

Project Report

Project Title- Smart Agriculture system based on IoT

Introduction-

- **Overview-** *Smart Agriculture System based on IoT can monitor soil moisture and climatic conditions to grow and yield a good crop.*
- *The farmer can also get the realtime weather forecasting data by using external platforms like Open Weather API.*
- *Farmer is provided a mobile app using which he can monitor the temperature, humidity and soil moisture parameters along with weather forecasting details.*
- *Based on all the parameters he can water his crop by controlling the motors using the mobile application.*
- *Even if the farmer is not present near his crop he can water his crop by controlling the motors using the mobile application from anywhere.*
- *Here we are using the Online IoT simulator for getting the Temperature, Humidity and Soil Moisture values.*

Purpose-

The main purpose is to save the time of farmer and extra efforts he is putting in farming.

Litrature Survey-

Existing Problem-

There are many times in which due to uncertain weather the crops get affected

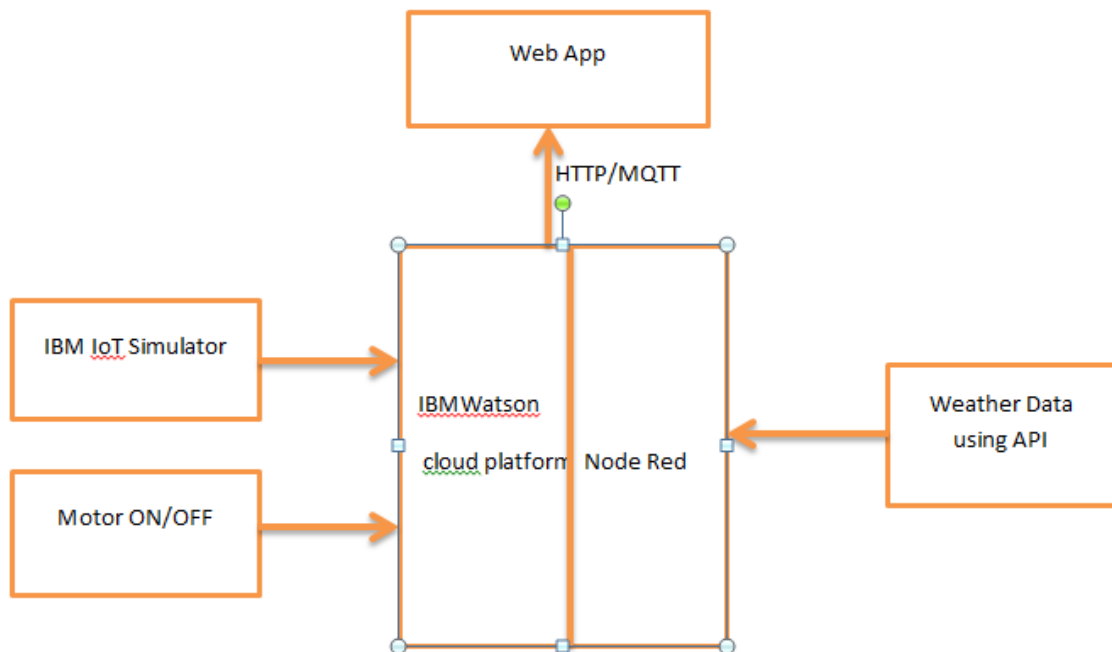
very badly ,sometimes farmers are not that much educated due to which they don't understand the nature or type of soil which results in poor production, and if the farmer is living far away from the farm then he has to come daily to start and close the motor which consumes lot of time and labour.

Proposed Solution-

Smart Agriculture System based on IoT can monitors the moisture content in soil ,climatic conditons on realtime data (open weather API),here we can provide a mobile app which can monitor the temprature,humidity etc,he can even be able to control on/off of the motor to water the crops.

