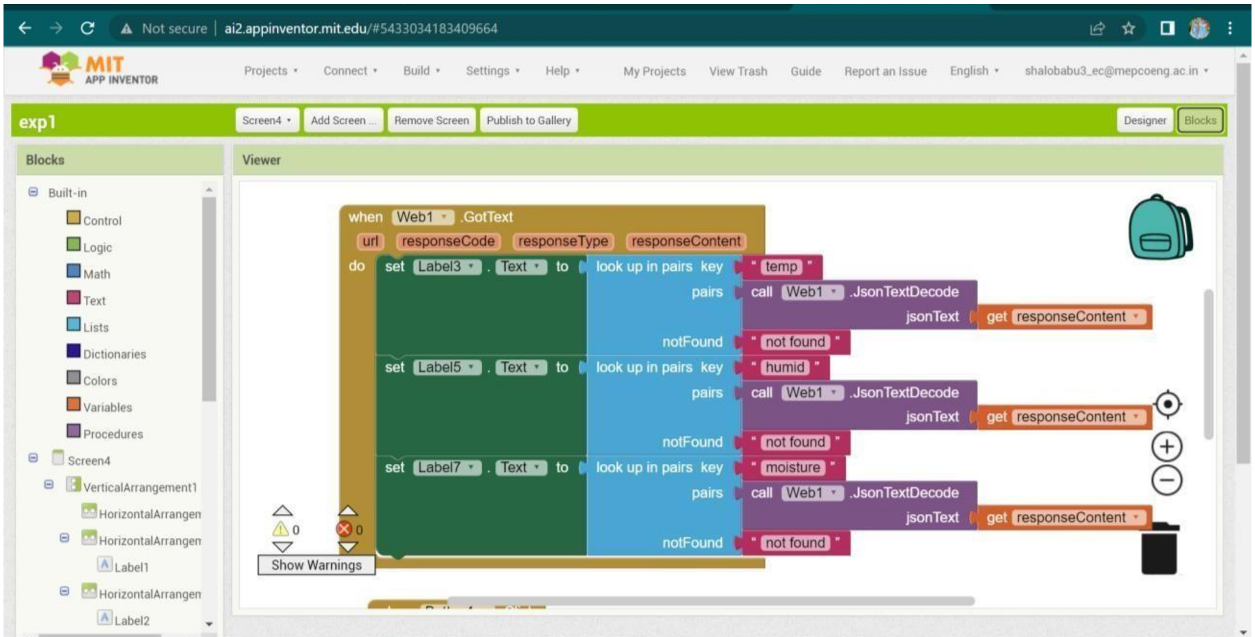
Fig(A)., MIT APP INVERTER

B) Experimental Analysis done in Software.

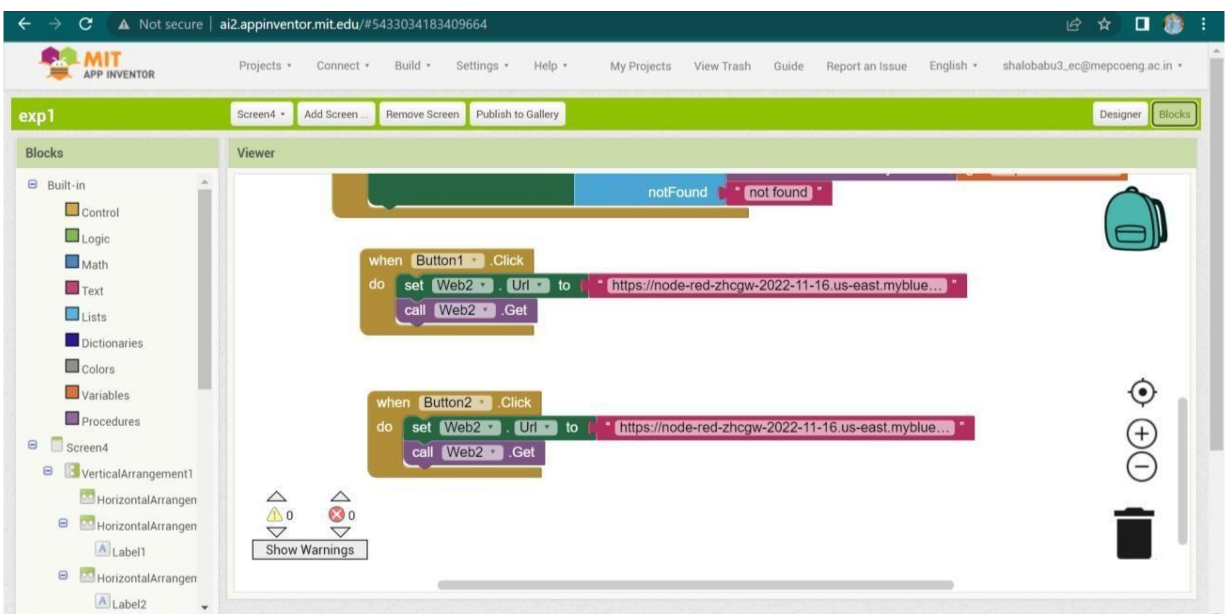


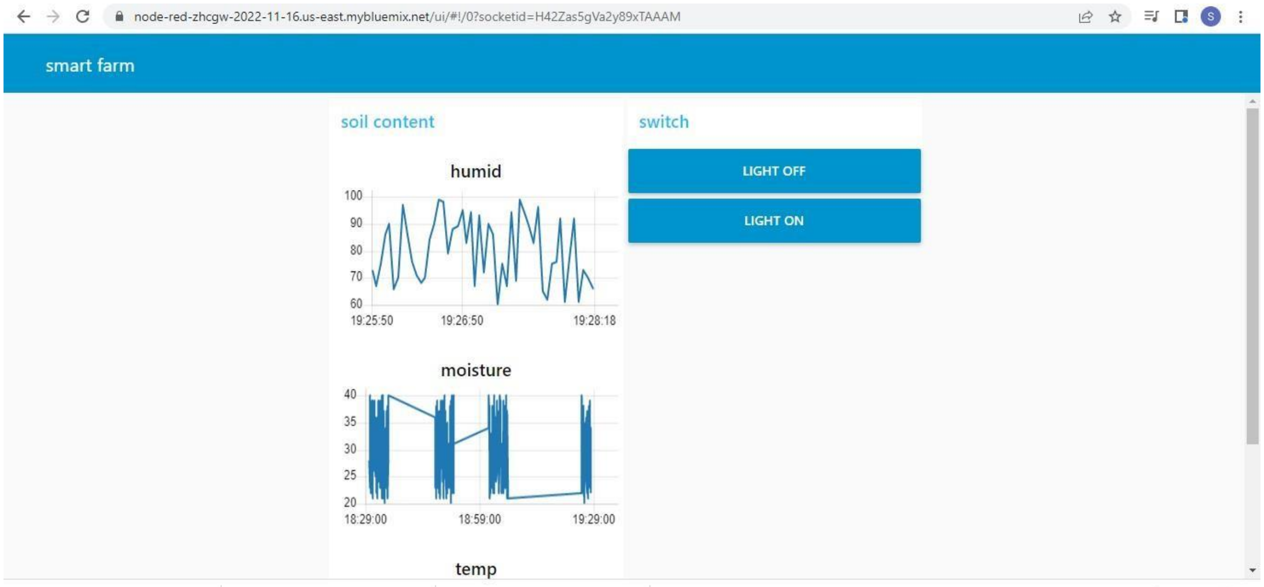
Blocks



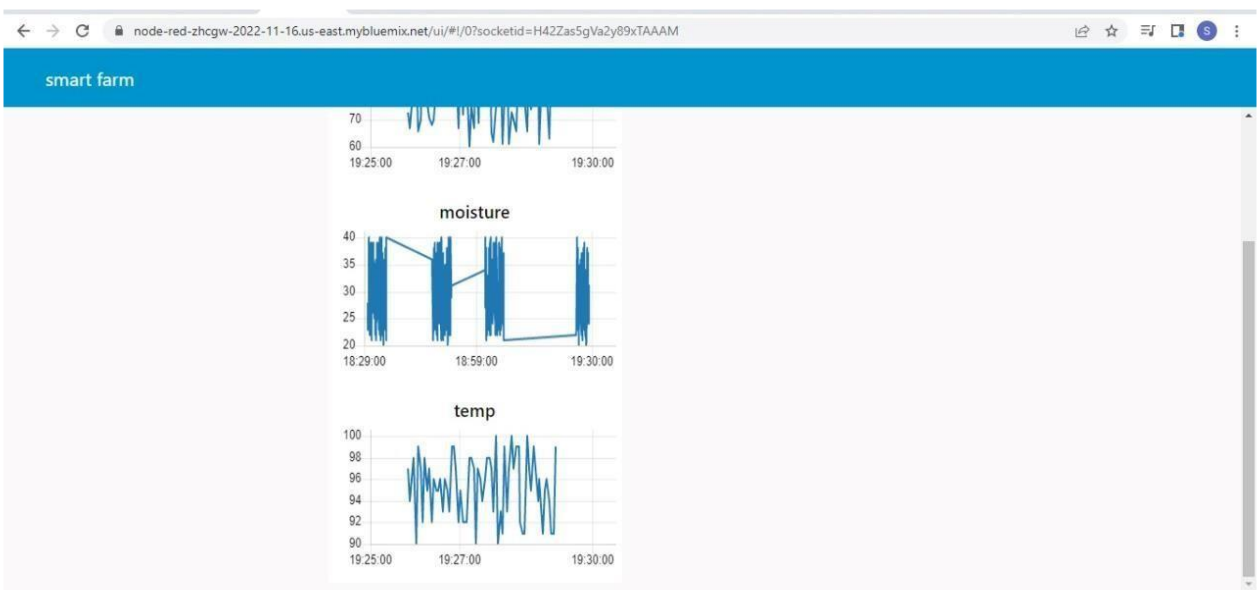

Not secure
ai2.appinventor.mit.edu/#5433034183409664
MIT APP INVENTOR
Projects
Connect
Build
Settings
Help
My Projects
View Trash
Guide
Report an Issue
English
shalobabu3_ec@mepcoeng.ac.in
exp1
Screen4
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Blocks
Viewer
Built-in
Control
Logic
Math
Text
Lists
Dictionaries
Colors
Variables
Procedures
Screen4
VerticalArrangement1
HorizontalArrangem
HorizontalArrangem
Label1
HorizontalArrangem
Label2
when Web1 .GotText
url responseCode responseType responseContent
do set Label3 . Text to look up in pairs key "temp"
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound "not found"
set Label5 . Text to look up in pairs key "humid"
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound "not found"
set Label7 . Text to look up in pairs key "moisture"
pairs call Web1 .JsonTextDecode
jsonText get responseContent
notFound "not found"
0
0
Show Warnings

