International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

HireIQ - AI-Based Mock Interview Platform with Behavioral Analysis

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Abstract - This initiative is concerned with the creation of an AI-based platform for conducting job interviews that utilizes both technical assessment and behaviour analysis. The system enables candidates to respond to questions through video, where their responses and behaviours are analysed using advanced technology. Their verbal responses are processed using speech recognition tools and their content assessed for technical accuracy and communications by natural language processing models. Computer vision is used by the platform to evaluate non-verbal like their facial expressions and postures and derive insights regarding their emotion, confidence, and engagement. Fusing both verbal and non-verbal inputs, the system offers a more complete assessment of candidates, providing impartial, automated feedback. By using AI-based analysis, the process of hiring is streamlined to be more effective and objective.

Key Words: Helps Preparation, Improve Communication, Behaviour Analysis, Feedback

1.INTRODUCTION

The mission of this project is to develop an AI-driven platform that makes the interview process more effective, fair, and faster. As traditional interviews rely on subjective human judgment, which may be biased, and are difficult to measure for both technical abilities and softer qualities such as communications and emotional control, they are occasionally inequitable. The platform circumvents these issues by employing artificial intelligence to examine what a candidate states and how they act while being interviewed. Becoming proficient at interviewing is crucial for career development within today's job marketplace. The "Interview Warmup Mock Interview Evaluator" is innovative software that is intended to restructure interview practice and improvement. This project leverages artificial intelligence (AI) to design a comprehensive and versatile platform for interviewing practice and improvement. It utilizes advanced software such as natural language processing (NLP) to analyse and score the candidate's verbal responses. It also makes sure their responses are of good quality and that they are communicating well. Simultaneously, it employs computer vision to examine non-verbal language, including facial expressions, hand movements, and overall posture. Through this, the platform can determine if a candidate is confident, nervous, or completely attentive. Furthermore, the platform can identify happiness, stress, or nervousness using facial analysis. This gives the recruiter a better insight into the emotional intelligence of the candidate, their ability to deal with stress, and how they conduct themselves within a professional environment. It offers a more holistic assessment by examining technical competencies and how the candidate responds within the interview.

2. Body of Paper

2.1 METHODOLOGY

The AI based mock interview platform project was carried out in several steps to create a useful and easy-to-use AI-based mock interview platform called Hire IQ. The goal was to help users practice interviews and get feedback on how they speak and behave during the interview.
It also analyses your answer and check with artificial tool based on the matching content it rates your interview preparation it also provide you what are things and area we have to focus.

Understanding the Problem:
In the new recruitment environment, conventional interviewing techniques are not effective enough to assess candidates' suitability, especially via online interviews. Though online interviewing processes have streamlined the recruitment process by saving time, money, and geographical challenges, they are missing the element of capturing the more subtle behavioural patterns of the candidates. This shortcoming may result in misunderstandings of a candidate's actual potential and personality attributes and affect the recruitment decisions. The main problem being solved by this initiative is that there isn't enough insight generated about the candidates' nonverbal behaviour such as facial expressions, eyes movement, and postures through online interviewing. Without that insight, employers won't be able to measure the candidates' people skills and emotional intelligence, which are essential to perform well for many job functions. Therefore, there exists a need for an innovative system that uses AI and behaviour analysis to enhance the interview process to give a complete picture about the candidates and how they would perform. The objective of the project is to create an AI-driven interview platform that includes analysis of behaviour to identify and decipher non-verbal signals, and to give a more complete picture of candidates' personality and abilities.

Planning the Platform:
After knowing the problems, we made a plan. We decided the platform should ask common interview questions, check how the user answers, and give feedback on their body language, eye contact, tone of voice, and facial expressions.

2.2 SYSTEM IMPLEMENTATION:

Existing System

HireIQ is a Next.js application that assists users to prepare for job interviews by simulating AI-driven mock interviews based on job roles, descriptions, and levels of experience. Clerk is used for authentication, Gemini AI for question and feedback generation, and Drizzle ORM and PostgreSQL for database operations.

Proposed System:

Several software engineering students face challenges while preparing for job interviews, such as being disorganized, unable to find appropriate materials, or not seeing adequate progress. These challenges may result in poor interview performances, missed career opportunities, and confidence loss. To overcome these issues, a web application is essential to provide software engineering students with an all-encompassing platform for preparing for job interviews.

System Architecture

The system architecture is composed of communicating layers that exchange data using APIs. The Presentation Layer communicates with the Application Layer using RESTful APIs, which query for data from the Data Layer and respond using JSON. The Application Layer also utilizes SQL queries to access or update database details in the Data Layer. The Infrastructure Layer offers services for web app hosting, user authentication, and data storage. The architecture is made to be scalable, secure, and reliable, capable of being used by many users while preserving data privacy and confidentiality. The Python Flask framework and MySQL database are used to make the web app easier to maintain and scalable for the future.

