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

Date	15 October 2022
Team ID	PNT2022TMID49521
Project Name	IOT - Smart Waste Management Systems for Metropolitan Cities
Maximum Marks	4 Marks

Technical Architecture:

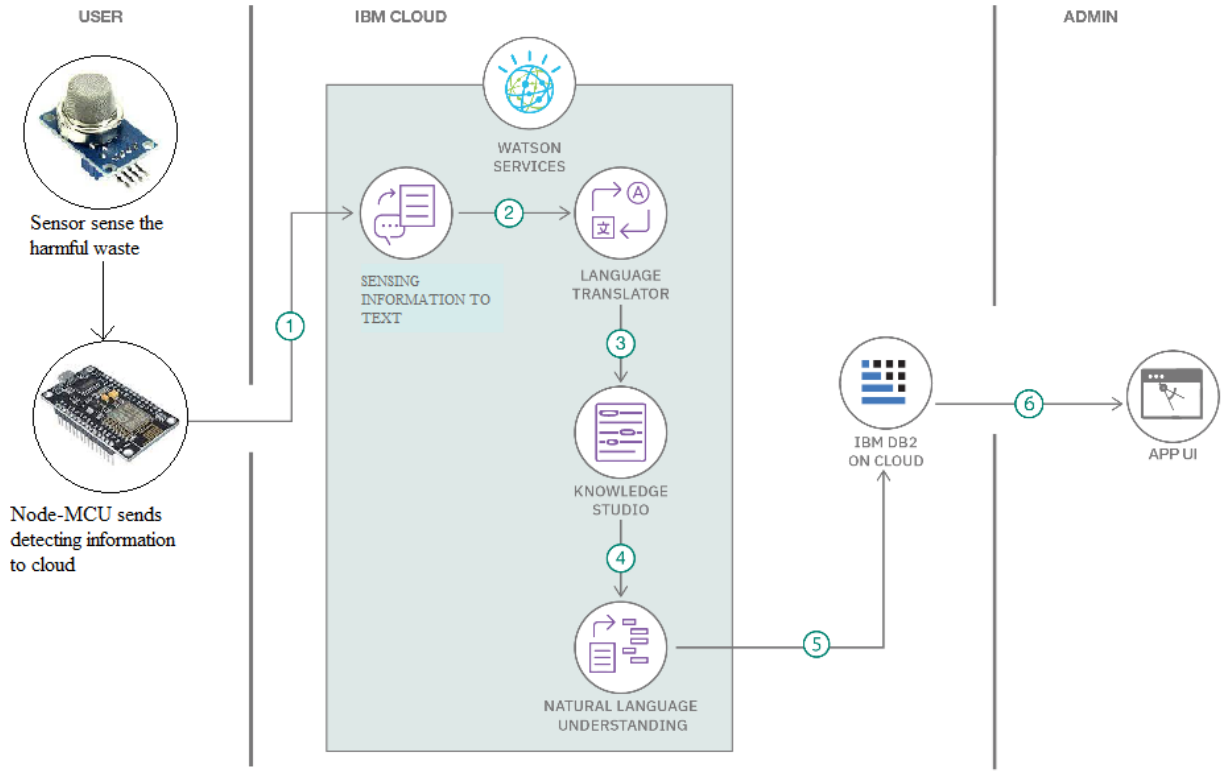

Table-1: Components & Technologies:

S.NO	Component	Description	Technology
1.	User Interface	Waste disposer and the people are our user interact the mobile application	Python
2.	Application Logic-1	Sensor detects the harmful waste and it send data to Node-MCU	Python and Node-MCU
3.	Application Logic-2	The Node-MCU sends data to the cloud	IBM Watson STT service
4.	Application Logic-3	Message send to the user application from the cloud	IBM Watson Assistant
5.	Database	Node-MCU is our database	MySQL, NoSQL, etc.
6.	Cloud Database	Database service on cloud is IBM Cloud service	IBM DB2
7.	File Storage	Node-MCU stores all the collection of waste data and detect the particular harmful waste only so storage is needed	IBM Cloud Storage
8.	External API-1	Purpose of external API used to send information to both the user's	IBM Weather API
9.	External API-2	And it also sends information to the appropriate office	IBM Weather API
10.	Machine Learning Model	The Machine Learning Model is the intermediator to the cloud and the application.	Embedded System Model
11.	Infrastructure (Server / Cloud)	Application deployment and it process by the Node-MCU	Cloud Foundry

Table-2: Application Characteristics:

S.NO	Characteristics	Description	Technology
1.	Open-Source Frameworks	Anyone can use this system by their choices	Smart bin Technology
2.	Security Implementations	It secures the home from the disease create by the harmful waste.	Gas sensor detection system
3.	Scalable Architecture	It sends normal message and it even send the message in WhatsApp and Gmail also.	Cloud Service
4.	Availability	There is a normal waste collection system is only available	Robotic System
5.	Performance	This is system detects the harmful waste and dispose immediately	Internet and Cloud