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

Date	04 NOVEMBER 2022
Team ID	PNT2022TMID25961
Project Name	Real-time River Water Quality Monitoring and Control System
Maximum Marks	4 Marks

Technical Architecture:

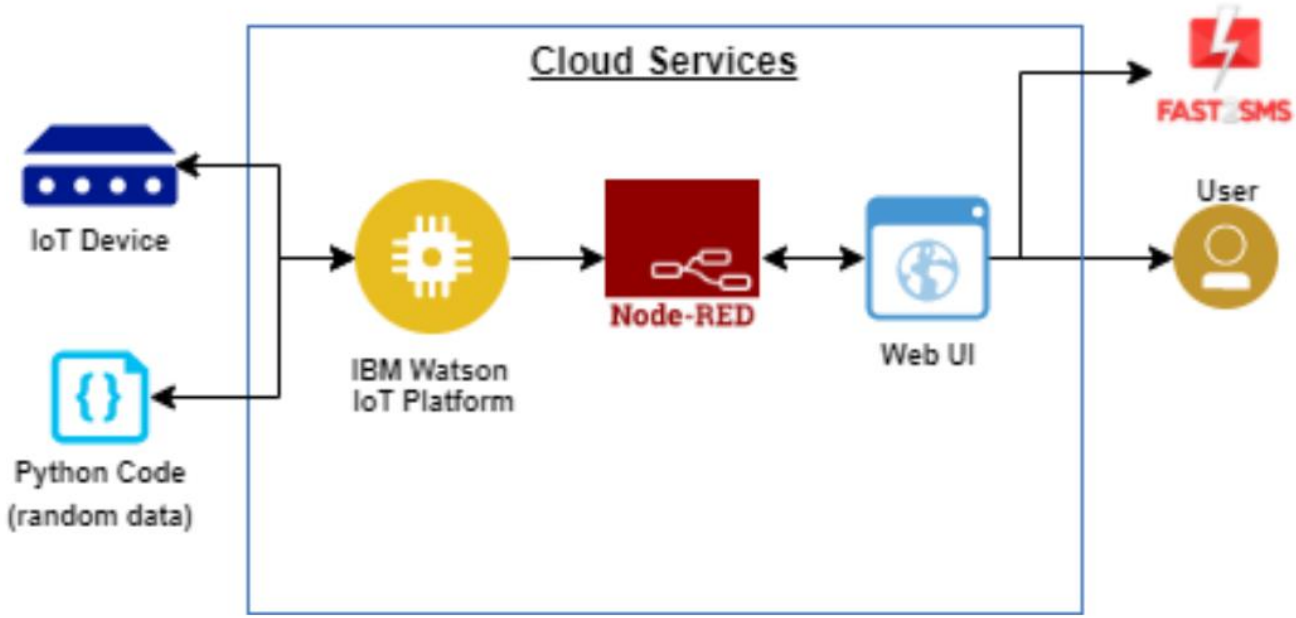

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How the user interacts with applications e.g.Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Get the river body data from the Cloud	IBM Watson IoT API call data
4.	Application Logic-3	Set Some threshold values for the data set and alert the user about the abnormalities	IBM Watson Assistant
5.	Database	Dissolved oxygen, pH, Ammonia, Chloride levels	MySQL, NoSQL
6.	Cloud Database	Call the data IBM Cloudant is used and user login credentials	IBM DB2, IBM Cloudant
7.	File Storage	Web UI code and IoT credentials are stored and API keys	IBM Block Storage
8.	External API-1	To get the user login credentials to find the data they require	IBM Login API
9.	External API-2	To get the data set of the water quality monitored by the sensor network	Node RED
10.	Cloud service	Programming tool for wiring together hardware devices, APIs and online services in new and interesting ways	Numeric data to graphical data
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration	Cloud Foundry, Node Red

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	To develop the application interface, we use **MIT App Inventor**	MIT App Inventor
2.	Security Implementations	To secure the login credentials and personal information	SHA-256, OWASP
3.	Scalable Architecture	To scale the application database	IBM Auto Scaling
4.	Availability	To make data available 24/7	IBM cloud load balancer
5.	Performance	To increase the performance the application in hosted in the high-performance instance	IBM Instance