Project Design Phase
Solution Architecture

Date	11 February 2026
Team ID	LTVIP2026TMIDS88090
Project Name	AUTOSAGE APP USING GEMINI FLASH
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture for **AUTOSAGE APP USING GEMINI FLASH** bridges the gap between the business problem of fragmented vehicle information and a structured AI-powered automotive intelligence solution.

The architecture ensures scalability, reliability, multimodal AI processing, and structured data generation aligned with Indian automobile market requirements.

Architecture Goals:

1. Find the Best Technology Solution

The system uses:

- Gemini 2.5 Flash (Generative AI API) for text and multimodal (image + text) intelligence generation.
- Streamlit (Frontend Interface) for rapid UI development.
- Python (Application Logic Layer) for prompt engineering, validation, and structured orchestration.
- Cloud-ready deployment architecture for scalability.

This combination enables high-speed AI inference with controlled output formatting.

2. Describe Structure, Characteristics & Behavior

The solution follows a modular layered architecture:

Layer 1 – Presentation Layer

- Web UI (Streamlit)
- Sidebar control panel (vehicle type, purpose selection)
- Three functional tabs:
    - Smart Query (Text-only analysis)
    - Smart Vision (Image-only analysis)
    - Multimodal Analysis (Text + Image)

Layer 2 – Application Logic Layer

- Prompt engineering engine

- Context injection (vehicle type + purpose)
- Image preprocessing module
- Validation logic
- Structured output formatting enforcement

Layer 3 – AI Intelligence Layer

- Gemini Flash API
- Multimodal input handling
- Controlled temperature and token configuration
- Structured report generation

Layer 4 – Optional Future Expansion

- Database integration (User history, saved reports)
- Analytics engine
- API exposure for dealerships

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Example - Solution Architecture Diagram: