➤ Project Name:-Smart Agriculture System Based On IoT

KickOff Date:-17/05/2020

Overview:-

The global population is predicted to touch 9.6 billion by 2050 – this poses a big problem for the agriculture industry. Despite combating challenges like extreme weather conditions, rising climate change, and farming's environmental impact, the demand for more food has to be met. To meet these increasing needs, agriculture has to turn to new technology. New smart farming applications based on IoT technologies will enable the agriculture industry to reduce waste and enhance productivity from optimizing fertilizer use to increasing the efficiency of farm vehicles' routes.

In IoT-based smart farming, a system is built for monitoring the crop field with the help of sensors (light, humidity, temperature, soil moisture, etc.) and automating the irrigation system. The farmers can monitor the field conditions from anywhere. IoT-based smart farming is highly efficient when compared with the conventional approach.

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- **Purpose:-**

In IoT-based **smart farming**, a system is built for monitoring the crop field **with** the help of sensors (light, humidity, temperature, soil moisture, etc.) and automating the irrigation system. The farmers can monitor the field conditions from anywhere.

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LITERATURE SURVEY:-

A. Existing problem:-

1. **Lack of mechanisation**
    - **a.** Neglect of crop rotation
    - **b.** Inadequate use of manures and fertilisers
    - **c.** Inadequate water supply
    - **d.** Inadequate use of **efficient firm eqipment**
2. **Soil erosion**
3. **Agricultural Marketing**
4. **Scarcity of capital**
5. **Safety and security on farms**

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B. Proposed solution:-

1.Use of Technology is the best better way to prevent the problem.

2.Area must be properly treated and restored to its original fertility.

3.In order to save the farmer from the clutches of the money lenders and the middle men, the government has come out with regulated markets

4.Strenuous efforts are being made to encourage the farmers to adopt technically advanced agricultural equipments in order to carry farm operations timely and precisely and to economise the agricultural production process.

5.Pests, germs and weeds cause heavy loss to crops which amounted to about one third of the total field produce at the time of Independence. Biocides (pesticides, herbicides and weedicides) are used to save the crops and to avoid losses. The increased use of these inputs has saved a lot of crops, especially the food crops from

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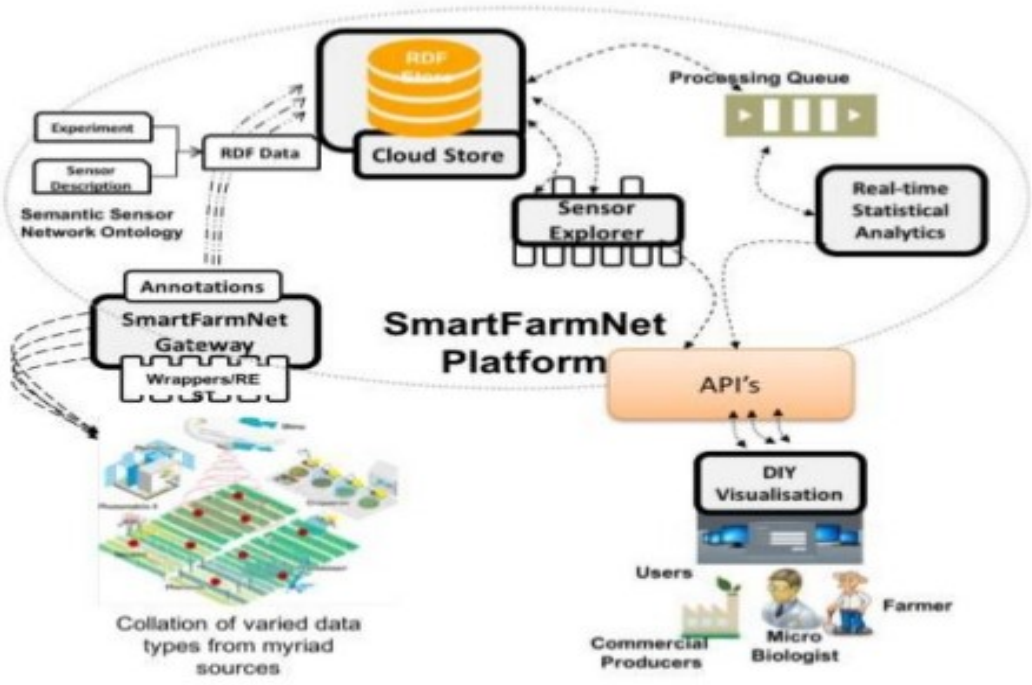
unnecessary wastage.

