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

Date	15 October 2022
Team ID	PNT2022TMID32785
Project Name	Project - SMART WASTE MANAGEMENT FOR METROPOLITAN CITIES
Maximum Marks	4 Marks

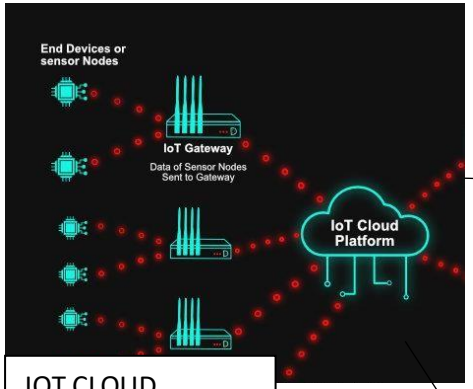
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	G-mail ,SMS	Python , cloud, IOT
2.	Application Logic-1	Ultrasonic sensor has been used to measure the distance of the person for the opening and closing of the lid	Python /IOT
3.	Application Logic-2	Level sensor is used to indicate the level of garbage in bin, Moisture sensor has been used to segregate the dry and wet waste.	IOT
4.	Application Logic-3	Detection of Location	GPS
5.	Database	Details of the truck driver has been saved	API,cloud
6.	Cloud Database	It contains the details of the bin	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	GITHUB
8.	External API-1	External APIs expose a project's internal resources to outside users or applications	IBM Weather API, etc.

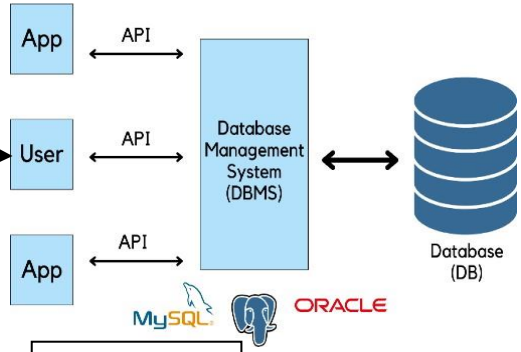
9.	External API-2	External API allow you to access third party resources that are available through RESTful web services	Aadhar API, etc.
10.	Machine Learning Model	The proper algorithm makes planning good. It will guide the goodness character and which path should be taken and which garbage bin should be collected first	PYTHON
11.	Infrastructure (Server / Cloud)	API Database server, GPS	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Node Red, Python	IOT, Cloud
2.	Security Implementations	It sends the alert to the admin once the bin gets filled	e.g: gmail
3.	Scalable Architecture	Using smart waste bins, reduce the number of bins inside town and cities because that we can able to monitor the garbage 24/7.It will be more cost efficient and scalable when we moves to smarter.	IOT
4.	Availability	Truck driver should be available at all time to collect the waste.	GPS, Cloud
5.	Performance	The Smart Sensors use ultrasound technology to measure the fill levels (along with other data) in bins several times a day. Using a variety of IoT networks ((NB-IoT, GPRS), the sensors send the data to Sensor's Smart Waste Management Software System, a powerful cloud-based platform, for data-driven daily operations, available also as a waste management app	IOT



IOT CLOUD

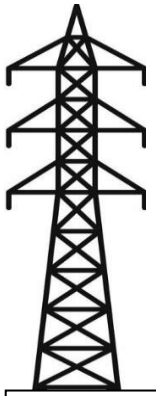


DATABASE

LAPTOP

NOTIFICATION DEVICE

DUSTBIN



TOWER

TRUCK DRIVER