Requirement Analysis Phase-II
Solution Requirements (Functional & Non-functional)

Date	18 Feb 2026
Team ID	LTVIP2025TMID42151
Project Name	Advancing Nutrition Science Through Gemini AI
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	User Authentication	User Registration via Form, Gmail, and LinkedIn; Email Confirmation for account security.
FR-2	Image Management	High-resolution photo upload; Automatic image validation (format and size check).
FR-3	AI Structural Analysis	Real-time identification of rebar, beams, and columns using Gemini 2.5 Flash.
FR-4	Inventory Generation	Automated counting of materials (bricks, steel rods, cement bags) from visual data.
FR-5	Technical Reporting	Generation of downloadable structural audit reports in Markdown and PDF formats.
FR-6	Audit History	Dashboard to view, filter, and compare past site inspections and progress logs.

Non-functional Requirements:

Following are the functional requirements of the proposed solution.

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	The interface should be intuitive for field engineers, with large buttons and high contrast for outdoor use.
NFR-2	Security	End-to-end encryption for uploaded site imagery;

NFR No.	Non-Functional Requirement	Description
		Secure API key management for Gemini integration.
NFR-3	Reliability	The system must provide 99% accuracy in material identification under standard daylight conditions.
NFR-4	Performance	AI analysis and report generation should be completed within 15–30 seconds of image upload.
NFR-5	Availability	The web dashboard should be available 24/7 to support different time-zone site audits.
NFR-6	Scalability	The system architecture must handle multiple concurrent uploads from different sites without latency.