✪THEORITICAL ANALYSIS:-

⭐Block diagram:-



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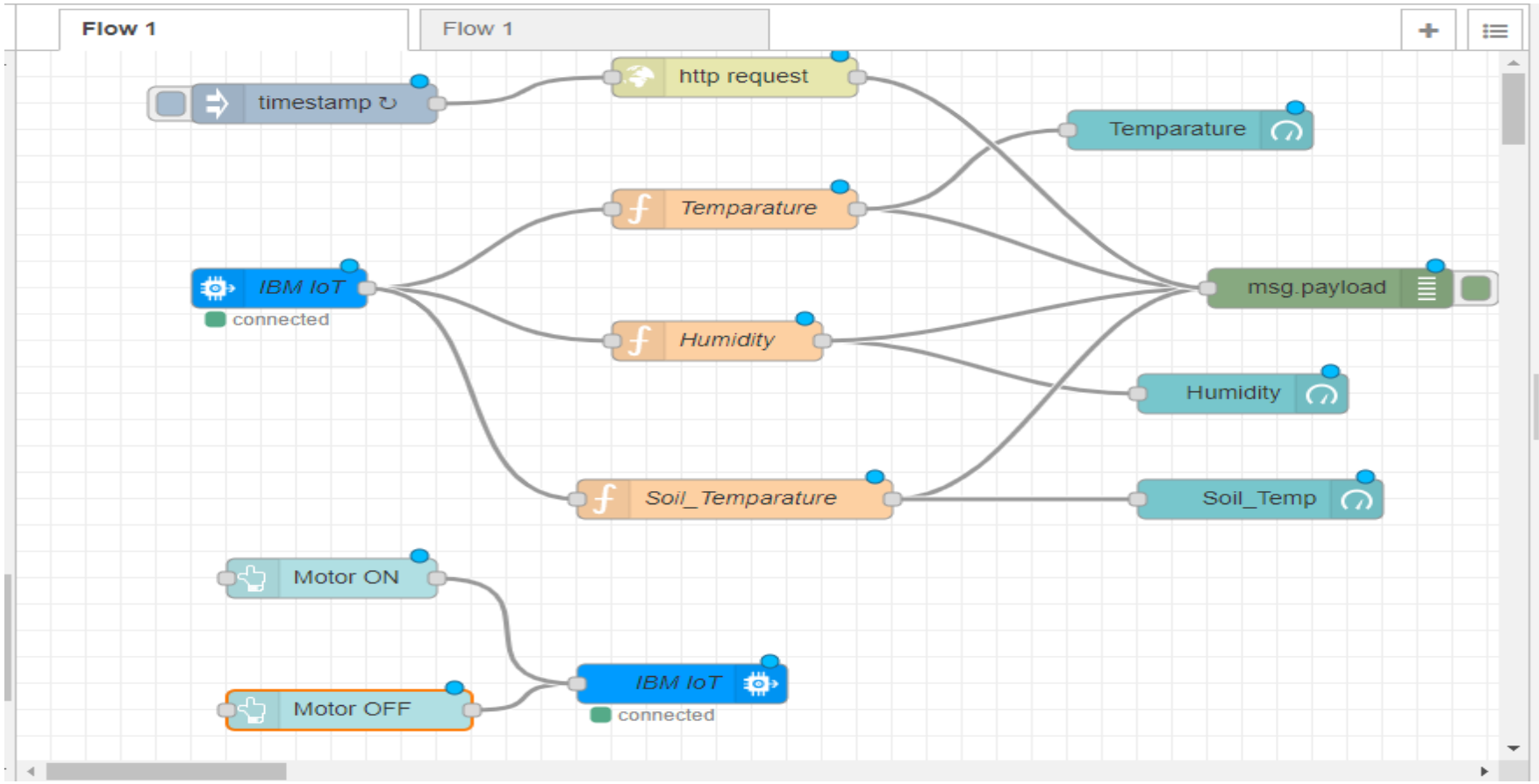
⭐ Hardware / Software designin



