Project Design Phase-I
Proposed Solution

Date	24 September 2022
Team ID	PNT2022TMID46943
Project Name	**Smart Waste Management System for Metropolitan Cities**
Maximum Marks	2 Marks

Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	At present, solid waste management is a major concern in the metropolitan cities of the developing and developed countries. As the population is growing, the garbage is also increasing. This huge, unmanaged accumulation of garbage is polluting the environment, spoiling the beauty of the area and also posing a health hazard. The dumpsters often overflow and make the city unclean.
2.	Idea / Solution description	A system is introduced to manage waste in big cities effectively without having to monitor the parts 24/7 manually. Here, the problem of unorganised and non-systematic waste collection is solved by designing an embedded IoT system that will monitor each dumpster individually for the amount of waste deposited. The IR sensor is used for detecting the presence of any waste the IR sensor used. The device is connected to the cloud. Whenever the bin gets filled,

		the message will be sent to the municipal office.
3.	Novelty / Uniqueness	The problem of unorganized and non-systematic waste collection is solved by designing an embedded IoT system that will monitor each dumpster individually for the amount of waste deposited. The IR sensor is used for detecting the presence of any debris the IR sensor used. The device is connected to the cloud. Whenever the bin gets filled, the message will be sent to the municipal office.
4.	Social Impact / Customer Satisfaction	This project is very effective in managing waste in any big city. Rather than using conventional periodic collection methods, a priority system is used to ensure the city is clean all 6 the time without any overflowing dumpsters. It has been tested and verified properly to ensure all the different parts work together for a smooth function of the whole system. In most of the metro cities globally poses a challenge to effective waste management and maintenance of the waste bins.
5.	Business Model (Revenue Model)	• The cost to develop the project is about the sensors used here. • The Arduino device and Cloud platform used here play a vital role in cost. • If any damage occurs to the device during pick-ups of the trashcan we need to fix it.

		• The contribution of the municipality is necessary to make the project succeed in the market.
6.	Scalability of the Solution	The project design is a part of the implication that can be used to improve the waste management of a locality. All the technical aspects have been thoroughly designed keeping all the constraints in mind. The project resolves around whether the project will be able to meet the future needs of the users. This project-based on IoT gives users the freedom of changing hardware as well as software specifications as per the arising need. IoT based projects are already designed while keeping future demands in mind and in a rising economy like India where the concept of smart cities is new the demand for our project will keep on increasing.