

HIRESYN: Smart AI Powered Interview and Feedback System

Mrs. S. Reddy Mubaraq¹, C Venkat², C Hari Prasad³, K Venkateswara⁴

Department of Computer Science and Engineering
Aditya college of Engineering, Madanapalle
Corresponding author Email: redmubaraq.s@acem.ac.in

Abstract: HireSyn: Smart AI-Powered Interview & Feedback System is an advanced and scalable recruitment platform built using Java Spring Boot, ReactJS, and MySQL. Designed to streamline the hiring process, it caters to three core user roles: Admin, Candidate, and Interviewer. The Admin module allows administrators to manage job postings, assign interviewers, track interview progress, and analyze AI and manual feedback. Candidates can register, apply for jobs, attempt MCQ tests, and receive both automated and human feedback. Interviewers can manage assigned interviews, submit feedback, and monitor candidate progress. The platform leverages AI to auto-generate MCQs, evaluate responses, and provide meaningful feedback, ensuring objective and data-driven hiring. With a modular backend and responsive frontend, HireSyn ensures efficient interview scheduling, evaluation, and tracking—making the recruitment process intelligent, automated, and transparent.

INTRODUCTION

In recent years, the rapid growth of technology and digital transformation has significantly increased the demand for efficient and intelligent recruitment systems. Organizations receive a large number of applications for job roles, making it difficult to evaluate candidates manually. Traditional interview processes are time-consuming, inconsistent, and often influenced by human bias, which affects the quality of hiring decisions. Therefore, there is a need for an automated system that can improve the efficiency and accuracy of candidate evaluation.

Conventional recruitment systems rely heavily on human interviewers to assess candidates based on their skills, communication, and performance. This manual process may lead to inconsistencies, lack of transparency, and difficulty in maintaining proper evaluation records. Additionally, scheduling interviews and managing candidate data becomes complex, especially when handling large-scale recruitment processes. These limitations highlight the need for a more structured and automated approach.

Artificial Intelligence (AI) has emerged as a powerful solution to overcome these challenges by enabling automation and intelligent decision-making. AI-based interview systems can analyze candidate responses using natural language processing and machine learning techniques. These systems evaluate various parameters such as technical knowledge, communication skills, and confidence levels, ensuring a fair and unbiased assessment of candidates.

Another important feature of AI-based systems is automation, which reduces the dependency on manual processes. Automated interview platforms can conduct interviews, evaluate responses, and generate feedback without human intervention. This not only improves efficiency but also ensures consistency in evaluation across all candidates. Furthermore, these systems can handle multiple candidates simultaneously, making them suitable for large-scale applications. The integration of AI with data

analytics further enhances the recruitment process by providing detailed insights into candidate performance. It enables recruiters to make data-driven decisions based on accurate and reliable information. The system can generate performance reports, identify strengths and weaknesses, and provide suggestions for improvement, benefiting both recruiters and candidates.

This work focuses on the design and implementation of HIRESYN – Smart AI Powered Interview and Feedback System, which aims to automate the interview process and improve hiring efficiency. By combining AI techniques with modern technologies, the proposed system provides a scalable, reliable, and intelligent solution for conducting interviews and generating feedback. It enhances transparency, reduces bias, and supports better decision-making in modern recruitment systems.

RELATED WORK

AI-Based Interview Systems

Many researchers have proposed AI-based interview systems that use natural language processing and machine learning to evaluate candidate responses. These systems help in automating the interview process and improving evaluation accuracy. However, some systems lack real-time adaptability and fail to provide detailed feedback.

Automated Recruitment Platforms

Automated recruitment platforms are designed to streamline hiring processes such as resume screening and interview scheduling. These systems reduce manual effort and improve efficiency. However, they often do not provide in-depth analysis of candidate performance.

Machine Learning-Based Candidate Evaluation

Machine learning techniques are used to predict candidate performance based on historical data and predefined parameters. These systems enhance decision-making but require large datasets for training. In some cases, the accuracy of predictions may vary.

Video-Based Interview Analysis

Some systems analyze video interviews by evaluating facial expressions, voice tone, and body language. This helps in understanding candidate behavior and confidence levels. However, such systems may raise privacy concerns

and require high computational resources.

Smart Feedback Systems

Smart feedback systems generate automated performance reports based on candidate responses. These systems help candidates understand their strengths and weaknesses. However, many existing solutions lack personalization and detailed insight.

Performance Analytics Tools

Performance analytics tools provide insights into candidate evaluation using data visualization and reporting techniques. These tools assist recruiters in making informed decisions. However, they may not fully automate the interview process.

