Project Approach

Designed and implemented an intelligent WhatsApp-based resume processing system that transforms how organizations handle candidate applications. The solution takes a modular approach by separating chat interactions from resume processing while maintaining a seamless user experience. At its core, the system uses Flask as the web server framework, integrated with Twilio's WhatsApp API to handle real-time messaging and media uploads. This architecture allows for scalable communication while maintaining the familiar WhatsApp interface that users already know and trust.

The heart of the system lies in its dual AI handler design. The ResumeHandler specializes in document processing and data extraction, while the ChatHandler manages conversational interactions. Both leverage Google's Gemini 2.5 Flash model but with distinct context prompts tailored to their specific responsibilities. This separation ensures that each component excels at its designated task without compromising performance or accuracy. The system processes resumes in multiple formats, extracting structured information from what is typically unstructured document data.

Core Architecture

- Flask Web Framework: Serves as the main application server handling HTTP requests
- Twilio Integration: Manages WhatsApp messaging interface and media handling
- Dual Handler System: Separate modules for chat interactions and resume processing
- Google Gemini AI: Powers both conversational responses and resume data extraction
- Google Sheets: Serves as the persistent storage layer for extracted resume data

Demo Achievements

This demo showcases a fully functional automated recruitment assistant that operates through WhatsApp. Users can initiate conversations naturally, then either engage in dialogue or upload their resumes directly through the chat interface. When a resume is received, the system automatically processes the document, extracts critical candidate information, and provides immediate feedback about what was successfully identified. The conversational AI then generates a personalized response that acknowledges the submission and summarizes the extracted details.

The system intelligently parses documents to identify key candidate information including full name, contact details, educational background, work experience, and relevant skills. It validates whether documents constitute actual resumes rather than other document types, preventing false positives. Successful extractions are automatically timestamped and saved to a structured Google Sheets database, creating an immediate searchable candidate repository.

The AI maintains professional, courteous communication throughout the interaction, making the application process more engaging for candidates while providing organizations with immediately structured data. The complete pipeline from document receipt through data extraction to storage operates automatically and showcase a production-ready system that could significantly reduce manual recruitment workloads while improving candidate experience through immediate engagement and feedback.