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

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Date	03 October 2022
Team ID	PNT2022TMID04659
Project Name	**IoT Based Smart Crop Protection System for Agriculture**
Maximum Marks	4 Marks

Technical Architecture:

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

Example: Order processing during pandemics for offline mode

Guidelines:

1.To defend the crop from birds and animals that would otherwise damage it. This method aids farmers in keeping track of the temperature and humidity levels nearby the field, as well as the levels of soil moisture within the field. The mobile application can be used to control the field's motors and sprinklers.

2.The temperature and humidity in the field are tracked from a web app using weather API and updateautomatically.

3.Based on weather change the motors and sprinklers in the field can be controlled using the mobile application.

4.The sensors detect the temperature and humidity values near the field.

5. Attack of birds and animals can be detected by sensors through mobile applications.
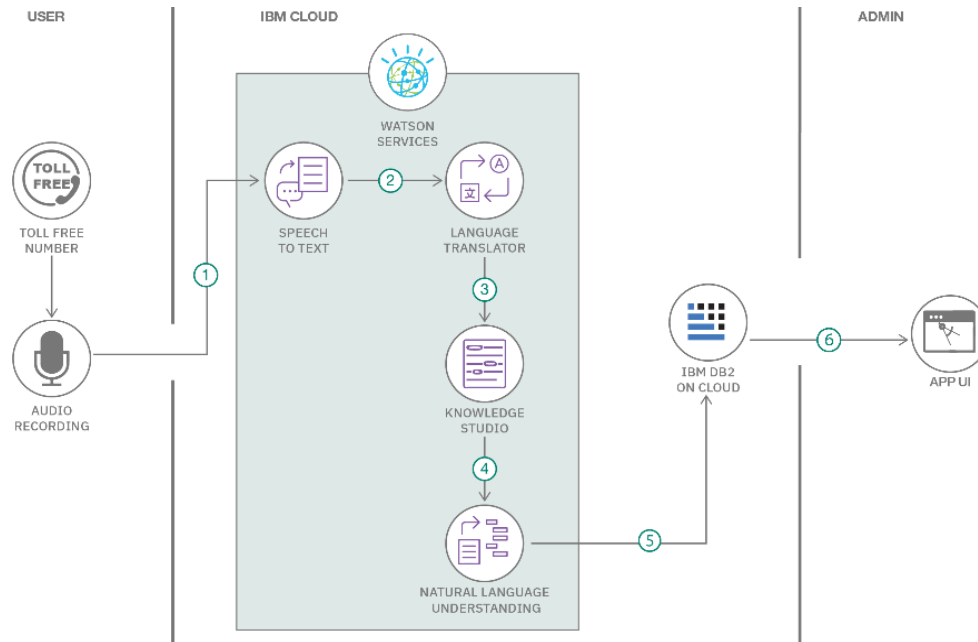
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Mobile application is the user interface.	HTML, CSS, JavaScript / Angular Js / React Js etc.

2.	Application Logic-1	Protect the crops from animal and birdattacks.	Java / Python
3.	Application Logic-2	Helps farmers to monitor the moisturelevels in the field.	IBM Watson STT service
4.	Application Logic-3	Motors and sprinklers in the field can be controlled using the mobile application.	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	Informations such as temperature,humidity about the fields.	IBM Block Storage or OtherStorage Service or Local Filesystem.
8.	External API-1	Aim is to provide the activities of field to farmers.	IBM Weather API, etc.
9.	External API-2	Farmers can easily access everything about their field from home.	Aadhar API, etc.
10.	Machine Learning Model	Purpose is to produce high yield ofcrops.	Object Recognition Model,etc.
11.	Infrastructure (Server /Cloud)	Application Deployment on LocalSystem / Cloud Local Server Configuration: Cloud Server Configuration : Ibm cloud.	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	ThingsBoard.	Technology of Opensource framework
2.	Security Implementations	By using IoT devices , the fields willbe safe.	e.g. SHA-256, Encryptions,IAM Controls, OWASP etc.
3.	Scalable Architecture	3 – tier, Micro-services	Technology used
4.	Availability	Use of load balancers, distributedservers .	Technology used
5.	Performance	There will be less work for farmers and the entire field is controlled usingIoT devices.	Technology used