

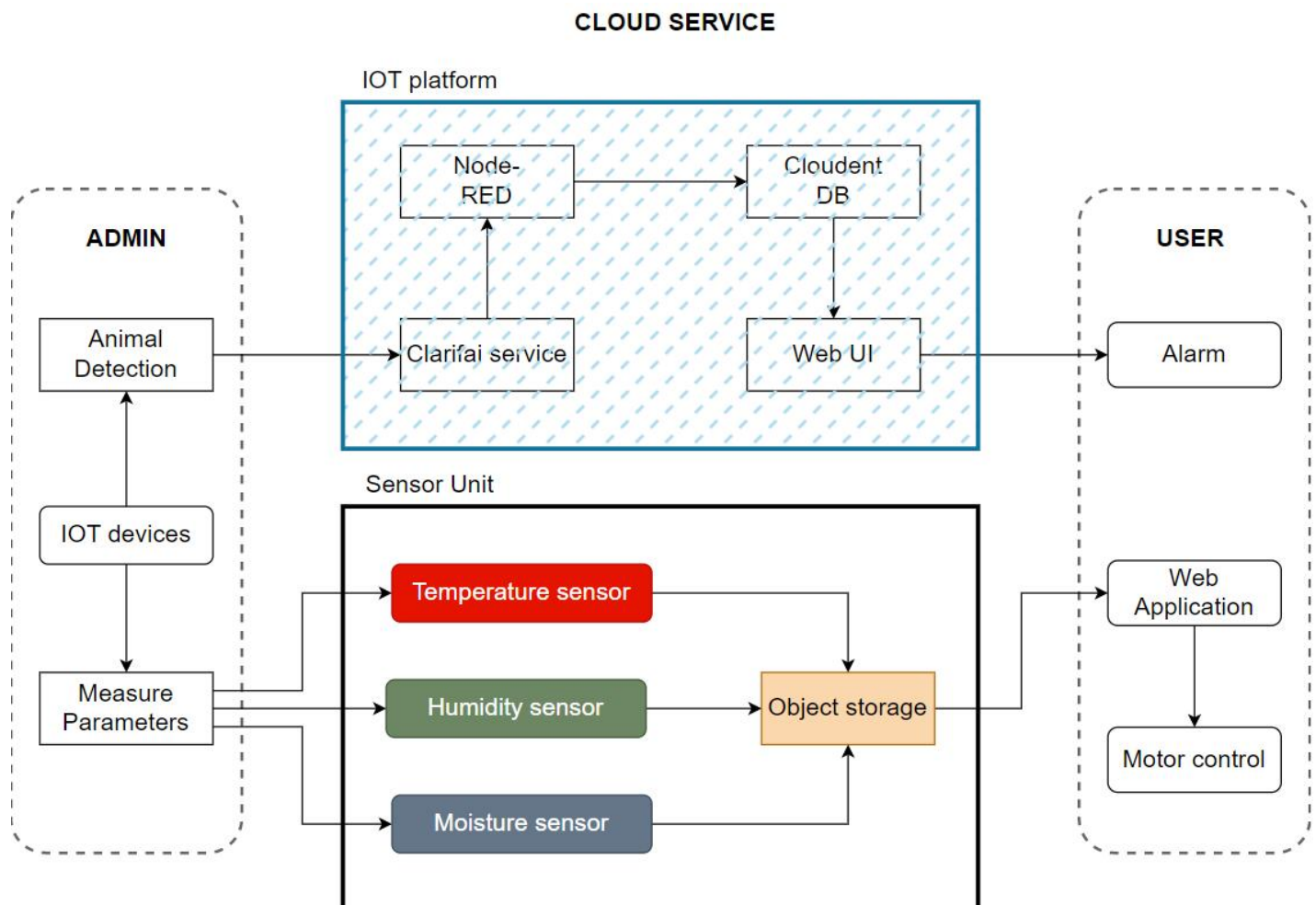
## PROJECT DESIGN PHASE-II

### TECHNOLOGY STACK (ARCHITECTURE & STACKS)

Date	03 October 2022
Team ID	PNT2022TMID04713
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



**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)

**Table-1 : Components & Technologies:**

S. No	Component	Description	Technology
1.	User Interface	Web UI, Node-RED	IBM IoT Platform, IBM Node red, IBM Cloud
2.	Application Logic-1	Create a node-red service with an IBM Watson IoT platform.	IBM Watson, IBM cloudant service ,IBM node -red
3.	Application Logic-2	Develop python script to publish and subscribe To IBM IoT Platform	Python
4.	Application Logic-3	Build a web application using node-red service	IBM Node-red
5.	Database	Data Type, Configurations etc.	NoSQL
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant
7.	File Storage	Creating a mobile application to receive and store sensor information and respond appropriately	Web UI, python
8.	External API-1	In order to prevent hearing interference from ultrasonic signals and the presence of wild animal objects, PIR sensors are utilized.	Not yet determined
9.	External API-2	By using these IBM Sensors, it is possible to safeguard crops from wild animals and give web UI the ability to activate sprinklers.	IBM Sensors

10.	Machine Learning Model	Using this we can derive the object recognition model	Object Recognition Model
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Server Configuration	IBM cloudant, IBM IoT Platform

**Table-2: Application Characteristics:**

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	MIT app Inventor	MIT License
2.	Security Implementations	IBM Services	Encryptions, IBM Controls
3.	Scalable Architecture	Sensor-IoTCloud based architecture	cloud computing and AI
4.	Availability	Mobile, laptop, desktop	MIT app
5.	Performance	Detect the animals, Temperature	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>