

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

Date	03 October 2022
Team ID	PNT2022TMID32705
Project Name	Real time river water quality monitoring and control system
Maximum Marks	4 Marks

Technical Architecture:

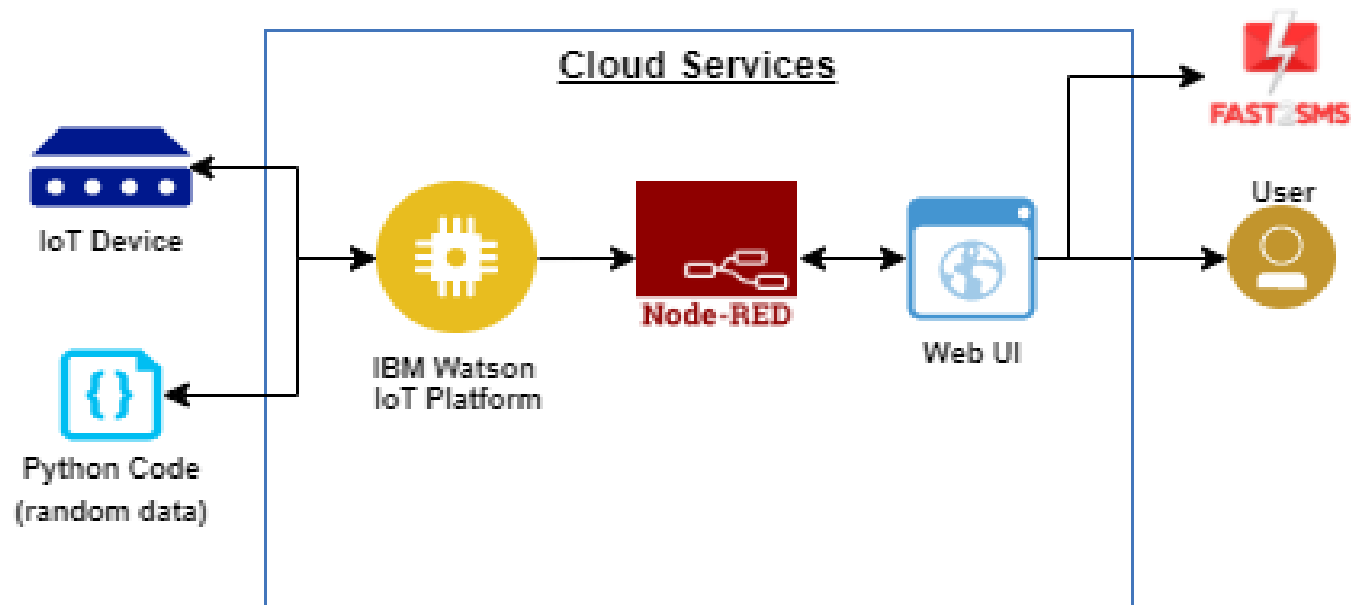


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI	HTML, CSS, JavaScript
2.	Application Logic-1	Web UI to enter the Register/login	HTML,CSS,JavaScript
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
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	Monitoring API
10.	Machine Learning Model	For interfacing hardware and software applications(a virtual wiring tool)	Platforms:Node.js.
11.	Infrastructure (Server / Cloud)	Application Deployment on Cloud Cloud Server Configuration : :application-client-end	IBM Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	App development and Machine learning model development	Python Script
2.	Security Implementations	IBM cloud service IBM Watson IoT platforms and Device Node -Red Service	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	As the proposed system involves only three sensors,the application can be easily developed into many numbers	IoT
4.	Availability	Maximum down time will be about 4 hours	IoT
5.	Performance	Load time for user interface Screen shall not be more than 2 seconds. Login info verified within 10 seconds..	IoT