

AI INTERVIEW COACH

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Abstract- This study presents a full-stack AI-powered career coaching web application built with Next.js, Tailwind CSS, Prisma, and Gemini AI. The platform generates personalized interview questions, industry insights, resume/cover letter drafts, and conducts AI-driven mock interviews with feedback, while supporting background task scheduling. An empirical user study evaluated usability, perceived utility, and impact on user confidence. Results show that the system significantly reduces preparation time, boosts interview readiness, and democratizes access to high-quality, scalable career coaching, offering a personalized alternative to traditional methods.

Keywords: Artificial Intelligence, Generative AI, Natural Language Processing, Machine Learning, Interview Simulation, Large Language Models, Personalized Interview Training.

1. INTRODUCTION

Artificial intelligence is revolutionizing hiring, education, and skill development. Interview preparation, once dependent on human mentors or offline coaching, is now enhanced by affordable, scalable AI tools. An AI Interview Coach uses NLP, machine learning, and real-time feedback to create realistic mock interviews, helping candidates refine technical responses, communication skills, and confidence.

This project builds and tests a practical AI-powered interview coach that simulates real job interviews, delivers personalized, data-driven feedback via generative AI and NLP, and makes preparation interactive, effective, and stress-free. Acting as an always-available practice partner, it conducts tailored mock sessions, provides honest yet supportive real-time feedback, and reduces pre-interview anxiety. Inspired by modern full-stack AI capabilities, the goal is to make high-quality, accessible interview practice faster, cheaper, and far better than traditional methods—for anyone with an internet connection.

1.1 Background and Motivation:

In India, quality interview coaching costs ₹2-5K per session, is confined to big cities, and remains unaffordable for most students and freshers. Generative AI changes everything: it delivers a smart coach on every phone that

asks real company-level questions, gives instant feedback, and costs almost nothing—a game-changer for millions of job seekers.

This project builds a full-stack AI Interview Coach that generates relevant questions, analyzes responses, and provides personalized, real-time guidance. The goal is to create a truly scalable, affordable, and accessible preparation tool.

Despite its importance, personalized interview practice is still expensive and inconvenient. Most candidates prepare alone, lacking honest feedback, which hurts confidence, clarity, and storytelling ability. Recent advances in NLP and large language models now enable natural, human-like conversations with instant, tailored coaching. This project delivers exactly that: a modern, high-quality AI Interview Coach that gives everyone the realistic practice and guidance traditionally reserved for a lucky few.

1.2 Problem Definition

Interview prep is painful for most people, especially students, nervous candidates, or anyone without a mentor or money for coaching. We end up practicing in the mirror or begging friends for quick help, with almost no real feedback.

Traditional coaching is expensive, hard to book, and often gives delayed, generic advice, leaving huge gaps for non-tech or low-income candidates.

That's why I'm building an AI Interview Coach: it asks real job-specific questions, listens to your answers, and instantly tells you what worked, where you rambled, sounded unsure, or missed the mark. It's a patient, brutally honest coach available 24/7 at basically zero cost.

The goal: give everyone, regardless of background or budget, realistic practice and sharp, personalized feedback—so they walk into the real interview confidently and ready.

1.3 Research Objective:

1. Build a realistic AI Interview Coach powered by cutting-edge generative AI and language models

that conducts natural mock interviews: asks questions, listens, and responds like a human interviewer.

2. Generate fresh, highly relevant, role-specific questions every session (e.g., Senior PM at a fintech startup or Junior Data Analyst at a gaming company)—no generic filler.
3. Deliver instant (or post-session) feedback on clarity, relevance, confidence, pacing, wording, and nervousness.
4. Identify individual strengths and weaknesses, then provide personalized improvement plans with targeted exercises.
5. Develop a robust, scalable full-stack app with user accounts, session history, background processing, and reliable AI integration.
6. Validate impact through real-user testing: measure increased confidence, improved answers, and higher interview success rates to prove it genuinely helps people get jobs.

2. AI Interview Coach:

An Intelligent System for Automated Interview Preparation:

Interview prep is hard: most people practice alone, get nervous, ramble, miss the point, or freeze—and never know what they’re doing wrong because there’s no one to tell them.

This AI coach fixes that. It runs realistic mock interviews with fresh, relevant questions, then instantly (or in a detailed report) gives you clear, honest feedback on exactly what worked, what didn’t, and how to improve. It’s a tough but fair coach, always available, in your corner whenever you need it.

- Examining the comments' clarity, relevancy, tone, confidence.
- Making recommendations for better responses.
- Creating domain-specific and role-specific inquiries.
- Providing students and job seekers with access to interview.

This project builds and evaluates an AI Interview Coach prototype that significantly boosts interview readiness while reducing dependence on costly human coaches.

By instantly detecting hesitancy, filler words, ambiguity, or knowledge gaps—and providing precise, actionable feedback—the AI improves clarity, confidence, and employability across any role (software engineering, marketing, teaching, nursing, etc.). Users simply select their target job and industry, and the system delivers realistic, role-specific questions with immediate, no-nonsense guidance: “You lost them here,” “You know this, but you buried it,” plus targeted fixes.

It also offers personalized learning paths, confidence scores, structured performance reports, and visible progress tracking. With unlimited sessions, zero scheduling, and near-zero cost, it makes high-quality practice accessible to millions of students and job seekers worldwide.

The prototype proves AI can bridge the gap between academic knowledge and real-world hiring demands, lower interview anxiety, and turn a stressful, lonely process into something straightforward, effective, and genuinely empowering.

3. Methodology Details:

Step	Description
Requirement Analysis	Talked to real users—fresh grads, career switchers, stressed friends—and the pain was universal: no practice partner, zero honest feedback, coaching too expensive. Core must-haves: realistic mock interviews, instant & useful feedback, light resume help, and dead-simple onboarding.
System Design	Planned everything on paper and Figma first (user flows, wireframes, class diagrams). Went fully modular from day one to avoid future spaghetti code.
Tech Stack Selection	Next.js + React + Tailwind + Shadcn (frontend), Prisma + Neon Postgres (DB), Clerk (auth), Inngest (background jobs), Google Gemini API (all AI brains), Vercel + serverless (deployment)
Frontend Development	Clean login, relaxed dashboard, calm mock-interview room (no chaotic video-call vibe), resume uploader/assistant. Fully responsive—works perfectly on phone or desktop.
Backend Development	Robust REST APIs for user profiles, session management, interview orchestration, and background job queuing. Built reliable wrappers around Gemini API for fast, consistent AI calls.
AI Integration	Iterated prompts obsessively until the AI generates spot-on role-specific questions, natural interviewer responses, and feedback that actually feels human, sharp,

	and actionable—no more generic AI fluff.
Testing and Validation	Unit + integration tests → real-user testing → focused feedback loops on AI output (“Does this sound like a real coach?”). Kept refining until users said it genuinely helps.
Deployment and Optimization	Live on Vercel + Neon. Added caching, query optimization, and tuned background jobs. Now handles heavy traffic smoothly without lag or crashes—even when everyone’s panic-practicing at once.

3.1 Literature:

Aspect	Summary
Methodologies Used	NLP-based scoring models, transformer-based language models, rule-based evaluation frameworks, feedback generation systems
Parameters Evaluated	Response clarity, language fluency, resume formatting, keyword alignment, confidence indicators, relevance to job role
Key Findings	AI improves accessibility and accuracy in interview preparation; NLP enables real-time content evaluation; personalized feedback enhances learning outcomes.

