**Technology Stack (Architecture & Stack)**

**Date:** 26 June 2025  
**Team ID:** LTVIP2025TMID32000  
**Project Name:** Sustainable Smart City Assistant Using IBM Granite LLM

**Components & Technologies**

| **S.No** | **Component** | **Description** | **Technology** |
| --- | --- | --- | --- |
| 1 | User Interface | Web-based interaction via dashboard | Streamlit |
| 2 | Application Logic | Handles summarization, feedback, forecasting, anomaly detection | FastAPI + Python |
| 3 | AI Service Layer | Processes prompts for summarization, tips, and reports | IBM Watsonx Granite LLM |
| 4 | Vector Search | Enables semantic document retrieval | Pinecone |
| 5 | Session State | Maintains chat and dashboard state | Streamlit Session |
| 6 | File Storage | Uploads of CSVs, text policies, and feedback | Local Filesystem / Cloud Storage |
| 7 | Security | Secures credentials and API keys | .env + python-dotenv |
| 8 | Deployment | Host application for public or internal access | IBM Cloud / Streamlit Cloud / Docker |