

Career Link – Online Job Posting & Recruitment Management System

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Abstract

The recruitment process often faces challenges such as manual candidate screening, fragmented application management, communication gaps, and limited transparency. To address these issues, **Career Link** is proposed as a centralized web-based Job Posting and Recruitment Management System. It provides role-based features for administrators, employers, and job seekers to simplify and streamline recruitment activities. Employers can post jobs, manage applications, shortlist candidates, and schedule interviews, while job seekers can create profiles, upload resumes, and apply for suitable jobs. The system also enables job filtering, resume validation, and skill-, education-, and experience-based resume matching for efficient candidate selection. Developed using Agile methodology, Career Link aims to reduce manual effort, improve communication, enhance transparency, and increase recruitment efficiency. Overall, the system provides a user-friendly platform that connects employers with suitable candidates and simplifies the complete recruitment process.

Keywords— E-Recruitment, Job Portal, Recruitment Management, Resume Matching, Candidate Shortlisting, Role-Based Authentication, Web Application.

1. Introduction

The rapid advancement of digital technology has significantly transformed the way organizations perform their day-to-day operations, including the recruitment and hiring of employees. Recruitment is an essential process for every organization because selecting suitable candidates directly affects productivity and organizational growth. However, many organizations still rely on traditional recruitment methods involving emails, spreadsheets, manual documentation, and paperwork. Such approaches can be time-consuming, increase administrative workload, create duplicate records, and make it difficult to efficiently track candidates throughout the recruitment process.

At the same time, job seekers face difficulties in identifying relevant employment opportunities and maintaining continuous track of their applications. They may need to search across multiple platforms and often have limited visibility into the progress of their applications. As the number of applicants increases, managing job postings, resumes, applications, candidate shortlisting, interviews, and communication becomes increasingly complex for employers. These challenges create a need for a centralized system capable of integrating different recruitment activities into a single platform.

To address these challenges, this research presents Career Link – Online Job Posting & Recruitment Management System, a centralized web-based platform designed to simplify and automate major activities involved in the

recruitment lifecycle. The proposed system acts as a bridge between employers and job seekers by providing dedicated functionalities for different users. Employers can publish job vacancies, review applications, shortlist candidates, and schedule interviews, whereas job seekers can create profiles, upload resumes, search for suitable jobs, apply online, and track application updates.

The system also incorporates an administrative module for managing users, approving job postings, monitoring recruitment activities, and generating reports. Role-based authentication is used to provide controlled access to Admin, Employers, and Job Seekers. In addition, resume management, applicant tracking, interview scheduling, job searching, and application status updates are integrated to improve communication and transparency among the stakeholders.

The proposed system reduces manual effort and paperwork by centralizing job posting, applications, resume management, shortlisting, interviews, and application tracking. **Career Link** provides a faster, organized, transparent, and accessible recruitment solution for employers and job seekers.

2. Aims and Objectives

Proposed Career Link – Online Job Posting & Recruitment Management System is to develop a centralized and secure web-based platform that simplifies and automates the recruitment process by connecting employers and job seekers.

1. To develop a centralized web-based platform that efficiently connects employers and job seekers.
2. To automate the recruitment process, including job posting, application management, candidate shortlisting, and interview scheduling.
3. To provide job seekers with an easy-to-use platform for creating profiles, uploading resumes, searching for suitable jobs, applying online, and tracking applications.
4. To provide employers with effective recruitment management tools for posting vacancies, reviewing applications, shortlisting candidates, and monitoring recruitment activities.
5. To implement secure role-based access control for Admin, Employers, and Job Seekers.
6. To improve communication and transparency through application status updates and notifications between employers and candidates.

3. Literature Review

The recruitment process has undergone significant changes with the development of web-based technologies. Traditional recruitment methods generally involve manual documentation, paper-based resumes, emails, and spreadsheets, which can increase recruitment time and administrative effort. The literature reviewed in this study focuses on online job portals, applicant tracking systems, resume filtering, candidate-job matching, and centralized recruitment management systems.

1. Online Recruitment and Applicant Tracking Systems:

Previous research on online recruitment systems has demonstrated that digitizing recruitment activities can reduce hiring costs and recruitment time while providing employers with access to a wider pool of candidates. Applicant tracking and application-status monitoring also improve transparency by allowing candidates and employers to track recruitment progress. However, existing systems may still face issues related to resume matching, duplicate applications, and fake job postings.

2. Resume Filtering and Candidate Matching:

The reviewed literature indicates that keyword-based resume filtering is commonly used to identify candidates according to job requirements. Although this approach simplifies the screening process, it may provide limited accuracy because matching based only on keywords may not adequately represent a candidate's skills, education, and experience. More advanced semantic and NLP-based approaches have been proposed to improve the relevance of candidate-job matching.

3. Centralized Recruitment and Verification:

Reddy et al. (2019), as presented in the literature-review table, discussed recruitment and selection processes and highlighted the importance of verified profiles and centralized databases for improving hiring efficiency and candidate quality. However, the study is identified as a review-based work and does not propose an integrated end-to-end recruitment platform. This indicates a need for centralized recruitment systems that include verification and application tracking.

4. Basic Online Job Portal Systems:

The work by Pinjari, De, Kokne, Siddiqui, and Chitre presents a basic online job portal involving job seekers and employers. The system automates fundamental activities such as job posting and applying for jobs. However, it does not include advanced matching, filtering, or verification mechanisms. The literature therefore identifies the need to extend basic job portals with candidate matching and security-related features.

5. Simple Job Portal Implementation:

Pawar et al. (2024), as listed in the literature-review table, focused on a basic online job portal for interaction between job seekers and employers. The study indicates that automating job posting and application processes can reduce manual work. However, advanced features such as resume filtering and AI-based recommendations were excluded to maintain system simplicity. The identified research gap is the development of a simple recruitment system that can still provide basic matching and security features.

Summary of Literature Review-

Overall, the reviewed studies show that online recruitment platforms, applicant tracking systems, semantic/NLP-based matching, and AI-driven recommendation approaches can improve recruitment efficiency, transparency, and candidate-job matching. However, the literature also identifies several limitations, including dependence on basic keyword filtering, fake or duplicate job postings, limited communication between recruiters and applicants, and the absence of a centralized and verified recruitment platform.

These limitations establish the research gap addressed by Career Link – Online Job Posting & Recruitment Management System. The proposed system focuses on integrating job posting, online applications, resume management, application tracking, employer-candidate communication, and administrative control within a centralized platform. It is therefore designed to provide a secure, user-friendly, and organized recruitment environment for employers, job seekers, and administrators.

Table 01: Comparative Literature Review

Ref. No.	Author(s) & Year	Method Technique	Dataset Application	Key Findings	Limitations	Research Gap
1.	P. Sharma (2026)	Integrative literature review	Recruitment technology adoption (general)	Traces the conceptual evolution of digital recruitment supported by ATS, AI, and recommendation systems.	Conceptual review only; no working system proposed.	Lacks a concrete, deployable recruitment platform for real users.
2.	Fernando, Singh & Tourek (2023)	Empirical study on online portals	Online job portal data - India	Online portals reduce hiring cost and time, widen candidate pool, and improve transparency via status tracking.	Poor resume matching, duplicate applications, fake job postings.	Need for a verified, accurate-matching recruitment platform.
3.	Reddy et al. (2019)	Systematic literature review	Recruitment & selection process	Verified profiles and centralized databases improve hiring efficiency and candidate quality.	Review-based; no integrated end-to-end platform proposed.	Need for a centralized platform with verification and application tracking.
4.	Pinjari, De, Kokne, Siddiqui & Chitre (2019)	Basic system design implementation	Online job portal (job seeker / employer, admin)	Simple portal automates posting and applying, replacing paper-based hiring.	No advanced matching, filtering, or verification features.	Good simple base design; needs matching and verification to be added.
5.	S. Pawar et al., IRJMETS (2024)	Basic system design implementation	Online job portal (job seeker & employer interaction)	Automating job posting and applications reduces manual work; advanced features are often skipped by smaller platforms for being complex.	Keeps system simple by leaving out resume filtering and AI recommendations.	Need for a simple system that still includes basic matching and security.

Limitations of Existing Systems

1. Dependence on Keyword-Based Matching:

Many existing systems rely primarily on simple keyword-based resume filtering. This may reduce the accuracy of candidate selection because matching based only on keywords may not adequately consider the overall skills, education, and experience of candidates.

2. Fake and Duplicate Job Postings:

Existing recruitment platforms may face problems related to fake or duplicate job postings. The lack of proper verification mechanisms can reduce user trust and affect the reliability of the recruitment platform.

