PROJECT KICKOFF TEMPLATE

Project Title: SMART AGRICULTURE SYSTEM BASED ON IOT

Category: Internet of Things (IOT)

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Project Summary:

Agriculture plays a critical role in the entire life of a given economy. Agriculture was the key development in the rise of a sedentary human civilization. There are various issues that are hampering the development of the country. The possible solutions for the problems faced is to opt for modernized agriculture. Agriculture can be made smart by using IoT technologies. Smart Agriculture increases quality, quantity, sustainability and cost-effectiveness of crop production and also analyses the weather conditions.

The paper aims at using evolving technology i.e., IOT for opting Smart Agricultural system. The highlighting feature of this project is that it measures different agricultural parameters effecting the yield and it also a GPS module to get the information about the location. Secondly, it sends all the information to the cloud where it can be further analysed. On top of that this project also contains an android mobile app providing an easy access of information to the farmer. This helps farmers in increasing the quantity as well as the quality of production, water conservation and many more.

Projects Requirements:

- Github
- slack channel
- Zoho writer
- IBM cloud
- IBM Watson IOT Simulator
- Node-RED

Functional Requirements:

- Install the web application and connect to Wi-Fi.
- The IBM IoT simulator reads the random temperature, humidity and soil temperature and will pass the data to the IBM Watson cloud Platform which are called as events.
- These events can be visible on the web application with the help of NODERED.
- The weather conditions which are noticed on the Open Weather API are passed to the NODERED which can be visible on the web application.
- Based upon the weather and soil conditions the farmer decides whether to ON/OFF the motor which helps in increasing the quality of production.

Technical Requirements

- **Performance:**Improves the performance of the agriculture system by monitoring the field in real time.
- **Crop Monitoring:** IOT sensors will enable the collection of crucial data such as soil moisture where it will be monitoring the crop health and soil composition.
- **Weather Monitoring:** By constant weather monitoring which alert farmers on changing weather conditions.
- **Management:** The Smart Agriculture system ensures proper water management for irrigation and in turn reduces water wastage.
- **Mobility:** Farmer can monitor and can be able to access the information remotely via smartphone.
- **Efficiency:** With the Smart Agriculture system, the efficiency level can be increased in terms of usage of soil, water etc.
- **Accuracy:** The Smart Agriculture system has high efficiency and accuracy in fetching the live data of temperature and soil moisture. Software Requirements.

Software Requirements

- Open Weather API
- IBM IOT Simulator
- IBM Watson Cloud Platform
- NODERED
- Python IDLE

Project Deliverables

- To update the farmers with the new technology and to avoid manual labour.
- To supply efficient water through motor pump and enhance the productivity of crops.
- To meet the difficulties such as severe weather conditions and advancing climate change, and environmental consequences resulting from intensive farming practices.
- To design a model and connect it to the android app and cloud server.
- To enable farmers to have the live data of soil moisture, environment temperature at very low cost so that live monitoring can be done.

Project Schedule

- ➢ Project planning and kickoff- 3 days
- ➢ Explore IBM cloud platform- 3 days
- ➢ Explore IBM Watson platform- 3 days
- ➢ Install python IDE -1 day
- ➢ connect the IOT simulator to Watson IOT platform -1 day
- ➢ configure the Node-red to get the data from IBM IOT platform & open weather API - 3 days
- ➢ Building a web app- 5 days
- ➢ configuring the device to receive the data from the web application & controlling the motors -3 days