

JobNexus AI Powered Recruitment Solution

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Abstract - The jobNexus AI-Powered Recruitment Solution is a modern full-stack platform dedicated to drastically improving the hiring process. The all-inclusive solution uses contemporary technology components to streamline the hiring procedures for administrators, specialists, and seekers. Through its dynamic job board application the system enables HR managers to run easy job position advertisements. Companies need to show approved corporate paperwork for listing verification before they publish advertisement content. Through jobNexus users can find suitable job opportunities with direct application features. Job candidates can use the system that automatically processes resumes through its AI-powered Applicant Tracking System after they input their documents. Resumes of top candidates receive advanced scrutiny from ATS systems that visit through resumes to determine quality and relevancy levels for selective approval.

A standout feature of jobNexus is its exclusive referral system, which leverages employee networks to enhance job opportunities. A recommendation system stands as jobNexus distinctive element because it enhances job opportunities through employee network relationships the recruitment process benefits from asking employees to assess potential candidates for recommendation purposes. The platform introduces a built-in communication system for both parties to use after approval to develop strong professional connections. Applications on the platform receive instant tracking insights that show job seekers where their applications stand. Through the hiring process candidates gain instant notifications about application progress and assessment activities along with company feedback to promote involvement during selection.

Keywords: ATS, Job seeker, HR, Resume, Recruitment, Keyword matching.

I. INTRODUCTION

JobNexus AI-Powered Recruitment Solution represents the next level of job board applications which helps HR teams handle recruiting better and provide better application opportunities to candidates. ATS technology in combination with their special referral system enables this platform to analyze resumes and verify credentials which guarantees employment advertisements are reliable. The platform features chat functions which enable users to get instant application updates from HR representatives while directly

communicating with employers for job applications through the system.

JobNexus AI-Powered Recruitment Solution works to enhance both hiring process speed and trust levels between candidates and employers through its authentic job matching system. The platform conducts verification of credentials as a protection feature against job post fraud to deliver an authentic environment between companies and candidates. The most distinctive characteristic of jobNexus is its referral system built around using respected professional networks to provide verified referral services to help job seekers find appropriate opportunities. The system enhances the quality and reliability of employee referral recommendations because staff members can propose prospects which leads to improved hiring success rates. JobNexus relies on excellent communication through its built-in chat system which lets candidates directly communicate in real-time with HR professionals. Immediate communication access on jobNexus ends waiting times and delivers prompt replies to questions which enables speedy interview planning to deliver a more interactive hiring experience. JobNexus provides its users with an extensive recruitment system which combines live job status tracking as well as AI-driven ATS-assisted resume review and complete application handling capabilities. Through the platform job candidates can observe their application progress at all times but the HR department gains benefits from a single interface that streamlines job search processes. JobNexus AI-Powered Recruitment Solution brings modern hiring into a new era through its integration of job discovery with tracking applications as well as real-time communication along with referral-based networking. JobNexus provides both better career options for seekers and smarter recruitment tools to HR teams that result in exceptionally fast and efficient recruiting processes with improved transparency.

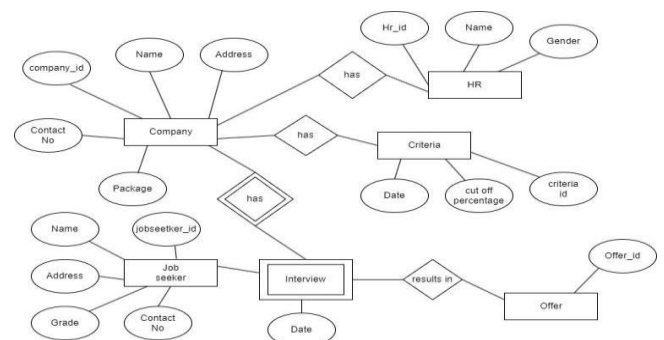


Fig.1 Entity relationship diagram for jobnexus requirement solution

II. LITERATURE SURVEY

[1] The IRJET study focuses on the E-Recruiter Portal that connects businesses with prospective candidates through its platform. The portal provides job seekers with four options for job search including the ability to view job ads and submit CVs and speak directly with employers. Online platforms present both advantages and disadvantages to modern labor markets because users struggle to accept them while encountering technical difficulties and expenses and being overwhelmed with information.