3. Duplicate Applications:

Some systems are vulnerable to duplicate applications, which can create unnecessary records and increase the workload for recruiters during candidate screening.

4. Limited Communication:

Existing systems often provide limited communication facilities between employers and job seekers. This can make it difficult for candidates to receive timely information about their applications and recruitment activities.

5. Lack of Centralized Management:

Many existing approaches do not provide a single centralized platform that integrates job posting, applications, resume management, candidate tracking, and communication. This can result in fragmented recruitment activities.

Conclusion :

The identified limitations demonstrate the need for a secure, user-friendly, centralized, and efficient recruitment management system that integrates job posting, online applications, resume management, application tracking, communication, and administrative control within a single platform. Career Link is proposed to address these identified gaps.

4. Proposed Methodology

The proposed Career Link – Online Job Posting & Recruitment Management System follows an Agile Software Development Methodology with an iterative approach. The system is designed to automate and centralize the recruitment process by connecting Job Seekers, Employers/HR, and Administrators on a single web-based platform. The methodology consists of the following stages:

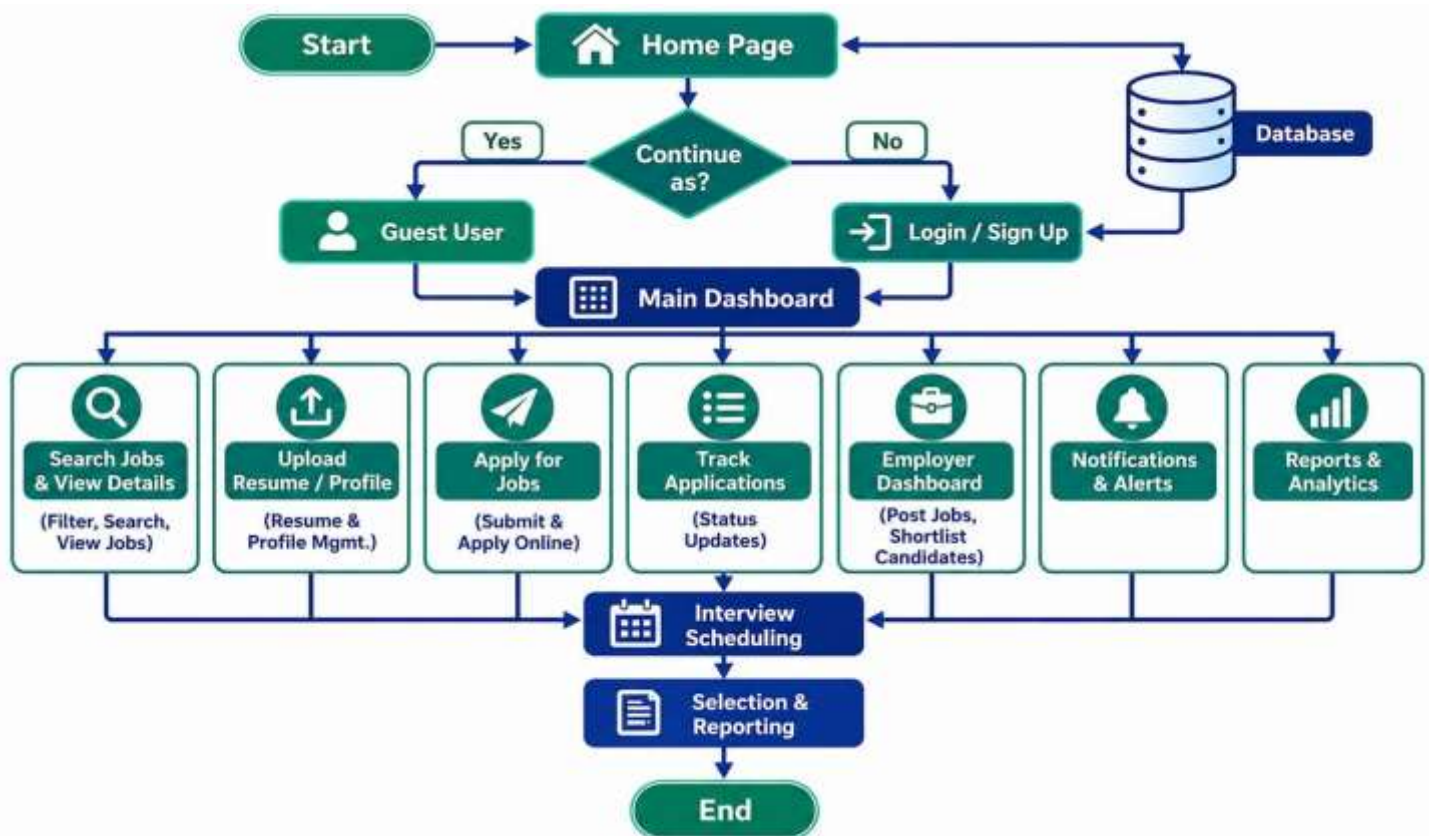


Fig 01: Career Link – Online Job Posting & Recruitment Management System

4.1 Requirement Analysis

The first stage focuses on identifying the requirements of all users. Job seekers require facilities for profile creation, resume uploading, job searching, online applications, and application tracking. Employers require features for posting vacancies, managing applications, shortlisting candidates, and scheduling interviews. Administrators require facilities for managing users, monitoring job postings, and maintaining overall system control.

4.2 System Design

In this stage, the overall architecture, database structure, user interfaces, APIs, and system workflow are designed. Separate role-based modules are planned for administrators, employers, and job seekers. The database is designed to store user profiles, job postings, resumes, applications, and recruitment-related information.

4.3 System Development

The designed system is implemented as a web application. The development includes frontend interfaces, backend services, database operations, authentication, job management, resume management, application tracking, and communication features. The system provides controlled access according to the user's role.

4.4 Job Search and Candidate Matching

The system provides keyword- and filter-based job searching to help job seekers identify relevant opportunities. A matching mechanism can compare candidate information such as skills, education, and experience with job requirements and generate a matching score to support candidate shortlisting.

4.5 Testing and Validation

The developed modules are tested individually and then integrated to verify complete system functionality. Unit Testing, Integration Testing, System Testing, Usability Testing, Security Testing, Performance Testing, and User Acceptance Testing are considered for validating the system.

4.6 Deployment

