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Mock Interview Platform Using AI

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ABSTRACT

In today's competitive job market, the performance ability in interviews is essential for the candidates to seek employment. The traditional way of conducting mock interview can be limited by accessibility and personalization. A robust mock interview platform using artificial intelligence will enable candidates to practice in a realistic setting. The aim of our mock interview platform is to bridge this gap which will provide a scalable solution that will enhance the interview preparedness via tailored experiences along with boosting confidence, improving overall performance and catering to diverse industries and job levels. Technology used in this proposed platform will leverage advanced AI algorithms including natural language processing (NLP) and machine learning (ML); which will simulate real interview scenarios can analyse candidates' responses, offering constructive feedback based on body language, tone and content. By integrating voice recognition and sentiment analysis our platform ensures a compressive evaluation thereby allowing user to refine their interview techniques iteratively. The proposed model comprises an interactive user interface (UI)that will guide the candidates through various interview format such as behavioural and technical questions. User are independent to choice specific industry or roles by receiving a tailored experience which mimics real interviews. The platform Also incorporates inclusively with a feedback loop where the AI generated insides are supplemented with human expertise which will allow user to review their individual performance and refine their skills continuously. This innovative approach will not only boost confidence but will also equip candidates with the tools needed to excel in their job search.

Keywords: NLP , ML , constructive feedback , UI .

INTRODUCTION

In today's dynamic job market, the ability to excel in interviews is a challenge for recent college students as well as graduates as they navigate pathways towards employment. however, there is a significant gap that exists in the availability of structured interview practice throughout candidates' academic tenure. Recognizing the importance of equipping candidates with essential social skills for successful interview, scholars have attempted to develop innovative training classification. These classifications aim to provide learners with realistic opportunities to provide with interview techniques and adapted to various interview scenarios. Job interviews are pivotal in assessing candidates' suitability for roles. Key to this assessment are the social cues exhibited by interviewees, which provide insights into their communication styles and interpersonal skills. Leveraging advancements in artificial intelligence and signal processing, we propose a sophisticated approach to simulate employment interviews.

Our system employs a social virtual character as a recruiter and integrates analysis of user behaviours and emotions. This paper outlines the proposed interview simulation system, detailing its core components, functionalities, and feedback mechanisms.

By utilizing facial expression analysis, speech recognition, and graphical performance metrics, the system offers candidates actionable insights into their interview skills, promoting continuous improvement. The classification includes real-time analysis of user responses, providing immediate feedback on aspects such as voice modulation, clarity, and body language. This holistic evaluation helps candidates refine not only the content of their answers but also their delivery, boosting confidence and effectiveness. The proposed interview simulation system is designed with several key components and functionalities. It utilizes facial expression analysis, speech recognition, and graphical representation of performance metrics to provide candidates with actionable insights into their interview skills. By harnessing these advanced technologies, the system offers a comprehensive evaluation of a candidate's responses, focusing not only on the content but also on the delivery. This holistic approach helps candidates improve their voice modulation, clarity of speech, and body language, ultimately boosting their confidence

and effectiveness in real interviews. One of the standout features of this system is its ability to provide real-time feedback. As candidates engage with the virtual recruiter, the system continuously analyses their responses and offers immediate feedback on various aspects such as content accuracy, delivery style, and non-verbal cues. This instant feedback loop allows candidates to make adjustments on the fly, refining their skills with each interaction. Furthermore, the system offers actionable suggestions for improvement, such as recommending better phrasing or providing tips on managing nervousness, ensuring that candidates are well-prepared for any interview scenario. Our empirical evaluation and feedback mechanisms are designed to enhance the efficiency of the proposed classification. By continuously analysing user performance and providing personalized recommendations, the system ensures that candidates are well-prepared for actual interviews. This approach contributes significantly to the field of interview assessment methodologies and advances the discourse on the intersection of AI and skill development.

