Smart Agriculture System Based on IoT

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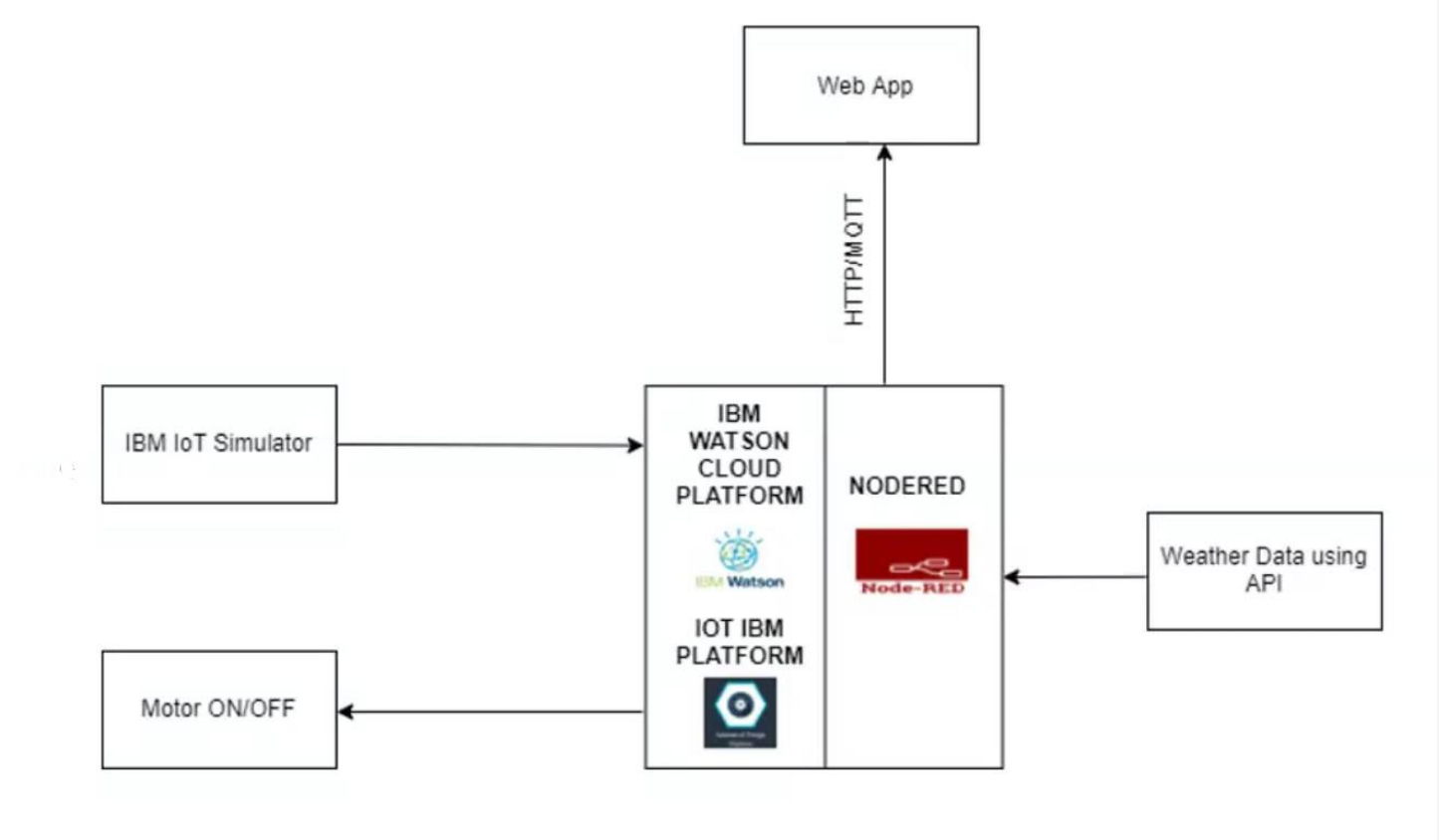
Technology & Architecture:

Technologies Used:

- Python
- IBM Cloud
- IBM IOT Watson Platform
- IBM IoT Simulator
- Open Weather API

Block Diagram :



