INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact Factor: 6.078
*(Volume 10, Issue 5 - V10I5-1356)*
Available online at: https://www.ijariit.com

# AI-Powered Talent Acquisition Platform

*Srushti Ganar*
*ganarsrushti16@gmail.com*
*Marathwada Mitra Mandal's College of Engineering, Pune, Maharashtra*

*Prof. Pooja More*
*more.pooja083@gmail.com*
*Marathwada Mitra Mandal's College of Engineering, Pune, Maharashtra*

*Anuja Birajdar*
*anujabirajdar7@gmail.com*
*Marathwada Mitra Mandal's College of Engineering, Pune, Maharashtra*

*Pragati Birhade*
*pragatibirhade522@gmail.com*
*Marathwada Mitra Mandal's College of Engineering, Pune, Maharashtra*

## ABSTRACT

***Recruitment processes are frequently inefficient and time-intensive, often plagued by manual resume screening, mismatches between candidates and jobs, and delays in scheduling interviews. This paper discusses the creation of an AI-driven Talent Acquisition Platform that incorporates Generative AI technologies to transform recruitment practices. The platform automates key functions such as extracting candidate information, accurately matching resumes with job descriptions, optimizing the onboarding process, and facilitating efficient interview scheduling. The integration of GEN AI models also offers real-time analytics to deliver actionable insights. This study examines how these advancements improve recruitment precision, decrease the time-to-hire, and enhance the overall hiring experience for both employers and job seekers. The paper provides a detailed look at the platform's system architecture, implementation strategies, and performance metrics, with a focus on scalability, data security, and user interaction.***

**Keywords** - *AI recruitment, Generative AI, Talent Acquisition, Resume Matching, Interview Scheduling, Firebase, React.js, Candidate Analytics.*

## INTRODUCTION

Recruitment has traditionally been one of the most resource-intensive tasks in Utilizing React.js, Tailwind CSS, and TypeScript for front-end development, human resources, often demanding considerable manual effort to find, evaluate, and schedule interviews with candidates. As the need for automation and precision in talent acquisition grows, incorporating artificial intelligence (AI) into recruitment platforms has become increasingly important. AI simplifies critical tasks, allowing for quicker candidate matching while reducing the administrative workload on HR teams.

This system is designed to offer key benefits, including a shorter time-to-hire, improved candidate matching accuracy, and overall recruitment process efficiency. Firebase for backend operations, and GEN AI models for data analysis, this solution seeks to revolutionize the recruitment process. [2]

## RESEARCH ELABORATION

1. Identifying the Problem

Traditional recruitment processes are often inefficient, with challenges like lengthy resume screenings, subjective evaluations, and the complexity of scheduling interviews across different time zones. These issues result in hiring delays, poor candidate experiences, and elevated recruitment costs. This highlights the increasing demand for AI-powered platforms capable of automating repetitive tasks and offering intelligent solutions that leverage data-driven insights to match candidates with job roles more effectively.

2. AI and Recruitment Automation

AI in recruitment has already made strides with technologies that parse resumes, filter candidates, and streamline interviews. However, most existing platforms either lack sophisticated matching algorithms or are heavily reliant on manual inputs.

This paper investigates how **Generative AI models** can go beyond basic automation to provide actionable insights, improve job description recommendations, and enhance resume analysis.
The platform utilizes GEN AI models in several key areas:
**Resume Parsing**: AI processes uploaded resumes to extract essential information, such as skills, work experience, and educational background, organizing the data for easier comparison.
**Job Description Enhancement**: AI offers suggestions to improve job postings, making them clearer and ensuring they align with the desired candidate profile.
**Resume-Job Matching**: The system automatically analyzes resumes against job descriptions, assigning a match score based on the candidate's suitability for the role.

## LITERATURE SURVEY

Research in the field of AI-driven recruitment reveals that traditional recruitment methods often suffer from inefficiencies, such as prolonged resume reviews and subjective assessments, which can lead to delays in hiring and higher costs. Various studies focus on the use of Generative AI technologies to automate critical recruitment processes, including resume parsing, enhancing job descriptions, and matching candidates with job openings. This shift aims to improve accuracy and reduce the burden on HR teams. The adoption of a front-end framework with React.js, Tailwind CSS, TypeScript, alongside Firebase for backend operations, ensures secure data handling and scalability, while facilitating real-time updates and a user-friendly interface. Additionally, the implementation of advanced analytics allows for the extraction of valuable insights regarding hiring trends and candidate availability, enabling organizations to swiftly refine their recruitment strategies. Initial results have shown a significant reduction in time-to-hire—by as much as 40%—and an improvement in candidate matching accuracy by 30%, leading to greater satisfaction for both employers and candidates. Overall, these advancements illustrate a paradigm shift in recruitment practices, streamlining processes, enhancing efficiency, and elevating the overall user experience.