1. OBJECTIVE OF PROJECT

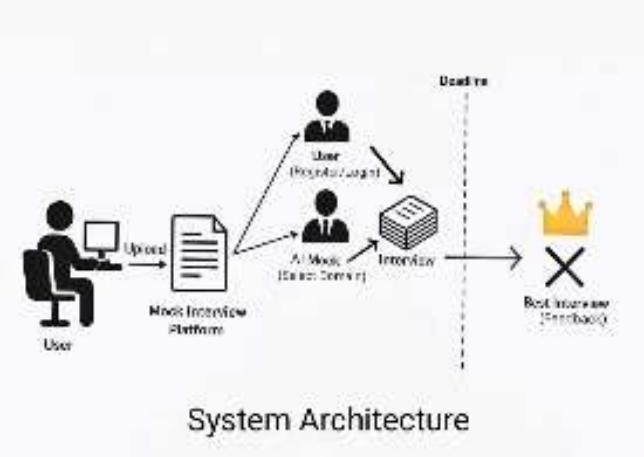
- The primary objective of mock interview platform using AI project is:
-To help them improve their interview skills, boost their confidence, and increase their chances of securing their desired job.
-The main objective to develop a AI model capable of analyzing candidates' emotions and confidence levels during mock interviews and providing constructive feedback based on the assessment. Implementing an AI model trained on machine learning algorithms such as natural language processing to analyze facial expressions, vocal cues, and language patterns indicative of emotions and confidence levels.

2. FEASIBILITY AND VARIABILITY

The AI powered mock interview platform is feasible due to advancements in machine learning, NLP, and speech recognition, enabling realistic simulations and scalable access at manageable costs.
Additionally, the platform can be developed with user-friendly interfaces, making it accessible to wide audience.

The platform can adapt to different job roles, industries, and interview styles, adjusting questions difficulty and interviewer personality to meet diverse user needs. This flexibility ensures that users can practice for a range of interview scenarios, from technical to behavioral interviews.

3.SYSTEM ARCHITECTURE



System Architecture

FUNCTIONAL REQUIREMENTS

The mock interview platform leveraging AI is designed to simulate real-world interviews and provide constructive feedback to users preparing for job roles. Functionally, the platform must support user registration and authentication, allowing candidates to create and manage their profiles, upload resumes, and select preferences such as interview type (behavioral, technical, HR) and difficulty level. A core component is the AI interviewer, which should be capable of dynamically generating questions based on the user's chosen role and domain, conducting the interview via text, voice, or video, and analyzing user responses using natural language processing and machine learning algorithms. The platform should provide immediate feedback after each session, including performance scores, personalized insights, and suggestions for improvement. Additionally, it should offer learning resources and practice modules based on the candidate's performance. An admin panel must allow administrators to manage users, monitor system performance, and curate content or question database

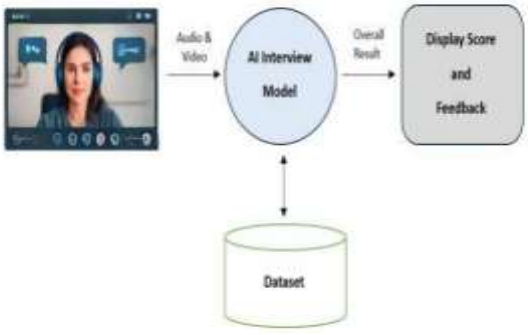
LITERATURE SURVEY

[1] This research paper is published by IJRASET (2024).Author are Pankaj Shinde, Mahendra gosavi
Paper title : AI driven Mock interview platform. The proposed of this paper is to AI-based mock interview platform designed to enhance interview preparedness by assessing by using three key dimensions: emotions, confidence, and knowledge. Technique used Natural language processing (NLP) and machine learning (ML).Limitations are accuracy of this paper is of 92%.

[2] This paper I published by Journal of Scholarship of Teaching and learning, vol 5(2023).Author are Rayma Harchar.Paper title is Mock Interview Strategy: An action research study of administrator and teacher candidates' preparation for interview field experience. The proposed is to Mock interview strategy proposed to help administrator and teacher candidates' become proficient in the interview process. Techniques used Action Research Mode Presentation of data Observation of mock Interviews scaled survey. Limitations are Time limit could be extended to 45mins, additional set of questions and skills would be needed.

