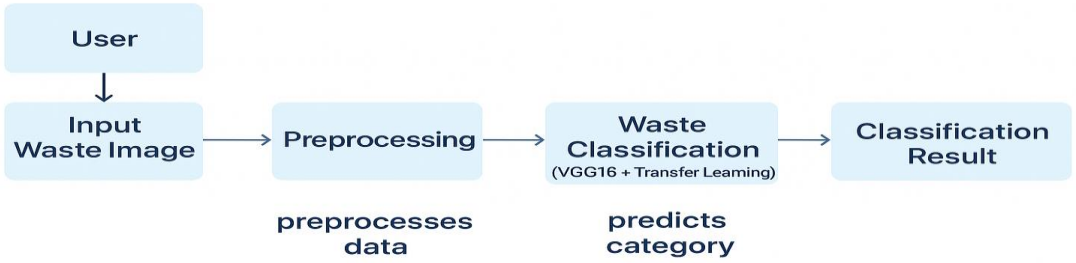
Project Design Phase-II
Data Flow Diagram & User Stories

Date	4 June 2025
Team ID	LTVIP2025TMID38840
Project Name	CleanTech: Transforming Waste Management with Transfer Learning
Maximum Marks	4 Marks

Data Flow Diagrams:

This data flow diagram illustrates a complete user interaction cycle for an AI-powered application. The process begins when a user uploads an image via the web application's frontend. The frontend then sends the image within an HTTP request to the backend server. The backend server preprocesses this image and sends it to a Deep Learning (DL) model, which in turn returns a prediction result. This result is sent back to the frontend through an HTTP response, allowing the result page to be displayed to the user. As an optional final step, the backend server can log the prediction into a database**.**

Example: (Simplified)



User Stories

Use the below template to list all the user stories for the product.

User stories break down the Cleantech project into small, manageable tasks from the perspective of each user. They help our team focus on building features that provide real value, such as a live dashboard for the Facility Manager, downloadable reports for the Municipal Director, and hardware alerts for the Maintenance Technician. By addressing these specific needs, we ensure the final system is practical, user-focused, and successfully solves the intended challenges in waste management.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Facility Manager	Real-time Monitoring	USN-1	As a Facility Manager, I want to view a live dashboard of the sorting process so that I can monitor operational efficiency.	Dashboard displays key metrics like items sorted per minute, purity rates, and system uptime.	High	Sprint-1
System	Waste Classification	USN-2	As the system, I want to automatically classify waste materials from the camera feed to enable automated sorting.	The model classifies common materials (e.g., PET, cardboard) with >95% accuracy and sends results to the control system.	High	Sprint-2
Maintenance Technician	System Health Alerts	USN-3	As a Maintenance Technician, I want to receive an immediate alert if a camera or robotic arm reports a fault to minimize downtime.	An email/SMS alert is sent to a designated contact within 2 minutes of a critical hardware error.	High	Sprint-2
Facility Manager	Performance Analytics	USN-4	As a Facility Manager, I want to view historical performance trends so that I can identify areas for improvement.	The dashboard allows viewing and comparing recycling rates and costs over daily, weekly, and monthly periods.	Medium	Sprint-1
Municipal Director	Report Download	USN-5	As a Municipal Director, I want to download a summary performance report so that I can track ROI and compliance.	A report (PDF/DOCX) with key metrics can be downloaded successfully.	Medium	Sprint-3

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
AI Engineer	Model Management	USN-6	As an AI Engineer, I want to upload a new dataset to retrain the model so that I can improve its accuracy over time	System provides an interface to upload a labeled dataset and initiate a retraining job.	Medium	Sprint-4