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

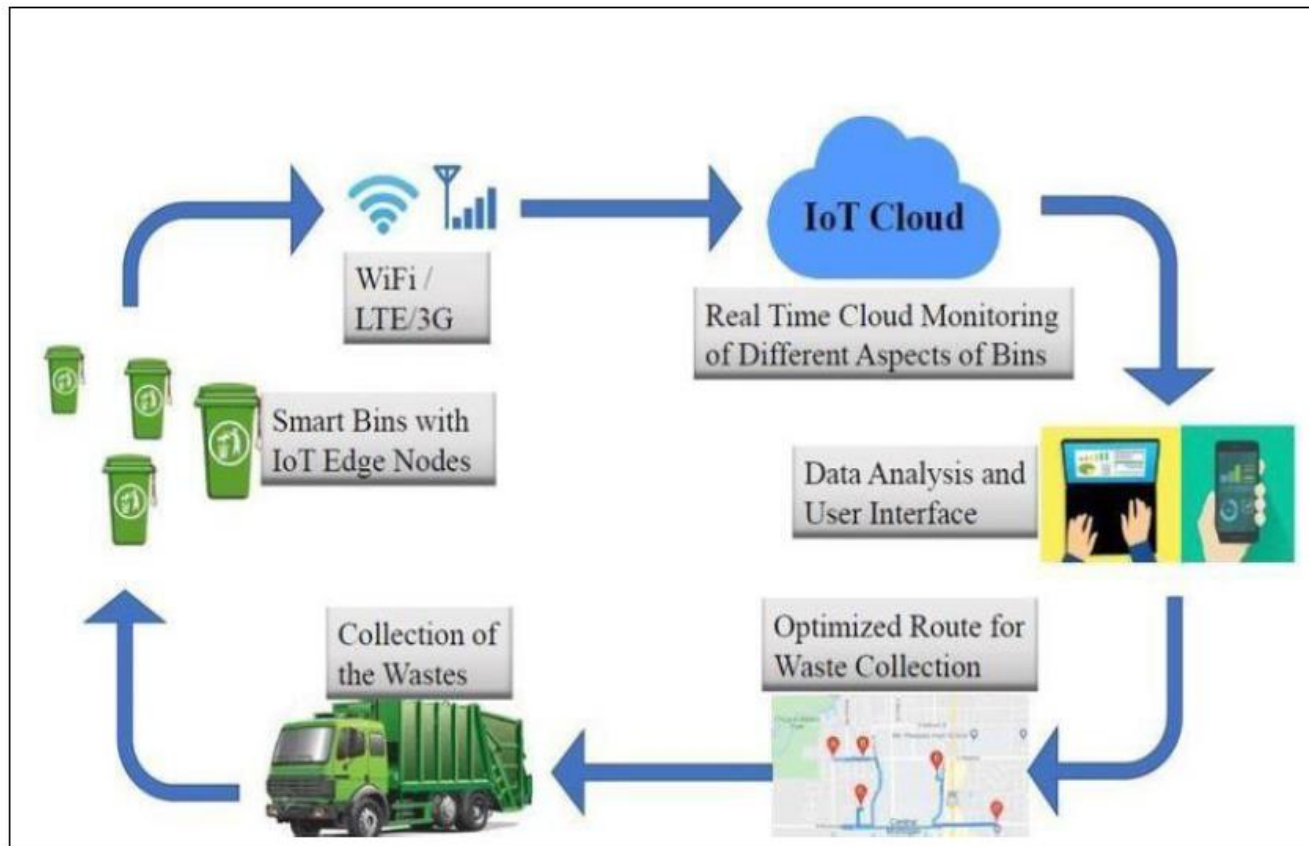| Date	19 October 2022
Team ID	PNT2022TMID45346
Project Name	Project – SMART WASTE MANAGEMENT SYSTEM
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Website for Admin users to interact with the application	HTML, CSS, React Js
2.	Application Logic-1	To calculate the distance of dreck and show the real time level in web portal , information getting via ultrasonic sensor and the alert message activate with python script to web portal.	Ultrasonic sensors
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.	Force Sensors
4.	Application Logic - 3	To get the location of each Garbage bin	GPS/ Geolocation API
5.	User Interface for users	Users like truck drivers require application to know where to go next	HTML, CSS, React Native
6.	Cloud Database	Database Service on Cloud	IBM DB2
7.	File Storage	File storage requirements	GitHub

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 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	IoT
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.

| 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 portal. |