AI Mock Interview Platform

Nirmala D[1], Vijay Sudhakar S[2], Darshar D[3], Ashim S[4], Kishore S[5]

[1, 2, 3, 4, 5] SNS College of Engineering

Abstract- *Fresh graduates often face significant hurdles in interview preparation, struggling with generic practice materials and a lack of personalized feedback. This gap between academic knowledge and industry expectations can lead to anxiety and missed career opportunities. Traditional preparation methods do not adequately simulate the dynamic nature of real interviews or cater to the unique skills and job aspirations of each candidate, creating a clear need for a more sophisticated and tailored practice tool. To address these challenges, this project introduces a "Gen AI Based Interview Practice Platform," an intelligent web application designed to offer a customized and realistic preparation experience. By analyzing a user's uploaded resume or a specific job description, the system utilizes artificial intelligence and natural language processing to generate relevant multiple-choice questions, as well as technical and HR-style interview questions. The platform's core feature is an AI-driven mock interview simulator that not only poses questions but also evaluates the user's responses in real-time. The primary goal of this AI Interview Assistant is to empower candidates by providing instant, actionable feedback on the accuracy, clarity, and relevance of their answers. By offering a smart, accessible, and comprehensive readiness tool, the project aims to effectively prepare freshers for the modern job market and enhance their overall employability*

I. INTRODUCTION

In today's highly competitive job market, fresh graduates often struggle to transition from academic learning to professional environments. A significant challenge lies in preparing for technical and HR interviews, where generic online resources and a lack of personalized guidance lead to anxiety, under-confidence, and missed opportunities. Traditional preparation methods are often inefficient, failing to simulate real interview scenarios or adapt to an individual's specific skills and career goals. This creates an urgent need for an intelligent, technology-driven solution that can provide tailored and effective interview practice. The proposed "Gen AI Based Interview Practice Platform" aims to address these challenges by providing an integrated solution for interview preparation. By leveraging AI to analyze user resumes and job descriptions, the platform generates personalized questions and conducts mock interviews with real-time feedback. The system aims to reduce interview-related stress , bridge the gap

between academic knowledge and industry expectations , and ultimately enhance the employability of fresh graduates.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

The idea for the AI Mock Interview Platform was conceived after recognizing the common difficulties faced by students and fresh graduates in the job market. While academic knowledge is strong, its practical application in a high-pressure interview setting is a major hurdle. Existing platforms were found to be either too generic or inaccessible, creating a clear need for a tool that could offer personalized, realistic, and constructive practice.

1. Problem Observation

The initial stage involved empathy studies and informal discussions with final-year students to understand their pain points. Key observations included:

High Interview Anxiety: Many freshers expressed a lack of confidence due to insufficient exposure to realistic interview environments.

Generic Preparation: Students felt that most online resources offered generic questions that didn't align with their specific resume or the job role they were targeting.

Gap Between Theory and Application: A recurring theme was the struggle to apply academic knowledge to practical, industry-specific interview questions.

Inefficient Preparation: Sifting through vast, unorganized online resources was described as inefficient and overwhelming.

2. Market Analysis

A market survey was conducted to examine existing interview preparation tools. The analysis revealed several categories of platforms, each with significant limitations:

Generic Quiz Websites: These offer standard question banks but completely lack personalization based on a user's resume or a specific job role.

Static Mock Interview Videos: While useful for observation, these videos provide no opportunity for interactive practice or personalized feedback.

Professional Coaching Services: These can be effective but are often very expensive and not easily accessible to all students.

Basic Chatbots: Some platforms use simple chatbots, but they often lack the contextual understanding needed to conduct a meaningful or adaptive interview.

This analysis confirmed that there was no single, integrated platform that combined resume analysis, personalized question generation, interactive mock interviews, and AI-driven feedback in a seamless user experience.

3. Literature and Academic Review

To build a strong conceptual foundation, a review of academic research was performed. Important takeaways included:

Studies on transformer-based models like BERT and Gemini have demonstrated their effectiveness in understanding context and generating human-like text, making them ideal for creating relevant interview questions.

Research in Natural Language Processing (NLP), especially semantic similarity, has proven effective for evaluating the conceptual correctness of answers, going beyond simple keyword matching.

Studies in other educational fields have shown that AI-driven simulators can significantly reduce performance anxiety and improve user confidence.

4. Technology Exploration

The next phase focused on identifying the most suitable technologies to build the platform. The team finalized the following stack:

Artificial Intelligence: A generative AI model (Gemini) was chosen for dynamic question generation and answer evaluation.

Frontend: React (using JSX) was selected to build a modern, responsive, and interactive user interface.

