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

Date	25.10.2022
Team ID	PNT202TMID14976
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

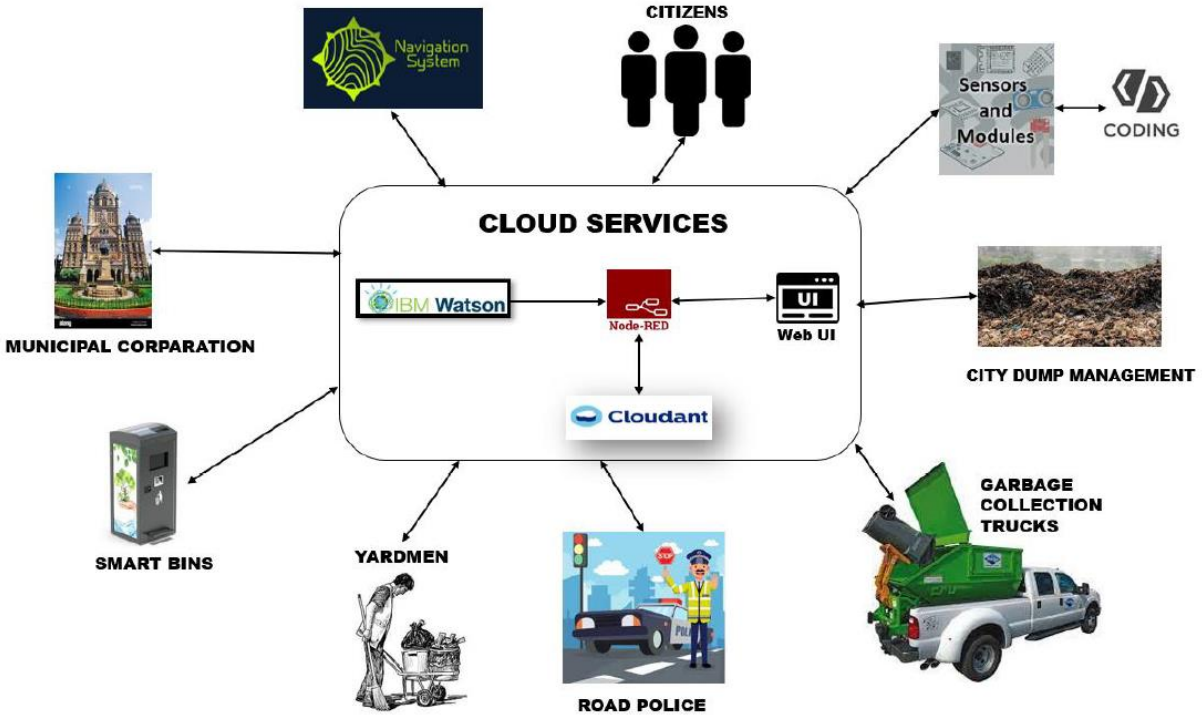

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Website or Application	HTML, CSS, JavaScript, nodered.
2.	Application Logic-1	To measure the level of waste level in bin in application, information obtain from ultrasonic sensor and message will be sent	Ultrasonic sensor and python.
3.	Application Logic-2	Getting location of the bin	GPS/GSM
4.	Application Logic-3	short the bin location to collect the waste at efficient distance	Python
5.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
6.	File Storage	Cloud service provide memory space for database	IBM Block Storage /Local Filesystem
7.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Localhost cloud server Cloud Server Configuration : Localhost	Localhost, application/web portal

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	NodeRed, IBM simulator, python.	IOT
2.	Security Implementations	security / access controls implemented,	Encryptions
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
		A 1.2GHz 64-bit quad-core ARMv8 CPU 802.11n Wireless LAN Bluetooth 5.0, Bluetooth Low Energy (BLE) Ports: micro HDMI 2.0, 3.5mm analogue audio, video jack, 2x USB 2.0, 2x USB 3.0	
4.	Availability	Here ultrasonic sensor is used to measure the trash level and load cell also used for accuracy. These sensors can also be used for sending alert messages automatically.	IOT
5.	Performance	Number of request: RPI manages to execute 129-139 read requests per second. Use of Cache:512mb Use of CDN's: Real time	IOT/ WEB APP