PRIOR KNOWLEDGE

TEAM ID	PNT2022TMID17138
PROJECT NAME	SMART AGRICULTURE

PROBLEM STATEMENT

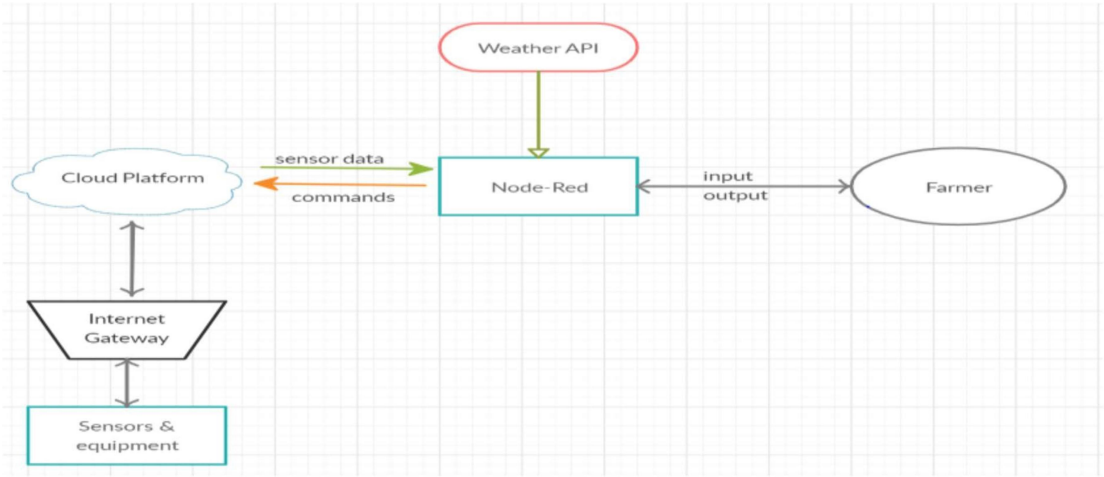
Farmers are to be present at the farm for its maintenance irrespective of the weather conditions. They have to ensure that the crops are well watered and the farm status is monitored by them physically. Farmers have to stay most of the time in the field in order to get a good yield. In difficult times like in the presence of pandemic also they have to work hard in their fields risking their lives to provide food for the country.

PROPOSED SOLUTION

In order to improve the farmer's working conditions and make them easier, we introduce IoT services to him in which we use cloud services and the internet to enable the farmer to continue his work remotely via the internet. He can monitor the field parameters and control the devices on the farm.

BLOCK DIAGRAM

In order to implement the solution, the following approach as shown in the block diagram is used



NODE-RED

Node-RED is a flow-based development tool for visual programming developed originally by IBM for wiring together hardware devices, APIs, and online services as part of the Internet of Things. Node-RED provides a web browser-based flow editor, which can be used to create JavaScript functions

Installation:

- First install npm/node.js
- Open cmd prompt
- Type => npm install node-red

To run the application:

- Open cmd prompt
- Type=> node-red
- Then open http://localhost:1880/ in browser

Installation of IBM IoT and Dashboard nodes for Node-Red

In order to connect to the IBM Watson IoT platform and create the Web App UI these nodes are required

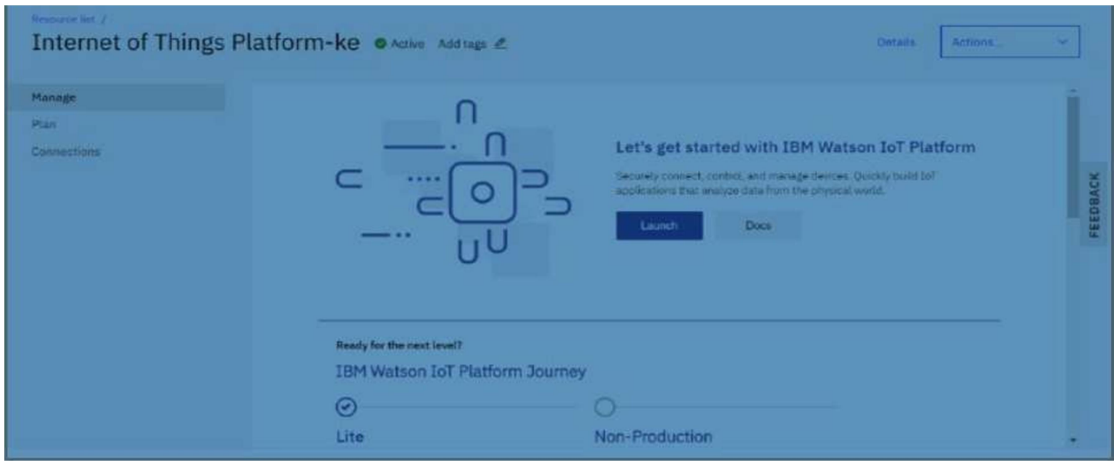
1. IBM IoT node
2. Dashboard node

IBM WATSON IOT PLATFORM

A fully managed, cloud-hosted service with device registration, connectivity, control, rapid visualization and data storage, capabilities. IBM Watson IoT Platform is a managed, cloud-hosted service designed to make it simple to derive value from your IoT devices.

Steps to configure:

- Create an account in IBM cloud using your email ID
- Create IBM Watson Platform in services in your IBM cloud account
- Launch the IBM Watson IoT Platform
- Create a new device
- Give credentials like device type, device ID, Auth. Token
- Create API key and store API key and token elsewhere.



OpenWeather API

OpenWeather Map is an online service that provides weather data. It provides current weather data, forecasts, and historical data to more than 2 million customers.

Website link: https://openweathermap.org/guide

Steps to configure:

o Create an account in OpenWeather

o Find the name of your city by searching

o Create API key to your account

o Replace “city name” and “your API key” with your city and API key in the below red text

IoT Simulator

• In our project in the place of sensors we are going to use an IoT sensor simulator that ggives random readings to the connected cloud.

The link to the simulator: https://watson-iot-sensor-simulator.mybluemix.net/

• We need to give the credentials of the created device in the IBM Watson IoT Platform to connect the cloud to the simulator.