SMART AGRICULTURE SYSTEM BASED ON IOT

INTRODUCTION

This project involves building a smart Internet of Things based agriculture system to monitor the weather conditions and soil conditions and help the farmer to gain better yield. This will be accomplished by using the IBM Watson open weather API Python language to interact with the system. The highlighting features of this project include smart irrigation with smart control based on real time field data. Secondly temperature maintenance, humidity maintenance and other environmental parameters.

PURPOSE:

The aim of the project is to make farming affordable and profitable to all by making use of the technological developments like cloud smartphones and IOT

LITERATURE SURVEY EXISTING

PROBLEM:

some of them are natural and some others are manmade. Of those, being unable to predict the climate and plant requirements is the major problem. Also some of the other problems include soil erosion, irrigation. Soil quality testing is not done effectively in India. Moreover, not being able to adapt to technological trends has become fatal to agriculture.

PROPOSED SOLUTION:

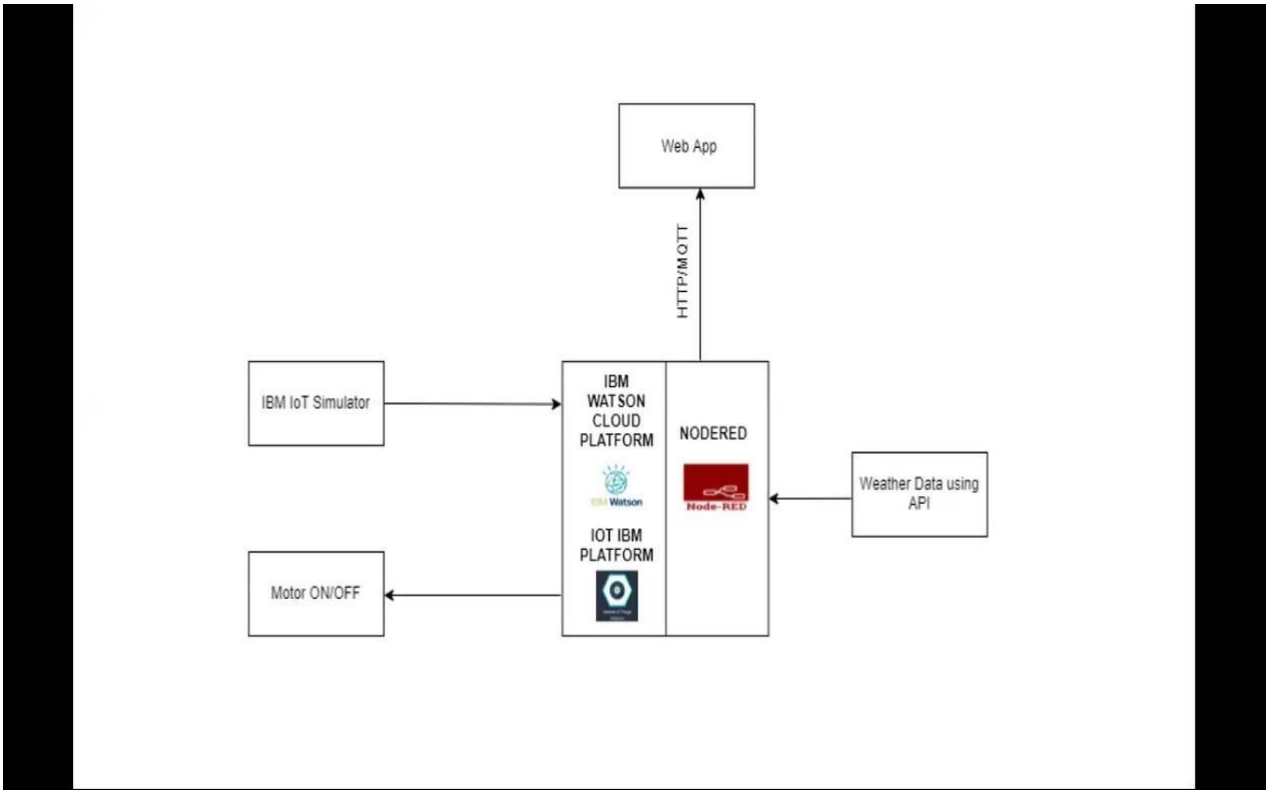
There are many new farming techniques like precision farming, GSM based farming and smart irrigation control. Here we propose a solution using cloud and IoT to monitor the soil and weather conditions. We use temperature, humidity and moisture sensors to gain the required information and pass them to the cloud platform. Also, we create a web-based interface to interact with the farmer and control the irrigation system. Based on the information from the sensors, the farmer can take a decision on how to control the irrigation system.

THEORETICAL ANALYSIS

PROJECT SCOPE:

We create a device in the IBM Watson IoT platform and enable simulation. The simulation is done in the watson IOT sensor simulator. The sensors take reading every minute and upload to the cloud. Nodered is used to wire together the hardware,online services and APIs. To simulate weather information , we create an account in Openweather.org and provide through the sensors.

BLOCK DIAGRAM:



HARDWARE/SOFTWARE DESIGN:

Install the required tools and create the required accoounts.

1. **SETTING UP PYTHON IDE**
2. **CREATE A DEVICE IN THE IBM WATSON IOT PLATFORM**
3. **INSTALL NODE-RED LOCALLY**
4. **CONNECT THE IOT DEVICE TO A SIMULATOR**
5. **VISUALISING THE DATA**
6. **CONNECTING TO OPENWEATHER API**
7. **CREATING THE UI USING NODE-RED**

8.RUNNING THE PYTHON CODE AND TURNING MOTOR ON OR OFF

FUTURE SCOPE:

The project can be further extended to enabling the usage of Al in the agriculture ecosystem. It helps a lot in implementation of Precision farming. We can suggest crops based on the climatic conditions of the data. Based on the water level, we can alert the farmer or automatically turn the motor off.