

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

Date	16 October 2022
Team ID	PNT2022TMID52982
Project Name	Project – Smart Waste Management System For Metropolitan Cities
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

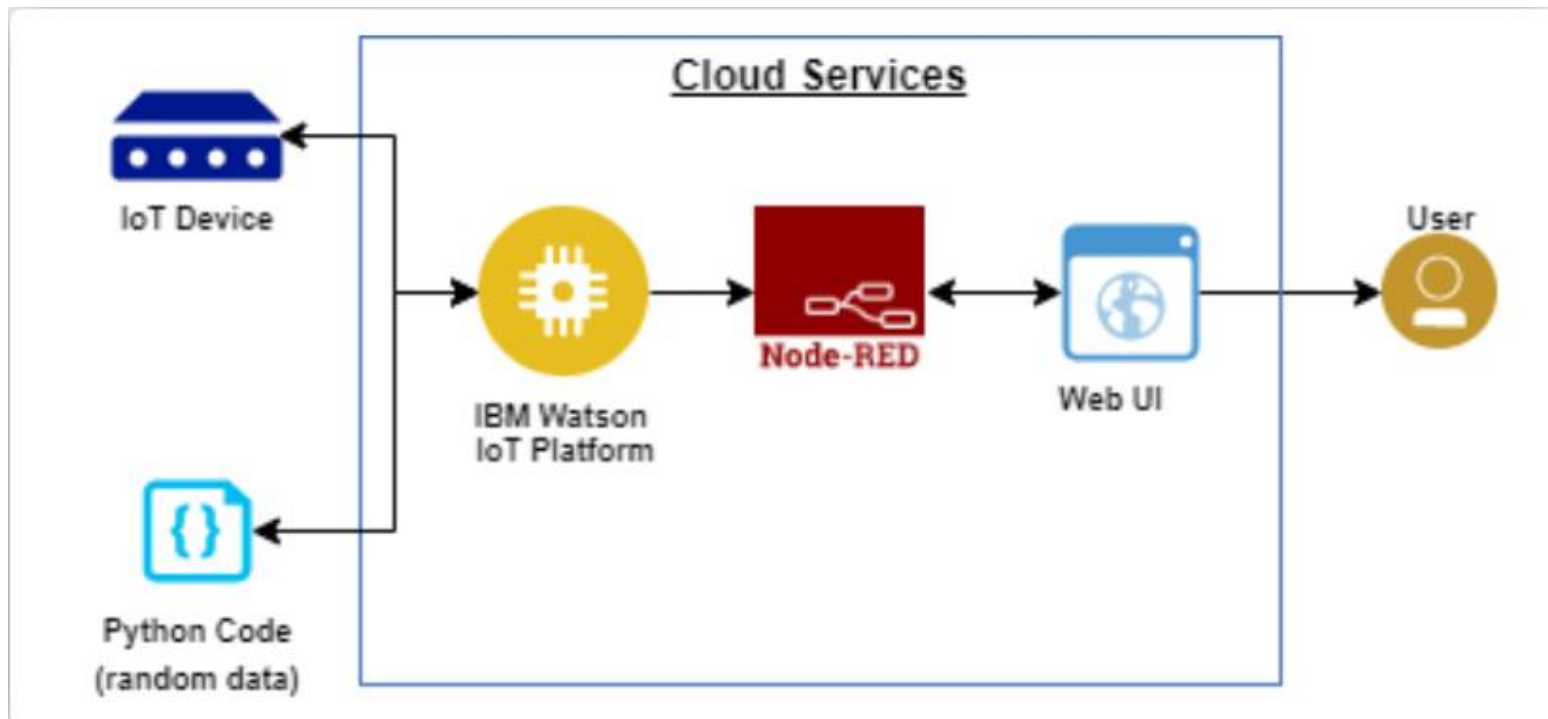


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	Python
2.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
3.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
4.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
5.	IoT	Holds the data and processes it	IBM Watson IoT Platform
6.	IoT Platform	Purpose of IoT Model -Threshold crossing determination and Notifying.	IBM Watson IoT Platform
7.	Hardware Programming Tool	Develop a Web Application using Node-RED Service	Node-RED Service
8.	Notification	Purpose is to notify the admin of the garbage bin location if the garbage bin is full	Node-RED Service Web application
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The services provided by IBM are used to implement the online monitoring. Python is used to send the status data to the IoT platform.	IBM Watson IoT platform, Cloudant Database by IBM, Node-RED Service by IBM, Python
2.	Security Implementations	The security implementations are provided automatically by IBM platform.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	This architecture can be scaled easily in any remote location because it is web based. It can be turned into a large scale city wide technology too since the installation is easy.	IBM Watson IoT platform
4.	Availability	Since it is a web application using IoT. It can be remotely accessed from anywhere and available constantly.	IBM Watson IoT platform
5.	Performance	The web application has a very efficient performance in alerting the admin.	Node-RED Service