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⭐ **EXPERIMENTAL INVESTIGATIONS:-**

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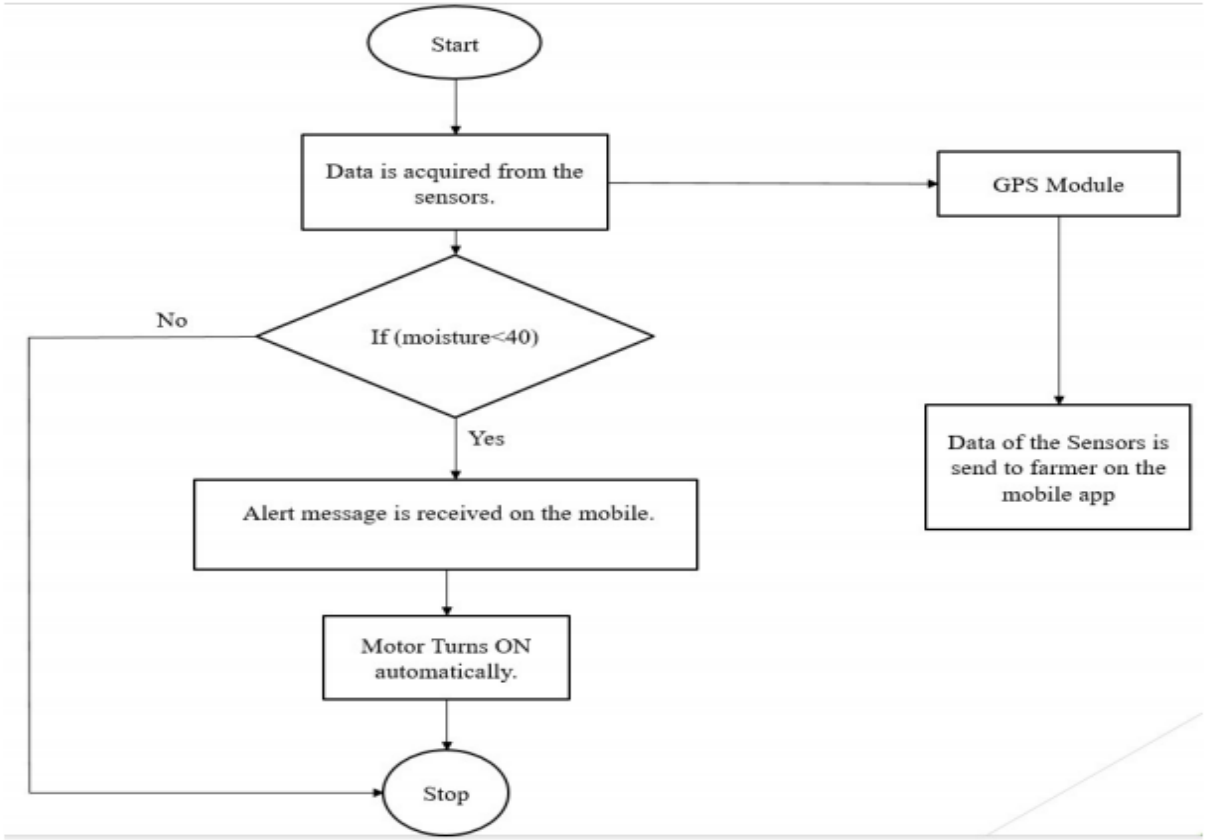
FLOWCHART:-



