

# Smart Agriculture System Using IoT

## A Project Report

*Submitted as a training project for*



**The Smart Bridge**  
**May 2020- June 2020**

*By*

**Gaurav Baghel**

*Under the Guidance of*

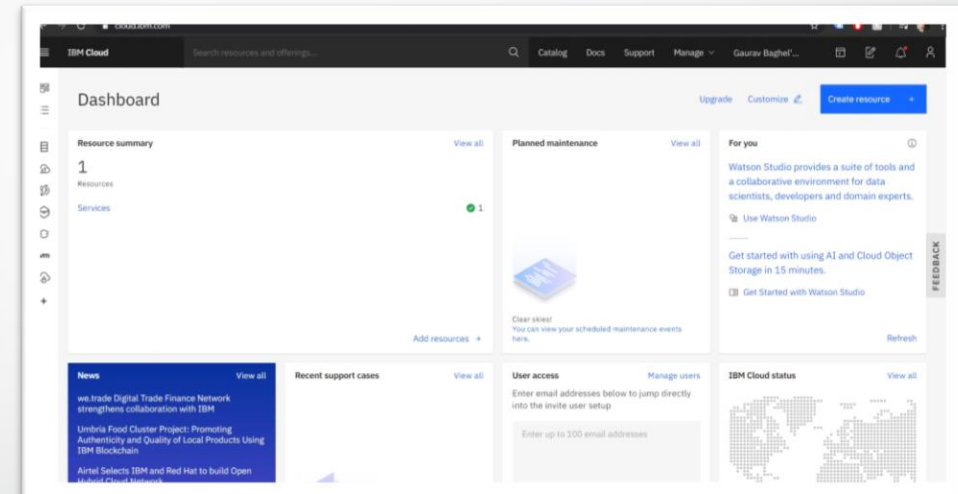
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## **The main aim of this project is to turn on and off water pump from anywhere using mobile phone.**

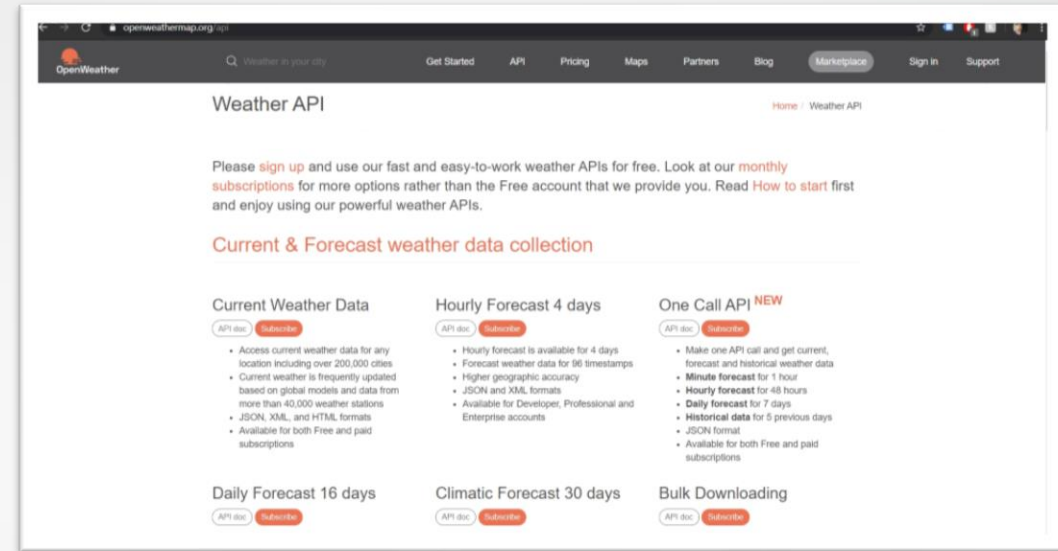
- Smart Agriculture System based on IoT can monitor soil moisture and climatic conditions to grow and yield a good crop.
- The farmer can also get the real time weather forecasting data by using external platforms like Open Weather API.
- Farmer is provided a mobile app using which he can monitor the 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.
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- This can be a ground-breaking invention for people still using traditional agricultural techniques.

