AI Mock Interview Platform

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***Abstract*—This project introduces an AI-powered mock interview platform that simulates real-world job interviews through real-time voice-based interactions. Users engage with an AI interviewer capable of generating role-specific questions and providing detailed, structured feedback on performance across key areas such as communication, technical skills, problem-solving, confidence, and cultural fit. The platform is built using Next.js, Tailwind CSS, Firebase, Vapi, and Google Gemini, delivering a secure, scalable, and low-latency web application. By offering realistic, accessible interview practice, the system aims to enhance user confidence and readiness for actual interviews**

I. INTRODUCTION

In today's competitive job market, candidates are expected to perform exceptionally well in interviews, often under pressure and without adequate preparation tools. Existing methods—like reading question lists or practicing with peers—lack realism, consistency, and scalability. They don't replicate the stress, spontaneity, or flow of real interview settings. As a result, many candidates face low confidence, poor communication, and missed opportunities. This project addresses that gap by introducing a voice-based AI Mock Interview Platform—a full-stack web application designed to simulate real job interviews using conversational AI agents.

II. PROBLEM STATEMENT

Preparing for job interviews is a critical yet challenging process for many job seekers, often hindered by the lack of realistic and accessible practice tools. Traditional preparation methods—such as studying static question banks, reading guides, or practicing with peers—fall short in replicating the real-time dynamics,
interviews. This mismatch results in candidates entering interviews underprepared, lacking both the confidence and situational experience necessary for success.

III. RELATED WORK / LITERATURE REVIEW

This platform provides realistic, voice-based interview simulations to help candidates practice in a pressurefree environment, boosting their confidence. With AIdriven analytics, users receive personalized feedback to improve communication and technical skills. It ensures accessibility by offering high-quality coaching regardless of location or financial background, while adapting to various job profiles with customized question sets for both technical and non-technical roles. accessible manner. Traditional methods—such as reading question banks, watching videos, or practicing with peers—fail to simulate the high-pressure, unpredictable, and interactive nature of actual interviews This gap leads to Underdeveloped communication and problem-solving skills and Low confidence in high-stress scenarios

IV. PROPOSED METHODOLOGY

1. Frontend & Backend Development
Framework: Next.js for unified development (SSR + REST).
Styling: Tailwind CSS for responsive and clean UI design

2. Authentication & Data Handling:
Firebase Authentication: For secure signup/login and user profile management.
Cloud Firestore: To store user interview data, feedback logs, and analytics securely. G. Voice Interaction Engine:
Vapi API: To manage two-way real-

timevoice communication with ~500ms latency target. Speech-to-Text (STT): For accurate conversion of user responses into text. Gemini Integration for Text Generation. The Gemini API is accessed through a secure key.

3. AI Question Generation & Evaluation:

Google Gemini (Generative AI):

Tailors interview questions to job roles.

Analyzes user responses and generates feedback across key evaluation metrics.

4. Feedback Visualization:

Graphical UI Elements: Charts and scores display performance in categories like communication, confidence, problem-solving, etc

5. Testing & Deployment:

Performance Testing: Ensure low latency under varied conditions.

Deployment: Host on a cloud platform (e.g., Vercel or Firebase Hosting) for public access

V. IMPLEMENTATION

The implementation of the AI Mock Interview Platform focuses on building a full-stack web application that provides users with a realistic, voice-based mock interview experience. The platform leverages artificial intelligence and modern web technologies to simulate human-like interview interactions. At its core, the system uses Vapi for real-time voice processing—converting user speech to text and AI-generated text back to speech—enabling a natural conversational flow between the user and the AI interviewer. Google Gemini is integrated to generate context-aware, role-specific interview questions and to analyze user responses. Based on these responses, it produces detailed feedback covering multiple evaluation criteria such as communication skills, technical knowledge, confidence, and problem-solving abilities. User authentication and data management are handled through Firebase, ensuring secure access and personalized profile tracking. Each user can log in, practice interviews tailored to their selected job role, and receive structured feedback that is saved and visualized within their dashboard. The entire system is deployed on a cloud platform (such as Firebase Hosting or Vercel), allowing it to scale efficiently while

maintaining low latency and high performance. The application is designed with accessibility and responsiveness in mind using Next.js and Tailwind CSS, offering a seamless user experience across devices. Overall, the implementation concept merges advanced AI capabilities with a usercentric design to offer an effective, scalable, and modern tool for interview preparation.