Fig(C)., Blocks

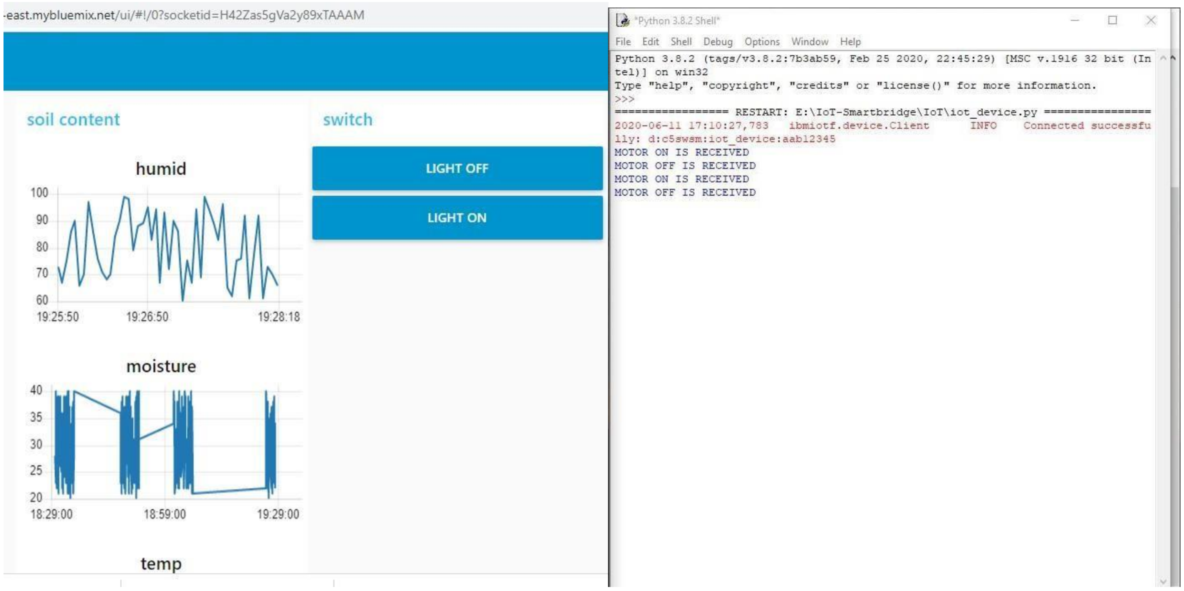

Not secure
ai2.appinventor.mit.edu/#5433034183409664
MIT APP INVENTOR
Projects
Connect
Build
Settings
Help
My Projects
View Trash
Guide
Report an Issue
English
shalobabu3_ec@mepcoeng.ac.in
exp1
Screen4
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Blocks
Viewer
Built-in
Control
Logic
Math
Text
Lists
Dictionaries
Colors
Variables
Procedures
Screen4
VerticalArrangement1
HorizontalArrangem
HorizontalArrangem
Label1
HorizontalArrangem
Label2
notFound "not found"
when Button1 .Click
do set Web2 . Url to "https://node-red-zhcgw-2022-11-16.us-east.myblue..."
call Web2 .Get
when Button2 .Click
do set Web2 . Url to "https://node-red-zhcgw-2022-11-16.us-east.myblue..."
call Web2 .Get
0
0
Show Warnings



