

**Project Design Phase-II**  
**Solution Requirements (Functional & Non-functional)**

Date	30 June 2025
Team ID	LTVIP2025TMID44727
Project Name	<b>CleanTech: Transforming Waste Management with Transfer Learning</b>
Maximum Marks	4 Marks

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Waste Image Classification	- Upload image for classification - View classification results
FR-2	Data Preprocessing	- Image resizing and normalization - Data augmentation options
FR-3	User Interface	- Web page for image upload - Display prediction and confidence
FR-4	Model Management	- Model loading and inference - Update model with new data
FR-5	Results Storage and History	- Save prediction history - View past classifications

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Simple and intuitive web interface for users with minimal technical knowledge.
NFR-2	Security	Secure upload endpoints with validation; HTTPS enabled for data transmission encryption.
NFR-3	Reliability	Stable and fault-tolerant system; proper error handling and

NFR No.	Non-Functional Requirement	Description
		logging for smooth user experience.
NFR-4	Performance	Fast image processing and classification with minimal latency; response time under 3 seconds.
NFR-5	Availability	99.9% uptime with cloud deployment and fallback mechanisms.
NFR-6	Scalability	Architecture supports scaling for increased users and batch processing via modular microservices.