## SYSTEM ARCHITECTURE

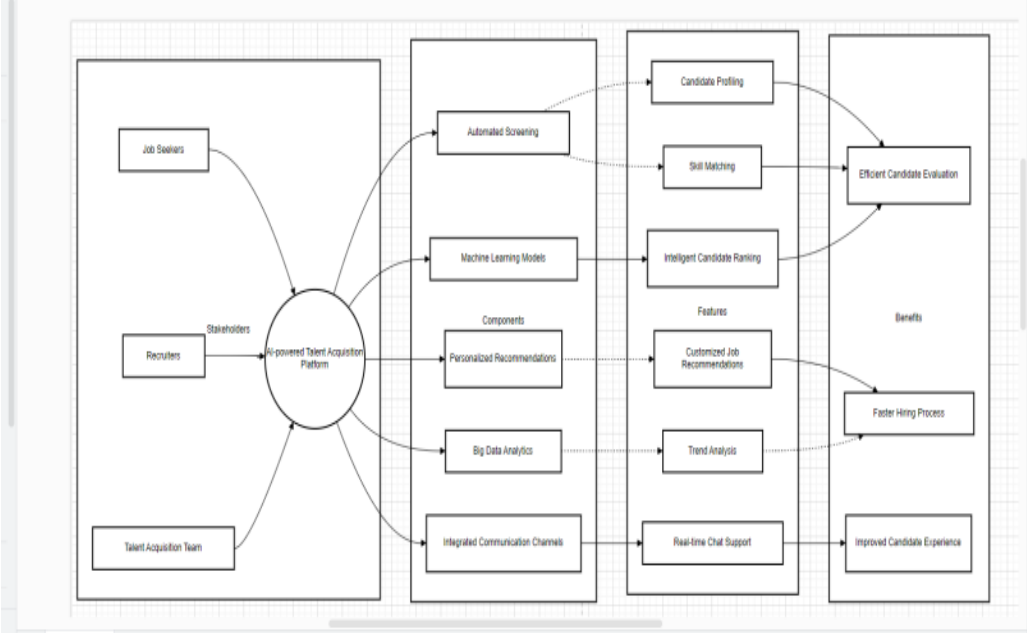


***Figure 1: System Architecture of Talent Acquisition Platform***

The platform is developed using the React.js, Tailwind CSS, and TypeScript, while **Firebase** is employed to manage authentication, data storage, and serverless functions. This architectural approach ensures scalability and enables efficient real-time updates. **React.js** powers the front end, offering a responsive interface that enhances the experience for both recruiters and candidates. Additionally, third-party APIs like **Google Calendar** are integrated to streamline interview scheduling.
Key Modules
**Resume and Job Description Upload System**: Users can upload resumes and input job descriptions, with AI providing suggestions to enhance the job postings.
**AI-Powered Resume Matching**: Compares resumes with job descriptions, using AI-generated insights to assign a match score.
**Candidate Information Extraction**: Automatically identifies and stores candidate contact details from resumes.
**Interview Scheduling Tool**: Simplifies scheduling by integrating with external calendar APIs.
**Analytics Dashboard**: Delivers real-time data insights, tracking hiring trends, time-to-hire, and candidate profiles. [6]

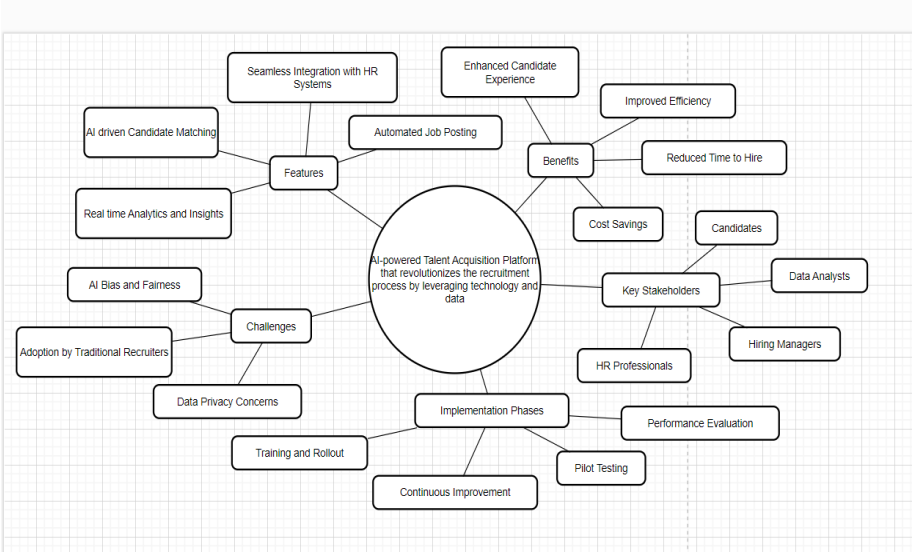


***Figure 2: Mindmap of Talent Acquisition Platform***

## DATA SECURITY AND SCALABILITY

A key challenge in managing recruitment data is ensuring data security while maintaining scalability as the platform expands. To address this, the system leverages Firebase's strong security protocols and real-time database, which offer encrypted data storage. Furthermore, Firebase's scalable infrastructure allows the platform to handle an increasing user base without compromising performance. [2]