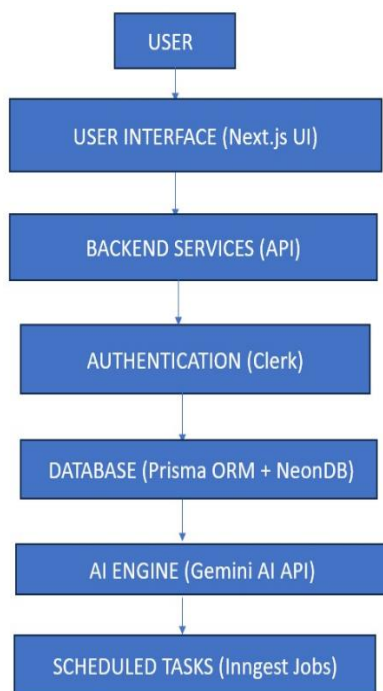


Fig.1 Block Diagram

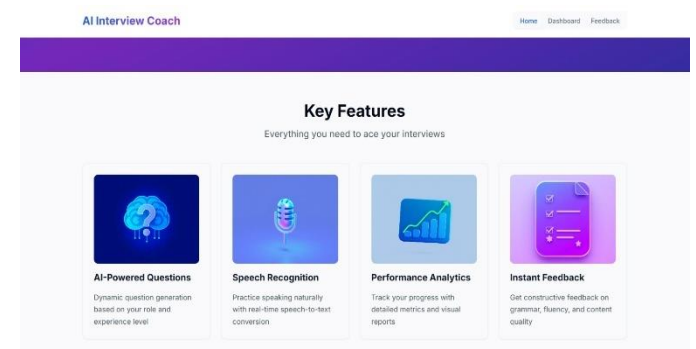
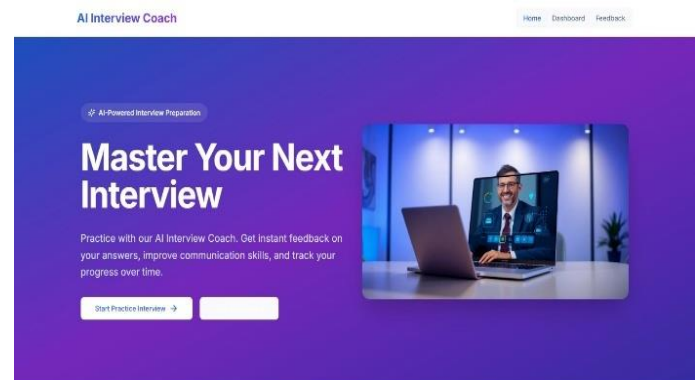
How It Works – From Click to Coaching

You jump in, pick your target role, and hit “Start Mock Interview.” It feels dead simple because it is.

Under the hood:

1. Login → Clerk handles secure auth instantly.
2. Every action → hits clean Next.js API routes that orchestrate everything.
3. Your data (sessions, feedback, progress) → stored in Neon Postgres via Prisma: fast, serverless, zero maintenance.
4. The brain → Google Gemini API, feed precise prompts + your job title, level, and conversation history → instantly returns realistic questions and sharp, specific feedback (no fluffy platitudes).
5. Background magic → Inngest quietly runs jobs: weekly progress summaries, gentle reminders, and storage cleanup.
6. Result: a 24/7 personal coach that remembers you, never gets tired, and gives instant, actionable feedback with zero lag or downtime.
7. You speak → AI listens → you improve → repeat.

That loop is live, fast, and actually works.



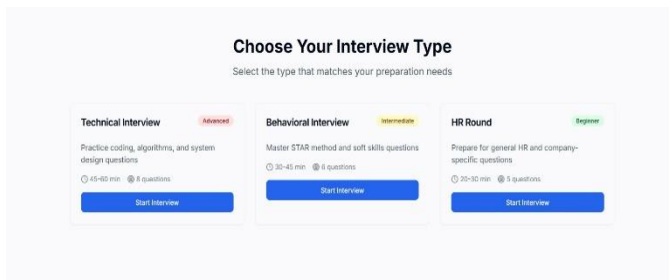


Fig 2: Layout of the Project

These screenshots are from the live AI Interview Coach prototype (already polished and in active use).

Landing page: Bold “Master Your Next Interview” headline, zero fluff, clear step-by-step explanation. Instantly choose your interview type: Technical, Behavioral/Storytelling, or HR/General.

Mock interview room: Clean, modern, calming interface. Role-specific AI-generated questions, live speech-to-text (just talk naturally), and instant feedback the second you finish — detailed breakdown with charts for pacing, clarity, filler words, confidence, etc.

Minimal design, no clutter, intentionally soothing — because when you’re nervous, the app should feel like it’s 100% on your team.

4. CONCLUSIONS

Building this AI Interview Coach proved one thing: AI can fundamentally transform interview (and career) preparation.

No more begging friends for practice or paying hundreds for a coach booked weeks out. Anyone can now open the app, select their exact target role — from first internship to senior product manager — and instantly get realistic questions plus sharp, honest feedback. It’s personalized, unlimited, and essentially free.

Powered by Gemini and a fast modern stack, the coach delivers spot-on questions, listens to your answers, and immediately highlights what worked and where you rambled or sounded unsure. After a few sessions, users visibly become clearer, smoother, and far more confident.

The bigger impact: tools like this show we no longer need expensive, time-constrained human coaching for most people. AI can close that gap — anytime, anywhere — and prepare job seekers so effectively that they walk into real interviews ready instead of terrified.

Future Scope:

1. Advanced delivery analysis: tone, facial expressions, body language feedback via webcam.

2. Hyper-specific company simulations (Goldman Sachs vs Google vs school demo).
3. Full multilingual support + cultural nuances (Hindi, Spanish, Mandarin, etc.).
4. VR/AR mock interviews with realistic boardrooms and eye contact.
5. Adaptive difficulty that automatically targets and strengthens weak areas.

With focus on accuracy, fairness, and privacy, this will become the global default for interviews like Duolingo for languages or GitHub for code. Elite coaching, better than most humans, free/accessible worldwide.

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