[2] The project builds a web platform which helps resolve between student job-seeking interactions with employers working in computer science at University of Malaya. The platform offers helpful resources as a response to this problem which moderately simplifies job search activities. Multiple reports showed that students did not approve of how the study had been performed during that period.

[3] This paper delves into the application of UiPath RPA for process enhancement and presents four main advantages which companies experience through RPA technology including productivity increases and decreased costs together with improved accuracy and adaptable systems. The implementation and sustained improvement of change requires the resolution of two main areas: process engagement along with change management. And that's only one of them. The paper includes an analysis of a Waterfall model-based online employment portal.

[4] The article proposes implementing a web application to quicken recruitment by permitting job applicants to sign up and seek jobs while posting vacancies and getting evaluation outputs. The application development employed NodeJS together with AngularJS and Sequelize ORM for its basic conceptual framework. With such improved search capabilities the web application controls its operations successfully under heavy user activity.

[5] The study focused on the rising hiring rates during COVID-19 as well as how online job portals used this opportunity to exchange information for recruiters and associated resources. A new employment portal should tackle recruitment concerns of employers and job seekers through affordable access to quick answers for inquiries.

[6] A CNN-based recommender system development for an online job site forms the central topic to pair companies with job seekers according to their qualifications and skills. Through Portals to Employment readers learn about the benefits of these portals which include successful applicant-job match and cost savings and better engagement and data sharing as well as efficiency gains.

[7] Both employers and job seekers access the site through an online system and Android mobile application. Both systems run under different technology stacks since the web application uses Spring MVC along with Hibernate and MySQL and the Android app relies upon RESTful web services. The system evaluation with Apache JMeter

resulted in successful passing of response time and throughput tests. Users of both employer and job seeker profiles find success with the user experience features that were designed and implemented into the project.

[8] Among digital-savvy job seekers an upsurge has occurred in their usage of internet platforms for both employment opportunities and additional purposes. Job seekers throughout the world initiate their employment searches through job portal registration as a regular practice. Some job seekers find success by using these job sites to get assignments plus responses promptly yet others struggle to get any type of engagement.

[9] The discussion describes how Django enables development of an online employment portal to enhance hiring and searching activities between employers and job seekers. The platform implements this framework by using MVT architecture with HTML, CSS, JavaScript and Python Django and Bootstrap 5. The employment portal provides essential components for job posting as well as application tracking and intuitive interfaces designed for administrators and companies and job seekers.

[10] This paper details the process of developing a Job Portal mobile application which provides UTHM students with access to job opportunities. Employers can use this program to post and handle employment openings while it serves as a recruitment service. Students can search for jobs through the use of established search filters. The Simple Software Development Life Cycle (SDLC) model forms the basis to create the system using Java and Android Studio while using Google Firebase as a database for data storage. This platform exists to assist organizations with their recruitment process and to simplify student job searches.

[11] B.Tech students form the basis for creating an internet job platform according to the project report. The portal functions to create convenience in hiring and job searching for users through a user-friendly interface. System development in this research depends on agile methods together with Java Server Pages (JSP), AngularJS and Bootstrap and Hibernate framework technologies. Job seekers together with recruiters utilize important tools on the website.

[12] The Training and Placement Officer (TPO) uses Advanced Training and Placement Web Portal (ATPWP) to automate their work. The platform tracks resumes while finding appropriate career opportunities for students and graduates and provides mock interview and testing functions to the TPO.

[13] The Proximity Search technology enhances search precision because it lets users search for terms that appear together in close proximity which enhances the information retrieval process. This web-based client-server system operates through similarity values which enable users to locate essential information at speed.

[14] This job outsourcing website reacts to business competence limitations by creating a unified workspace that combines outsourcing projects with service provider connections. This system assigns work tasks to capable individuals in order to help organizations complete their targets expeditiously. This platform simplifies the operations while organizing tasks and improving efficiency in the outsourcing process.

