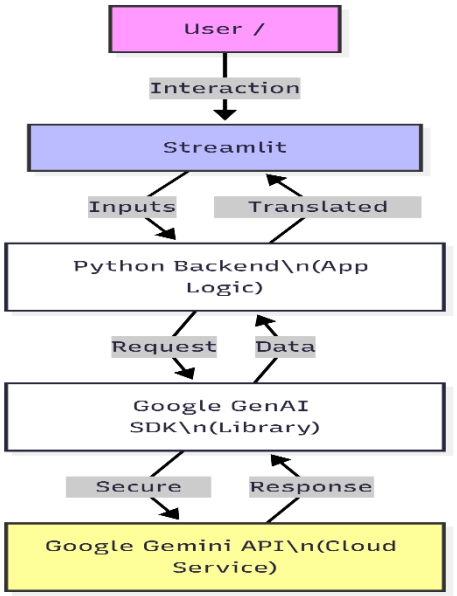
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	18 Feb 2026
Team ID	LTVIP2026TMIDS80588
Project Name	TransLingua: AI-Powered Multi-Language Translator
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Order processing during pandemics for offline mode



Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate external interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web-based dashboard with tabs for Docs, Camera, and Text.	Streamlit, Python
2.	Application Logic-1	Multimodal processing for Images and PDFs.	Python (google-genai SDK)
3.	Application Logic-2	Text extraction and context-aware translation.	Gemini 3 Flash Model
4.	Application Logic-3	Failover and error handling logic.	Python Exception Handling
5.	Database	Temporary storage of session states.	Streamlit Session State
6.	File Storage	Handling uploaded bytes (PDF/Images).	In-memory Buffer (io.BytesIO)
7.	External API-1	Core generative AI and vision services.	Google Gemini API
8.	Machine Learning Model	Multimodal Large Language Model.	gemini-3-flash-preview
9.	Infrastructure (Server / Cloud)	Application hosting and execution.	Local Server / Streamlit Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Fast web app development for ML/Data apps.	Streamlit
2.	Security Implementations	Environment-based API key management.	.env / Streamlit Secrets
3.	Scalable Architecture	Serverless API consumption.	Micro-services (Google Cloud)
4.	Availability	Automatic model switching if one is busy.	Multi-model Failover
5.	Performance	Low-latency response using "Flash" models.	Gemini Flash Series

References:

https://c4model.com/

https://docs.streamlit.io

https://ai.google.dev/docs