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AI-Powered Mock Interview System

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Abstract
The Mock Interview System is an innovative AI-based platform designed to address the challenges faced by candidates in preparing for interviews and enhancing their performance in the highly competitive job market In many cases, interview preparation is hindered by the absence of practical, Role-based interview practice and feedback, further contributing to increased anxiety and poor performance.This project presents a solution that not only It replicates realistic interview scenarios and offers feedback that enables candidates to recognize their flaws and improve their presentation skills. candidates to gain technical and behavioral skills.The main objective of the system is to develop and implement practice interviews that are customizable according to the candidates' abilities, knowledge, and preparation needs. dynamically to different roles such as Data Scientist, Machine Learning Engineer and more.The system uses Google Gemini Pro API to develop context-specific and challenging interview questions specific to varying roles and skill levels. It also employs Natural Language Processing (NLP) algorithms to evaluate responses and offer insightful feedback to enhance candidates' interview skills.secure user authentication system that utilizes email verification and OTP-based two-factor authentication (2FA) to protect user information and ensure privacy. The system stores and evaluates previous interview data, which helps users track their progress and determine areas that need improvement. By automating the interview simulation process and providing timely, AI-based feedback, the Mock Interview System aims to bridge the gap between theoretical knowledge and practical application. The system is scalable, user-friendly, and cost-effective in reducing the time and expenses associated with traditional interview coaching. In conclusion, the proposed system seeks to enhance interview readiness, boost candidates' confidence and facilitate a more effective and efficient recruitment process for employers and job seekers.

Keywords: AI-Powered Mock Interview, Artificial Intelligence, Interview Preparation, Machine Learning, Natural Language Processing (NLP), Speech Recognition, Automated Interview Assessment, Real-Time Feedback, Resume Analysis, Skill Evaluation, Performance Analytics, Personalized Learning, Virtual Interview System, Career Development, and Adaptive Learning.

1. INTRODUCTION
The dynamics of job interviews have changed dramatically with a growing need and focus on technicalas well as soft skills. Many job seekers find themselves struggling to achieve the high standards set by employers. recruiters, as traditional interview training programs do not recreate the actual interview setting. Recognizing this challenge, our project offers an automated system that mimics realistic interview scenarios and provides detailed, actionable feedback to candidates.

1.1 Problem Statement
In the current job market, many job seekers face serious challenges while going through technical and behavioral interviews. The lack of practice and feedback on specific roles and positions leads to poor results. The traditional method of mock interviews and question banks prove to be both time-consuming and inefficient, and the demand for a more personalized and interactive platform is growing. The need for an automated system that can generate appropriate questions and evaluate responses arises. The problem statement describes the current inefficiencies and issues of traditional interview training methods and emphasizes the need for a new solution. An algorithm that can generate interview questions based on the position and provide feedback would be much more effective than the current methods.

1.2 Objectives
1. Interview Questions Generation: Based on a candidate's job description, technical skills, and area of expertise, our solution will generate relevant questions for the interview.
2. Personalized Interview Practice: Our solution will offer personalized interview preparation and practice, which fits every candidate's level of expertise, aspirations, and unique requirements.
3. Artificial Intelligence and Natural Language Processing: Our solution will leverage the power of artificial intelligence and natural language processing to evaluate candidates' responses and measure the relevance and quality of their answers.
4. Interview Feedback: Provide each candidate with relevant, informative, and valuable feedback to identify their strong and weak points, offer solutions, and enable continuous improvement.
5. Build Confidence and Improve Performance: Our solution will help the candidates become confident and comfortable with the virtual interview process, enabling them to articulate their thoughts and ideas clearly.

Keep Track of Candidate's Progress: Maintain and update the interview records and statistics to help candidates follow their progress, measure improvements, and detect areas of shortcomings.

1.3 Motivation

Our motivation for developing the Mock Interview The system was developed to bridge the gap between... theoretical knowledge and the application of knowledge. Many job seekers are well-versed in their respective fields but often find it challenging to convey their knowledge clearly and effectively. during an interview. This system is designed to boost candidate confidence by allowing them to practice, make mistakes, and learn from detailed feedback. Additionally, the scalable nature of the platform expands accessibility, making high-quality interview preparation more widely available to candidates. Interview preparation available to a wide audience without incurring high costs.

2. LITERATURE REVIEW

The literature review covers the research, technologies, and applications relevant to the development of the project. The topics include automatically generated questions, natural language processing, analysis of speech, response evaluation, and feedback. The findings support the idea that an AI-driven mock interview platform can be beneficial for preparing candidates for technical interviews.The conventional wisdom is that job interview preparation typically involves learning answers to frequently asked questions (FAQ), reading books, using training resources provided by training centers, or practicing with human recruiters. However, such approaches are limited because they cannot provide sufficient personalization or flexibility in practicing.