[15] Hot Jobs Asia operates as a full-scale e-recruitment platform to find "specific" matching candidates between businesses in domestic and international markets thus accelerating business hiring. The system functions through trained personnel who deliver value-driven simplified recruiting services and cost-effective career resources to users.

[16] Web scraping refers to data retrieval from web pages that professionals achieve through tools such as Octa-parse and Parse-hub together with Python-based approaches. Information acquisition leads to a process that transforms data into usable analysis format. Online recruitment now leads the job search process because the growing use of internet technology has substituted traditional employment search approaches including news games and newspaper ads and word of mouth recommendations. The employment setting underwent complete transformation because online job portals enabled swift hiring procedures starting from posting jobs through to interviewing candidates.

[17] Listeners interested in JavaScript web development should begin with JavaScript from Frontend to Backend. The book first explains basic JavaScript concepts followed by VueJS web component instruction for developing both client-side and server-side applications. The two tools Node.js and Express operate within the communication layer yet database administration requires both the MongoDB and Mongoose systems. The fundamental skills for novice JavaScript developers involve mastering all the required technologies needed to build complete web applications.

[18] Websites and their development practices have rapidly evolved since their 1991 inception by Tim Berners Lee up until the current year of 2021. Modern business operations require a website to function in online marketing activities. Users employ websites to create their digital portfolios which serve as one of their principal applications. Many web-based applications and software programs exist at present.

[19] The next-generation website development requires consideration of three main aspects: data volumes, large user connection rates and system scalability at scale. The usage of Node.js for developing data-heavy web applications continues to escalate. Scenario and benchmarking tests serve to evaluate PHP and Python-Web and Node JS. The experimental data shows Node.js makes a higher number of requests during a given period than PHP and Python-Web do according to performance measurement statistics.

[20] The NoSQL database MongoDB stores data by using flexible schema documents that resemble JSON documents. User-friendly design together with adaptability and scalability made it one of the popular NoSQL solutions. This paper discusses MongoDB basics while explaining its strengths and limitations and presents methods for effective usage of the database. The article proceeds to evaluate prominent MongoDB implementations to demonstrate its ability to serve diverse data storage requirements.

[21] The paper discuss the idea of Product quality and aesthetics are inseparable in this digital age, and UI/UX Design and FrontEnd are in charge of making a product look beautiful. Thus, the purpose of this study is to determine the differences between UI/UX and FrontEnd as well as the relationship between the two. By providing an in-depth overview of a specific scenario based on facts, theories, and reliable reference materials with prior research, this study employs a descriptive methodology. The findings indicate that FrontEnd can be impacted by the presence of a UI/UX Designer while designing and developing information systems. Its primary impact is that it makes the appearance attractive and interactive.

[22] The goal of this study was to investigate the application of a UX/UI methodology in Almacenes Juan Eljuri's e-commerce website because the use of new technologies brings about significant changes in communications and e-commerce. However, there is a lack of methodological research and its application based on design principles according to the user experience and interface, gaining few attractive and functional resources. Using a documentary research approach, the state-of-the-art qualitative-quantitative compliance analysis stage was analyzed based on interaction, usability, and functionality factors.

[23] This study proposes a hybrid recommender system for recruiting and job-search websites. Users can express their interests and organize the resources they require with the help of the website's many interaction elements. The hybrid recommender system creates individualized recommendations for jobs and applicants by taking use of user and job characteristics as well as user activities. A directed, weighted, and multi-relational graph is used to model the website data, and the 3A ranking algorithm is used to rank items based on how relevant they are to the intended user. Based on production data and simulated data from a Swiss job search website, a first assessment is carried out.

[24] The power of social media has evolved significantly since past years and now different industry sectors employ it to hire employees. This paper evaluates "social recruitment" or "recruitment 2.0" methods in order to analyze how social media impacts contemporary hiring strategies. This research focuses on studying business utilization of Twitter and Facebook to promote job postings and acquire job candidates while developing professional connections with them. The initial part of this analysis introduces social media and social networking sites subsequently followed by user traits and behavior evaluations. The research studies how employers

together with job seekers develop personal brands by focusing on their impact in personal life and professional environments.

