**Project Design Phase-I**

**Proposed Solution Template**

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| Date | 22 September 2022 |
| Team ID | PNT2022TMID34601 |
| Project Name | Smart waste management in metropolitan cities |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

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

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| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | Proposed Solution means the combination of software, hardware, other products or  equipment, and any and all services (including any installation, implementation, training,  maintenance and support services) necessary to implement the solution described by  Vendor in its Proposal. Smart City technology evolved together with the developments in wireless sensor networks (WSN) and the Internet of Things (IOT). Smart cities essentially combine the use of ICT to provide services for  better living conditions inside cities. It is a diverse topic of discussion with several application areas . |
|  | Idea / Solution description | The current process of waste management starts with the waste being created by people in the cities and disposed in trash bins near its  creation point. The disposed trash is collected by municipality or private company trucks at the predefined times and transferred to temporary collection centers. The trash at the collection centers is then sent for recycling. |
|  | Novelty / Uniqueness | Smart waste management companies have recently developed solutions based on ultrasonic distance measurement. Some companies prefer to approach the problem with an alternative solution using image processing and camera as a passive sensor. However, the majority of these solutions use ultrasonic sensor for measurement of the distance. |
|  | Social Impact / Customer Satisfaction | Recycling of used products could be simpler and cheaper through the establishment of a system for automated management of product  lifecycle, whereby, the technical information about the product must be incorporated in itself during production. |
|  | Business Model (Revenue Model) | Product management at the end of life-cycle could become widespread thanks to the technological improvements in the identification and theuse of the Internet. There are several innovations for the automatic  identification of products, among which RFID tags have shown great potential in applications such as the management of the products [7]. Waste management is another promising application area of RFID technology. |
|  | Scalability of the Solution | In the system advocated above, the fusion of sensors, identification technology, and internet connectivity will lead to a uniquely smart disposal trash bin. Together with the cloud, these trash bins would become irreplaceable elements in the waste management cycle where the collection, transportation, storage, and recycling of waste could be automated. The use of RFID technology in waste collection services not only increases the efficiency of waste management through automation  but also increases environmental responsibility which is one of the pillars of the Smart City. |