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

Date	19 September 2022
Team ID	PNT2022TMID26651
Project Name	Smart Waste Management System for Metropolitan Cities
Maximum Marks	4 Marks

Technical Architecture:

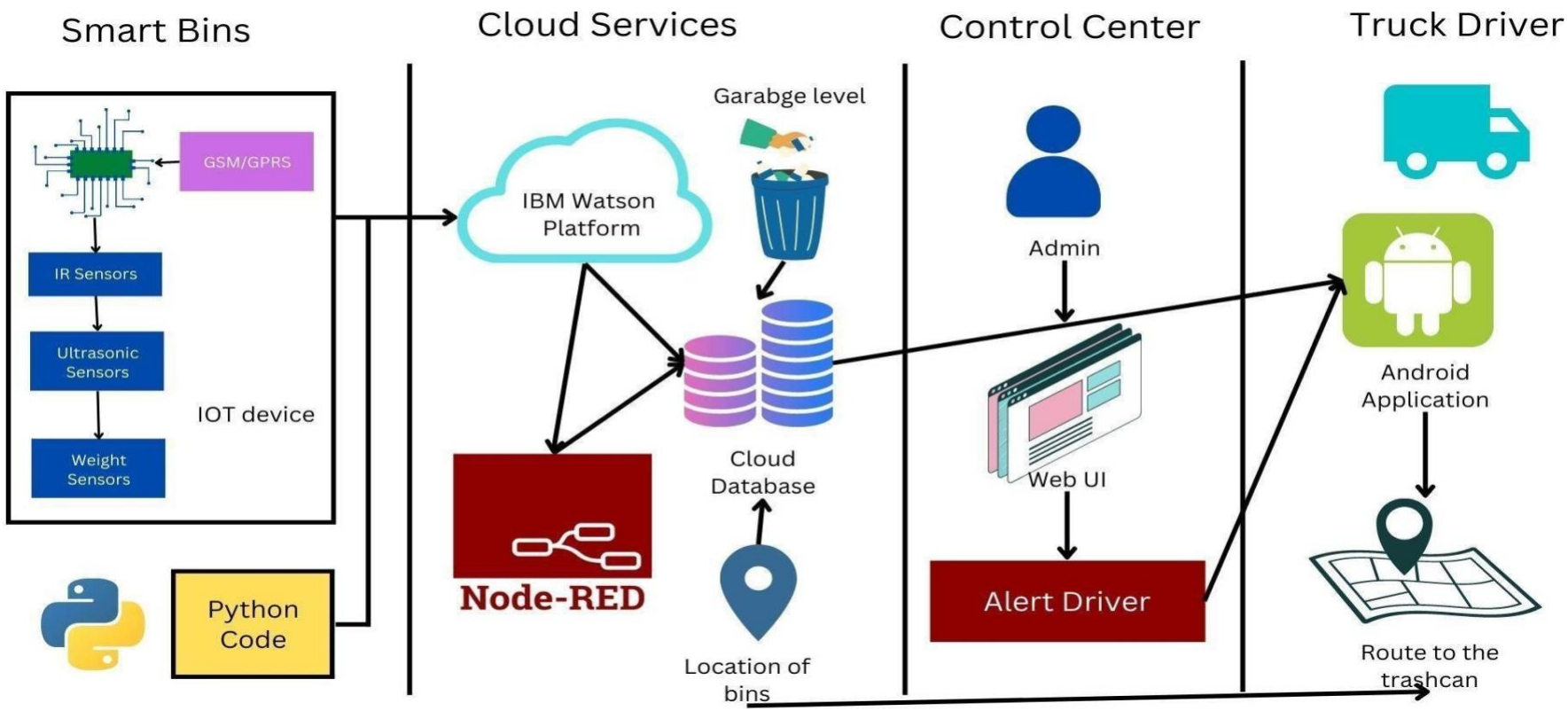

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Arduino Uno	The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller.	Arduino programming itself is done in **C++.**

2.	Application Logic-1	Logic for IR sensor data.	C++/Python
3.	Application Logic-2	Logic for Ultrasonic sensor data.	C++/Python
4.	Application Logic-3	Logic for a Weight sensor data	C++/Python
5.	GPRS/GSM	The Arduino GSM shield allows an Arduino board to connect to the internet, send and receive SMS, and make voice calls using the GSM library.	C++/Python
6.	Cloud Sever	Application deployment on Local System / Cloud	IBM Watson IoT Platform, Node Red
7.	Cloud Database	Database Service on Cloud	IBM Watson IoT platform, Cloudant DB
8.	User Interface	How user interacts with application to alert the truck driver.	HTML, CSS, JavaScript , Python etc.
9.	External API-1	Purpose of External API used in the application to locate the trashcans.	Google Maps Geolocation API

S.No	**Characteristics**	**Description**	**Technology**
1.	Open-Source Microcontroller	Arduino Uno is used to make the IoT device	C++/Python

2.	Security	Encryption/Decryption used for security purpose	GSM/GPRS,Python

Table-2: Application Characteristics:

3.	Scalable Architecture	New features can be added.	Node Red
4.	Availability	Web application can be accessed from anywhere	IBM Watson IoT Platform, HTML, CSS, JavaScript
5.	Performance	All truck drivers can access the application at same time.	Cloudant DB, IBM Watson IoT Platform