1. review of existing system:

1.1 Ai based mock interview system:

Research on AI-driven mock interview platforms focuses on how to implement intelligent systems that can mimic an interview environment and grade responses. The IEEE paper AI Based Mock Interview System Using Natural Language Processing (2025) illustrates how the data of spoken responses can be processed with NLP, speech processing, deep learning, and computer vision to create an effective practice tool. Paper emphasizes the possibility of using automated questioning and feedback mechanisms to prepare candidates for an interview. However, the research highlights the importance of addressing the challenges of reliable scoring and feedback to ensure that the tool is not only useful but fair.

1.2 Large language model and adaptive question generation:

Large language models (LLMs) introduce new opportunities for interactive practice for job interviews. Rather than using a fixed set of questions as traditional systems often do, systems that use LLMs may create questions based on the selected job role, topic area, level of experience, or even the answers provided. Google's Gemini API supports the generation of content and the development of multi-turn dialogue systems, which could be utilized to build an interactive mock interview system. This system could ask role-specific questions, seek clarifications, and provide explanations depending on the answers given. However, the relevance of information, accuracy of the facts provided, and the degree of consistency must be reviewed and verified.

1.3 Personalized feedback and performance analysis:

Personalized feedback is one of the critical points in the education process, and it is vital in the AI-assisted learning systems. The interview preparation software can analyze the mistakes in the answers and suggest which parts of knowledge should be improved: technical details, answers' structure, communicative skills, or the relevance of examples. The article, summarizing the recent studies, lists possible benefits and challenges of utilizing multimodal AI for job interview training, emphasizing the importance of additional considerations such as fairness, limitations of datasets, and sustainable progress. The studies show that providing feedback and measuring the performance during the mock interviews can help trainees achieve success and improve multiple skills, including communication.Keeping track of past performance and comparing the results from interview to interview can be helpful in understanding the progress. Therefore, such an option should be included in the software under consideration.

1.4 Research Gap: Personalized feedback to the candidates is one of the most significant advantages of using AI in the interview process. It allows using response evaluation to determine the areas for improvement for the candidate, such as technical skills, answer structure, communication abilities, or relevance of examples.

Lack of personalization: limited question banks may fail to recognize the candidate's level of experience or provide adequate feedback on their answers.

Insufficient feedback: Some platforms offer limited insight into the candidate's performance, only providing a score or a grade without a detailed breakdown.

No unified view of candidate performance: The candidate is unlikely to get a consolidated view of their performance across interviews, making it harder to track progress and identify patterns.

Potential reliability issues: Automated evaluation systems may have limitations in questioning logic leading to reduced accuracy, especially with complex or ambiguous questions.

Variations in performance: Differences in language fluency and speaking patterns may lead to disparities in assessment results.

3. Proposed System:

The proposed system will provide an interview preparation experience that is both easy to use and state-of-the-art, employing modern technologies to simulate a realistic

interview environment and deliver personalized, AI-driven feedback.

3.1 Key feature:

1.User Authentication :

The platform was provided with enhanced security measures. Email Verification guarantees that each account is legitimate, whereas plagiarism detection tools help avoid instances of stealing other's content. Additionally, OTP (one-time-password) 2FA (two-factor authentication) is implemented to provide elevated security levels. Both measures work in tandem to ensure that each user's personal data is safe and that only the account owner has access to it.

2 .Ai powered feedback mechanism:

The system is able to review potential responses as they are generated via advanced natural language processing algorithms, thereby enabling creation of comprehensive feedback addressing both technical and communicative competencies. The feedback is extensive and provides actionable recommendations for improvement. guiding the candidate towards enhanced performance in future interviews.

3.2 Integration of Google Gemini Pro API:

One of the essential elements of the proposed system is the integration of the Google Gemini Pro API. We chose This API stands out for its advanced language-processing capabilities. capabilities, which enable it to come up with context-specific, role-specific interview questions that are able to accurately assess candidate responses. The API has
deep learning models that understand the understanding the complexities of human language, which is crucial for interpreting. creating realistic interview scenarios. Gemini Pro not It generates varied questions to assess candidates' abilities and examine their responses in depth, considering relevant factors.take into account the technical correctness, reasoning, and communication style of the candidate. Its scalability, Its dependable performance, straightforward integration, and flexibility make it a core element of our AI-based framework.

4. .Discussion:

The complete analysis explains how this system can be highly effective in completely changing interview preparations. This is because it automates interview question creation and provides detailed feedback that helps improve the overall performance of interviewees in a much more efficient manner. The integration of the Google Gemini Pro API has brought about significant improvements to this system, mainly because of its ability to carry out complex NLP tasks. This has enabled the system to offer very detailed feedback based on the roles that were specified and something that conventional approaches would find hard to deliver. Lastly, the feedback that users have given also plays a critical role in enhancing this system, and there are plans to adopt additional enhancements to make it more efficient.