Fig(D)., WEB Application



Fig(E)., WEB Application



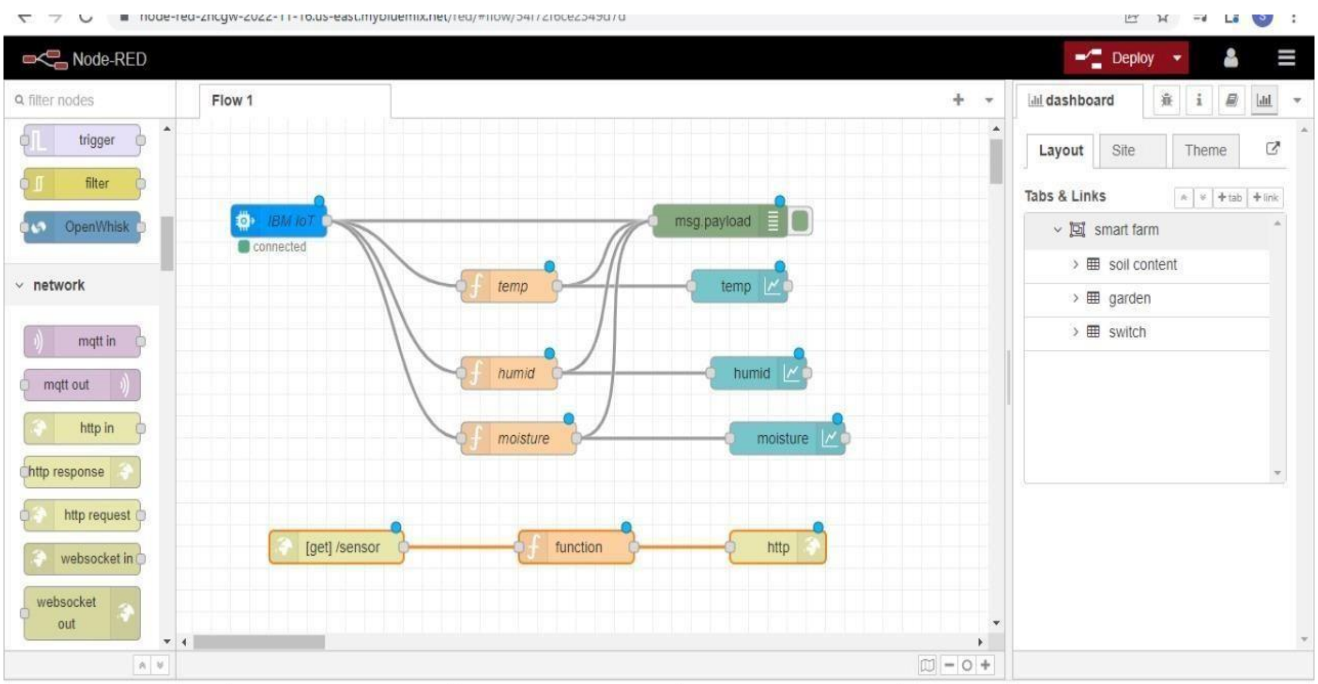
Fig(F)., Device Control Action

CHAPTER – 5

FLOWCHART

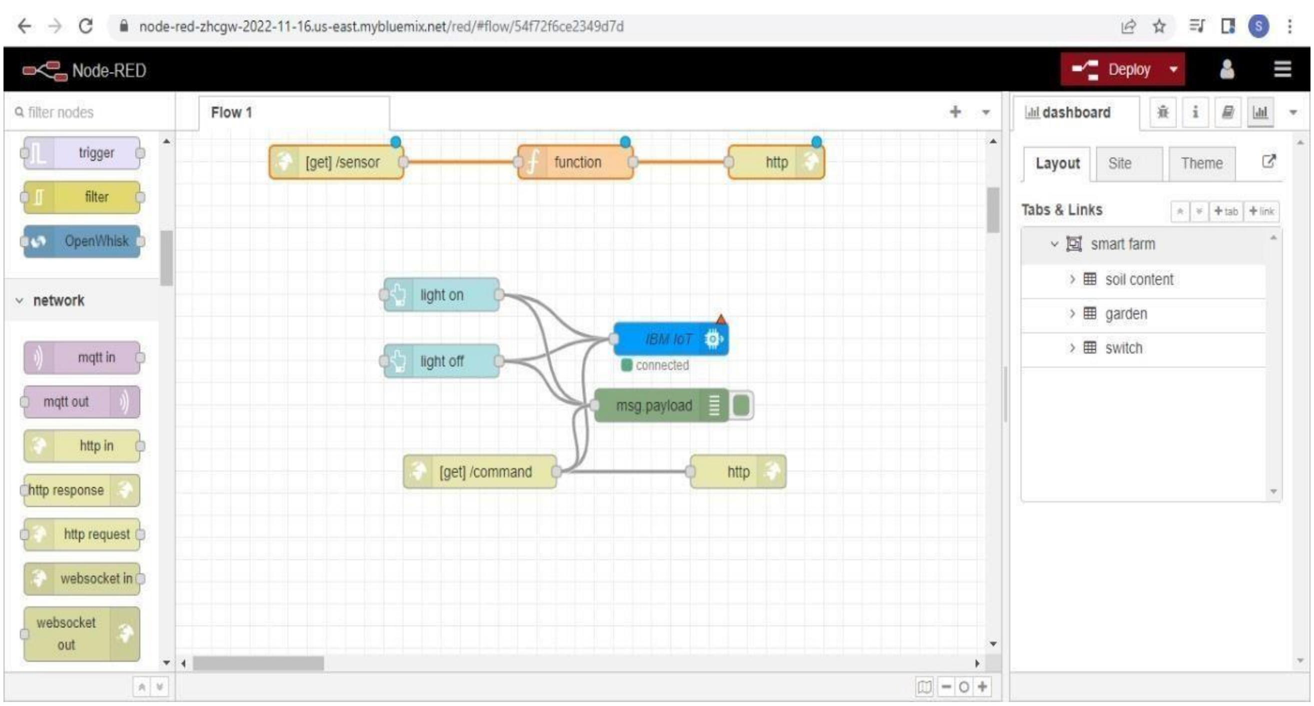
Following are the nodes used for the weather condition from open weather map:

1. Timestamp Node.
2. http request Node
3. Function Nodes.
4. Text Nodes.
5. Debug Node



Following are the nodes used in the project in the Web Application:

1. IBM IoT: IN and OUT Nodes.
2. function Nodes.
3. Gauge Nodes.
4. Chart Nodes.
5. Debug Node.
6. Button Nodes.



CHAPTER – 6

RESULT

We have successfully build a web based UI and integrated all the services using Node-RED. This project will help farmers in protecting their orchards and fields and save them from significant financial losses and will save them from the unproductive efforts that they endure for the protection their fields. This will also help them in achieving better crop yields thus leading to their economic wellbeing. The proposed system was effective with growth rate, productivity and water saving, also farmer can monitoring and adjust some value in the system through the app. The proposed system is useful for a farmer who works on agriculture.

Web Application: https://node-red-zhcgw-2022-11-16.us-east.mybluemix.net/

CHAPTER – 7

ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- Smart crop protection systems reduce waste, improve productivity and enable management of a greater number of resources through remote sensing.
- Risk of crop damage can be lowered to a greater extent.
- All the data like climatic conditions and changes in them, soil orcrop conditions everything can be easily monitored.
- Many difficult challenges can be avoided making the process automatedand the quality of crops can be maintained.
- The process included in farming can be controlled using the webapplications from anywhere, anytime.

DISADVANTAGES

- Farmers are so busy with harvesting and caring for their crops that they may not have time to process data.
- There are also issues with the water supply, as well as issues with the cost of the technology, which can be quite expensive.
- Smart Agriculture requires internet connectivity continuously, but ruralparts cannot fulfill this requirement.
- Any faults in the sensors can cause great loss in the agriculture, due towrong records and the actions of automated processes.
- IoT devices need much money to implement.