Theoritical Analysis-

Block Diagram-

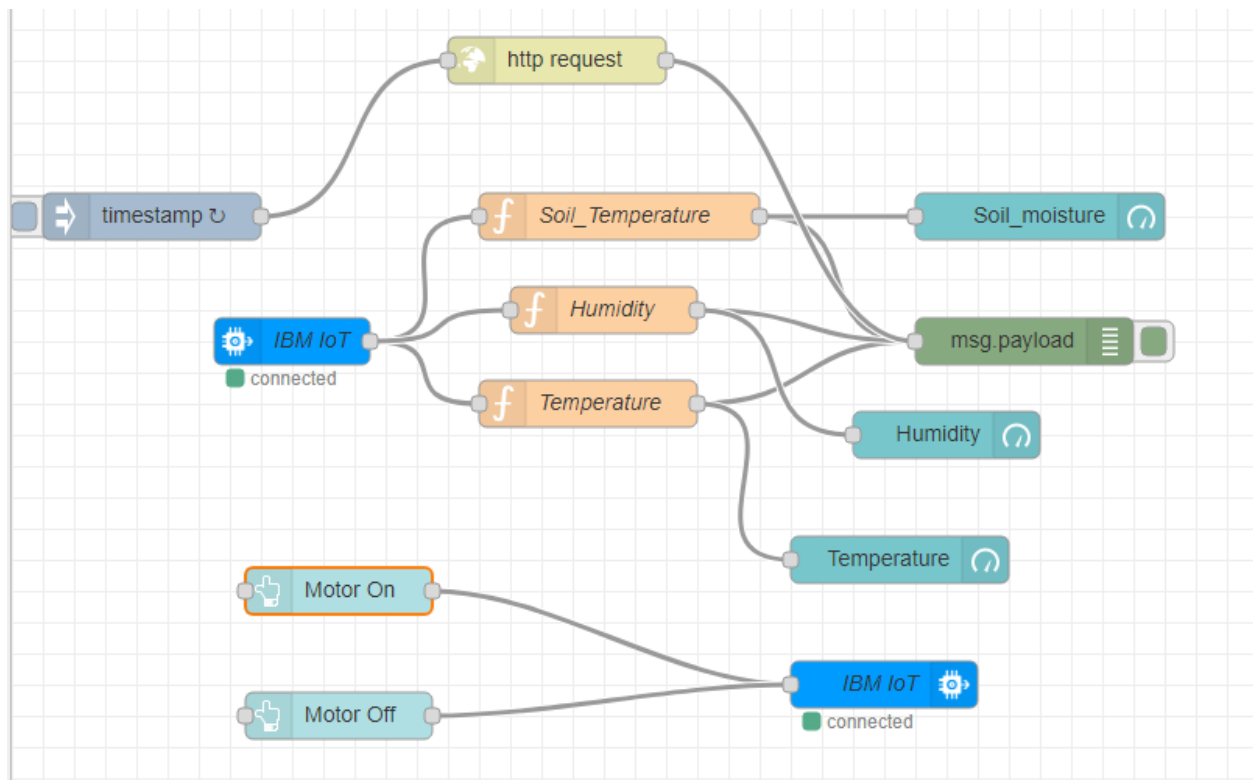


Software Designing-

We have created two device on IBM cloud, one is for motor on/off and other for getting data and displaying it in UI.

Here we have installed required nodes in node-red which we have installed in our system locally.

by connecting the nodes in the given figure we made the proper connection.



Experimental Investigation-

- Create new device in Watson IoT platform-

We will create account in watson iot platform, there we will create two device which will have be of motor on/off and other for open weather data.

IBM Watson IoT Platform

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Browse

Action

Device Types

Interfaces

Add Device +

▼

Arduino

Connected

IoTDevice

Device

May 23, 2020 11:24 AM

→ ...

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 | {"d":{"name":"Arduino","temperature":16,"humid..." | json | a few seconds ago |
| event_1 | {"temperature":67,"Humidity":83,"Distance":5} | json | a few seconds ago |

IBM IoT Platform :create Dashboard

Here we will have cards showing data of temprature,humidity,soil temprature. can select anytype like Gauge,chart,numbers etc.