## Project Requirements:

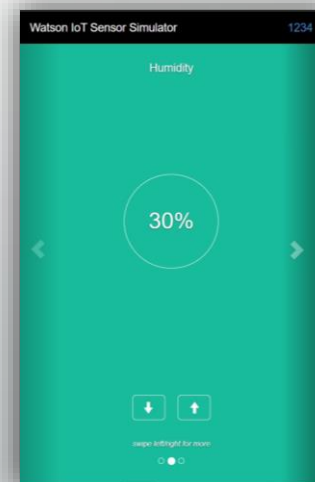
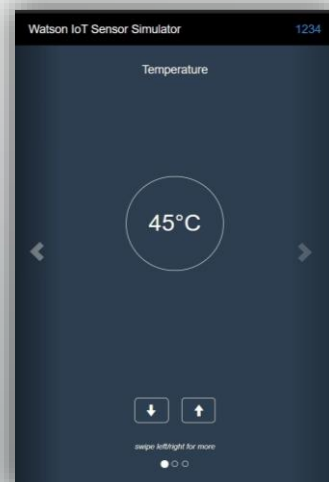
- IBM cloud account
- IOT Application Development
- IOT cloud platform
- Basic python requirements.



## Functional Requirements:



- Open Weather API that could deliver real time weather forecasting.
- Online IoT Simulator to get external factors like temperature , humidity and soil moisture



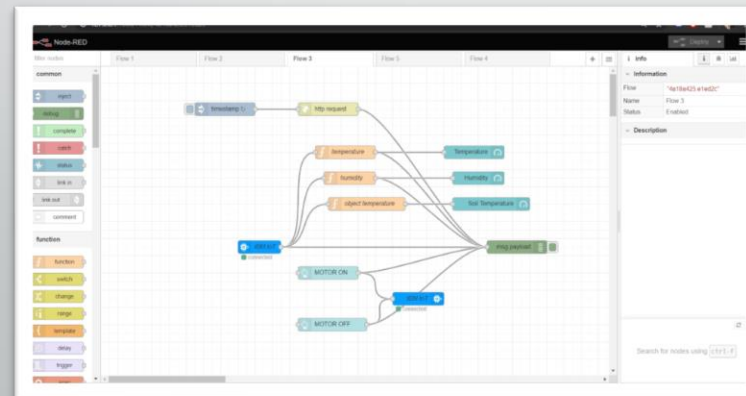
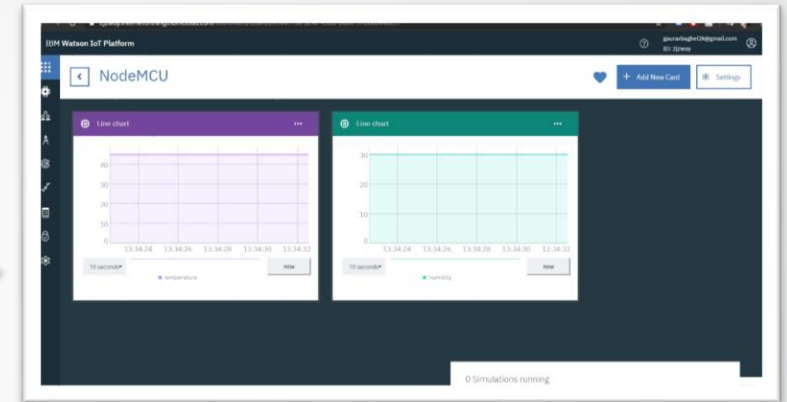
## Technical Requirements:

- The program is to be written in python and we will be using IBM cloud account too along with IoT simulator to IoT Watson platform, Nodes to get data and make a web page.
- Arduino Uno
- Analog Soil Moisture Sensor
- DHT22 Digital Temperature and Humidity Sensor
- MQ-135 Air Quality Gas Sensor Module
- MQ-7 Gas Tester Carbon Monoxide Detecting Sensor Module 4P 180mA 5V DC
- MQ2 Gas Sensor, Methane, Butane, LPG, Smoke Sensor
- Ultrasonic sound sensor
- LCD 16×2 Alphanumeric Display(JHD162A)
- Jumper Wires Male to Male, male to female, female to female
- GSM Modem Module for Arduino
- Batteries
- Motor
- 1 kilo-ohm Resistances