System Description

The Software Engineering Student Interview Warmup Web App is designed to provide an end-to-end platform for interview practice. It supports various functionalities like personalized interview schedules, practice questions, mock interviews, tracking of progress, and feedback provided by industry experts. The software utilizes a multi-tier architecture that consists of presentation, application, data, and infrastructure layers.

MODELING AND ANALYSIS:

Asking Questions:

Candidates are free to ask interview-related questions, industry-related questions, or any other information to support their preparations by questioning the chatbot.

Question Answering:

The chatbot poses interview questions to candidates and allows them to practice crafting their responses. Following the submission of their responses, the chatbot provides feedback that assists candidates in enhancing their answers.

Answer Refusal:

Candidates are presented with questions they may not wish to respond to during the simulated interview. The chatbot honours this right, giving candidates an opportunity to practice professionally declining to answer certain questions.

Acceptance of the Interview:

After completing a simulated interview, candidates have the choice to accept the interview offer. This simulates the real-world experience of agreeing to a job interview, offering a complete learning experience. These scenarios turn the chatbot application into an active mechanism for candidates to practice and develop their interview competency in a realistic and immersive environment.

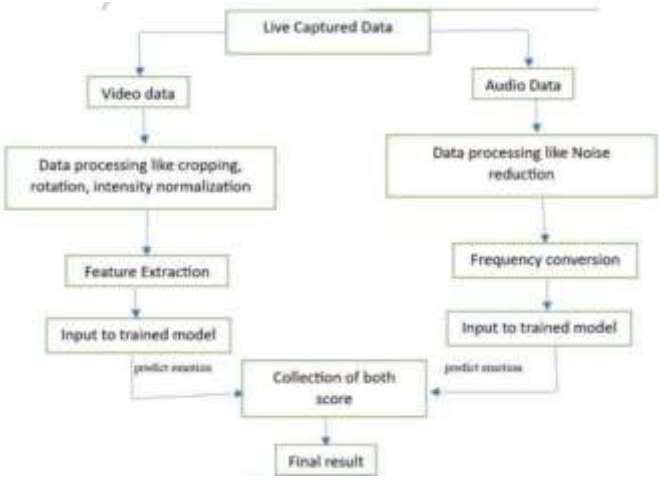
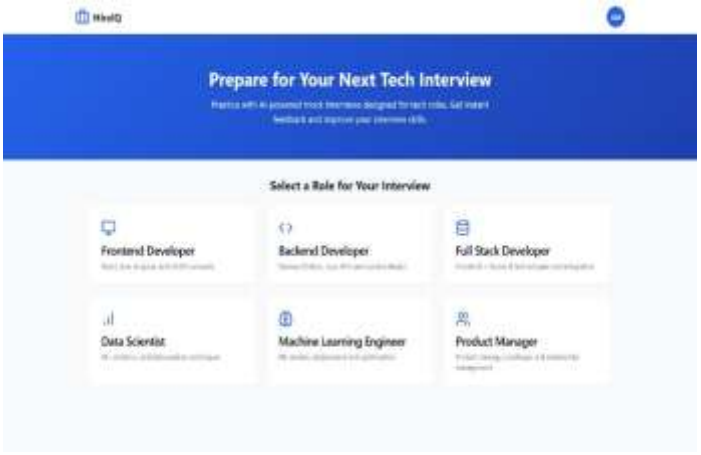


Fig -1: Figure

The architecture diagram illustrates the how HoreIQ Processing all the data and based on this information it will be analyses the behavior and how it will gives the real world feedback.

2.3 RESULTS AND DISCUSSION

HireIQ AI-Based Mock Interview Platform significantly enhances interview preparation by offering immediate, objective insights and highly personalized feedback. It acts as an essential bridge between theoretical preparation and practical execution, ensuring that candidates are well-equipped to handle the challenges of real-world interviews.



1.Fig Dashboard

2 Fig Questions & Analysis

3.Fig Feedback

3. CONCLUSIONS

The AI-Based Mock Interview Platform significantly enhances interview preparation by offering immediate, objective insights and highly personalized feedback. It acts as an essential bridge between theoretical preparation and practical execution, ensuring that candidates are well-equipped to handle the challenges of real-world interviews. The platform complements conventional methods by providing a structured, consistent, and realistic interview environment that mirrors professional standards. It aids candidates in building self-confidence, sharpening articulation, improving critical thinking under pressure, and refining overall communication skills essential for success. We actively encourage user feedback and expert recommendations to foster continuous innovation and enhance the platform's effectiveness in meeting evolving user needs.

ACKNOWLEDGEMENT

The authors would like to acknowledge the Department of Information Technology Engineering, Zeal College of Engineering & Research, Pune, for their valuable guidance, technical support, and encouragement throughout the research and development of this project.

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