IBM Watson IoT Platform

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IoTProject

♥

+ Add New Card

⚙ Settings

100

80

60

40

20

0

11:47

11:48

11:49

11:50

11:51

5 minutes ▼

now

● Humidity

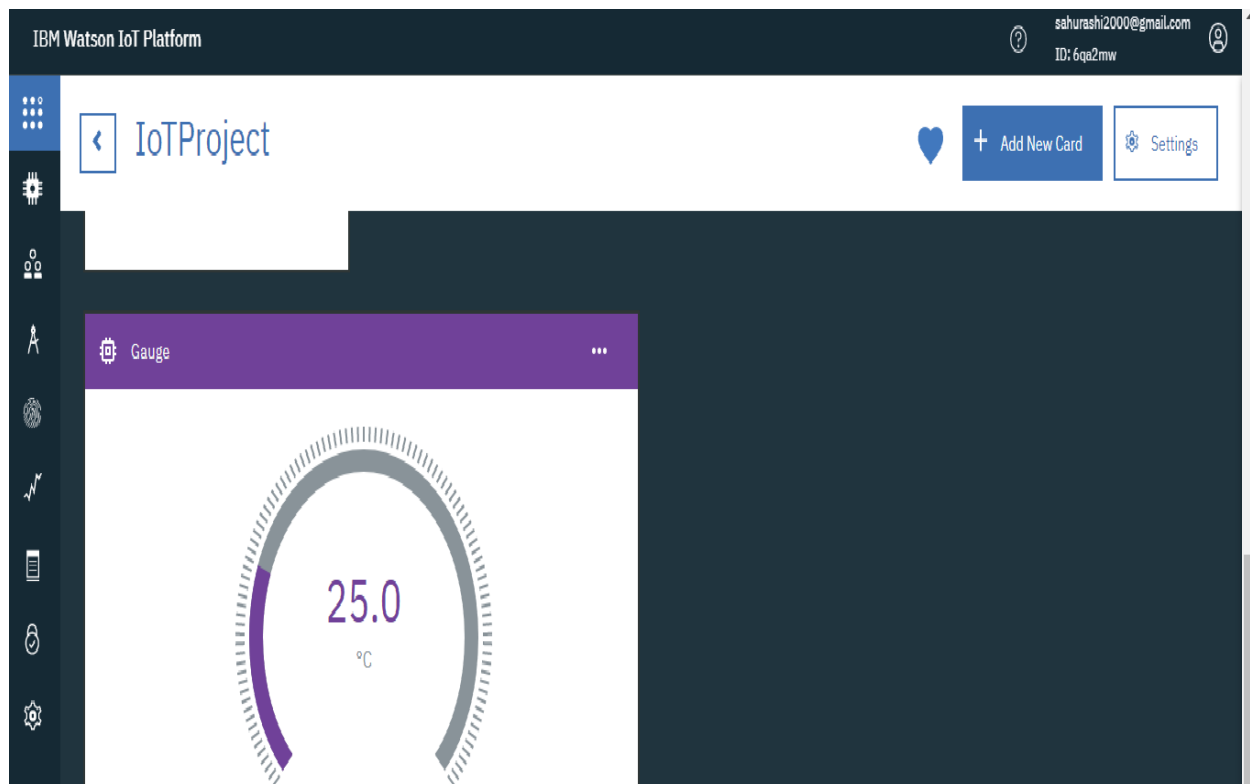
⚙ Value

...