CHAPTER – 8

APPLICATIONS

- Precision Farming that is farming processes can be made more controlled and accurate.
- Live monitoring can be done of all the processes and the conditions on the agricultural field.
- All the controls can be made just on the click.
- Quality can be maintained.
- Autonomous agricultural machinery and robotics.
- Smart building ,farm management and IoT.

CHAPTER – 9

CONCLUSION

A IoT Web Application is built for smart agricultural system using Watson IoT platform, Watson simulator, IBM cloud and Node-RED. The system monitoring of soil moisture, temperature and water control has been proposed by Node red and Cloud Computing. The proposed system was effective with growth rate, productivity and water saving, also farmer can monitoring and adjust some value in the system through the app. The proposed system is useful for a farmer who works on agriculture.

CHAPTER – 10

FUTURE SCOPE

- In future due to more demand of good and more farming in less time, for betterment of the crops and reducing the usage of extravagant resources like electricity and water IoT can be implemented in most of the places.

- In the future, there will be very large scope, this project can be made based on wireless networks.

- Wireless sensor network and sensors of different types are used to collect the information of crop conditions and environmental changes and these in- formation is transmitted through network to the farmer that initiates corrective actions.

- Farmers are connected and aware of the conditions of the agricultural field at anytime and anywhere in the world.

CHAPTER – 11

BIBLIOGRAPHY

- IBM Cloud:

  https://cloud.ibm.com/docs/overview?topic=overview-whatis-platform

- Watson IoT:

  https://www.iotone.com/software/ibm-watson-iot-platform/s62

- Node-RED:

  https://nodered.org/docs/getting-started/windows#3-run-node-red

  -https://www.youtube.com/watch?v=cicTw4SEdxk

- Open weather map:

  https://openweathermap.org/

- Git Hub:

  https://github.com/rachuriharish23/ibmsubscribe

REFERENCES

- Managave, O. Savale, D. Ambekar and S. Sathe "Precision Agriculture using Internet of Things and Wireless sensor Networks", International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 5, Issue 4, April 2016.

- G. Naveen Balaji, V. Nandhini, S. Mithra, N. Priya and R. Naveena, "IOT Based Smart Crop Monitoring in Farm Land", Imperial Journal of Interdisciplinary Research (IJIR), Vol-4, Issue-1, 2018.

- A. Nayyar, Er. V. Puri, "Smart farming: IoT based smart sensors agriculture stick for live temperature and moisture monitoring using Arduino, cloud computing & solar technology", The International Conference on Communication and Computing Systems (ICCCS-2016) Gurgaon, India, 9-11 September, 2016.

- Hanshi Wang; Jingli Lu; Lizhen Liu; Wei Song; Zhaoxia Wang; "Community Alarm System Design BasedOnMCU And GSM" Year:2015.

- MarkusBorschbachNavyaAmin,"QualityOfObstacle Distance Measurement Using Ultrasonic Sensor And Precision Of Two Computer Vision-Based Obstacle Detection Approaches" Year: 2015, 2015 International Conference on Smart Sensors and Systems (IC-SSS).

- Mustapha, Baharuddin, AladinZayegh, and Rezaul K. Begg. "Ultrasonic And Infrared Sensors Performance In A Wireless Obstacle Detection System" Artificial Intelligence, Modelling and Simulation (AIMS), 2013 1st International Conference on. IEEE, 2013.

