

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

Date	03 October 2022
Team ID	PNT2022TMID04566
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



Guidelines:

1. The dashboard will show the data of amount of garbage filled in the bins as they will be tracked by using smart sensor.
2. To send random sensor data to the cloud python code is used.
3. For connecting the web application to IOT device using IBM Watson IOT platform.
4. The status of the bins and location are stored as database in Cloudant DB.
5. Display the location on the map in Node-RED Web UI .
6. The alert message will be send to the garbage collector ,if the bins are filled.

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Dynamic web application to show the status of bin and its location	CSS, JavaScript,HTML
2.	Application Logic-1	Logic for IR sensor data.	C++ / Python
3.	Application Logic-2	Logic for a Weight sensor data.	C++ / Python
4.	Application Logic-3	Logic for ultra sonic sensor data.	C++ / Python
5.	Database	Database Service on Cloud	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM Watson IOT platform,Cloudant DB.
7.	File Storage	File storage requirements	IBM Block Storage
8.	External API-1	To locate the smart bins	IBM Weather API
9.	External API-2	Purpose of External API used in the application	Aadhar API
10.	Infrastructure (Server / Cloud)	Application deployment on users system /Retrieve data form cloud	Local, Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Micro web framework, Written in Python	Technology of Opensource framework is flask
2.	Security Implementations	Provides Security rules to allow assess to data	Fire base, fire walls
3.	Scalable Architecture	Many new features can be added	Node RED
4.	Availability	Web application can be accessed from any where.	IBM Watson IOT platform, HTML, CSS, JavaScript
5.	Performance	All truck drivers can access the application at same time. Provides real time data to web application which uses cloud platform and alerts garbage collector	Cloudant DB IBM Watson IOT platform