60.0 m

Distance

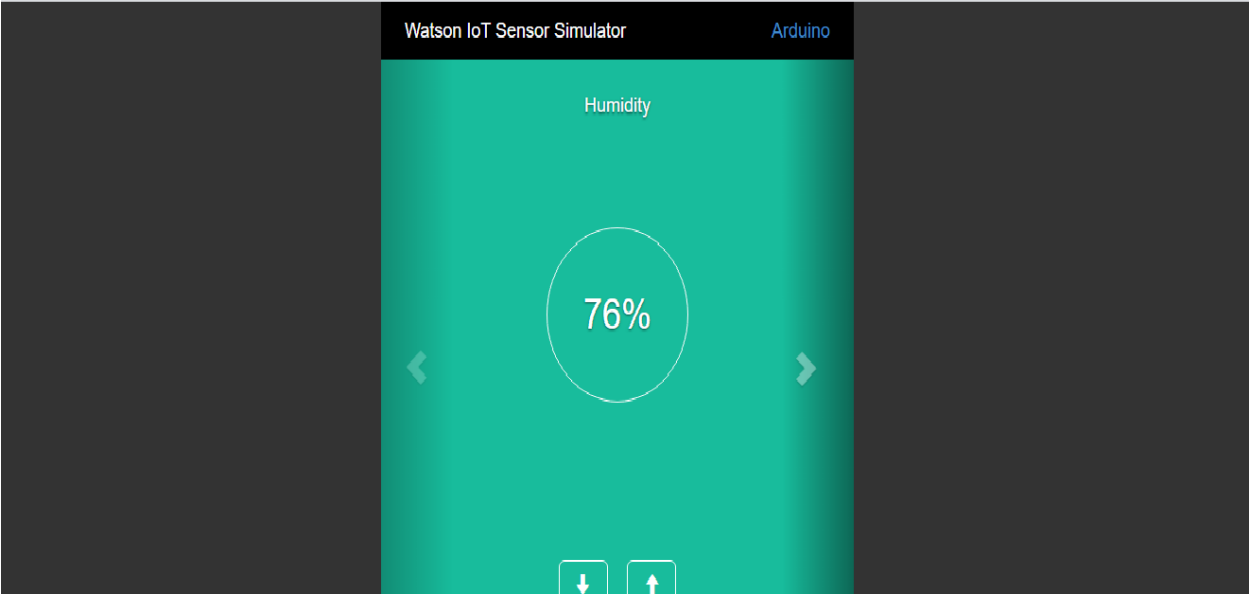
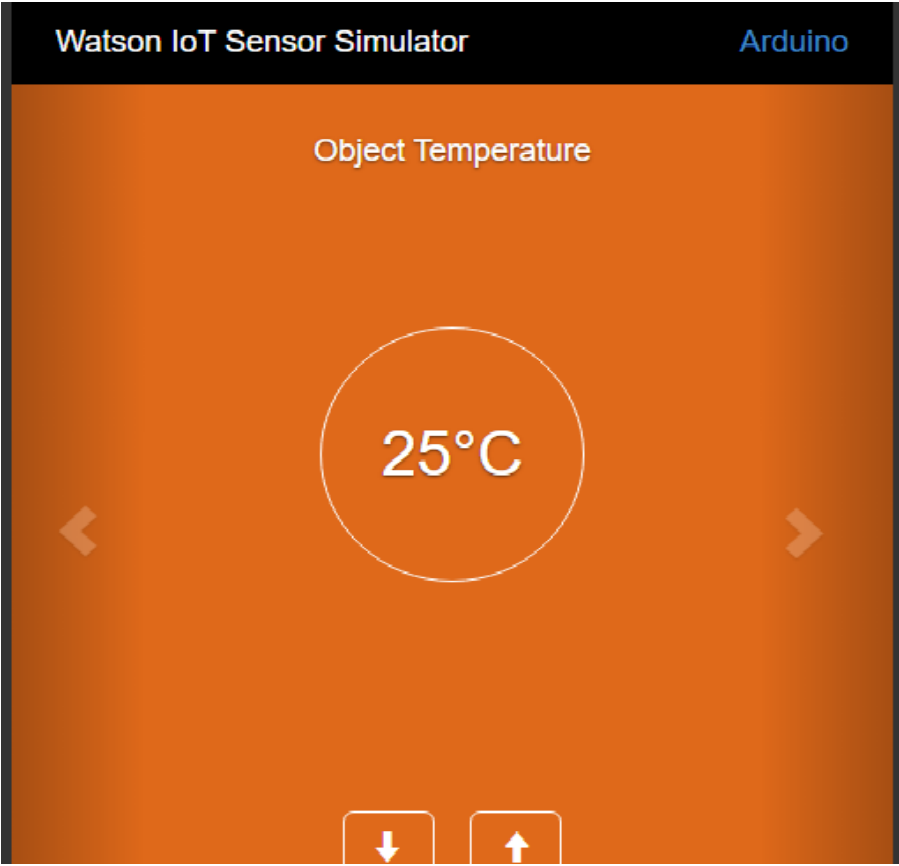
1 Simulation running



