

Project Design Phase-I Proposed Solution Template

Date	24 September 2022
Team ID	PNT2022TMID34106
Project Name	Smart Waste Management System For Metropolitan Cities
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	In accordance with the Waste Act, waste holders, such as private individuals, property owners or companies, are primarily responsible for the management of waste. An exception to this rule is the responsibility municipalities and certain manufacturers may have for organising waste management.
2.	Idea / Solution description	GPS enabled to track the location Solar panels that can power the trash function IoT platform to manage the waste management solution networks Data analytics to understand the usage A powerful network that manages the network and trash bins to transmit the data.
3.	Novelty / Uniqueness	In an effort to increase collection efficiency and reduce trips to and from the dump, manufacturer Ecube Labs created solar-powered trash compactor that can hold up to five times more than the traditional trash bins. These machines compress trash as it accumulates to increase bin capacity, and they collect and transmit data on fill and collection times to help streamline the collection process.
4.	Social Impact / Customer Satisfaction	Bin-e is a smart waste bin that uses IoT technology to improve waste management. These smart bins use sensors, image-based trash recognition technology, and artificial intelligence, enabling them to automatically sort and categorize recycling litter into one of its small bins.
5.	Business Model (Revenue Model)	The growth of IoT in our daily life, smart devices, and machine connectivity can reduce the expenses and operational costs in the process. In addition, companies can install the revolutionizing technology like IoT fleet management solutions that increase operational efficiency and customer satisfaction.
6.	Scalability of the Solution	Scaling for Waste-Bin Geometry and Sensor Type The scalability of waste-bin size and shape is made possible based on the following design choices:

		<p>Each sensor has its own independent area of responsibility. The way the system was designed, each sensor is responsible for a specific area of the waste-bin and there is no overlap between areas of various sensors.</p> <p>The chosen ultrasonic sensor comes in multiple versions of beam range and width. The type of sensor that was chosen is very versatile because a wide range of models exist with different characteristics concerning their beam width, detection range and resolution. All these models provide the same basic functionalities and logic of measurement.</p>
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