After successful testing, the system is deployed on a suitable server or cloud environment. The deployed application allows employers and job seekers to access recruitment services through the web.

4.7 Maintenance and Improvement

The final stage involves monitoring the system, fixing errors, improving performance, and adding new features based on user feedback. This iterative approach allows the system to be continuously improved after deployment.

4.8 Expected Working of the Proposed System

The proposed system provides a centralized workflow in which employers create job postings, job seekers search and apply for suitable positions, and employers review and shortlist candidates. Interview scheduling and application-status updates help improve communication and transparency. The administrator supervises users and job postings to maintain proper system operation. The overall approach aims to reduce manual work, paperwork, recruitment delays, and communication gaps while improving recruitment efficiency.

5. Research Methodology

The research methodology adopted for Career Link – Online Job Posting & Recruitment Management System follows an Analytical and Experimental Research Design combined with an Agile Software Development Methodology. The analytical approach is used to study existing recruitment systems and identify their limitations, while the experimental approach is used to develop, test, and evaluate the proposed system.

The methodology consists of requirement analysis, system design, development, data preparation, model and analysis strategy, experimental setup, testing, evaluation, deployment, and maintenance. The major components of the research methodology are described below.

5.1 Data Preparation

Data preparation is an important stage for developing and testing the proposed recruitment system. The system manages different types of recruitment-related data, including user profiles, employer information, job postings, candidate resumes, applications, skills, education, work experience, interview details, and application status.

The collected data is organized according to the requirements of the three major user roles: Admin, Employer, and Job Seeker. User and job information is stored in a structured database, while uploaded resumes are validated and processed to ensure that the required documents are in supported formats.

For candidate matching, relevant information such as skills, education, and work experience is extracted from candidate profiles and compared with the requirements specified in job postings. The prepared data is then used for job searching, candidate filtering, application management, and matching-score calculation.

5.2 Model and Analysis Strategy

The proposed system uses different algorithms and techniques for secure authentication, job searching, resume processing, candidate matching, and database operations.

1. Authentication:

JWT (JSON Web Token) is used for secure user sessions and role-based access control.

2. Resume Validation and Processing:

Uploaded PDF/DOC documents are validated and processed to ensure that valid resume files are accepted.

3. Job Search:

Keyword-based and filter-based search techniques are used to help job seekers find relevant job opportunities.

4. Resume Matching:

A resume matching mechanism compares candidate skills, education, and work experience with job requirements. Candidates can then be ranked according to a matching score.