## Software Requirements:

- IBM cloud
- Python
- Open weather API
- Nodes



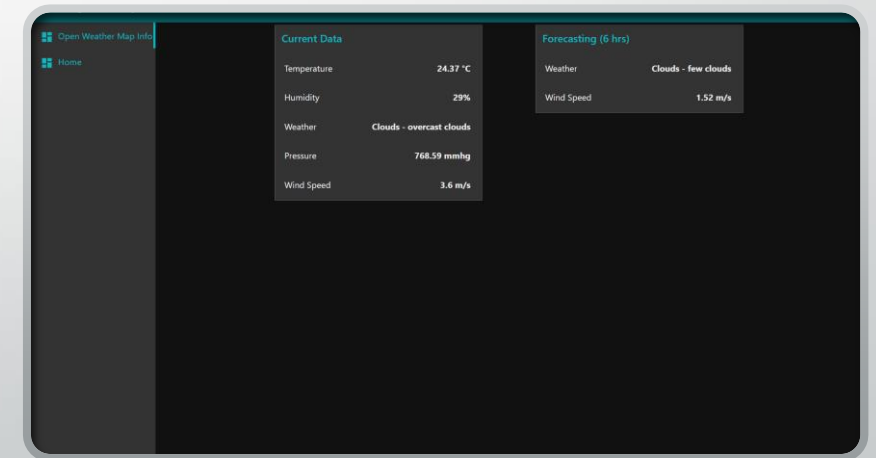
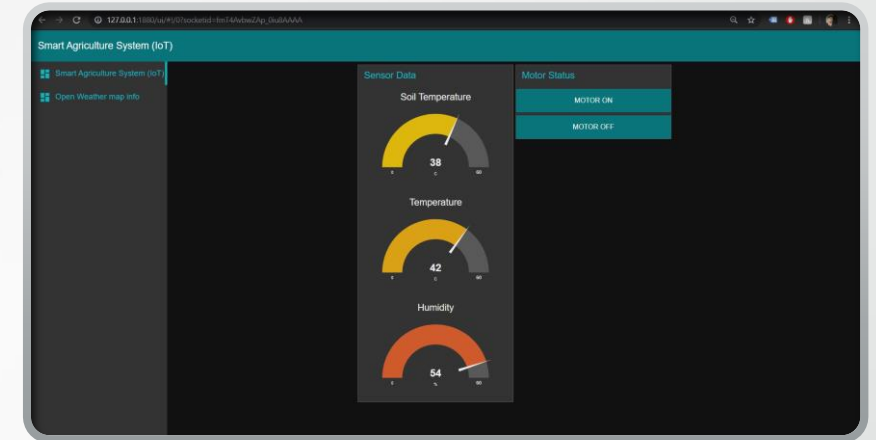
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C:\Program Files\WindowsApps\PythonSoftwareFoundation.Python.3.8_1000.204_gbz5n2kfra8p0\Python3.exe
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_packages\Python38\site-packages\paho\mqtt\client.py", line 3428, in _thread_main
    self.loop_forever(retry_first_connection=True)
File "C:\Users\Gaurav Baghel\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.8_gbz5n2kfra8p0\LocalCache\local
_packages\Python38\site-packages\paho\mqtt\client.py", line 1782, in loop_forever
    rc = self.loop(timeout, max_packets)
File "C:\Users\Gaurav Baghel\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.8_gbz5n2kfra8p0\LocalCache\local
_packages\Python38\site-packages\paho\mqtt\client.py", line 1177, in loop
    rc = self.loop_read(max_packets)
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_packages\Python38\site-packages\paho\mqtt\client.py", line 1568, in loop_read
    rc = self._packet_read()
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_packages\Python38\site-packages\paho\mqtt\client.py", line 2315, in _packet_read
    rc = self._packet_handle()
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_packages\Python38\site-packages\paho\mqtt\client.py", line 2958, in _packet_handle
    return self._handle_connack()
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_packages\Python38\site-packages\paho\mqtt\client.py", line 3045, in _handle_connack
    self.on_connack()
File "C:\Users\Gaurav Baghel\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.8_gbz5n2kfra8p0\LocalCache\local
_packages\Python38\site-packages\ibmiotf\device.py", line 240, in on_connack
    self.logger.info("Connected successfully: %s" % (self.clientId))
Message: 'Connected successfully: d:2jwny:motor:1'
Arguments: ()
2020-06-11 15:19:27,041    ibmiotf.device.Client    INFO    Connected successfully: d:2jwny:motor:1
ERROR ON IS RECEIVED
ERROR OFF IS RECEIVED

```

# Project Deliverables:

- An mobile application that can monitor the temperature , humidity and soil moisture parameters along with weather forecasting details. Also, based on these parameters user can water his crops by controlling the motors.





**Thank You !**