**Project Design Phase**

**Proposed Solution Template**

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| Date | 27 June 2025 |
| Team ID | LTVIP2025TMID36584 |
| Project Name | cleantech: transforming waste management with transfer learning |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

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

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| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | Manual waste sorting is slow, inaccurate, and unsustainable. There is a need for a fast, automated classification system to improve waste segregation. |
|  | Idea / Solution description | A web-based AI platform using MobileNetV2 (transfer learning) that classifies uploaded images into biodegradable, recyclable, or trash in real-time. |
|  | Novelty / Uniqueness | Leverages transfer learning for lightweight yet accurate predictions. Integrates seamlessly with smart bins and can be extended to mobile apps and voice input. |
|  | Social Impact / Customer Satisfaction | Promotes responsible waste disposal, reduces human effort, and supports sustainable practices. Enhances citizen awareness and municipal efficiency. |
|  | Business Model (Revenue Model) | Free for individuals and schools, licensing model for municipalities and recycling firms. Potential for B2B hardware-software integration with smart bins. |
|  | Scalability of the Solution | Cloud deployment enables wide adoption. Easily extensible to other waste types, regional languages, and multiple platforms (web, mobile, IoT). |