[25] Though most of the time those jobs are not always acceptable with users or users are not satisfied, searching for a job while browsing lists of hiring positions on recruitment sites—which truly cost a lot of time and money—is generally an annoying thing to do. Recruiters waste time checking to see if they are qualified by doing this. The matching of job seekers with job offers is a crucial aspect of the hiring process that this thesis aims to solve. These days, one of the biggest issues businesses face is the matching process between job offers and applicants. The organization spends a lot of time screening resumes and shortlisting applicants, particularly when 80–90% of the resumes received for a position are unqualified.

III. EXISTING SYSTEM

The basic features of job posting and application tracking are available on numerous recruitment platforms such as Indeed, Monster, Glassdoor and LinkedIn Jobs according to well-known services. These platforms provide essential job recruitment features yet their systems prevent hiring teams from using intricate applicant tracking systems (ATS) and providing referral networks and performing robust credential verification. Real-time application tracking does not exist on top job-posting services such as ZipRecruiter and LinkedIn because these platforms restrict their network capabilities. Although many employment goals are successfully met by these current solutions, their shortcomings highlight the growing need for better end-to-end hiring practices.

Indeed:

- a. **No strict verification process for job postings:** Indeed makes it possible for nearly everyone to post a job without requiring strict document verification, which leaves it open to fake job advertisements. Before accepting job advertisements, jobNexus verifies company documents.
- b. **No built-in chat system:** Unlike jobNexus, which offers a direct in-platform chat function for smooth engagement, job searchers and recruiters primarily communicate via email or third-party messaging platforms.
- c. **No structured referral system:** Absence of a formal referral system Employee recommendations are not available to Indeed job searchers to increase their chances of landing a position. To improve job matching, JobNexus allows staff members to suggest applicants to their professional network.

Naukri:

- a. **No Strict Credential Verification:** Like Indeed, Naukri does not verify the credibility of employers or job postings. This absence of verification results in similar risks of potentially misleading job advertisements.

b. **No Integrated Referral System:** The absence of an integrated referral system at Naukri hinders job searchers from utilizing inside corporate references, which might improve their prospects of obtaining employment through personal networks.

c. **Limited & Basic Applicant Tracking:** Naukri offers basic applicant tracking tools but no sophisticated applicant tracking system (ATS) that uses poor algorithms and metrics to screen resumes. In order to assess apps, HR managers must manually sort and perform basic filters.

d. **Absence of an integrated chat system:** Recruiters and candidates connect by phone or email, which causes response delays. In contrast, JobNexus offers an integrated real-time chat system that facilitates instant contact.

CareerBuilder:

- a. **No Real-Time Interaction between HR and Applicants:** Real-time chat capabilities that let job seekers speak with recruiters directly are absent from CareerBuilder. In contrast, JobNexus has an integrated chat system that facilitates direct contact, prompt clarifications, and expedited hiring decisions.
- b. **No Credential Verification:** JobNexus has established a credential verification system that verifies the authenticity of employers as part of their effort to stop fake job listings. CareerBuilder does not offer credential verification as an option while jobNexus employs this safety measure to prevent fraudulent organizations from posting deceptive listings.
- c. **No ATS (Applicant Tracking System):** CareerBuilder does not use AI-driven resume screening, despite having a simple ATS. JobNexus is a sophisticated AI-powered application tracking system (ATS) that evaluates resumes automatically, assigns applicants a relevance score, and ranks the best applicants. This increases the effectiveness of filtering a lot of applications.
- d. **Absence of an Integrated Referral System:** CareerBuilder does not use current employee networks to identify possible applicants because it lacks an employee referral system. JobNexus, on the other hand, uses a referral-based hiring process that enables staff members to suggest applicants, boosting the likelihood of hiring top talent.

IV. PROPOSED SYSTEM

A. Objectives

This application incorporates an Applicant Tracking System (ATS) driven by artificial intelligence (AI) that analyzes, filters, and ranks applications according to predetermined standards like keywords, experience, skills, and credentials. Enhance Networking and Referrals by integrating a unique referral system that leverages employee networks to facilitate job placements.

Create an extensive credential verification procedure for every job posting to guarantee job credibility.