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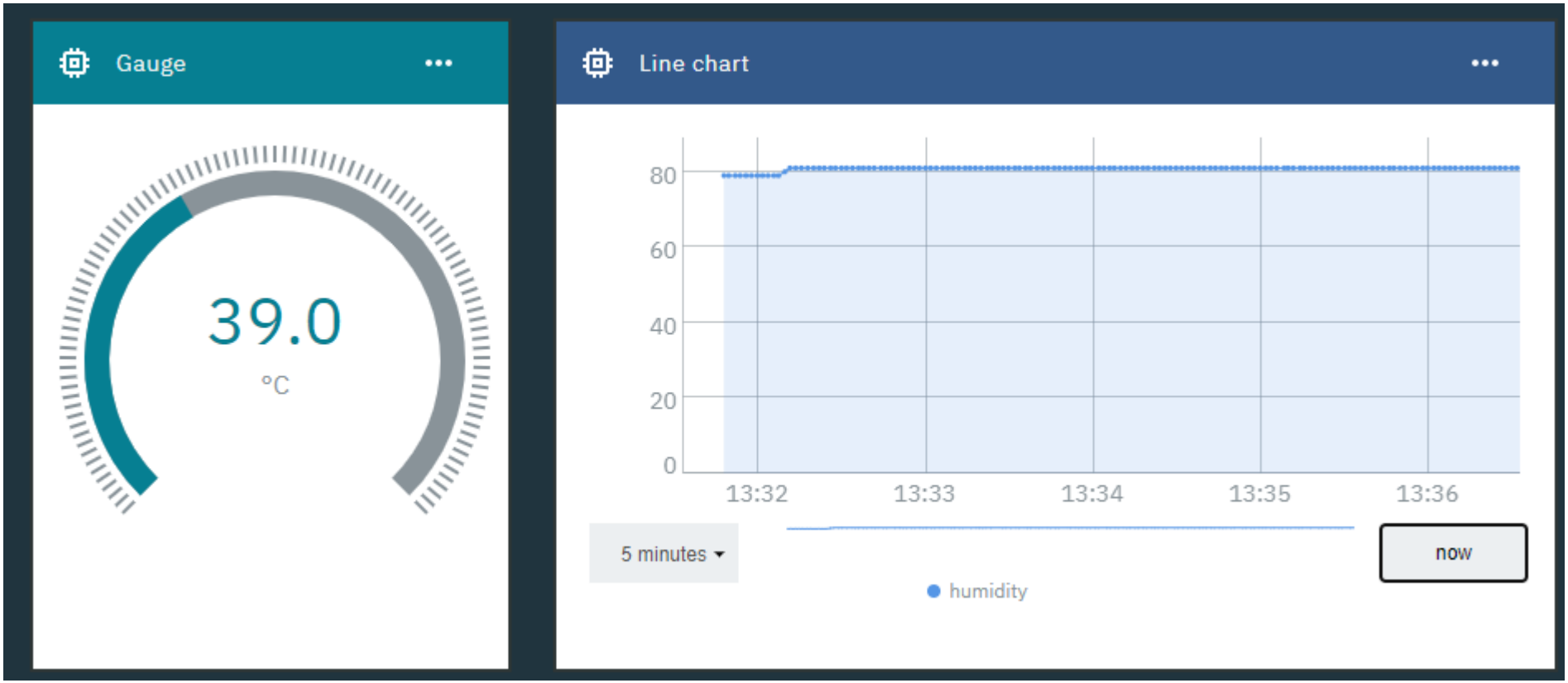
⭐**RESULT:-**