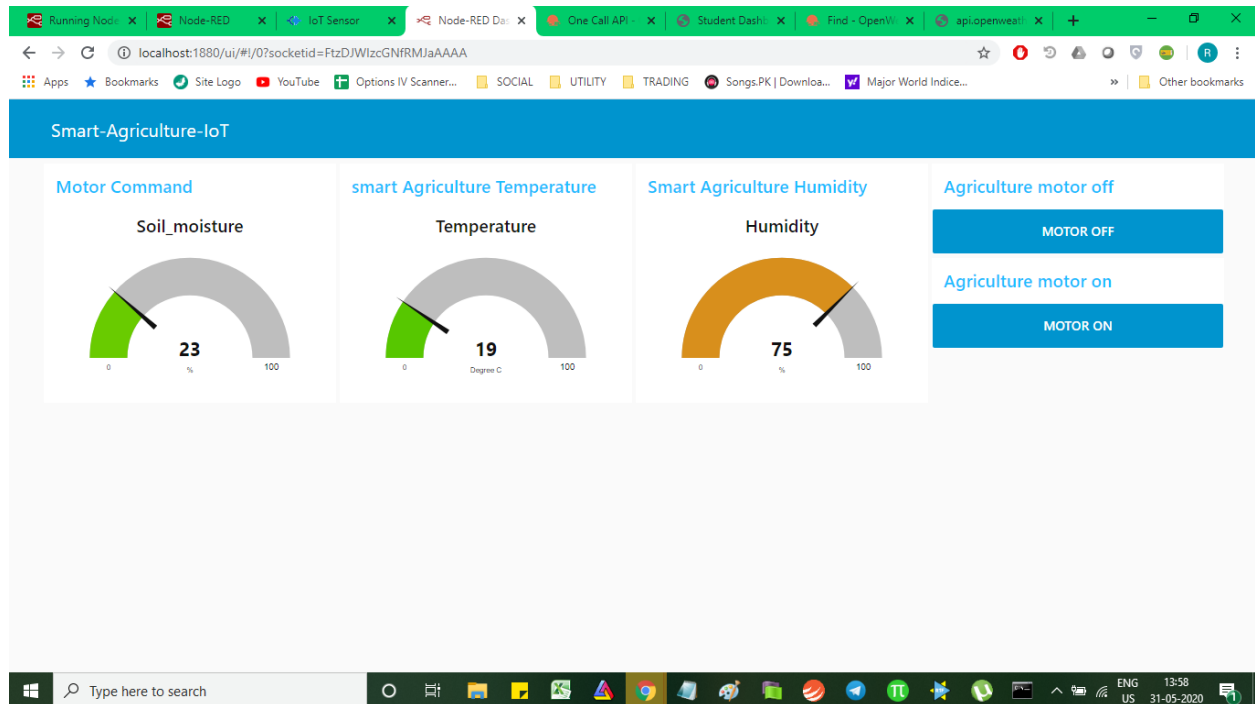
-Connect the IoT Simulator to Watson IoT platform-

we will connect IoT simulator to the created device by feeding device credentials to IBM iot simulator.