CHAPTER – 12

APPENDIX

A. SOURCE CODE

MOTOR.PY

```
import time
import sys
import ibmiotf.application # to install pip install ibmiotf
import ibmiotf.device

 organization = " rqsv1m"
deviceType = "archana”
deviceId = "archana15”
authMethod = "use-token-auth"
authToken = "123456789”


def myCommandCallback(cmd):  # function for Callback

    if cmd.data['command'] == 'motoron':
        print("MOTOR ON IS RECEIVED")

    elif cmd.data['command'] == 'motoroff':
        print("MOTOR OFF IS RECEIVED")

    if cmd.command == "setInterval":

        if 'interval' not in cmd.data:
            print("Error - command is missing required information: 'interval'")
        else:
            interval = cmd.data['interval']
    elif cmd.command == "print":
```

```
        if 'message' not in cmd.data:
            print("Error - command is missing required information: 'message'")

else:
            output = cmd.data['message']
            print(output)



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 and send a datapoint "hello" with value "world" into the cloud as an event of
type "greeting" 10 times
deviceCli.connect()

while True:
    deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

SENSOR.PY

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

 organization = " rqsv1m"
deviceType = "archana”
deviceId = "archana15”
authMethod = "use-token-auth"
authToken = "123456789”



def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    print(cmd)




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

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

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
      temp=random.randint(0,100)
      pulse=random.randint(0,100)
      soil=random.randint(0,100)

      data = { 'temp' : temp, 'pulse': pulse ,'soil':soil}

      #print data
      def myOnPublishCallback():
         print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % pulse,"Soil Moisture = %s %%" % soil,"to IBM Watson")

      success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=myOnPublishCallback)
      if not success:
         print("Not connected to IoTF")
      time.sleep(1)

      deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

B. NODE-RED FLOW :

{
"id":"625574ead9839b34",
"type":"ibmiotout",
"z":"630c8601c5ac3295",
"authentication":"apiKey",
"apiKey":"ef745d48e395ccc0",
"outputType":"cmd",
"deviceId":"b827ebd607b5",
"deviceType":"weather_monitor",
"eventCommandType":"data",
"format":"json",
"data":"data",
"qos":0,
"name":"IBM IoT",
"service":"registered",
"x":680,
"y":220,
"wires":[]
},
{
"id":"4cff18c3274cccc4",
"type":"ui_button",
"z":"630c8601c5ac3295",
"name":"",

"group":"716e956.00eed6c",
"order":2,
"width":"0",
"height":"0",
"passthru":false,
"label":"MotorON",
"tooltip":"",
"color":"",
"bgcolor":"",
"className":"",
"icon":"",
"payload":"{\"command\":\"motoron\"}",
"payloadType":"str",
"topic":"motoron",
"topicType":"str",
"x":360,
"y":160,
"wires":[["625574ead9839b34"]]},
{
"id":"659589baceb4e0b0",
"type":"ui_button",
"z":"630c8601c5ac3295",
"name":"",
"group":"716e956.00eed6c",
"order":3,

"width":"0",
"height":"0",
"passthru":true,
"label":"MotorOFF",
"tooltip":"",
"color":"",
"bgcolor":"",
"className":"",
"icon":"",
"payload":"{\"command\":\"motoroff\"}",
"payloadType":"str",
"topic":"motoroff",
"topicType":"str",
"x":350,
"y":220,
"wires":[["625574ead9839b34"]]},
{"id":"ef745d48e395ccc0",
"type":"ibmiot",
"name":"weather_monitor",
"keepalive":"60",
"serverName":"",
"cleansession":true,
"appId":"",
"shared":false},
{"id":"716e956.00eed6c",
"type":"ui_group",
"name":"Form",
"tab":"7e62365e.b7e6b8",
"order":1,
"disp":true,
"width":"6",
"collapse":false},
{"id":"7e62365e.b7e6b8",
"type":"ui_tab",

"name":"contorl",
"icon":"dashboard",
"order":1,
"disabled":false,
"hidden":false}
]

[
{
"id":"b42b5519fee73ee2",
"type":"ibmiotin",
"z":"03acb6ae05a0c712",
"authentication":"apiKey",
"apiKey":"ef745d48e395ccc0",
"inputType":"evt",
"logicalInterface":"",
"ruleId":"",
"deviceId":"b827ebd607b5",
"applicationId":"",
"deviceType":"weather_monitor",
"eventType":"+",
"commandType":"",
"format":"json",
"name":"IBMIoT",
"service":"registered",
"allDevices":"",
"allApplications":"",
"allDeviceTypes":"",
"allLogicalInterfaces":"",
"allEvents":true,
"allCommands":"",
"allFormats":"",
"qos":0,

"x":270,
"y":180,
"wires":[["50b13e02170d73fc","d7da6c2f5302ffaf","a949797028158f3f","a71f164bc378bcf1"]]
},
{
"id":"50b13e02170d73fc",
"type":"function",
"z":"03acb6ae05a0c712",
"name":"Soil Moisture",
"func":"msg.payload = msg.payload.soil;\nglobal.set('s',msg.payload);\nreturn msg;",
"outputs":1,
"noerr":0,
"initialize":"",
"finalize":"",
"libs":[],
"x":490,
"y":120,
"wires":[["a949797028158f3f","ba98e701f55f04fe"]]
},
{
"id":"d7da6c2f5302ffaf",
"type":"function",
"z":"03acb6ae05a0c712",
"name":"Humidity",
"func":"msg.payload = msg.payload.pulse;\nglobal.set('p',msg.payload)\nreturn msg;",
"outputs":1,
"noerr":0,
"initialize":"",
"finalize":"",
"libs":[],
"x":480,
"y":260,
"wires":[["a949797028158f3f","70a5b076eeb80b70"]]

},
{
"id":"a949797028158f3f",
"type":"debug",
"z":"03acb6ae05a0c712",
"name":"IBMo/p",
"active":true,
"tosidebar":true,
"console":false,
"tostatus":false,
"complete":"payload",
"targetType":"msg",
"statusVal":"",
"statusType":"auto",
"x":780,
"y":180,
"wires":[]
},
{
"id":"70a5b076eeb80b70",
"type":"ui_gauge",
"z":"03acb6ae05a0c712",
"name":"",
"group":"f4cb8513b95c98a4",
"order":6,
"width":"0",
"height":"0",
"gtype":"gage",
"title":"Humidity",
"label":"Percentage(%)",
"format":"{{value}}",
"min":0,
"max":"100",
"colors":["#00b500","#e6e600","#ca3838"],

"seg1":"",
"seg2":"",
"className":"",
"x":860,
"y":260,
"wires":[]
},
{
"id":"a71f164bc378bcf1",
"type":"function",
"z":"03acb6ae05a0c712",
"name":"Temperature",
"func":"msg.payload=msg.payload.temp;\nglobal.set('t',msg.payload);\nreturn msg;",
"outputs":1,
"noerr":0,
"initialize":"",
"finalize":"",
"libs":[],
"x":490,
"y":360,
"wires":[["8e8b63b110c5ec2d","a949797028158f3f"]]
},
{
"id":"8e8b63b110c5ec2d",
"type":"ui_gauge",
"z":"03acb6ae05a0c712",
"name":"",
"group":"f4cb8513b95c98a4",
"order":11,
"width":"0",
"height":"0",
"gtype":"gage",
"title":"Temperature",
"label":"DegreeCelcius",

"format":"{{value}}",
"min":0,
"max":"100",
"colors":["#00b500","#e6e600","#ca3838"],
"seg1":"",
"seg2":"",
"className":"",
"x":790,
"y":360,
"wires":[]
},
{
"id":"ba98e701f55f04fe",
"type":"ui_gauge",
"z":"03acb6ae05a0c712",
"name":"",
"group":"f4cb8513b95c98a4",
"order":1,
"width":"0",
"height":"0",
"gtype":"gage",
"title":"Soil Moisture",
"label":"Percentage(%)",
"format":"{{value}}",
"min":0,
"max":"100",
"colors":["#00b500","#e6e600","#ca3838"],
"seg1":"",
"seg2":"",
"className":"",
"x":790,
"y":120,
"wires":[]
},

{
"id":"a259673baf5f0f98",
"type":"httpin",
"z":"03acb6ae05a0c712",
"name":"",
"url":"/sensor",
"method":"get",
"upload":false,
"swaggerDoc":"",
"x":370,
"y":500,
"wires":[["18a8cdbf7943d27a"]]
},
{
"id":"18a8cdbf7943d27a",
"type":"function",
"z":"03acb6ae05a0c712",
"name":"httpfunction",
"func":"msg.payload{\"pulse\":global.get('p'),\"temp\":global.get('t'),\"soil\":global.get('s')};\nreturn msg;",
"outputs":1,
"noerr":0,
"initialize":"",
"finalize":"",
"libs":[],
"x":630,
"y":500,
"wires":[["5c7996d53a445412"]]
},
{
"id":"5c7996d53a445412",
"type":"httpresponse",
"z":"03acb6ae05a0c712",
"name":"",

"statusCode":"",
"header
s":{},
"x":87
0,
"y":500,
"wires":[]
},
{
"id":"ef745d48e395c
cc0", "type":"ibmiot",
"name":"weather_mo
nitor",
"keepalive":"60",
"serverName":"",
"cleansession":true,
"appId":"",
"shared":false},
{
"id":"f4cb8513b95c98a4",
"type":"ui_group",
"name":"monitor",
"tab":"1f4cb829.2fd
ee8","order":2,
"disp":tru
e,
"width":"
6",
"collapse"
:false,
"classNa
me":""
},

{
"id":"1f4cb829.2fdee8",
"type":"ui_tab",
"name":"Home",
"icon":"dashboa
rd","order":3,
"disabled":false,
"hidden":false }