Technology Stack

Team ID: LTVIP2026TMIDS84504

Project Name: Translingua: ai-powered multi-language translator

Maximum: Marks 2 Marks

Technical Architecture:

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

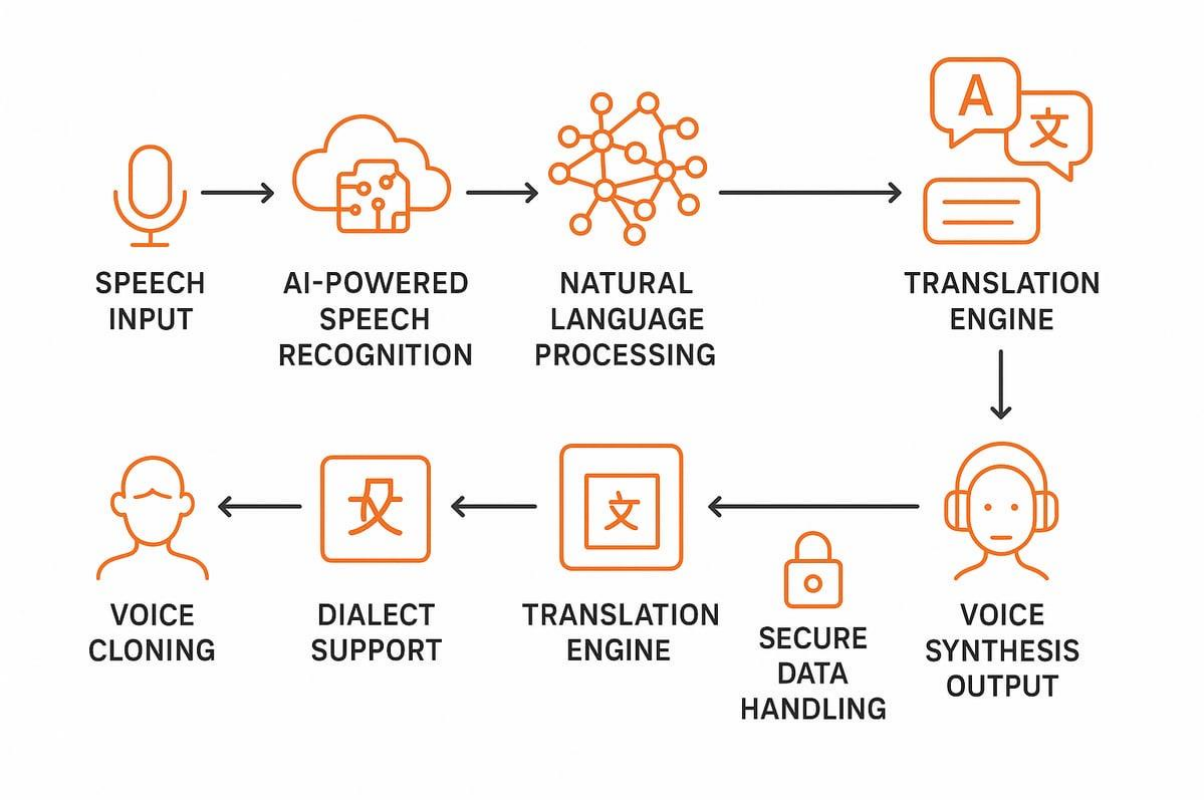

Table1:

Layer	Technology Used	Description
User Interface	Streamlit	Provides input box, language selection, and displays translated output
Frontend Interaction	HTML, CSS (Streamlit UI)	Ensures simple and user-friendly interaction
Application Logic	Python	Handles user input processing and request flow
Backend Framework	Flask	Manages communication between UI and translation services

AI Translation Engine	Google Generative AI / NLP Model	Detects language and generates accurate translations
API Integration	REST API	Connects backend with AI translation services
Processing Module	Language Detection & Text Processing	Prepares and formats text before translation
Deployment Environment	Local Server / Cloud	Runs the application and supports scalability
Data Handling	Temporary Memory	Stores input and output during processing

Table2:

S.No	Characteristic	Description	Technology Used
1	**Open-Source Frameworks**	**Entire system is developed using open-source tools and libraries**	**Flask, TensorFlow, NumPy, Bootstrap**
2	**Security Implementations**	**Ensures input validation, secure API communication, and data privacy**	**Flask Security, HTTPS**
3	**Scalable Architecture**	**Modular design allows easy addition of new languages and features**	**Flask MVC Architecture**
4	**Availability**	**Can be deployed on cloud platforms for continuous 24/7 access**	**AWS, Heroku, Docker-ready design**
5	**Performance**	**Provides real-time translation with minimal delay**	**Optimized Transformer Models**