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

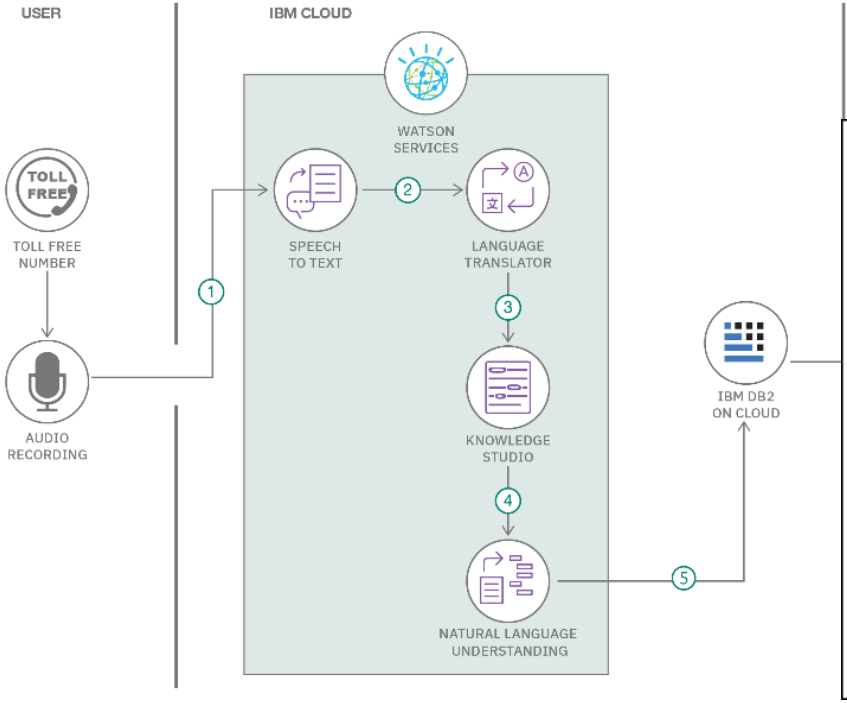
Date	03 October 2022
Team ID	PNT2022TMID14786
Project Name	Project - Smart Farmer - IOT Based Smart Farming Applications
Maximum Marks	4 Marks

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

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/



Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate external interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)

S.No	Component	Description	Technology
1.	User Interface	Web UI, He can select the button to read the value of the selected button.	MIT APP
2.	Application Logic-1	The parameters like temperature, humidity, and soil moisture are updated to the Watson IoT platform	Watson IoT platform (Python Script)
3.	Application Logic-2	Configure the Node-RED and create APIs for communicating with mobile application	Node-RED
4.	Application Logic-3	Create IBM Watson IoT Platform	IBM Watson Assistant
5.	Cloud Database	Create and configure IBM Cloud Services	IBM Cloudant etc.
6.	File Storage	Create a database in Cloudant DB to store all the sensor parameters	IBM Block Storage or Other Storage Service or Local Filesystem

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python Script , Arduino IDE Code	Python IDE, Arduino IDE
2.	Security Implementations	Since it involves cloud storage of gathered sensor data, which could be misused, Data handling must be highly secure.	SHA-512, RIPEMD-180.
3.	Scalable Architecture	It should be made used in remote areas where technological advancements have not even been raised and should deliver a more productive and sustainable form of agriculture.	Highly Stable Network Connectivity

S.No	Characteristics	Description	Technology
4.	Availability	It should monitor water level, fuel level, electric fence-theft monitoring, temperature, humidity, tractor guidance, GPS tags, soil moisture, and toxic gases.	Sensors
5.	Performance	• Highly effective monitoring, tracking, and recovery of farm assets, tracking range should be greater than at least 5km. • Continuous readings on temperature,gas,humidity,pH,smoke detection ,water and fuel levels are necessary	Sensors

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d