VI. RESULT AND ANALYSIS

The AI-powered mock interview platform significantly enhances candidates' preparedness by providing realistic, voice-based interview simulations, boosting confidence and skill development. Users benefit from personalized feedback across communication, technical proficiency, and overall performance, enabling iterative improvement. Leveraging advanced technologies ensures scalability, accessibility, and data security, making high-quality interview coaching widely available. The platform effectively bridges the gap between traditional preparation methods and real-world interview dynamics, empowering candidates for success.

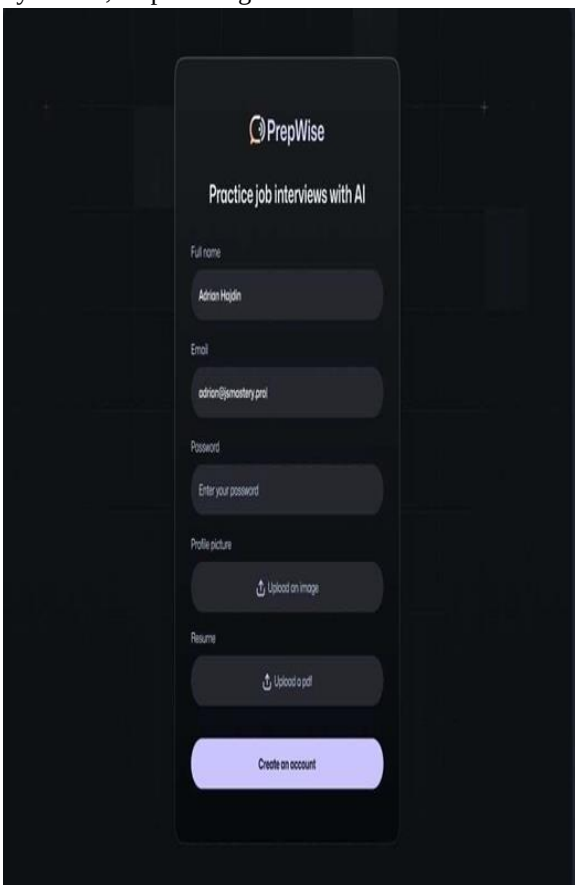

Figure 1. Sign in page

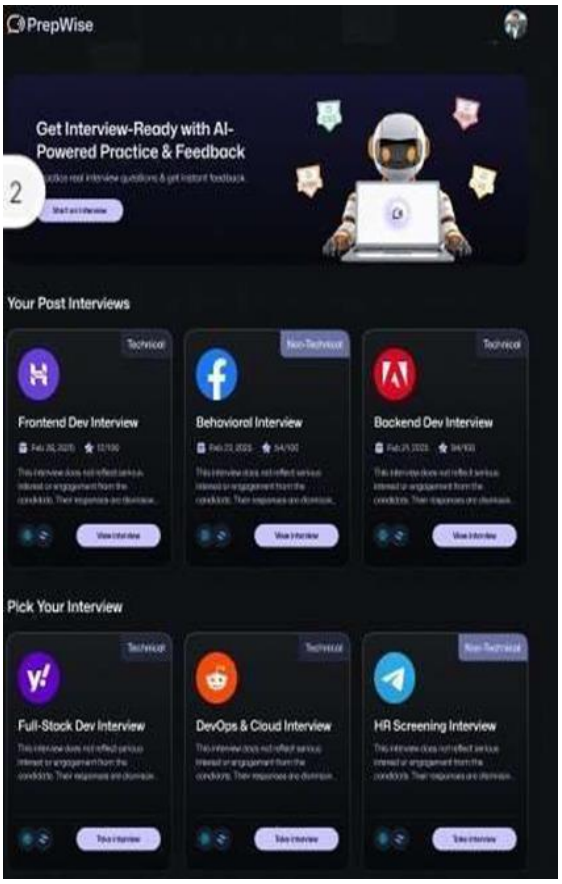

Figure 2. Home page

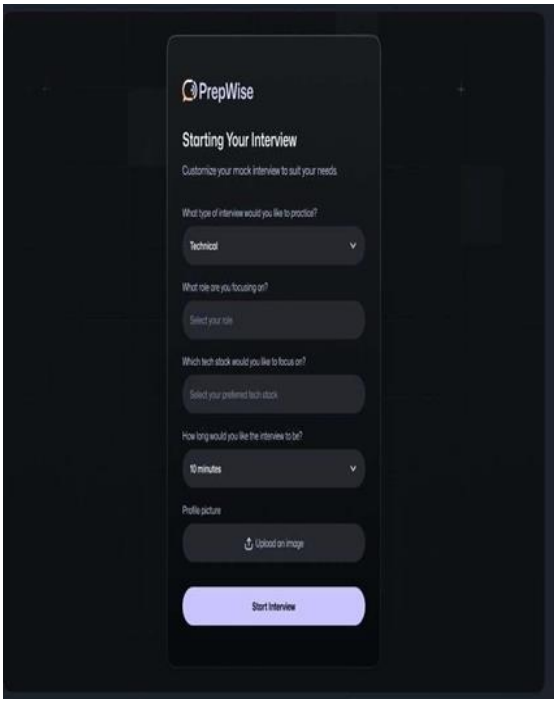

Figure 3. Interview Confirmation page

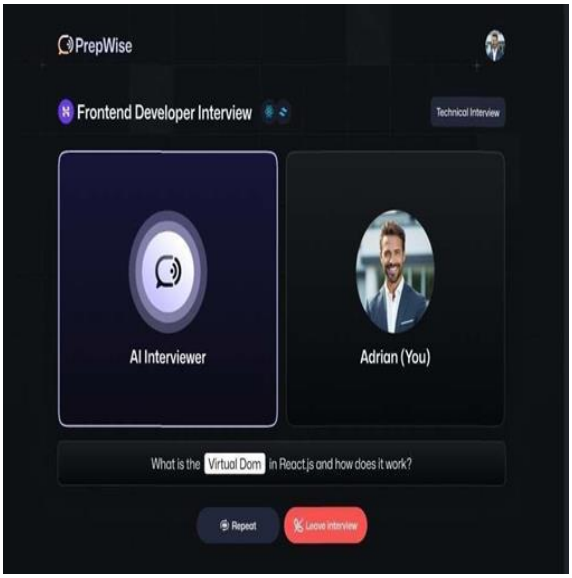

Figure 4. On going Interview page

Figure 5. On going Interview page

VII. CONCLUSION

The AI Mock Interview Platform effectively bridges the gap in job interview preparation by offering realistic, voice-based simulations powered by advanced AI technologies. It enhances candidates' confidence, communication, and problem-solving skills, ensuring they are well-prepared for real-world interviews. The AI Mock Interview Platform revolutionizes job interview preparation by

providing dynamic, voice-based simulations that replicate real world interview conditions. With AI-driven analytics and personalized feedback, it empowers candidates to refine their skills, build confidence, and bridge the gap between traditional study methods and live interview experiences.

VIII. FUTURE WORK

Future enhancements include multi-language support, adaptive difficulty levels, video-based interview simulations, and analytics dashboards for performance tracking. Incorporating mock panel interviews, sentiment analysis, gamification, and advanced speech recognition will further improve accessibility, engagement, and personalization, making the platform a comprehensive career development tool. Future enhancements could also integrate AI-driven roleplaying scenarios, where candidates can practice behavioural and situational questions tailored to specific industries. Expanding collaboration features, such as peer-to-peer mock interviews or mentorship programs, could further enhance learning. By continuously evolving with technological advancements and user feedback, the platform has the potential to become an indispensable tool for career readiness.

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