5. CONCLUSION AND FUTURE WORK

1.Conclusion: The Mock Interview System represents a significant step forward in interview preparation. forward in interview preparation technology by leveraging state-of-the-art AI capabilities and cutting-edge web development frameworks to provide a comprehensive and personalized approach to interview practice. It effectively replicates real-world interview scenarios by generating dynamic, role-specific questions while providing extensive feedback on technical competencies and overall performance. behavioral aspects. The robust security measures and The system's flexible architecture supports a large number of users while maintaining the confidentiality and security of their personal information. Overall, this project demonstrates the transformative potential of AI in education and professional Development.

2.Future work: There are several potential improvements to explore in the future. First, it might be a good idea to update the program to include an analysis of video interviews. This would enable the software to interpret body language and non-verbal communication. Secondly, it would be a good idea to increase the pool of industry-specific questions for different professions. Thirdly, the option to include various gamification techniques such as badges and leaderboards would be beneficial for many users. Lastly, the software's artificial intelligence needs to be constantly updated and improved. 70 | Journal of Contemporary Research in Science and Technology.

6. References:

[1] Kumar, K. K., Kumar, S. G. B., Rao, S. G. R., & Sydulu, S. S. J. (2017, November). Safe and high secured ranked keyword search over an outsourced cloud data. In 2017 International Conference on Inventive Computing and Informatics (ICICI) (pp. 20-25). IEEE.

[2] Kommineni, K. K., Pilli, R. B., Tejaswi, K., & Siva, P. V. (2023). Attention-based Bayesian inferential imagery captioning maker. Materials Today: Proceedings.

[3] Kommineni, K.K., Prasad, A. Enhancing Data Security and Privacy in SDN-Enabled MANETs Through Improved Data Aggregation Protection and Secrecy. Wireless Pers Commun (2024).

[4] Kommineni, K. K. ., & Prasad, A. . (2023). A Review on Privacy and Security Improvement Mechanisms in MANETs. International Journal of Intelligent Systems and Applications in Engineering, 12(2), 90–99. Retrieved from

[5] Sreechandra Swarna and Venkata Ratnam Kolluru (2024), Active Channel Selection by Sensors using Artificial Neural Networks. IJEER 12(4), 1466-1473. DOI: 10.37391/ijeer.120441.

[6] Kumar, M. S., Vellela, S. S., Rao, G. R., Srinivas, B. R., Javvadi, S., SyamsundaraRao, T., & Kumar, K. K. (2024, September). An Interactive Healthcare Recommendation System Using Big Data Analytics. In 2024 3rd International Conference for Advancement in Technology (ICONAT) (pp. 1-6). IEEE.

[7] Addepalli, T., Babu, K. J., Beno, A., Potti, B. M. K., Sundari, D. T., & Devana, V. K. R. (2022). Characteristic mode analysis of two port semi-circular arc-shaped multiple-input-multiple-output antenna with high isolation for 5G sub-6 GHz

and wireless local area network applications. International Journal of Communication Systems, 35(14), e5257.

[8] Srija, V., & Krishna, P. B. M. (2015). Implementation of agricultural automation system using web & gsm technologies. International Journal of Research in Engineering and Technology, 4(09), 385-389.

[9] Potti, B., Subramanyam, M. V., & Prasad, K. S. (2013). A packet priority approach to mitigate starvation in wireless mesh network with multimedia traffic. International Journal of Computer Applications, 62(14).

[10] Potti, B., Subramanyam, M. V., & Satya Prasad, K. (2016). Adopting Multi-radio Channel Approach in TCP Congestion Control Mechanisms to Mitigate Starvation in Wireless Mesh Networks. In Information Science and Applications (ICISA) 2016 (pp. 85-95). Springer Singapore.

[11] Vellela, S. S., & Balamani Gandan, R. (2024). Optimized clustering routing framework to maintain the optimal energy status in the wsn mobile cloud environment. Multimedia Tools and Applications, 83(3), 7919-7938.

[12] Vellela, S. S., & Balamani Gandan, R. (2022, December). Design of Hybrid Authentication Protocol for High Secure Applications in Cloud Environments. In 2022 International Conference on Automation, Computing and Renewable Systems (ICACRS) (pp. 408-414). IEEE.

[13] Vellela, S. S., & Balamani Gandan, R. (2023). An intelligent sleep-awake energy management system for wireless sensor network. Peer-to-Peer Networking and Applications, 16(6), 2714-2731.

[14] Vellela, S. S., Balamani Gandan, R., & Praveen, S. P. (2022). Strategic Survey on Security and Privacy Methods of Cloud Computing Environment. Journal of Next Generation Technology, 2(1).

[15] Vellela, S. S., & Balamani Gandan, R. (2024). An efficient attack detection and prevention approach for secure WSN mobile cloud environment. Soft Computing, 28(19), 11279-11293.

[16] Polasi, P. K., Vellela, S. S., Narayana, J. L., Simon, J., Kapileswar, N., Prabu, R. T., & Rashed, A. N. Z. (2024). Data rates transmission, operation performance speed and figure of merit signature for various quadurature light sources under spectral and thermal effects. Journal of Optics, 1-11.