REPORT

INTRODUCTION:

Overview:

Smart Agriculture System Based on IoT is a project that helps farmers from a distance. Farmers need to be close to their crops for high yield and proper end product but each farmer does not have the liberty to go to their farms and check the crops and turn the motors accordingly. IoT helps us in this case. This program can control crops from home and farmers can check their crops and turn their water motors according to the needs of the crops.

Purpose:

The purpose of this Application is to bring farmers and crops close together and to reduce the work done by farmers to some extent. Some farmers need to travel a great distance in order to check on their crops. IoT can put reduce their effort. They can travel less like once a week rather than traveling every day and helping them have more control over their crops. Watering can be made easy for them. They can have control of watering right at their fingertips. This is the era of technology so moving farming to a more technical aspect is just a matter of time.

LITERATURE SURVEY:

Existing problem:

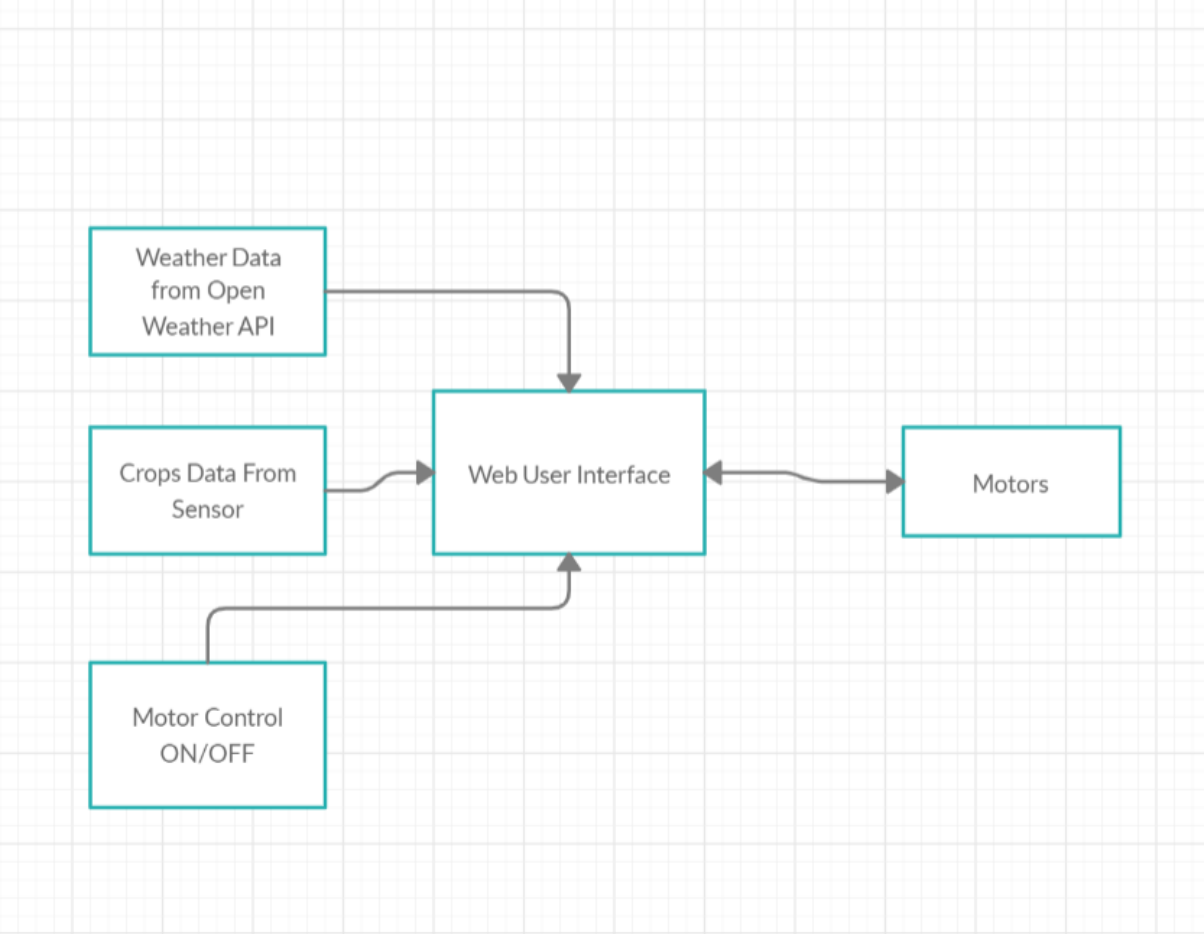
A problem of traveling long distances every day to see the crops and then to irrigate it is a long-existing problem. In some cases, farmers tend to travel such distances which costs them both time and money. irrigation is another aspect of cropping which is very necessary but farmers cannot travel to its whole farming area when they own big land so they cannot know where water is reaching or not.

