Project Design Phase II
Technology Stack (Architecture & Stack)
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Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Order processing during pandemics for offline mode

Table-1 : Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	IBM Watson IOT cloud platform	MQTT Protocol
2.	Application Logic-1	The bin waste data's are collected using sensors	Python
3.	Application Logic-2	The collected data's are monitored using IOT	IBM Watson STT service
4.	Application Logic-3	Based on data's the alerting message will send to the workers for disposing the wastes.	IBM Watson Assistant
5.	Database	MySQL is a relational database that is based on a tabular design. NoSQL is non-relational and has a document-based design.	MySQL, NoSQL

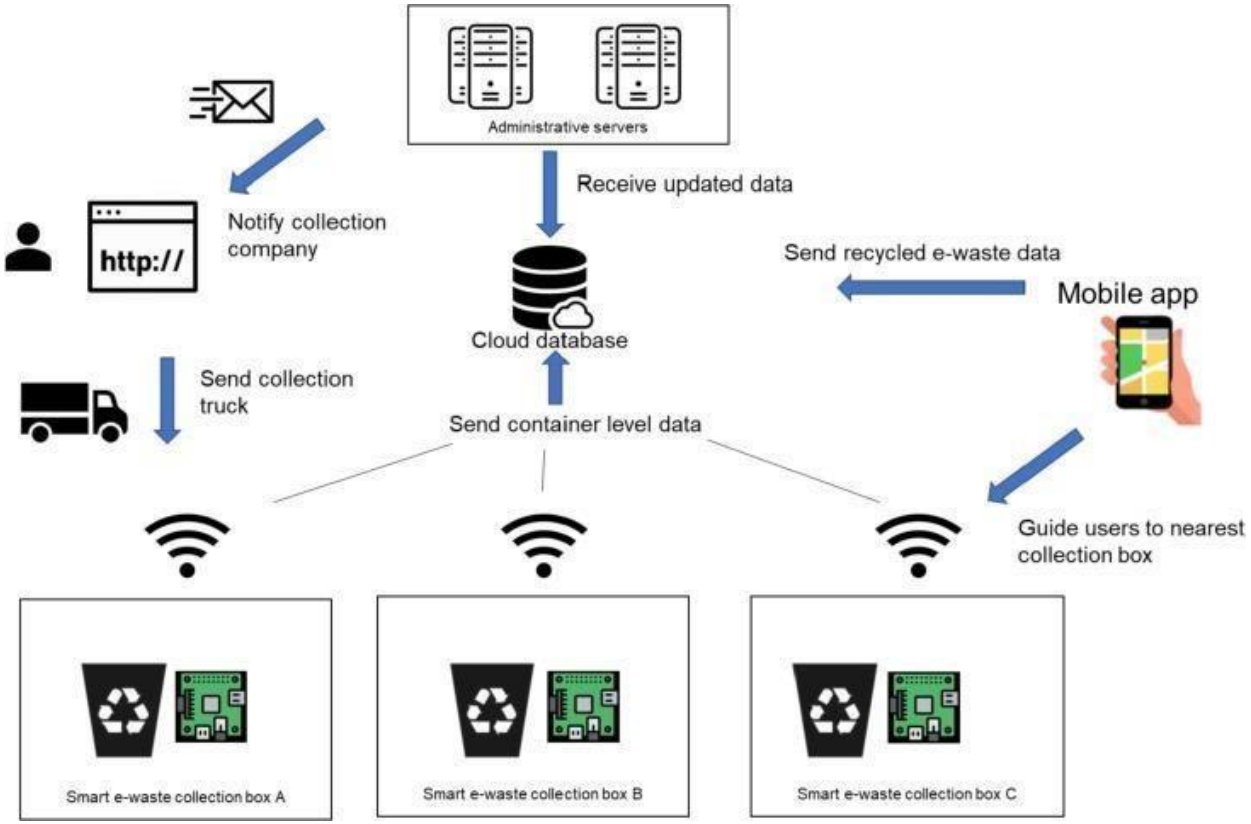
6.	Cloud Database	This module will receive real time status updates from all the garbage bins and continuously display it on web application and also push the notifications on client sides (Municipal Corporation, Garbage collector truck drivers etc.) mobile application	IBM DB2, IBM Cloud
7.	File Storage	Data storage makes it easy to back up files for safekeeping and quick recovery in the event of an unexpected computing crash or cyberattack.	IBM Block Storage or Other Storage Service
8.	External API-1	External APIs expose a project's internal resources to outside users or applications	IBM Weather API, etc.
9.	External API-2	External API allow you to access third party resources that are available through RESTful web services	Aadhar API, etc.
10.	Machine Learning Model	The proper algorithm makes planning good. It will guide the goodness character and which path should be taken and which garbage bin should be collected first	Python IDLE or Anaconda navigator or Jupitar
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Cloud Server Configuration: Cloud deployment is the process of deploying an application through one or more hosting models—software as a service (SaaS), platform as a service (PaaS) and or infrastructure as a service (IaaS) that leverage the cloud Local Server Configuration : A local server gives you exclusive access to data and objects in a set of Windows folders called data directories	Cloud server- MySQL Local server-HTTP

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Transport, treatment, and disposal of waste together with monitoring and regulation. It also encompasses the legal and regulatory framework that relates to waste management encompassing guidance on recycling."	Python
2.	Security Implementations	Fundamental component of data security that dictates who's allowed to access and use company information and resources. Firewalls use a rule-based access control model with rules expressed in an access control list.	Firewall
3.	Scalable Architecture	Using smart waste bins, reduce the number of bins inside town and cities because that we can able to monitor the garbage 24/7.It will be more cost efficient and scalable when we moves to smarter.	Technology used
4.	Availability	By developing & deploying resilient hardware and beautiful software we empower cities, businesses, and countries to manage waste smarter.	IOT, RFID

5.	Performance	The Smart Sensors use ultrasound technology to measure the fill levels (along with other data) in bins several times a day. Using a variety of IoT networks ((NB-IoT, GPRS), the sensors send the data to Sensor's Smart Waste Management Software System, a powerful cloud-based platform, for data-driven daily operations, available also as a waste management app.	IOT, GPRS

TECHNOLOGY ARCHITECTURE:


Administrative servers
Receive updated data
Notify collection company
http://
Send recycled e-waste data
Mobile app
Cloud database
Send collection truck
Send container level data
Guide users to nearest collection box
Smart e-waste collection box A
Smart e-waste collection box B
Smart e-waste collection box C