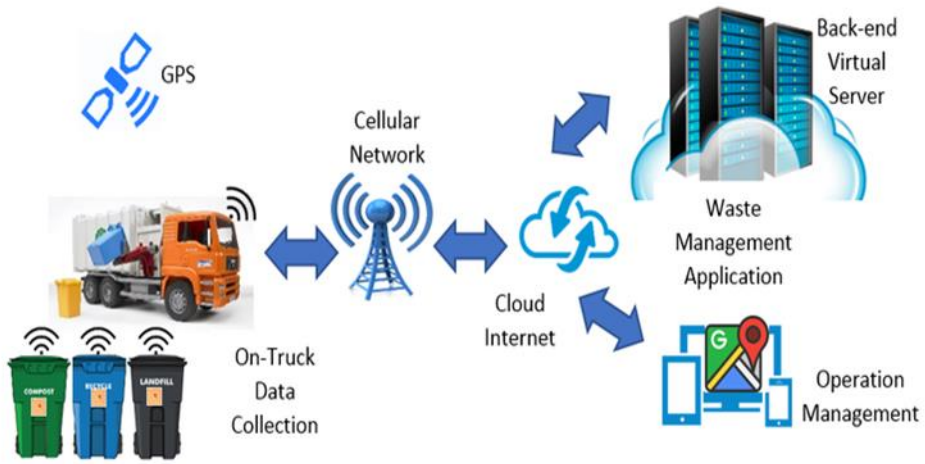
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	17 October 2022
Team ID	PNT2022TMID32932
Project Name	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



Waste Management System Schematic

Guidelines:

1. The dashboard shows the data of amount of garbage filled in the bins as it is being tracked by using smart sensor.
2. Python code is used to send random sensor data to the cloud.
3. To connect the web application to IOT device by using IBM Watson IOT platform.
4. The status of 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 is 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	HTML,CSS,JavaScript.
2.	Application Logic-1	Logic for IR sensor data.	C++ / Python
3.	Application Logic-2	Logic for ultra sonic sensor data.	C++ / Python
4.	Application Logic-3	Logic for a Weight sensor data.	C++ / Python
5.	Cloud Database	Database Service on Cloud	IBM Watson IOT platform,Cloudant DB
6.	File Storage	File storage requirements	IBM Object Storage
7.	External API-1	To locate the smart bins .	API maps
8.	Infrastructure (Server / Cloud)	Application deployment on users system /Retrieve data form cloud	Local system, Cloud..

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Micro web framework, Written in Python	Flask
2.	Security Implementations	Provides Security rules to allow asses to data	Fire base, fire walls
3.	Scalable Architecture	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	Provides real time data to web application which uses cloud platform and alerts garbage collector. All truck drivers can access the application at same time	Cloudant DB IBM Watson IOT platform