Proposed Solution:

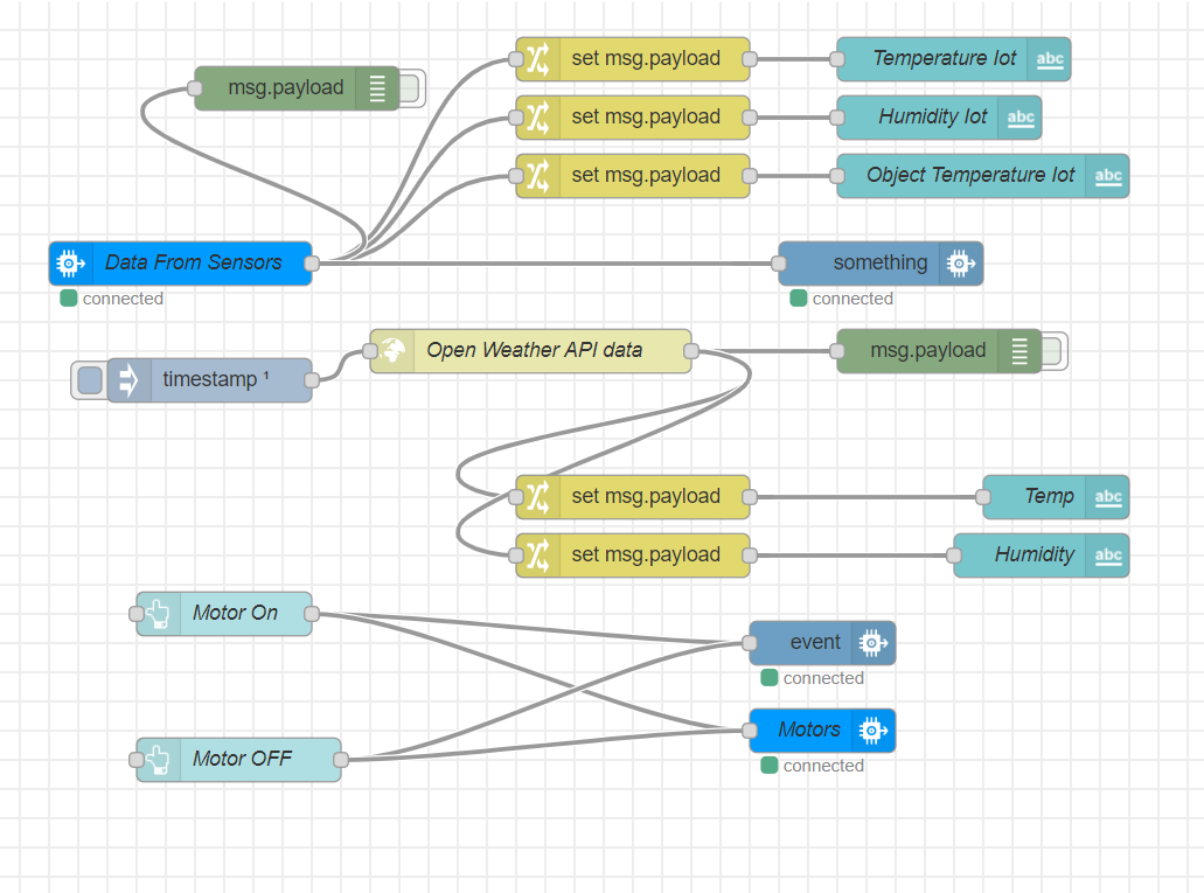
Sensors that will be implemented on different sides of crops will give data like temperature, humidity, etc and control over motors will be given to farmers over a User Interface. This will help them get data from all over the crops and hence they can control the flow of water on their fingertips. They won't have to travel every day to see their crops. Once a week would be fine and they can control the flow of water from anywhere.

