Full-Stack AI Mock Interview Platform

Primary Purpose

The Full Stack AI Mock Interview application is designed to help users prepare for job interviews through AI-powered practice sessions. It functions as a SaaS platform, offering AI-generated questions, live mock interviews with a streaming AI avatar, and automated feedback to simplify and enhance the interview preparation process.

Core Technologies & Frameworks

- React & Next.js: Modern frontend with routing, rendering, and optimization.
- n8n: Visual backend automation for AI question generation and workflows.
- Akool: Streaming avatar API for interactive live AI interviews.
- Convex: Real-time, open-source database with serverless functions.
- Clerk: Authentication and subscription billing integration.
- Arj: Security tool for rate limiting and access management.
- ShadCN UI & Aceternity UI: Tailwind CSS-based UI components.
- ImageKit.io: Cloud storage for resumes (PDF).

How AI Generates Interview Questions

1. User uploads a resume or inputs a job description.
2. Resume stored in ImageKit.io → unique file URL created.
3. Application triggers an n8n webhook with resume/job data.
4. n8n extracts text (if resume) or takes job description.
5. AI model (OpenAI/Gemini) generates tailored interview questions in JSON format.
6. Questions are returned and stored in Convex DB.

How the Live AI Mock Interview Works

• Akool API creates a real-time Agora session for the AI avatar.
• Credentials (App ID, channel token, UID) retrieved.
• Akool SDK initialized in browser, handling audio/video streams.
• Avatar asks questions in real-time, user responds via mic.
• Transcripts and conversations stored for later feedback.

User Authentication & Subscription

Clerk manages secure sign-in (email/password, Gmail, MFA) and subscription billing. It integrates with Stripe to handle payment, pricing tables, and plan upgrades. Middleware secures routes and distinguishes free vs paid tiers.

Free User Limits & Rate Limiting

Arj SDK enforces daily interview limits for free users using token bucket rules. Each request deducts a token. When empty, users are denied further requests. Subscribed users bypass limits for unlimited interviews.

Interview Feedback Generation

After each interview, all conversation messages are sent via n8n to an AI model. The AI generates detailed feedback, improvement suggestions, and a rating out of 10. Feedback is stored in Convex DB and shown in the user dashboard.

Deployment & Production Management

The app is deployed on Vercel (frontend) with GitHub integration for CI/CD. Convex database is integrated with production deployment keys. n8n workflows are hosted on Hostinger for scalable automation. Vercel ensures auto-deployment with every code push.