Employers and job seekers can communicate in real time using an integrated chat system.

Job candidates will develop trust in recruitment process by receiving real-time application tracking alongside regular updates from different stages of the selection period.

Improve Recruitment Efficiency for HR professionals with tools to manage job postings, track applicants, and schedule interviews seamlessly.

B. Core Functionalities:

- a. Integrated Real-Time Chat System:** JobNexus enables HR and candidates to hold instant in-app conversations to exchange information smoothly. Through jobNexus messaging HR communicates job updates interview changes and present status to candidates. HR uses the system to send company policies and employment information along with job offers and descriptions to candidates. Both participants get instant real-time status indicators whenever messages are opened.
- b. Credential Verification:** During the enrolling procedure, HR professionals must upload relevant company papers to verify their qualifications. Because all of the job advertisements are from reliable sources, this gives job seekers more credibility and confidence.
- c. Advanced Applicant Tracking System (ATS):** A top-rated ATS system can examine resumes while also helping managers choose and understand all application details. A proper process allows us to choose qualified applicants fairly.
- d. Integrated Referral System:** Recommendation system that allows both employees and job seekers to ask for and provide references. Application to placement and deep connections between candidates and HR are promised by an integrated chat system.
- e. Real time application tracking:** The system shows job seekers their application status as it happens to keep them properly informed during their hiring journey.
- f. Enhanced user experience:** Users can find jobs apply and chat through the platform because it combines these functions into one convenient system.
- g. Job matching:** The job matching system shortens the duration of job search activities and increases the likelihood of finding a suitable employment opportunity.

System Architecture overview:

JobNexus AI Powered Recruitment Solution helps HR specialists and job seekers connect through an online system to simplify the hiring process. Job seekers need to set up an account on the platform first so Human Resources professionals can confirm their business authentication. By setting these standards the website shows only authentic job opportunities.

After their data is validated HR specialists can offer open positions with detailed information that helps qualified job seekers submit applications. When enterprise resource planning (ERP) users need to publish job openings they can do so on the system. An ATS system connected to the platform helps HR select candidates by evaluating resumes based on job criteria.

The referral system connects qualified workers with job seekers for professional updates through their contacts in the network. The software lets you track applications in real-time to keep job seekers regularly updated about their employment status. Through an integrated chat system HR managers can speak directly with applicants to develop strong and fair communication. The system leadership verifies human resource credentials to guarantee that only accurate job openings get displayed on the site. Jobnexus helps employers make better hiring decisions through automated tracking while promoting real-time feedback between HR staff and candidates. It also allows employees to refer qualified candidates based on direct collaboration.

Fig.2 shows the entire system architecture diagram with a flow from user , HR and referral provider and admin.

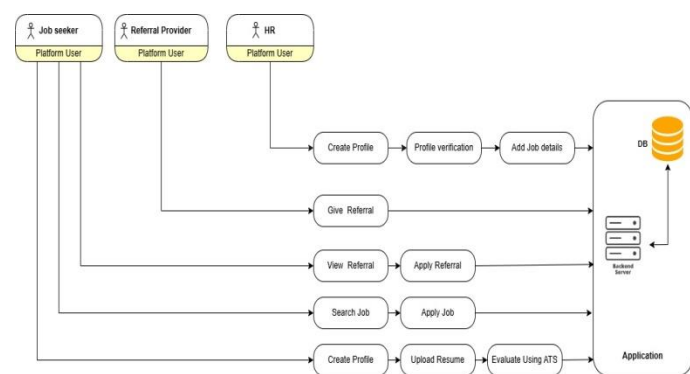


Fig.2 Architecture diagram of jobnexus Next-Gen Recruitment Solution

Technology used: React JS, Node JS, MongoDB

Comparison between existing and proposed system:

Table.1 shows the comparison between existing systems and jobnexus. Although Indeed and Monster supply many ways to find jobs their systems still fall short in multiple ways. The lack of job posting verification at these sites puts seekers at risk of finding false or deceitful job listings. A credential verification system protects platform credibility by showing job seekers which job postings are actual opportunities. Present ATS solutions typically do not provide effective tools for HR professionals to handle application backlog since they remain basic. Their basic system tools and resume reading intelligence make hiring harder and produces less effective results. They make their primary focus collecting resumes and following up on progress.

