**Project Design Phase-I**

**Proposed Solution Template**

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| Date | 19 September 2022 |
| Team ID | PNT2022TMID24697 |
| Project Name | Project - Smart Waste Management System For 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) | Medical care is vital to our life and health. Improper segregation of  medical waste from the point of origin can trigger a domino-like effect  on the environment that incurs dangers to people, animals, or soil and  water sources. If not properly contained, segregated, and incinerated  through on-site or off-site incineration, environmental hazards  associated with improper healthcare waste management can  contaminate the air we breathe through dangerous airborne particles.  Hence, such waste requires specific treatment and management prior  to its final disposal. Awareness about the need for medical-waste  management among health care personnel is of paramount  importance. |
|  | Idea / Solution description | As the medical waste is disposed of in the inlet, it is passed on to the  chain conveyor belt, then the DC motor activates and therefore the  conveyor belt starts moving. The wastes are segregated into five  kinds i.e. metal, dry, wet, glass, and incinerate wastes. Depending on  the type of waste, the sensors detect the waste, and the waste gets  segregated into particular bins accordingly. Using artificial  intelligence, the status of filling of the bin is indicated through LEDs  automatically. When the bin reaches the maximum level, the red LED  starts blinking and an alert message is sent to the municipal  authorities. The filled waste is automatically wrapped. The wastes  that have to be incinerated are burnt in the incinerator chamber  present in the device. The heat generated in the incinerator chamber  is converted into electrical energy by the thermo-generator. The  produced electrical energy is used by the DC motor of the conveyor  belt. After the whole process comes to an end the conveyor belt  automatically gets cleaned up using a chain conveyor belt cleaning  system. |
|  | Novelty / Uniqueness | The automated waste segregator is an efficient and economic waste  collection system with a minimum amount of human intervention and  also causes no hazard to human life. Employing a conveyor belt  makes the system much more accurate, cost-effective, and also  easier to put in and use at a domestic level. Segregating these  wastes at a domestic level also will be timesaving. The proposed  system meets the demand for constant checks on medical-waste  content in the bins. It helps to dispose of the waste material before it  overflows from the bins. This leads to a clean city for better living |
|  | Social Impact / Customer Satisfaction | Short term: Automated waste segregator is an efficient and economic  waste collection system with a minimum amount of human  intervention and also causes no hazard to human life. Medium-term:  Employing a conveyor belt makes the system much more accurate,  cost-effective, and also easier to put in and use at a domestic level.  Segregating these wastes at a domestic level also will be timesaving.  Long term: The proposed system meets the demand for constant  checks on garbage content in the bins. It helps to dispose of the  waste material before it overflows from the bins. So regular  monitoring and intimating make the system useful in waste  management. |
|  | Business Model (Revenue Model) | The Biomedical waste segregator is automated machinery which  segregates waste into four major classes such as metal, glass, dry,  wet. The proposed system would be able to monitor the solid waste  collection process and management of the overall collection process.  An inductive proximity sensor is used to detect metallic waste. A  blower mechanism is used to segregate dry and wet waste. The  timing and movement of the conveyor belt are controlled by a  microcontroller. This system also includes a facility, that whenever a  bin gets filled an alert SMS is generated |
|  | Scalability of the Solution | The Biomedical waste segregator is automated machinery which  segregates waste into four major classes such as metal, glass, dry,  wet. The proposed system would be able to monitor the solid waste  collection process and management of the overall collection process.  An inductive proximity sensor is used to detect metallic waste. A  blower mechanism is used to segregate dry and wet waste. The  timing and movement of the conveyor belt are controlled by a  microcontroller. This system also includes a facility, that whenever a  bin gets filled an alert SMS is generated |