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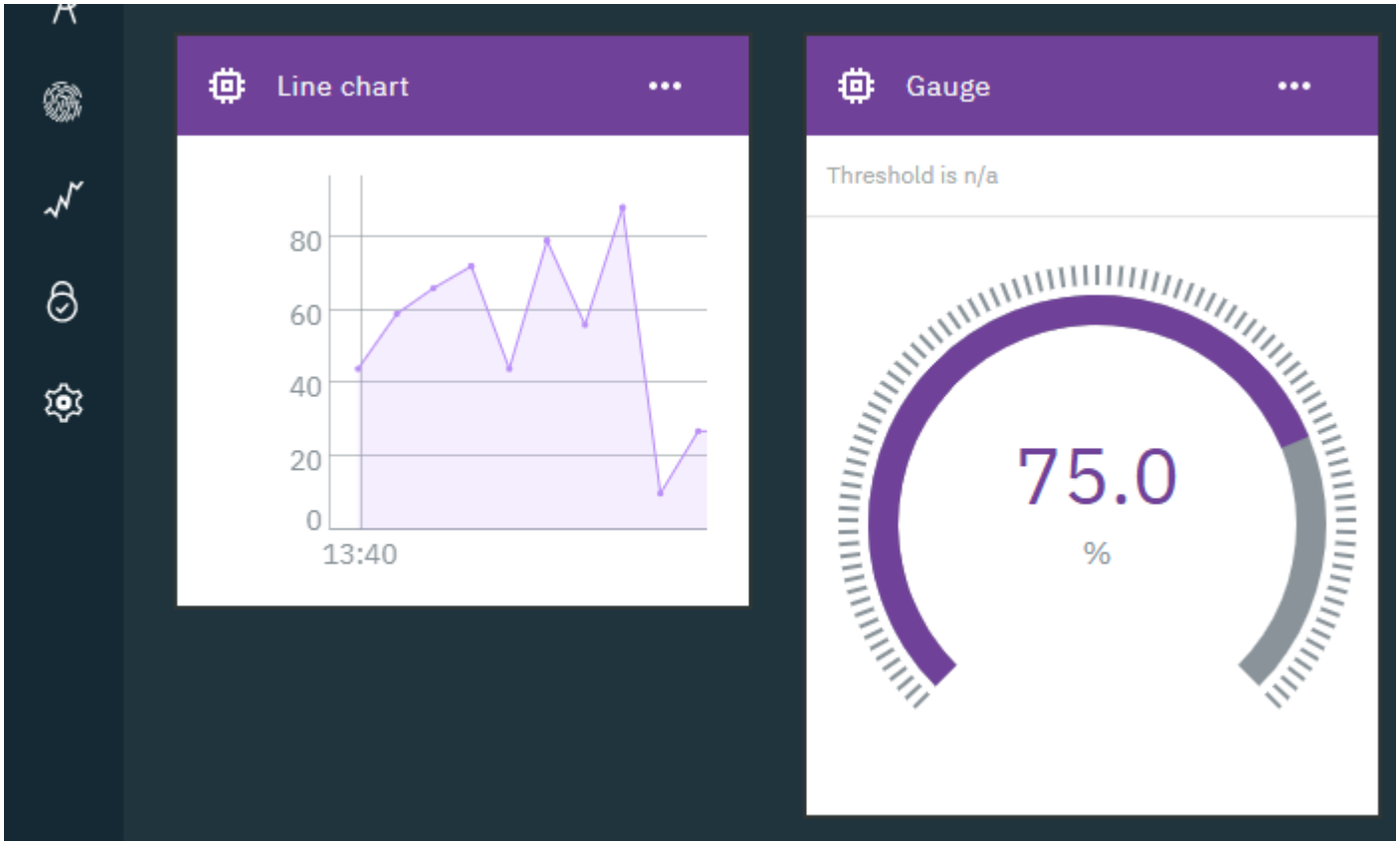

