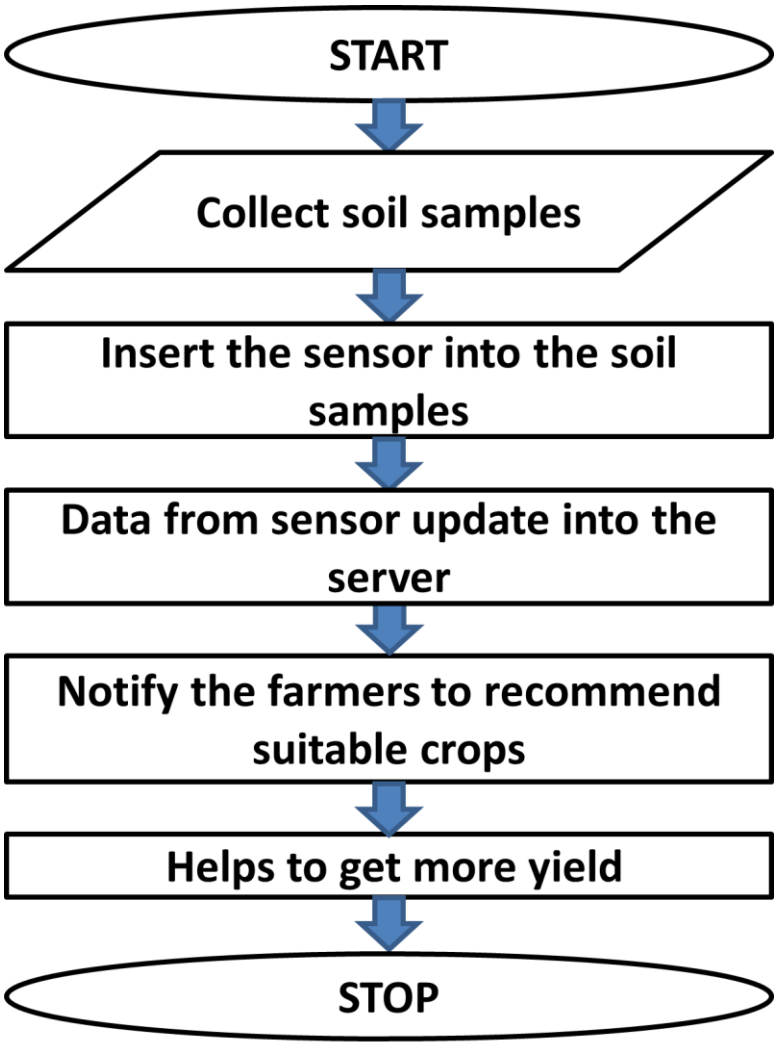
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID04699
Project Name	Smart Farmer-IOT Enabled Smart Farming Application
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



- The different soil parameters (temperature, humidity, soil moisture) are sensed using different sensors, and the obtained value is stored in the Cloud.
- NodeMCU is an open source which can connect objects and let data transfer using the Wi-Fi protocol. In addition, by providing some of the most important features of microcontrollers such as GPIO.
- All the collected data are provided to the user through a mobile application that was developed using app inventor. The user could make a decision through an app, that what crop is suitable for the soil in the particular season by the humidity and temperature check.
- By using the app, they can be remotely operated by the user.

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g.Web UI, Mobile App.	HTML, CSS, JavaScript / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	MySQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM Cloud
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local File system
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local, Cloud Foundry, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Technology of Open source framework
2.	Security Implementations	Sensitive and private data must be protected from their production until the decision making and storage stages.	e.g. Open weather app, App inventor.
3.	Availability	Automatic adjustment of farming equipment made possible by linking information like crops/weather and equipment to auto -adjust temperature, humidity, etc.	Technology used
4.	Performance	The idea of implementing intergrated sensors with sensing soil and environmental or ambient parameters in farming will be more efficient for overall monitoring.	Technology used