LIMITATIONS OF EXISTING SYSTEMS

Despite advancements, existing systems face several challenges such as:

- Lack of real-time analysis
- Limited personalized feedback
- High dependency on manual processes

LITERATURE REVIEW

AI-Based Interview Management Systems:

Automation, Scheduling, and Feedback - Patel, R., & Sharma, M. (2021)

This study focuses on the increasing adoption of Artificial Intelligence in interview management systems. The authors explain how AI can automate various stages of the recruitment process such as interview scheduling, candidate tracking, and feedback collection. Traditional interview processes often involve manual scheduling and communication, which can lead to delays and human errors. By implementing AI-driven automation, organizations can streamline the entire recruitment workflow. The system discussed in the study uses modular components that allow multiple interviewers to submit feedback in real time, enabling recruiters to quickly analyze candidate performance. The research highlights that automation improves efficiency, reduces administrative workload, and ensures that interview records are systematically stored and easily accessible for future reference. Another important aspect emphasized in the paper is the ability of AI systems to track interview progress. Recruiters and hiring managers can monitor the status of each candidate, including scheduled interviews, completed interviews, and pending evaluations. This visibility improves coordination among HR teams and interview panels. However, the study also identifies certain challenges. One of the main disadvantages is the inconsistency in feedback provided by different interviewers. Since interviewers may have different evaluation styles and criteria, the feedback collected may vary significantly, which can lead to subjectivity and difficulty in comparing candidate performance fairly.

Integrating Role-Based Access Control in Recruitment Applications - Kumar, A., & Rajan, S.

(2020)

This research highlights the significance of implementing Role-Based Access Control (RBAC) in recruitment management systems. Recruitment platforms often involve multiple types of users, such as administrators, interviewers, and candidates.

Each user group requires different permissions and access levels within the system. The authors propose a role-based architecture that ensures secure data management and clear separation of responsibilities. For example, administrators are responsible for managing job postings and overseeing the recruitment workflow, interviewers conduct interviews and submit feedback, while candidates can only view job openings and apply for positions.

The study explains that RBAC improves system security by restricting access to sensitive data such as interview evaluations, candidate information, and hiring decisions. By clearly defining user roles and permissions, organizations can prevent unauthorized access and reduce the risk of data breaches. Additionally, the research indicates that RBAC helps maintain workflow clarity by ensuring that each participant in the recruitment process performs only their assigned tasks. However, the study also notes a limitation. When employees change roles or responsibilities within an organization, updating permissions dynamically can become complex. Managing these changes requires careful system design to ensure that permissions remain accurate and secure.

Designing Scalable Recruitment Portals Using Spring Boot and MySQL - Narayan, L., & D'Souza, F. (2022)

This paper discusses the architectural design of scalable recruitment platforms using modern backend technologies such as Java Spring Boot and MySQL databases. The authors emphasize the importance of building recruitment systems with a layered architecture, where the application is divided into multiple layers such as presentation, service, and data access layers. This structure improves maintainability, scalability, and system performance. By using the Spring Boot framework, developers can build modular services that handle different aspects of the recruitment process, including candidate registration, job management, and interview scheduling.

The research also explains the importance of database design in recruitment applications. Proper database normalization helps organize candidate information, interview data, and job listings efficiently, preventing redundancy and improving data consistency. MySQL is recommended due to its reliability, scalability, and ability to handle large datasets. The paper concludes that a well-designed backend architecture allows recruitment systems to support growing numbers of users and job applications without performance issues. However, the authors mention a challenge related to frontend integration. If backend APIs are not properly documented or designed with flexibility in mind, it may become difficult to integrate the system with modern user interfaces or implement future UI upgrades.

AI in Resume Screening and Candidate Shortlisting-Mehta, K., & Varma, S. (2019) This research explores the application of Artificial Intelligence and machine learning techniques in resume screening and candidate shortlisting. In traditional recruitment processes, recruiters must manually review hundreds or even thousands of resumes, which is time-consuming and inefficient. The authors propose an AI-based system that analyzes resumes automatically and compares candidate qualifications with job requirements. Using natural language processing (NLP) and machine learning algorithms, the system identifies relevant skills, experience, and educational background to determine the suitability of candidates for specific job roles.

The study shows that AI-driven resume screening feedback through structured evaluation systems. In many organizations, interview feedback is often informal and unstructured, making it difficult to compare candidates objectively. The authors propose the use of standardized digital feedback forms that include rating scales, predefined evaluation criteria, and written comments. These forms allow interviewers to assess candidates based on multiple factors such as technical skills, communication abilities, problem-solving capacity, and cultural fit.

