PROJECT SCOPE

Project Name	Smart Agriculture system based on IoT
Project Objective	To implement a device based on IoT that can monitor Soil Moisture, Humidity and Temperature to grow and yield a good crop and to turn the water-pump ON/OFF remotely using cloud.
Project Summary	Agriculture is the root to country's economic development. In recent times, huge scientific advancement has been implemented in various agricultural fields for the betterment of the future. Despite of various researches, proper assessment and productivity couldn't be reached. We have tried to focus on different scientific applications which could be put together in agricultural field for better accuracy with better productivity using less man-power. Moreover we include a method for monitoring the agricultural fields from any remote location and assess the basic condition of the field. This is the project from the motivation of the farmers working in the farm lands are solely dependent on the rains and bore wells for irrigation of their land. In recent times, the farmers have been using irrigation technique through the manual control in which the farmers irrigate the land at regular intervals by turning the water-pump ON/OFF when required. In this project, we are implementing a smart agriculture system based on IoT that can monitor Soil Moisture, Humidity and Temperature to grow and yield a good crop and to turn the water-pump ON/OFF remotely using cloud. Measuring soil moisture is important in agriculture to help farmers manage their irrigation systems more efficiently. Not only are farmers able to generally use less water to grow a crop, they are able to increase yields and the quality of the crop by better management of soil moisture during critical plant growth stages. Embedded system for automatic irrigation of an agriculture field offers a potential solution to support site- specific irrigation management that allows producers to maximize their productivity while saving the water. There are many reasons to implement a smart agriculture solution into commercial and local farming as well as in different agriculture related institutions and organizations. In a world where the Internet of Things (IOT) is accelerating adoption of automation and data gathering, an important industry such as agriculture can surely be benefited and our project of making agriculture in a smarter way will definitely help in the growth of this

	industry. ➤ By testing the soil with our module, farmers and gardeners will have an accurate data on the condition of the soil i.e. the temperature, pH, moisture level and also the humidity of the surrounding. ➤ Testing soil helps to increase the productivity by identifying soil nutrients or soil chemical factors that are limiting plant growth and increases fertilizer use efficiency by indicating appropriate rates for different soils and crops.
Project Requirements	Functional Requirements: ‣ Have a IBM cloud account ‣ Node-red And Python IDE should be installed ‣ Have a device in IBM IoT Platform ‣ Able to connect IoT simulator to IoT platform ‣ Able to configure Node-Red to to get data from IoT Simulator ‣ Have a web application ‣ API interface to IoT Simulator Technical Requirements: ‣ Basic knowledge of Python 3 ‣ Knowledge of IBM cloud computing ‣ Programming Node-Red ‣ Usage of IBM Watson IoT Simulator ‣ Creating a Web Application and API Software Requirements: ‣ IBM Cloud Platform ‣ Python IDE ‣ Node-Red ‣ IBM Watson IoT Simulator ‣ OpenWeather API
Project Deliverables	A Web App that displays the parameters to be required for a crop such as Soil Moisture, Humidity, Temperature etc. and configure the device to receive the data from the web application and control the motors.
Project Team	Sumit Narayan

Project Schedule

Topic	Date
Project Planning & Kickoff	25-05-2020
Project Scope, Schedule, Team & Deliverables	25-05-2020
Setup The Development Environment	26-05-2020
Explore IBM Cloud Platform	27-05-2020
Create IBM Cloud Account	27-05-2020
Install The Nodered Locally.	28-05-2020
Create Device In IBM Watson IoT Platform	29-05-2020
Installation Of Python 3 IDLE	31-05-2020
Connect The IOT Simulator To Watson IOT Platform	01-06-2020
Congure The Nodered To Get The Data From IBM IOT Platform And Open Weather API	04-06-2020
Install The Required Nodes In Your Nodered	04-06-2020
Connect To Your IBM IOT Device To Get The Simulator Data	05-06-2020
Create An Account In Open Weather API	07-06-2020
Congure Your Open Weather API Platform	08-06-2020
Congure Your Nodered To Get The Weather Forecasting	10-06-2020
Building A Web App	11-06-2020
Congure The Nodes To Display The Weather Parameters	11-06-2020
Congure The Nodes For Creating Buttons	13-06-2020
Congure Your Device To Receive The Data From The Web Application And Control Your Motors	15-06-2020
Write A Python Code To Subscribe To IBM IOT Platform	15-06-2020
Write A Python Code To Subscribe To Get The Commands	17-06-2020