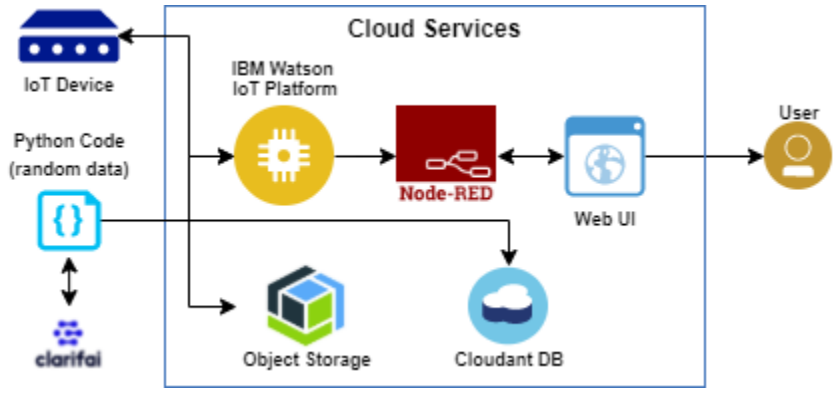
PROJECT DESIGN PHASE-II

TECHNOLOGY STACK (ARCHITECTURE & STACKS)

Date	14 October 2022
Team ID	PNT2022TMID46736
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)

ARCHITECTURE:

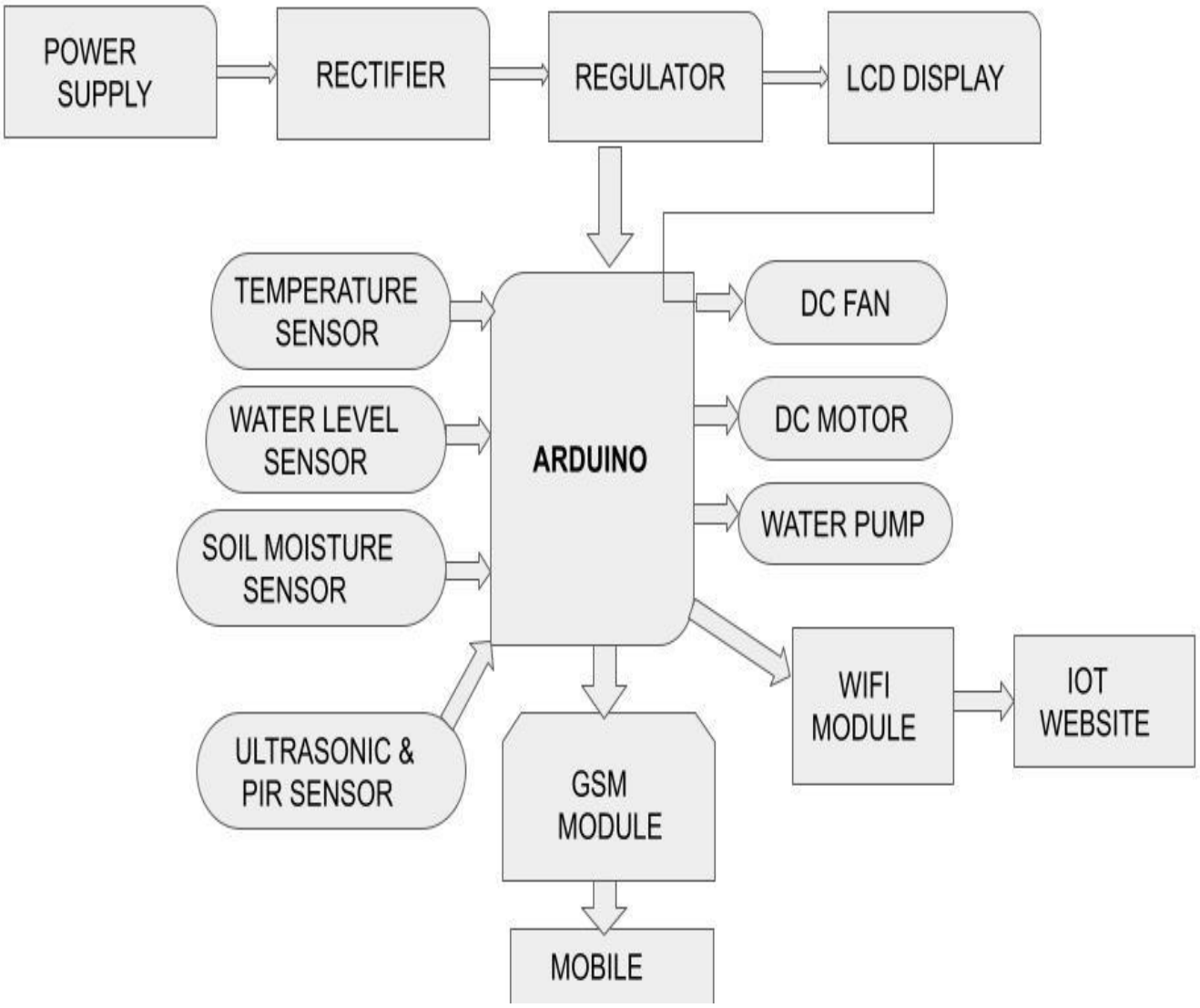


Table-1 : Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	Web UI, Node-RED	IBM IoT Platform, IBM Node red, IBMCloud
2.	Application Logic-1	Create Ibm Watson IoT platform and create node-red service	Ibm Watson, ibm cloudant service ,ibm node-red
3.	Application Logic-2	Develop python script to publish and subscribe toIBM 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	Developing mobile application to store and receive the sensors information and to react accordingly	Web UI, python
8.	External API-1	The PIR sensor is used to detect the presence of wild animal objects and ultrasonic signals to interfere with the hearing.	Not yet determined
9.	External API-2	Using this IBM Sensors it protect crops from wild animals and provides the activation of sprinklers to web UI	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-IoT Cloud based architecture	cloud computing and AI
4.	Availability	Mobile, laptop, desktop	MIT app
5.	Performance	Detect the animals, Temperature	Sensors