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

Date	22 October 2022
Team ID	PNT2022TMID36751
Project Name	Project - Smart Waste Management system for metropolitan cities
Maximum Marks	4 Marks

Technical Architecture:

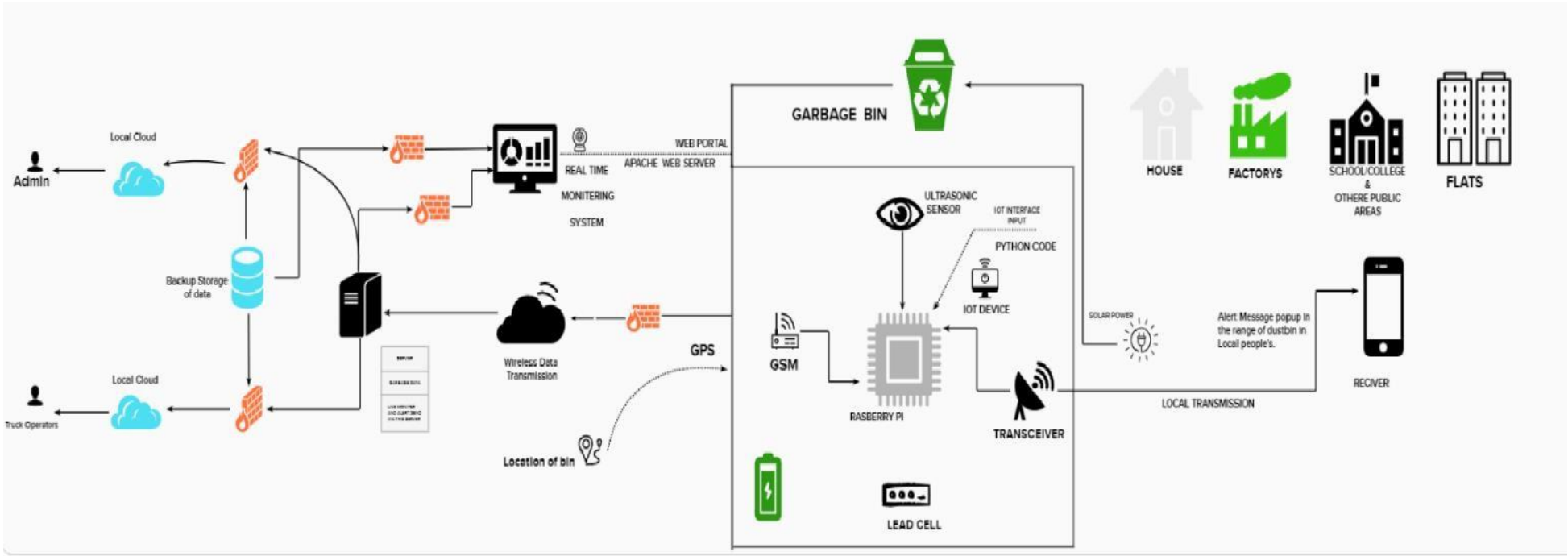

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web portal	HTML, CSS, NodeRed
2.	Application Logic-1	Information getting via ultra sonic sensor and the alert message activate with python script to web portal.	Ultrasonic sensor/Python
3.	Application Logic-2	To calculate the weight of the garbage and show the real time weight in web portal, this info getting via load cell and the alert message activate with python to web portal.	Load Cell/Python
4.	Application Logic-3	Getting location of the Garbage.	GSM/GPS
5.	Cloudant database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.

6.	File Storage	File storage requirements	Git hub,Local file system.
7.	Ultrasonic Sensor.	To get an alert message when garbage is getting full	Distance Recognition Model
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration:local host Cloud Server Configuration:local host,Firebase.	Local host,Web portal

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	NodeRed,Python,IBM Simulator.	IoT
2.	Security Implementations	Raspberry Pi is connected to the internet and for example used to broadcast live data, further security measures are recommended and use the UFW(uncomplicated Firewall)	IoT

3.	Scalable Architecture	Raspberry pi:Specifications Soc: rspi ZERO W CPU: 32-bit computer with a 1 GHz ARMv6 RAM: 512MB	IoT
S.No	**Characteristics**	**Description**	**Technology**
		Networking: Wi-Fi Bluetooth: Bluetooth 5.0, Bluetooth Low Energy (BLE). Storage: MicroSD GPIO: 40-pin GPIO header, populated Ports: micro HDMI 2.0, 3.5mm analogue audio video jack, 2x USB 2.0, 2x USB 3.0, Ethernet Dimensions: 88mm x 58mm x 19.5mm, 46g	
4.	Availability	These smart bins use sensors like ultrasonic and load cell to send alert message about the trash level recognition technology, and artificial intelligence, enabling them to automatically sort and categorize recycling litter into one of its smaller bin	IoT