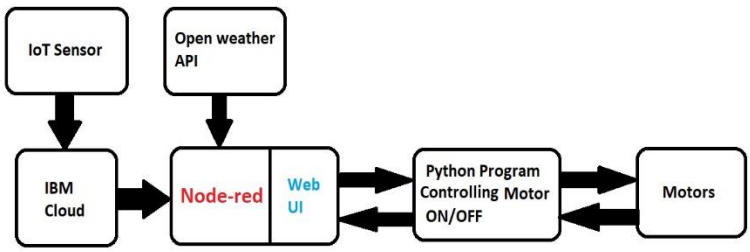
THEOROTICAL ANALYSIS:

Block Diagram:

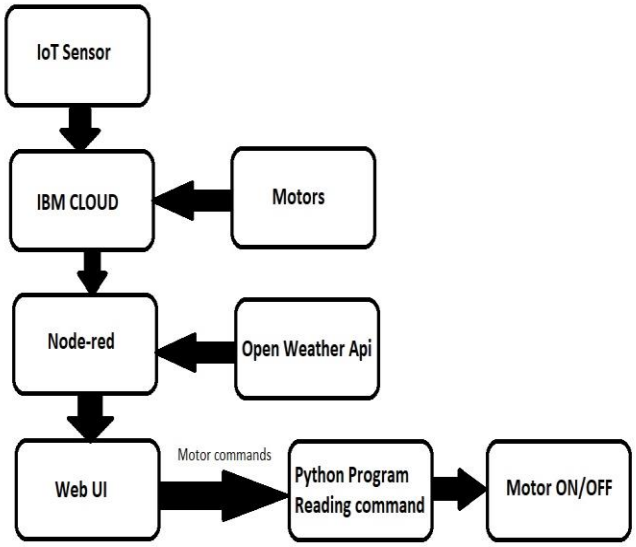


Software Design:


msg.payload
set msg.payload
set msg.payload
set msg.payload
Temperature Iot
Humidity Iot
Object Temperature Iot
Data From Sensors
connected
something
connected
timestamp ¹
Open Weather API data
msg.payload
set msg.payload
set msg.payload
Temp
Humidity
Motor On
Motor OFF
event
connected
Motors
connected


IoT Sensor
Open weather API
IBM Cloud
Node-red
Web UI
Python Program Controlling Motor ON/OFF
Motors

FLOWCHART:



RESULT:

A Smart Agriculture IoT is formed which can control the water motors with a web-based UI (Which can be made into an app). This digitalizes agricultural activities like irrigation and observing into a technical aspect. As like in Corona where people are not allowed to travel this technology will help farmers **WORK FROM HOME**.

ADVANTAGES AND DISADVANTAGES:

Advantages:

1. Cost-efficient.
2. Reduces the hard-work of Farmers.
3. Water Irrigation is more efficient.
4. Can be used from anywhere.
5. Crop data may help farmers spot places where irrigation is less efficient.
6. Zero complexity of the program.

Disadvantages:

1. Reliability: A reliable network connection is required in order to control the motors.
2. Observations: For a clear observation of farms cameras may have to be implemented which may increase cost.
3. Sensors: If sensors are faulty or not placed correctly it may give wrong data.

APPLICATIONS:

This can be used and implemented in various aspects from agriculture to home gardening.

Various applications are Gardening, Nurseries, Farms, Medicinal farms which require extensive care.

FUTURE SCOPE:

It is only a matter of time when Agriculture will be controlled by technology. So, it has high future scope in the fields.

BIBILOGRAPHY:

Source Code and Reference Links:

1. Project Kickoff
2. Project Template
3. https://github.com/
4. Github
5. slack
6. Zoho Writer
7. IBM cloud
8. Node-red
9. IBM watson
10. Python
11. IoT Sensor
12. Openweather API
13. For Installing Nodes
14. For getting Open Weather API data
15. To Create UI

Source Code