The research indicates that structured feedback systems improve decision-making in recruitment by providing quantifiable metrics that can be analyzed and compared across candidates. Recruiters and hiring managers can easily review scores and feedback from multiple interviewers to identify the most suitable candidates. Additionally, digital feedback forms enable centralized storage of interview evaluations, making them accessible for future reference and auditing purposes. However, the study notes that structured feedback systems may sometimes limit interviewer flexibility. Some interviewers may feel restricted by predefined evaluation criteria and may not be able to express nuanced observations about a candidate's performance.

Improving Candidate Experience through Interview Tracking Systems -Williams, H., & Brooks, J. (2020)

This study focuses on enhancing candidate experience during the recruitment process by providing transparency through interview tracking systems. In many traditional recruitment processes, candidates often feel uncertain about their application status due to lack of communication from employers. The authors propose a system that provides real-time updates on each stage of the recruitment process, including application submission, interview scheduling, interview completion, and final decision status.

The research demonstrates that candidates are more likely to trust and engage with organizations that maintain clear communication throughout the hiring process. By

PROBLEM STATEMENT

Traditional hiring processes suffer from inefficiencies

significantly reduces recruiter workload and speeds up the hiring process. It also improves the accuracy of candidate selection by identifying candidates whose profiles closely match job descriptions. Furthermore, AI systems can rank candidates based on their compatibility with job requirements, helping recruiters prioritize the most suitable applicants. However, the research highlights an important disadvantage. AI models require large, high-quality training datasets to function effectively.

This paper examines methods for improving the systems can improve candidate satisfaction and reduce frustration caused by long waiting periods without updates. The system also benefits organizations by improving their employer brand and reputation among job seekers. However, the study highlights the need to balance transparency with internal confidentiality.

such as manual scheduling, subjective evaluations, delayed feedback, and lack of automation in early-stage assessments. Recruiters often juggle between disconnected tools, leading to poor coordination between candidates, interviewers, and HR teams. Candidates experience uncertainty about their application status, unclear feedback, and delayed interview timelines. HIRESYNC addresses these challenges by centralizing the recruitment process into a smart AI-powered system that streamlines job postings, interview scheduling, automated testing, and real-time feedback generation—reducing bias and improving hiring efficiency.

1. PROPOSED SYSTEM

The proposed system, HIRESYNC – Smart AI Powered Interview and Feedback System, is designed to automate and enhance the recruitment process using artificial intelligence. In this system, candidates participate in AI-driven interviews where questions are generated dynamically based on predefined criteria and job requirements. The system analyzes candidate responses using natural language processing and machine learning techniques to evaluate parameters such as technical knowledge, communication skills, confidence, and accuracy. Based on this analysis, the system generates real-time scores and detailed feedback reports, helping both candidates and recruiters understand performance effectively. Additionally, the system ensures fairness and consistency by eliminating human bias and providing standardized evaluation for all candidates. The platform also supports efficient data management by storing candidate information, interview results, and feedback in a centralized database. Overall, the proposed system offers a scalable, intelligent, and automated solution that improves hiring efficiency, reduces manual effort, and enhances decision-making in modern recruitment process.

2. System Architecture

The admin plays the central role in managing the entire platform. Admin controls and supervises the main components such as candidates, interviewers, and job postings. Through the system interface, the admin can

create new job openings, update job information, and manage candidate applications. The admin is also responsible for assigning interviewers and monitoring the interview process. This ensures that all recruitment activities are organized and controlled efficiently. Overall, the admin acts as the main authority that maintains the smooth functioning of the system.

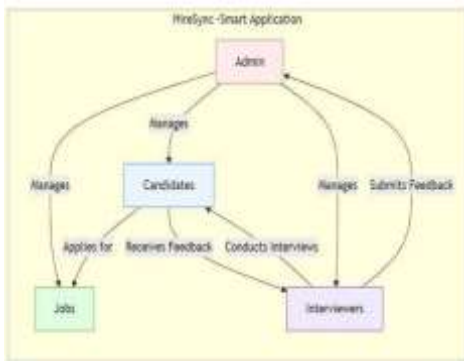


Fig 1: System Architecture

The Candidates module represents the job applicants who use the platform to apply for available jobs. Candidates first register in the system and create their profiles by entering personal details, qualifications, and skills. After completing their profile, they can browse available job openings and apply for suitable positions. Once the application is submitted, the candidate may be shortlisted for an interview by the admin. Candidates participate in interviews conducted by interviewers through the system. After the interview process is completed, candidates receive feedback regarding their performance. This helps them understand their strengths and areas for improvement.