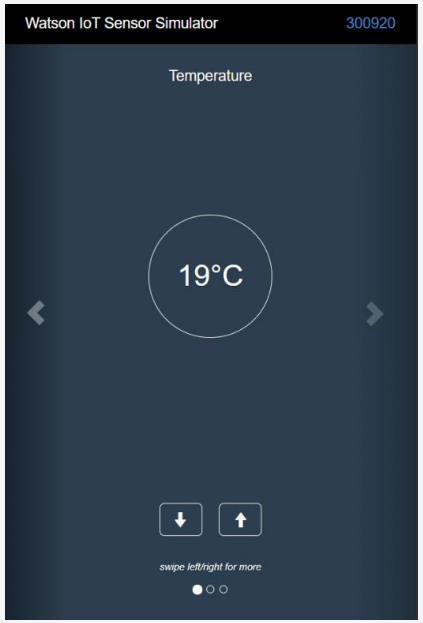
Objectives :

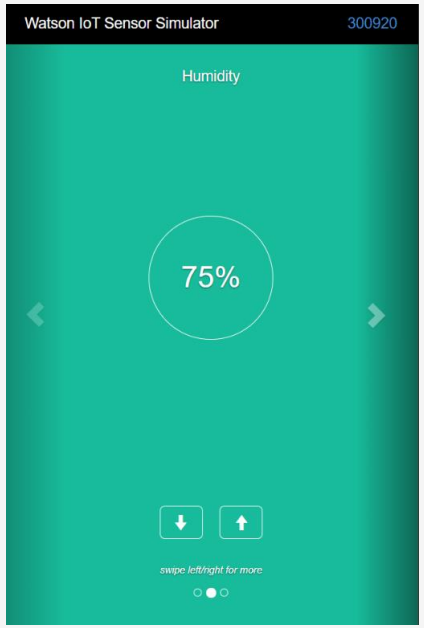
- To update farmers with the new technology and to avoid manual labor.
- To reduce wastage of water and enhance productivity of crops by providing them ideal condition
- To meet the difficulties such as severe weather conditions and advancing climate change, and environmental consequences resulting from intensive farming practices.
- Design a model and connect it to the android app and cloud server.

Working Of Model :

- Model consists of assisting farmer with a motive of informing minimal actions such as Working of Motor, which can be decided by taking in view all the parameters of the farm.
- The Device will be created on IBM IOT CLOUD
- This device should be connected to IOT sensor through which we can manipulate various weather conditions.
- The weather conditions we can handle are Temperature, Humidity & Object temperature
- Also, if not this, we can have our device parameters from the Open Weather API.
- Through the algorithm used and taking input from simulator, updating the data on the web app .
- This will in turn help the farmers to determine the right time to water the crops and check the weather conditions which will help to get a good yield.

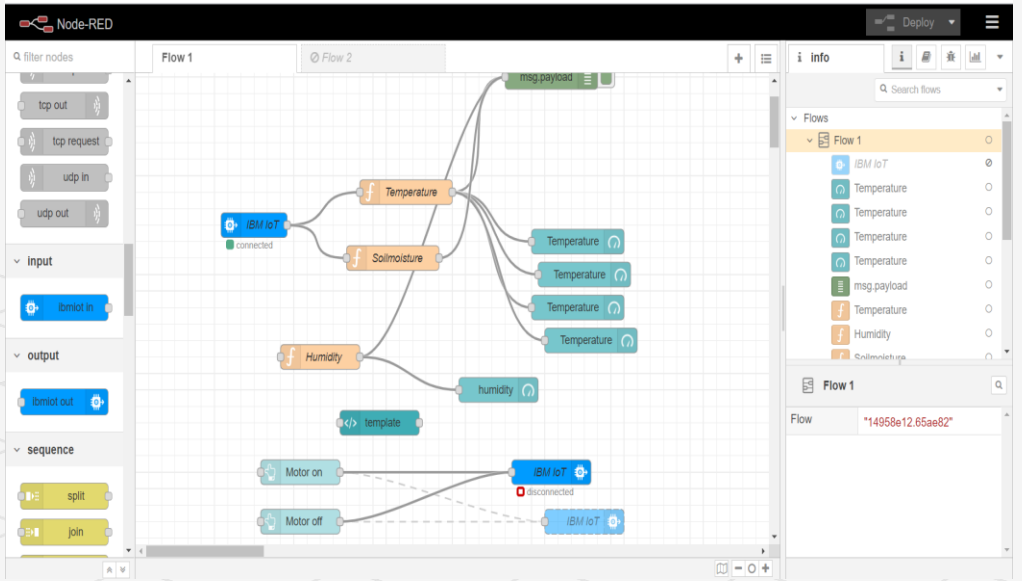
Device Model





IOT SENSOR SHOWING TEMPERATURE, HUMIDITY, OBJECT TEMPERATURE

NODE RED FLOW



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.
- Things speak 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.
- 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