Temperature vs Humidity

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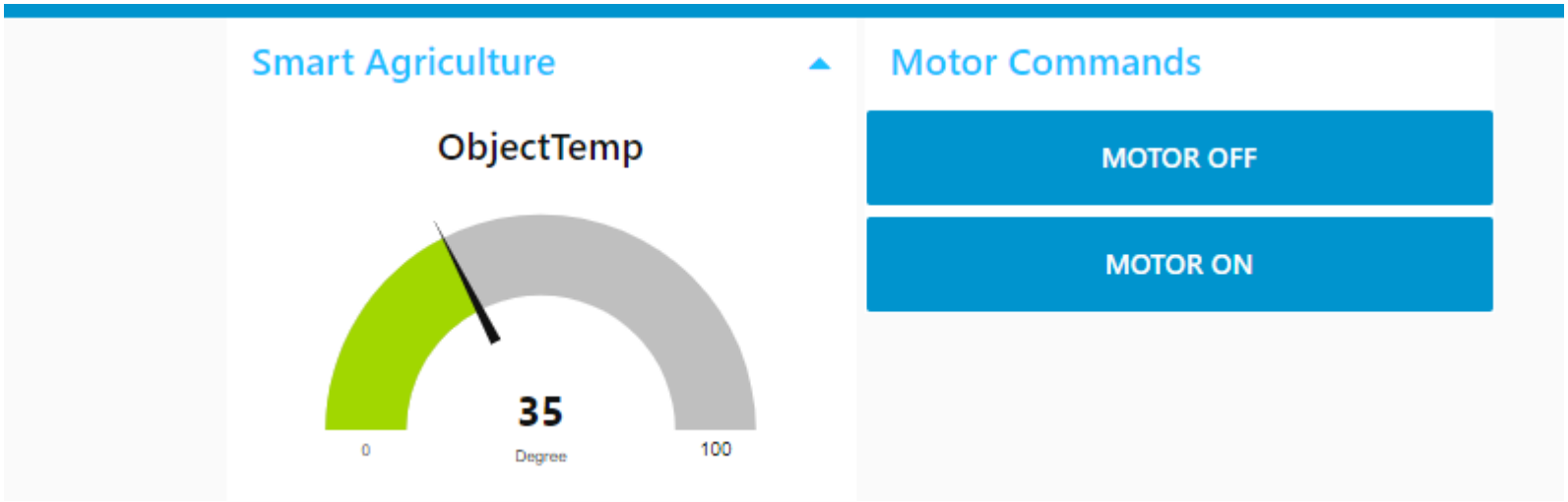

Base Layout Of Output Command

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➤ **ADVANTAGES:-**

1.Utilization of Resources Efficiently

2.Minimization of Human Efforts

3.Time-saving

4.Increase Data Collection

➤ **DISADVANTAGES:-**

1.Security

2. Privacy

3. Complexity

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✪ APPLICATIONS:-

1. Precision farming
2. Agricultural drones
3. Livestock monitoring
4. Smart greenhouses

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✪CONCLUSION:-

The proposed model explores the use of IoT (Internet of things) in the agriculture sector. This model aims at increasing the crop yield by helping in predicting better crop sequence for a particular soil. Thingspeak helps in real time sampling of the soil and hence the data acquired can be further used for analysing the crop. We have also taken many readings of the soil moisture, temperature and humidity of the environment for various days at different times of the day. Data on the cloud also helps the agriculturists in improving the yield, evaluating the manures, illness in the fields. This system is cost effective and feasible. It also focuses on optimizing the use of water resources which combats issues like water scarcity and ensures sustainability. This model focuses on the utilization of IoT in agriculture and the solutions proposed in this paper will improve farming methods, increase productivity and lead to effective use of limited resources.

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✪ FUTURE SCOPE:-

The future scope of this project could be including variety of soil sensors like pH sensor, Rain sensor and then collecting and storing the data on cloud server. This would make the predicting and analysing processes more accurate. It also includes making different data mining algorithms suitable for data analysis in agriculture.

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3.

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✪APPENDIX:-

Source Code:-

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


#Provide your IBM Watson Device Credentials
organization = "z6uebl"
deviceType = "IoT"
deviceId = "z6uebl"
```

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```
authMethod = "a-z6uebl-0kaf03ldgw"
authToken = "pYNdM6LrRSMsgM*o!j"
try:
    deviceOptions = {"z6uebl": organization, "IoT": deviceType, "z6uebl": deviceId, "a-z6uebl-0kaf03ldgw": authMethod, "pYNdM6LrRSMsgM*o!j": authToken}
    deviceCli = ibmiotf.device.Client(deviceOptions)
except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()
deviceCli.connect()
```

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```
while True:
        T=50;
        H=32;
       ot=45
        #Send Temperature & Humidity to IBM Watson
        data = {'d':{ 'Temperature' : T, 'Humidity': H,'objTemp':ot }}
        #print data
        def myOnPublishCallback():
            print (data, "to IBM Watson")
        success = deviceCli.publishEvent("event", "json", data, qos=0,
on_publish=myOnPublishCallback)
```

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```
        if not success:
            print("Not connected to IoTF")
        time.sleep(1)
# Disconnect the device and application from the cloud
deviceCli.disconnect()
```