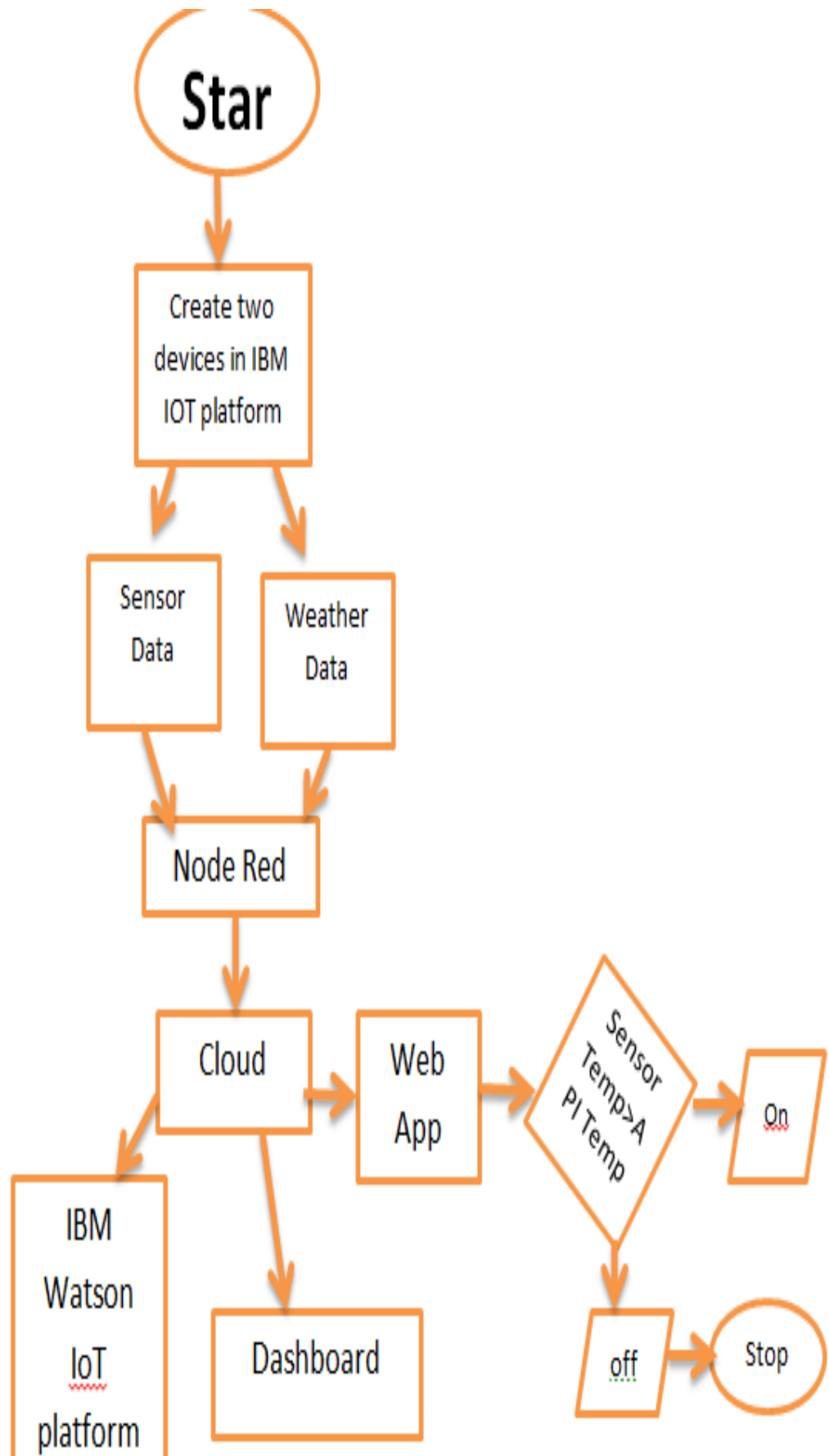
here we will get data of temprature,humidity,and soil temprature.



-Create node red UI and control button for motor on/off-



Flow Chart-



Result-

We will have motor on and off button which can be controlled by farmer, he will get to know all the real time information related to weather .

the work of farmer will reduce to great extent, with new and easy technology in hand.

Advantages and Disadvantages-

Advantages-

- IoT enables easy collection and management of tons of data collected from sensors and with integration of cloud computing services like Agriculture fields maps, cloud storage etc., data can be accessed live from anywhere and everywhere enabling live monitoring and end to end connectivity among all the parties concerned.
- The work of Farmer will reduce to great extent.
- Will be very convenient
- crops will be saved from unpredicted weather change as the farmer will get live updates about the weather before hand only.

Disadvantages-

- It's a new technology so farmers may face problem in operating the app .
- There will be language barrier as farmers may not understand the language (english)

Conclusion and Future Scope

IoT based SMART AGRICULTURE IoT for Live Monitoring of Temperature and Soil Moisture has been proposed using IoT and Cloud Computing . The System has high

efficiency and accuracy in fetching the live data of temperature and soil moisture. The IoT based smart agriculture System being proposed via this report will assist farmers in increasing the agriculture yield and take efficient care of food production as the System will always provide helping hand to farmers for getting accurate live feed of environmental temperature and soil moisture with more than 99% accurate results.

Bibilography-

- Youtube(videos)
- google Articles