Project Design Phase-I
Proposed Solution Template

Date	05.05.2023
Team ID	NM2023TMID19394
Project Name	Smartcity waste management systems with connected trashcans
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Traditional waste management systems are inefficient and often result in overflowing trash cans, littered streets, and unhealthy living conditions. This leads to several issues, including environmental pollution, health hazards, and overall deterioration of the city's aesthetic appeal. The current waste management system lacks the ability to monitor and manage the waste generated effectively. The lack of proper waste disposal infrastructure, insufficient waste collection frequency, and inadequate public participation exacerbate the situation. To address these issues, a Smartcity waste Management System with connected trashcans is proposed. The system will use IoT technology to monitor the fill-level of trashcans in real-time, optimize the waste collection process, and improve public participation in waste disposal. This will enhance the efficiency of the waste management system, reduce overflowing trash cans, prevent littering, and improve the overall living conditions in the city.
2.	Idea / Solution description	some ideas for implementing this project: IoT-enabled trash cans: The first step is to design and develop IoT-enabled trash cans that can detect their fill-level and communicate this information to the waste management system. The trash cans can be equipped with sensors that use various technologies such as ultrasonic, infrared, or weight-based sensors to measure the fill-level of the trash can. Wireless connectivity: The trash cans should be equipped with wireless connectivity such as Wi-Fi, Bluetooth, or cellular communication to

		transmit the fill-level data to the cloud-based waste management system. Cloud-based waste management system: The waste management system will receive data from all connected trash cans and use this information to optimize the waste collection process. The system can use machine learning algorithms to predict the fill-level of trash cans and optimize the collection routes based on this information. Mobile application: A mobile application can be developed to encourage public participation in waste disposal. The app can provide real-time information on the fill-level of trash cans, the nearest available trash can, and the expected collection time. The app can also gamify waste disposal by awarding points for proper waste disposal and incentivizing users to recycle. Data privacy and security: The system should be designed to ensure the privacy and security of user data. This can be achieved by implementing data encryption, access controls, and regular security audits.
3.	Novelty / Uniqueness	Smartcity waste management system with connected trashcans IoT project is unique in its ability to leverage IoT technology to optimize waste management processes in urban areas. The project's real-time monitoring, optimization of waste collection, improved public participation, data-driven decision-making, and integration with existing waste management infrastructure make it an innovative and effective solution to the challenges of modern waste management.
4.	Social Impact / Customer Satisfaction	Smartcity waste management system with connected trashcans IoT project can significantly improve customer satisfaction regarding waste management in urban areas. By keeping streets cleaner, improving the efficiency of waste collection, incentivizing public participation, using data-driven decision-making, and providing transparency, the project can help create a more pleasant and sustainable urban environment.
5.	Business Model (Revenue Model)	Smartcity waste management system with connected trashcans IoT project can have a variety of potential business models, depending on the project stakeholders' goals and needs. The project's unique features, such as real-time monitoring, optimization of waste collection,

		improved public participation, data-driven decision-making, and integration with existing waste management infrastructure, make it an attractive proposition for a range of business models.
6.	Scalability of the Solution	Smartcity waste management system with connected trashcans IoT project has the potential to be highly scalable. Its modular design, cloud-based architecture, machine learning algorithms, mobile application, and low maintenance requirements make it an ideal solution for growing cities and increasing amounts of waste. As more cities adopt smart waste management solutions, the Smartcity waste management system can be easily adapted to meet their needs. solutions, the Smartcity waste management system can be easily adapted to meet their needs.