The Interviewers module consists of professionals responsible for conducting interviews and evaluating candidates. Interviewers are assigned to specific candidates or job roles by the admin. During the interview process, they assess candidates based on skills, knowledge, communication ability, and problem-solving capability. The system allows interviewers to record observations and performance details during the interview. After completing the evaluation, interviewers submit structured feedback within the system. This feedback plays an important role in deciding whether a candidate should be selected or rejected. It also helps maintain transparency and fairness in the recruitment process.

Another design aspect involves the data management and database design. The system uses a structured relational database to store information such as candidate profiles, job details, interview schedules, questions, and feedback records. Proper database design ensures data integrity, security, and efficient retrieval of information. The database tables are organized with relationships to maintain consistency and to allow quick access to recruitment data

when required by the system. Finally, the system design also focuses on security and scalability. User authentication mechanisms are implemented to ensure that only authorized users can access the system. Sensitive data such as candidate information and interview feedback are securely stored and protected.

RESULTS



Fig. 7.1: Home Page



Fig. 7.2: User Registration

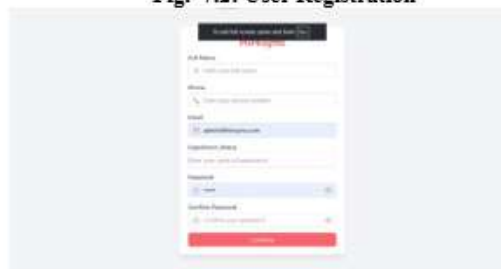


Fig. 7.3: Login Page



Fig. 7.4: Dashboard Page



Fig. 7.5: Admin Dashboard



Fig. 7.6: Feedback Page

APPLICATIONS

Corporate Recruitment

The HIRESYNC system can be widely used in corporate organizations to automate the hiring process by conducting AI-based interviews and evaluating candidates efficiently. It reduces manual effort by HR teams and ensures faster screening of applicants. The system provides unbiased evaluation and detailed performance reports, helping recruiters make accurate hiring decisions. This improves overall productivity and reduces recruitment time.

Educational Institutions

Colleges and universities can utilize HIRESYNC to conduct mock interviews and assess students' skills before placements. It helps students improve their communication, confidence, and technical knowledge through continuous evaluation and feedback. The system also assists placement cells in preparing students for real-world interview scenarios. This enhances student employability and placement success rates.

Online Interview Platforms

The system supports remote and online interviews, making it ideal for virtual hiring environments. Organizations can conduct interviews from any location without requiring physical presence. This reduces travel costs and time for both recruiters and candidates. It also ensures seamless interview processes with automated evaluation and result generation.

Training and Skill Development

Training institutes can use HIRESYNC to evaluate the progress of trainees and provide personalized feedback. The system identifies strengths and weaknesses, helping



Fig. 7.7: Interviewer Dashboard

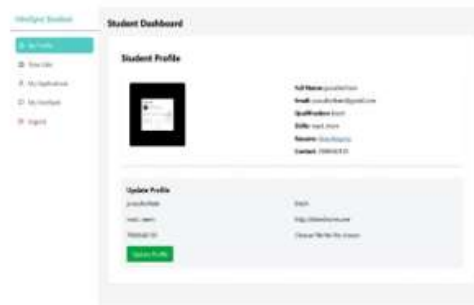


Fig. 7.8: candidate Page



Fig. 7.9: Student feedback Page

learners improve their performance. It enables continuous monitoring and assessment of skills in a structured manner. This leads to better learning outcomes and skill enhancement.

Human Resource Management Systems

HIRESYNC can be integrated with existing HR management systems to automate candidate screening, interview scheduling, and performance tracking. It simplifies the recruitment workflow and maintains detailed records of candidate evaluations. This helps organizations manage hiring processes more efficiently and effectively. It also supports data-driven decision-making.

Government and Competitive Exams

The system can be applied in government recruitment and competitive exams to conduct standardized interviews. It ensures fairness and transparency in candidate evaluation by eliminating human bias. The system can handle large numbers of candidates efficiently. This makes it suitable for large-scale recruitment processes.

Startup Hiring Platforms

Startups can use HIRESYNC to manage recruitment with limited resources. The system helps in screening and evaluating candidates quickly without requiring a large HR team. It provides accurate and unbiased results, helping startups hire the right talent. This improves hiring efficiency

and reduces operational costs.

Remote Workforce Hiring

With the rise of remote jobs, HIRESYNC enables organizations to hire candidates globally through AI-based online interviews. It ensures proper evaluation even without face-to-face interaction. This supports global talent acquisition and remote workforce management.

Performance Analytics and Reporting

The system provides detailed analytics and reports on candidate performance, including scores, strengths, and improvement areas. These insights help recruiters make better decisions and improve hiring strategies. It also helps candidates understand their performance and work on their weaknesses.

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