5. Database Analysis:

Database queries and indexing are used to retrieve recruitment information efficiently and improve system performance.

The performance of the proposed system is analyzed using parameters such as response time, job-matching accuracy, search efficiency, application processing time, reliability, usability, user satisfaction, and security.

5.3 Technologies and Experimental Environment

The proposed system is implemented as a web-based recruitment platform. According to the project methodology, the planned technologies include:

- Frontend: HTML5, CSS3, JavaScript, React.js
- Backend: Node.js and Express.js
- Database: MongoDB
- Development Environment: Visual Studio Code
- Version Control: Git and GitHub
- API Testing: Postman
- Browsers for Testing: Google Chrome and Microsoft Edge

These technologies are used to develop the user interface, backend services, database operations, authentication, and API functionality of the recruitment system.

The experimental environment includes three user roles: Admin, Employer, and Job Seeker. The Admin module is tested for login, user management, job approval, and report generation, while employer and job-seeker functionalities are evaluated through job posting, searching, resume uploading, applications, candidate management, and application tracking.

5.4 Experimental Procedure

The system is developed iteratively using the Agile methodology. Initially, user requirements are analyzed, followed by system architecture and database design. Individual modules are then developed and integrated into the complete recruitment platform.

The developed system is tested using different recruitment scenarios. Individual modules such as registration, login, job posting, job searching, resume uploading, and application management are first tested separately and then tested together as an integrated system.

5.5 Performance Evaluation and Validation

The proposed system is evaluated using predefined performance metrics. These include response time, job-matching accuracy, search efficiency, reliability, usability, application processing time, user satisfaction, and security.

The system undergoes Unit Testing, Integration Testing, System Testing, Usability Testing, Security Testing, Performance Testing, and User Acceptance Testing (UAT). UAT is conducted using realistic recruitment scenarios to determine whether the system satisfies the requirements of employers and job seekers.

5.6 Overall Methodology

The overall research process can be summarized as:

Requirement Analysis → Data Preparation → System Design → Model/Algorithm Selection → System Development → Experimental Testing → Performance Evaluation → Validation → Deployment and Maintenance

This methodology provides a systematic approach for developing and evaluating Career Link as a centralized recruitment platform. It aims to reduce manual recruitment activities, improve application management, support efficient candidate-job matching, and provide a secure and user-friendly recruitment experience.

6. Limitations and Recommendations

1. Basic Matching Approach:

The system mainly uses keyword- and filter-based searching and a matching mechanism based on skills, education, and experience. It may not capture the complete context or meaning of a candidate's resume.

2. Limited AI-Based Features:

The proposed system does not include advanced AI-based job recommendations or intelligent recruitment predictions.

3. Implement Advanced Matching:

Future versions can incorporate semantic or AI-based techniques to improve the accuracy of job and candidate matching.

4. Add Intelligent Recommendations:

An AI-based recommendation system can be introduced to recommend suitable jobs to job seekers and relevant candidates to employers.

5. Strengthen Verification:

Additional verification mechanisms can be implemented for employers, job postings, and candidates profile to reduce fake or duplicate information.

7. Conclusion

The Career Link – Online Job Posting & Recruitment Management System provides a centralized web-based solution for addressing the major challenges associated with traditional recruitment processes. The proposed system integrates important recruitment activities such as job posting, job searching, resume uploading, online applications, candidate shortlisting, application tracking, interview scheduling, notifications, and administrative management within a single platform.

The system provides separate functionalities for Job Seekers, Employers, and Administrators, allowing each user to perform their respective activities efficiently. Employers can manage vacancies and applications, while job seekers can search for suitable opportunities, apply online, and monitor their application status. The administrator can manage users, monitor job postings, and maintain overall system operations.

The proposed methodology combines secure authentication, resume validation, keyword- and filter-based searching, candidate matching, and database management to improve the efficiency of recruitment activities. The system is evaluated using parameters such as response time, matching accuracy, search efficiency, usability, reliability, application processing time, user satisfaction, and security.

Overall, Career Link aims to reduce manual effort, paperwork, recruitment delays, and communication gaps while improving transparency and accessibility. The proposed system demonstrates how web-based technologies can be effectively applied to create a more organized, secure, and efficient recruitment environment. Future enhancements such as advanced AI-based matching, intelligent recommendations, stronger verification, and additional integrations can further improve the capabilities of the system.

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