Project Design Phase-I
Proposed Solution Template

Date	1 October 2022
Team ID	PNT2022TMID34114
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)	The world is facing a common problem of ineffective management of waste. With the increase in human population and the growth of global economy, there has been an increase in the waste produced. This leads to a poor and unclean environment where the dumpsters will be overflowing and the garbage being spilled out of the bins can be seen all around, thereby causing a pollution and public health disasters are the major concern in the urban areas. The biggest challenge is the complexity in sorting of waste and the collection of garbage, which is compounded when hazardous waste mixes with the general waste. Therefore, a reliable and an efficient smart waste management system needs to be properly managed to protect the human health and thereby maintaining the ecosystem
2.	Idea / Solution description	To manage waste in an effective way appears to be one of the major challenges facing by the humanity and planet. To overcome this challenge, we propose the smart waste management system characterized by the usage of technology in order to be more efficient when it comes to managing waste. This makes it possible to minimize the chance of any bin being full for over a week by using different sensors employed on the garbage bin to detect the level of trash and sort the waste accordingly within the bin itself. Thus, it enhances the proper waste management system and the segregated waste can be further recycled for different purpose
3.	Novelty / Uniqueness	➢ The software algorithms automatically setup the optimum pick-up routes. ➢ Sensors attached to the trash bin used to measure the fill level of the trash bin

		➢ Measured data is sent to the Cloud for further processing and analysis ➢ By exploiting this data, trash collection can be planned as well as truck routes can be optimized ➢ Real-time GPS assistance directs the garbage truck drivers to the pre-decided route ➢ RFID technology is employed to identify the material to be recycled at the time of disposal
4.	Social Impact / Customer Satisfaction	➢ It creates pollution free environment ➢ It provides real-time insights on waste fill levels, collection routes, and bin movements and locations thereby reducing the overflowing of dustbins ➢ Traffic reduction due to fewer collection visits helps to reduce carbon dioxide and other emissions ➢ Optimizing the pickup routes for garbage trucks reduce the cost of waste collection ➢ It boosts the circular economy because glass and plastic wastes can be recycled faster
5.	Business Model (Revenue Model)	➢ Waste Management helps business make their supply chain more effective, improve ordering, reduce waste materials and save money. ➢ It works best for developing waste to energy recycling and landfill restoration solutions. ➢ It is suited for situations where a business is expecting to grow. ➢ This system works well for community organization and non profits who want to become self sustaining and relay less on external contributions to achieve their mission.
6.	Scalability of the Solution	➢ The proposed system focuses on the implementation of sensor on preparing a community to effectively manage waste, maximize recycling, minimize waste, reduce consumption and ensures that products are made to be

		recycled back into nature or the marketplace. ➢ It also provide hygienic, efficient and economic solid waste storage, collection, transportation and treatment or disposal of waste without polluting the atmosphere, soil or water. ➢ Thus the proposed system provides to be a user friendly and makes it cheaply available in the market.