Backend: AI services were connected to the frontend to process user inputs (resumes, job descriptions, answers) and generate outputs (questions, feedback).

Web Technologies: Standard HTML, CSS, and JavaScript were used for the core web structure and functionality.

5. Idea Refinement

Initial brainstorming led to the refinement of the core idea: to build the platform not just as a question bank, but as a comprehensive interview readiness tool. The emphasis shifted from simple practice to a feedback-driven improvement loop. This redefinition led to the core objectives of the project: developing an AI that could generate customized questions , creating a realistic simulator to build confidence , providing real-time feedback , and offering a dashboard to track progress.

6. Vision and Long-Term Scope

The long-term vision is to make personalized interview preparation accessible to all students. The system is designed to be scalable so it can be used by individual students or integrated into institutional placement training programs. Future plans include integrating video analysis to assess non-verbal cues , creating company-specific training modules , and adding gamification to make practice more engaging.

III. WRITE DOWN YOUR STUDIES AND FINDINGS

The research phase was crucial in shaping the platform's features. The studies and analysis resulted in several key findings that formed the foundation of the system design.

1. **Lack of Personalized Practice:** The most significant finding was that generic practice is ineffective. Candidates need practice material that is directly aligned with the skills on their resume and the requirements of their target job.
2. **Anxiety as a Major Barrier:** Insufficient exposure to realistic interview scenarios is a primary cause of anxiety and under-confidence among freshers. A safe, simulated environment is needed for repeated practice.
3. **The Need for Instant, Actionable Feedback:** A major flaw in traditional methods is the lack of immediate and detailed feedback. To improve, candidates must be made aware of their mistakes and strengths in real-time.
4. **Absence of Progress Tracking:** Candidates have no objective way to measure their improvement over time or identify recurring weak points. This

highlighted the need for a performance analytics dashboard.

5. **Fragmented and Time-Consuming Resources:** The process of finding relevant practice material is time-consuming and inefficient. A unified platform that consolidates everything from question generation to feedback is required.

IV. GET PEER REVIEWED

After developing an initial prototype, the project was subjected to a peer review process involving faculty from the placement training department and a focus group of final-year students. Reviewers were given access to the system and asked to assess its usability, the relevance of the generated questions, and the quality of the feedback.

Feedback Summary

- Reviewers were highly positive about the resume and job description analysis feature, noting that the generated questions were far more relevant than those on generic sites.
- Students appreciated the real-time feedback, stating it was constructive and helped them understand how to improve their answers immediately.
- Faculty reviewers suggested adding a feature to track performance over multiple sessions to monitor student progress effectively.
- A few technical peers recommended including a speech-to-text option to make the interview simulation more realistic.
- It was also suggested to offer different modes of practice—a quick knowledge check and a full-length interview simulation.

V. IMPROVEMENT AS PER REVIEWER COMMENTS

Based on the constructive feedback received during the peer review phase, several key improvements were implemented to enhance the platform's functionality and user experience.

- **Performance Analytics Dashboard:** A comprehensive dashboard was developed to offer real-time statistics on user performance, track progress across sessions, and highlight areas needing improvement.
- **Dual Practice Modes:** The platform was enhanced to include two distinct modes: an MCQ-based quiz for quick knowledge assessment and an in-depth mock interview session for comprehensive practice.
- **Voice and Text Input:** A speech-to-text feature was integrated, allowing users to answer questions via voice for a more realistic practice experience, in addition to traditional text input.
- **Adaptive Learning Integration:** The AI model was refined to support adaptive learning, where the difficulty and topic of subsequent questions can adjust based on the user's performance on previous answers.
- **UI/UX Enhancements:** The user interface was refined for easier navigation, ensuring a smooth workflow from uploading a resume to starting a practice session and viewing results

VI. CONCLUSION

The Gen AI Based Interview Practice Platform provides a powerful and innovative solution for modern interview preparation. By integrating advanced AI for personalized content generation and real-time feedback, the system effectively addresses the key challenges faced by fresh graduates. It serves as a comprehensive tool that not only improves technical and communication skills but also builds the confidence necessary to excel in real-world interviews. With its user-centric design and potential for future enhancements, this platform is poised to become an essential resource for students aiming to launch successful careers. Upcoming improvements may include:

- **Voice and Video Analysis:** Integrating camera and microphone access to analyze tone, confidence, eye contact, and other non-verbal cues.
- **Company-Specific Modules:** Training the AI on interview patterns from specific companies to offer highly targeted practice.
- **Mentor/Institutional Portal:** Allowing college placement cells to track student progress and provide additional feedback.
- **Advanced Dashboard Analytics:** Providing deeper insights, such as tracking improvement on specific skills over time.