The platform includes direct chat for recruiters and candidates that lets them talk online to prevent recruiting delays and expedite hiring steps.

Feature	JobNexus	Naukri	Indeed	Monster	LinkedIn
Chat	Yes	No	No	No	Yes
ATS	Yes	Limited	Basic	Basic	No
Referral	Yes	No	No	No	Manual
Application Tracking	Yes		No	No	No
Document Verification	Yes	No	No	No	No
Notification & Feedback	Yes	No	No	No	Limited

Table.1 Shows the comparison between jobnexus and other applications.

ATS frequently uses a variety of algorithms and techniques to evaluate and grade resumes.

Natural Language Processing (NLP) plays a crucial role in modern Applicant Tracking Systems (ATS) by enabling automated resume analysis, ranking, and candidate matching. The Named Entity Recognition system finds essential details for us. Like Name of the Candidate, Contact Details, Work Experience Includes Company Name, Job Title and Time Spent in Degree, University, and Year of Education. It eases resume evaluation since it changes raw data into a formatted presentation.

Employers include job titles and skilled qualifications with experience-based standards (Java or Python) to their job post. The system reads these specified keywords out of the ATS-posted job listing to identify matching resumes. Fig.6 shows key word extraction in resume.

The ATS evaluates submitted resumes by checking if these resumes contain the words or phrases extracted from the job advertisement. The system deals with keywords together with their synonyms and variations to detect all potential matches. When "Software Development" appears in the job description the system will also match terms such as "Software Engineer" or "Application Developer" as their meanings are close.

The search tool evaluates keywords using a specific method that handles different words differently. Each ATS detects the importance of specific keywords to set unique value levels when analyzing job candidate materials. A collection of technical qualifications often receives greater value than ordinary work history. The most important qualifications will determine the order in which resumes are assessed.

The ATS system typically evaluates both keyword usage and related content while screening applications. Resume application functions enhance the score when the candidate repeats "Python" in his work background because it demonstrates his programming mastery. Candidate keywords need to appear in the proper parts of their profile like their work history and stay away from irrelevant sections.

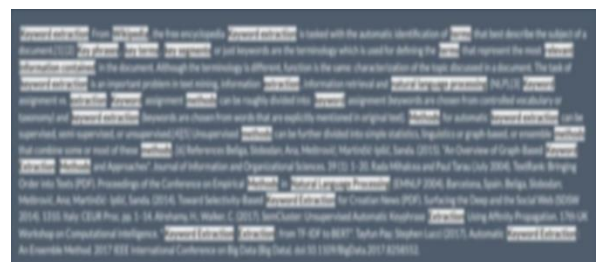


Fig. 6 Key word extraction in resume

V. FUTURE ENHANCEMENTS

Analysis of recruitment data enables HR professionals to build better recruiting processes which offer top candidates at reduced expenditure. Users from different parts of the

loaded on July 03 2025 at 07:26:30 UTC from IEEE Xplore. Restrictions apply.

world depend on blockchain technology that verifies employment skills and credentials to trust the platform.

VI. CONCLUSION

The next-generation recruitment concept jobnexus serves as a top-end 360 solution which resolves fundamental recruitment problems affecting both HR managers and job seekers. jobnexus operates via three advanced functions including an ATS system and recommendation technology and integrated messaging tools to deliver an optimized and fully transparent hiring process. The platform creates relationships by suggesting to automatically score candidates while confirming document authenticity. Through its innovative design jobnexus enhances both candidate-broker and recruitment system communication and simplifies hiring operations. HR specialists must verify their qualifications while confirming job advertisement sources thus establishing authenticity through both measures. The integrated chat system alongside real-time job tracking provides up-to-date information simultaneously to both HR specialists and applicants in order to circumvent delays and misunderstandings. jobnexus secures fast market entry and enduring market reach through its adaptable system infrastructure which enables operation scale-ups while adapting plans when labor market trends shift. The advancement in this technology guarantees smooth and transparent hiring processes which produce outstanding results for talent acquisition.

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