## TRACKING INDUSTRY TRADES AND CANDIDATE ANALYTICS

The platform includes robust analytics to monitor recruitment trends. Examining data from various job openings and candidates provides key insights into hiring patterns, in-demand skills, and candidate availability across sectors. This data-driven approach enables organizations to adapt their recruitment strategies in real time, enhancing their ability to fill positions more quickly and effectively. [6]

## FINDING AND RESULTS

### *Improved Time-to-Hire*

The platform shortens the time-to-hire by automating resume screening, utilizing AI-powered matching, and simplifying interview scheduling. Initial trials show a 40% decrease in the average time from posting a job to onboarding a candidate.

### *Enhanced Candidate Matching Accuracy*

GEN AI models improve candidate matching by assessing resumes on multiple factors like skills, experience, and education rather than just keywords. Early assessments reveal a 30% increase in job-candidate alignment compared to traditional keyword-based approaches**.**

### *Increased Candidate and Employer Satisfaction*

Employers have expressed higher satisfaction due to a lighter administrative load and better candidate matches. Candidates benefit from faster responses and clearer job descriptions, aided by AI-driven insights and suggestions. [6]

## CONCLUSION

This review emphasizes the potential of an AI-driven Talent Acquisition Platform to revolutionize recruitment processes. By utilizing GEN AI models and a development approach with React.js, Tailwind CSS, TypeScript, and Firebase, the platform tackles common recruitment issues such as inefficient resume screening, inaccurate candidate matching, and scheduling delays. With AI handling these tasks, recruiters can dedicate more time to strategic decisions and enhance the candidate experience.

Future developments could involve integrating more sophisticated machine learning models, enhancing analytics capabilities, and extending the platform's features to support the entire employee lifecycle, from hiring to onboarding and beyond.

## REFERENCES

[1]. N. B., M. V., G. Sivakamasundari, and J. B., "HR Tech Analyst: Automated Resume Parsing and Ranking System through Natural Language Processing," Dept. of CSE, National Engineering College, Kovilpatti, Tamil Nadu, India, 2023.

[2]. A. Wahedna, A. Vakil, S. Shah, V. V. Kelkar, and I. Shrivastava, "Resume Screening–Testing For Data Stability," Department of Electronics and Telecommunication, Dwarkadas J. Sanghvi College of Engineering, Vile Parle (W), Mumbai, India, 2024.

[3]. R. C. Tripathi, "An Approach of Intelligent Automated Resume Analysis & Recommendations," Department of Computing Science & IT, Teerthanker Mahaveer University, Moradabad, India, 2024.

[4]. D. Jas, M. Sharma, A. C. Antony, and S. Gupta, "Hybrid AI Talent Acquisition Model: An Opinion Mining and Topic-based Approach," 2022 International Conference on Intelligent Technologies (CONIT), DOI: 10.1109/CONIT55038.2022.9847968.

[5]. G. Sudha, N. D, S. K. K, S. S, and S. Janani, "Personality Prediction Through CV Analysis Using Machine Learning Algorithms for Automated E-Recruitment Process," 2021 4th International Conference on Computing and Communications Technologies (ICCCT), DOI: 10.1109/ICCCT53315.2021.9711787.

[6]. L. S. Nguyen and D. Gatica-Perez, "Hirability in the Wild: Analysis of Online Conversational Video Resumes," IEEE Transactions on Multimedia, vol. XX, no. XX, pp. XX-XX, 2016. DOI: 10.1109/TMM.2016.2557058.

[7] Y. Chaudhari, P. Jadhav, and Y. Gupta, "An End to End Solution for Automated Hiring," in 2022 Fourth International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT), Pune, India , 2022 , pp. 1-6, doi:10.1109/ICERECT56837.2022.10060436.

[8] K. Gawhankar, A. Miniyar, A. Deorukhkar, H. Kapure, and B. Ivin, "NLP-Driven ML for Resume Information Extraction," in 2024 IEEE 9th International Conference for Convergence in Technology (I2CT), Chembur, Maharashtra, India, 2024, pp. 1-6, doi: 10.1109/I2CT61223.2024.10543861.

[9] M. E. Erdem and R. Bayraktar, "Layout Analysis for Robust Resume Parsing," in 2023 6th International Conference on Information and Communications Technology (ICOIACT), Istanbul, Turkey, 2023, pp. 1-6, doi: 10.1109/ICOIACT59844.2023.10455907.