[3] This paper is published by IRJET vol 11(2023)author are Shashank Rai.Proposed of this paper is to Comprehensive mock interview platform aimed at empowering candidates in their preparation journey. Techniques used Advanced ML models including LSTM CNN for audio video, ATS for resume building and LLM and GEMINI APIs. Limitations of this paper are Additional personalized suggestions for skill improvement

FLOW OF PROPOSED SYSTEM



[2]Fig.workflow

User Interaction (Audio Input):The user initiates a mock interview session via a web or mobile interface. The system captures both audio and video inputs from the candidate during the interview process.

 AI Interview Model: The captured input is fed into an AI Interview Model. This model leverages a combination of Natural Language Processing (NLP), speech recognition to interpret the responses. It processes spoken words (via ASR), identifies key phrases, assesses tone, emotion, and body language (if applicable), and evaluates the structure User and relevance of responses.

 Dataset (Training/Reference Data):The AI model is trained using a dataset that includes labelled interview responses, scoring rubrics, and ideal answers. During real-time evaluation, the model references this dataset to compare responses and generate appropriate scores.

 Result Generation: The model computes an overall result, which may include: Scores for different evaluation metrics (e.g., communication, confidence, technical correctness).Highlighted keywords, sentiment, or grammar use. Detected strengths and weaknesses.

 Display Score and Feedback: Finally, the system displays the score and feedback to the candidate. This feedback may be visualized as detailed analytics, charts, and tailored improvement suggestions or learning materials.

ALGORITHM USED

1.Speech Recognition Algorithms

Speech recognition is the first step in AI-powered mock interview platforms when a candidate responds verbally. These platforms use automatic speech recognition (ASR) models such as OpenAI's Whisper, Google Speech-to-Text, or Mozilla Deep Speech. These algorithms are designed to convert spoken language into accurate text transcripts. They use deep learning models, particularly recurrent neural networks (RNNs) or transformers, to process audio signals and recognize words, even in varied accents or noisy environments. This transcription enables further natural language analysis of the candidate's spoken response

2. Sentiment Analysis

Sentiment analysis algorithms evaluate the emotional tone and confidence level expressed in the candidate's response. These algorithms classify the response into positive, neutral, or negative sentiment, offering insights into how confidently or hesitantly the candidate answers. This is particularly useful for behavioural interview questions, where tone and attitude matter. Sentiment models are often built using supervised learning techniques on labelled datasets, and modern platforms commonly use transformer-based models fine-tuned for sentiment classification.

3.Voice Analysis Algorithms

Voice analysis algorithms evaluate vocal features such as pitch, tone, speed, and pauses to determine the speaker's confidence and clarity. These models use signal processing

techniques combined with machine learning to extract features from the audio waveform. They help detect issues like frequent hesitations, monotone delivery, or rushed speech, which can negatively impact an interview performance

RESULT AND DISCUSSION

Expected Result

Speech analysis: The system will have evaluated verbal clarity confidence and tone using NLP (natural language processing) confident speech will be characterized by tone and minimal hesitation meanwhile nervousness will be detected through speech pattern like stammering.

Performance insights: real-time analysis will provide feedback on emotional state knowledge accuracy and confidence, highlighting co-relations between these factors

Feedback: Displays the problem solving capability of the candidate, analyzing the given scenario and simultaneously rating the response based on critical thinking

CONCLUSION

The AI-based mock interview system is a significant step forward in the automation of candidate evaluations. By leveraging machine learning and AI technologies such as LSTM for speech recognition, the system provides a robust platform for objective and comprehensive assessment. The findings from the project suggest that AI systems can offer a more accurate and reliable way to assess candidates' emotional and intellectual capabilities compared to traditional methods, which are prone to bias and subjectivity. Additionally, the system's ability to process an audio data in real-time makes it a versatile tool for modern recruitment, especially in remote or large-scale hiring scenarios. As AI technology continues to advance, integrating such systems into recruitment processes will likely become a standard practice, enhancing both the fairness and efficiency of hiring across industries

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