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

Date	18 October 2022
Team ID	PNT2022TMID08054
Project Name	Real-Time River Water Quality Monitoring And Control System.
Maximum Marks	4 Marks

Technical Architecture:

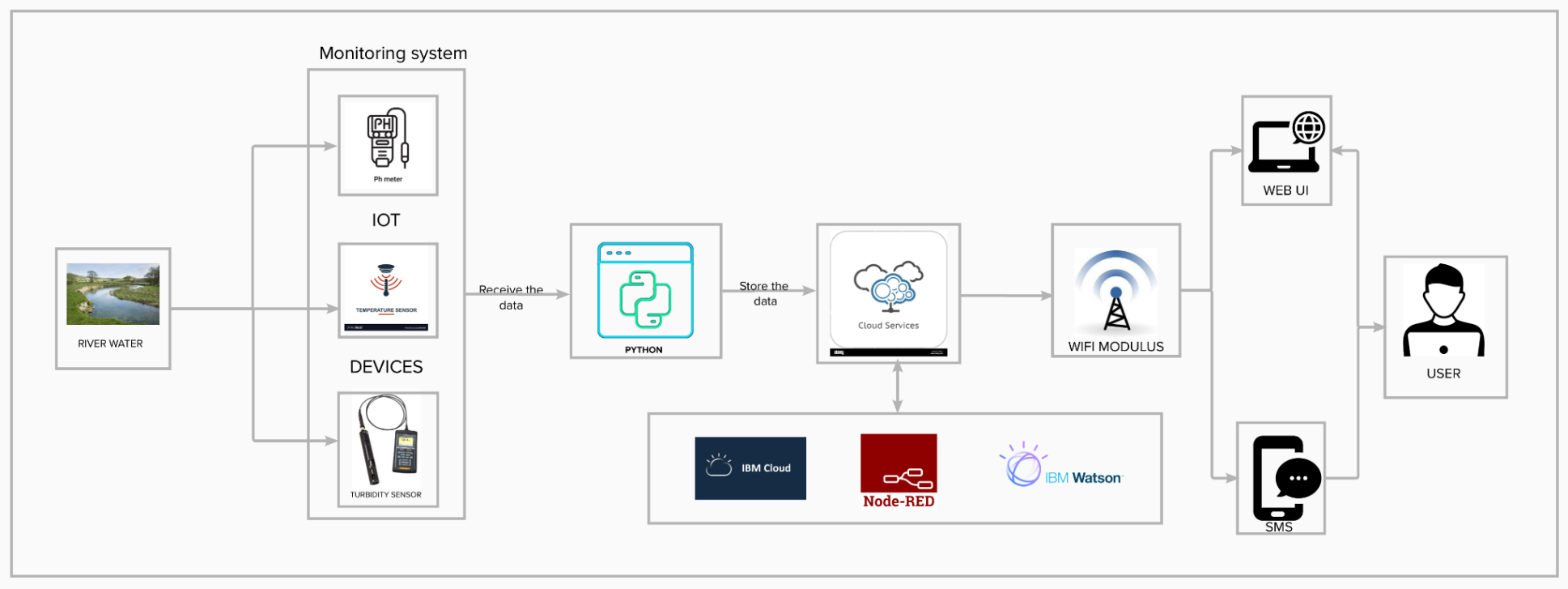

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Users can interact with applications through Web UI.	Web UI
2.	Application Logic-1	To develop the code to generate the device application.	Python
3.	Application Logic-2	Logic for a process in the application to access the cloud platform.	IBM Watson
4.	Application Logic-3	To build connectivity interfaces between applications and devices.	IBM Watson Assistant ,IOT Devices
5.	Database	Sensor data values are stored.	MySQL, NoSQL
6.	Cloud Database	To store the data in cloud database service.	IBM Cloudant
7.	File Storage	File storage requirements.	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Monitoring of water in the external API used in the application.	Web application
9.	Infrastructure (Server / Cloud)	Application Deployment on IBM cloud	Node RED

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Full-stack frameworks and microframeworks are open source frameworks used.	Django, web2py, and the flask framework are used.
2.	Security Implementations	We are using detectors and connectivity devices for monitoring, and firewalls for applications.	e.g. SHA-256, Encryptions of process data, firewalls, antivirus etc.
3.	Scalable Architecture	High scalability	Data storage, web services, wireless networks.
4.	Availability	Hardware devices find out the river water quality level.	Sensors, wifi modules, power supply, LED display, camera
5.	Performance	When a device detects the water quality level change, it will immediately send a message.	Communication network, high durable device battery, high speed process