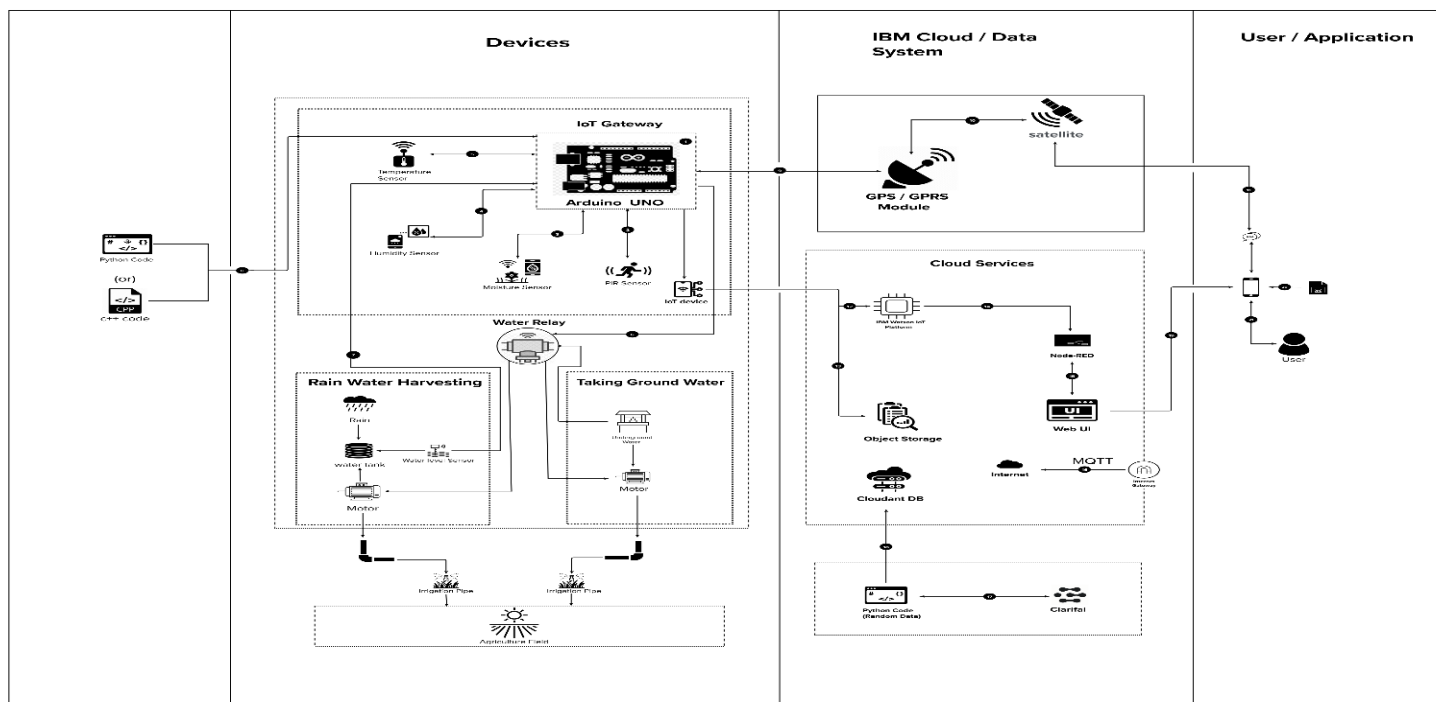


## Project Design Phase-II Technology Stack (Architecture & Stack)

Date	17 October 2022
Team ID	PNT2022TMID47541
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:

1. Connects all the IOT devices
2. Indicates sensor for motion detection
3. Indicates sensor for detecting soil moisture
4. Indicates sensor for detecting the humidity
5. Indicates sensor for detecting the temperature
6. Indicates water relay for switching on the motor
7. Indicates sensor for detecting the water level in tank
8. Indicates code for all the IoT sensors functioning to Arduino UNO
9. Indicates GPS/GPRS module to send messages to user
10. GPS/GPRS module sends message to satellite
11. Satellite sends message to user mobile phone
12. Indicates IBM Watson IoT Platform for consuming data, visualization and decision making.
13. Indicates object storage for storing data of the IoT devices
14. Connection between IBM Watson IoT Platform and Node-Red
15. Provides set of nodes to create User Interface
16. Indicates the protocol for connections between IoT devices to send and receive messages
17. Generates random data using clarifai
18. Indicates python code written for Cloudant DB
19. Indicates the web UI seen using mobile phone
20. Android app is installed in mobile phone
21. User uses the Mobile Phone to see the messages

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

<b>S.No</b>	<b>Component</b>	<b>Description</b>	<b>Technology</b>
1.	User Interface	Mobile App	Android
2.	Application Logic-1	Logic for sensing the motion detection	Python/C++
3.	Application Logic-2	Logic for sensing the soil moisture	Python/C++
4.	Application Logic-3	Logic for sensing the humidity	Python/C++
5.	Application Logic-4	Logic for sensing the temperature	Python/C++
6.	Application Logic-5	Logic for switching on the motor if the moisture is low	Python/C++
7.	Application Logic-6	Logic for sensing the water level in the tank	Python/C++
8.	Application Logic-7	Logic for sending message to the user mobile	Python/C++
9.	External API-1	Purpose of the API is to access the current weather data	Weather API
10.	Cloud Database	Database Service on Cloud	IBM Cloudant DB
11.	File Storage	Storing the data	Object Storage
12.	Programming tool	Purpose of the tool is for wiring hardware and APIs	Node-Red

**Table-2: Application Characteristics:**

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Node-Red	IBM Cloud
2.	Scalable Architecture	3-tier Architecture	Technology used
3.	Performance	The client sends and receives two or more messages per second	5G Network

**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>