Project Design Phase
Solution Architecture

Date	15 February 2025
Team ID	LTVIP2025TMID38840
Project Name	cleanTech: Transforming Waste Management with Transfer Learning
Maximum Marks	4 Marks

Solution Architecture:

This solution architecture diagram illustrates a real-time system where high-speed cameras capture images of waste and an AI model classifies each item. Based on this classification, robotic arms automatically sort the materials, drastically increasing recycling purity and operational efficiency.

- ➢ A user provides input to the system.
- ➢ Images are gathered as the raw data for the project.
- ➢ Image preprocessing is performed to clean and prepare the image data.
- ➢ The data is split into "Train Data" and "Test Data" sets.
- ➢ A Deep Learning (DL) Algorithm is trained using the "Train Data".
- ➢ The trained algorithm is evaluated for performance using the "Test Data".
- ➢ The final, trained "Model" is created from this process.
- ➢ The user interacts with the model through a User Interface (UI).
- ➢ The model provides a "Prediction" back to the user via the UI.

Example - Solution Architecture Diagram: