Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	18 February 2026
Team ID	LTVIP2026TMIDS57846
Project Name	Civil Engineering Insight Studio
Maximum Marks	4 Marks

Solution Requirements

Functional Requirements

Following are the functional requirements of the proposed solution:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through web form (Name, Email, Password)
		Registration through Gmail (OAuth integration)
		Registration through LinkedIn (OAuth integration – future enhancement)
FR-2	User Confirmation	Confirmation via Email verification link
		Confirmation via OTP sent to registered email
FR-3	Image Upload & Analysis	Upload construction site images (JPG, JPEG, PNG)
		Enter input prompt for analysis
		Process image and send to AI model
		Generate structured structural description
FR-4	Report Generation & Management	Display AI-generated report on dashboard
		Download report in PDF format
		Store reports locally or in cloud database
		View previously generated reports
FR-5	Material & Structural Identification	Detect materials (concrete, steel, bricks, etc.)
		Identify structural components (beams, columns, slabs, trusses)
FR-6	Project Progress Analysis	Identify completed structural elements
		Highlight planned or pending components
FR-7	Admin Management	Manage API configuration securely
		Monitor system logs and usage

Non-Functional Requirements

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

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system must provide a simple and intuitive web interface for easy image upload and report viewing.
NFR-2	Security	API keys must be securely stored using environment variables; data transmission must use HTTPS encryption; user authentication required.
NFR-3	Reliability	The system should consistently generate accurate AI responses and handle errors gracefully.
NFR-4	Performance	The system should generate AI responses within a few seconds under normal load conditions.
NFR-5	Availability	The application should be available 24/7 when deployed on cloud infrastructure.
NFR-6	Scalability	The architecture should support scaling to multiple users using cloud deployment and modular design.