Project Design Phase-I
Proposed Solution Template

Date	21 October 2022
Team ID	PNT2022TMID18433
Project Name	Smart Waste Management for Metropolitan Cities
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)	➢ As the world population in increasing day by day, the waste generated in the form of plastics, food waste etc is also increasing drastically day by day ➢ Mostly in the urban areas the waste generated is very much higher than the rural environment and the waste bins are located in most of the places in the urban environment. ➢ The waste bins in different areas is getting filled randomly based on the population density of that particular area ➢ This information is not known to the workers, which makes the garbage collection by the municipality workers work more hard and in addition to that most of the energy is getting wasted, so this mechanism which is used at present is less efficient.
2.	Idea / Solution description	➢ The inefficiency in the garbage collection can be solved by IOT ➢ First by placing sensors to detect the garbage level of the bins and other parameters like humidity, toxic gases concentration is monitored and the information is updated in the cloud. ➢ Along with that GPS is also used in the smart bins to send the exact location of the bins along with the sensor information ➢ When the parameters go above the threshold the cloud will alert the municipality workers through the website notifications ➢ Thus the work of the municipality workers is made easy and the garbage

		bins also emptied as and when it is filled.
3.	Novelty / Uniqueness	- The fill level of the garbage bins are known in advance - The location of the bins are also made available to the municipality workers by the GPS in the bins - Efficient routing algorithms is used to make the increase energy efficiency - The municipality workers are given with reward points through software on completion of any particular work to make their work more enjoyable.
4.	Social Impact / Customer Satisfaction	- The bins are maintained and regulated which makes the area more clean and odourless. - Provides data on real-time which makes it easier for them to navigate to bins before overflowing. - Stakeholders no need to waste their time and fuel to find the bin being emptied already. - Working labour and hours are reduced compared to door to door bin emptying.
5.	Business Model (Revenue Model)	- Everytime a bin is emptied using the website a part of commission is deducted. - Number of users logging in as the customer churn rate will be minimum (due to earning from the website). - To keep users motivated, points are given for the bins they empty and using these points in subsidies as ration.
6.	Scalability of the Solution	This market could turn over into as go-to-job platform even as part-time and not no-way-out job. By introducing Municipalities as partners the users can get more subsidies from the government excluding payslip. Monitoring with UV lights as advancements could give way healthier environment for the stakeholders and the public.