

CAREER CONNECT PLACEMENT SYSTEM

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ABSTRACT:

Campus placement activities often involve student registration, company coordination, eligibility verification, job applications, interview scheduling, and placement reporting. Manual and fragmented processes can cause data redundancy, communication delays, administrative workload, and difficulties in tracking recruitment progress. This paper presents the Career Connect Placement System, a centralized web-based platform designed to automate and streamline the campus recruitment lifecycle for students, recruiters, and placement officers. The system uses React.js for the frontend, Node.js and Express.js for backend services, MongoDB for centralized data management, and JSON Web Tokens (JWT) for authentication and role-based access. The platform supports profile management, job posting, automated eligibility verification, online applications, candidate shortlisting, interview scheduling, notifications, and placement analytics. An AI-assisted recommendation module analyzes student qualifications, technical skills, certifications, internship and project experience, and recruiter-defined job requirements to recommend suitable jobs and rank candidates. The modular architecture is designed for scalability, security, usability, and maintainability. The report's case studies indicate reduced manual effort, improved coordination, faster application tracking, and more transparent recruitment workflows. The system provides an extensible foundation for future resume screening, predictive placement analytics, skill-gap analysis, mobile applications, cloud integration, and third-party recruitment services.

Keywords—Career Placement, Artificial Intelligence, Candidate Matching, Recruitment Automation, React.js, Node.js, Express.js, MongoDB, JWT, Web Application

I. INTRODUCTION

Digital technologies have transformed campus recruitment, but many institutions still depend on spreadsheets, emails, paper documentation, and manual verification. These methods can cause data redundancy, communication delays, administrative complexity, and difficulty tracking recruitment progress.

The Career Connect Placement System provides a centralized web platform connecting students, recruiters, and placement officers. Students can register, maintain professional profiles, upload resumes, explore opportunities, verify eligibility, apply for suitable positions, and track applications. Recruiters can register companies, publish openings, define eligibility criteria, review applications, shortlist candidates, and schedule interviews. Placement officers can verify records, coordinate recruitment drives, monitor activities, and generate reports.

A key component is AI-assisted candidate-job matching. Student qualifications, academic performance, technical skills, certifications, internships, projects, and career interests are compared with recruiter-defined requirements to support job recommendations and candidate rankings.

II. RELATED WORK

The report describes the evolution of placement systems from manual documentation to web-based and AI-enabled platforms. Web systems introduced online registration, resume upload, job posting, application tracking, notifications, and centralized management.

Traditional candidate matching often uses keyword comparison between resumes and job descriptions. Modern AI-based approaches consider multiple attributes such as academic performance, technical skills, certifications, internships, projects, communication skills, and domain expertise. Similarity and ranking mechanisms can prioritize candidates.

The report also identifies AI applications such as personalized job recommendations, candidate ranking, resume analysis, skill-gap identification, and predictive analytics. Challenges include outdated profiles, privacy, AI bias, scalability, and external-platform integration. These observations motivate the proposed centralized and intelligent system.

III. SYSTEM OBJECTIVES

The primary objective is to develop an intelligent, secure, and centralized web platform that simplifies and automates campus recruitment. Specific objectives include centralized placement management; student profile management; recruiter registration and job posting; automated eligibility verification; AI-based job recommendations and candidate identification; real-time notifications and application tracking; and secure JWT-based authentication with role-based access control.

The platform is designed to support large numbers of students, companies, and placement drives. The report also identifies future extensions such as predictive analytics, resume parsing, AI-based interview assistance, chatbot integration, and advanced placement analytics.

IV. PROPOSED SYSTEM

The system has three primary user roles: Student, Recruiter, and Placement Officer.

Student Module: registration, profile management, resume upload, academic and technical information, job discovery, applications, and recruitment-status tracking.

Recruiter Module: company registration, job posting, eligibility definition, application review, candidate shortlisting, interview scheduling, and recruitment monitoring.

Placement Officer Module: student-record management, recruiter approval, placement-drive coordination, eligibility verification, monitoring, and report generation.

Eligibility Verification checks academic performance, required skills, graduation year, department, and recruiter-defined criteria before an application is accepted.

AI Recommendation compares student attributes with job requirements. It produces suitable job recommendations for students and candidate rankings for recruiters.

Reporting and Analytics provides placement statistics, recruitment trends, company participation, department-wise performance, and application trends.

V. SYSTEM ARCHITECTURE

The system follows a client-server and three-tier architecture consisting of presentation, application, and database layers. React.js provides the responsive interface. Node.js and Express.js implement business logic, request processing, validation, eligibility verification, recruitment workflows, and RESTful APIs. MongoDB stores student, recruiter, job, application, interview, placement, and notification data.

Logical flow: User → React.js Frontend → RESTful APIs → Node.js/Express.js Backend → Authentication and Business Logic → MongoDB → Response to Frontend.

JWT authentication protects system resources and role-based access controls user permissions. The modular architecture separates presentation, business logic, and data management, supporting maintainability and future enhancement.

VI. METHODOLOGY

The project follows a design-and-development methodology. The process includes problem identification, requirement analysis, system design, development, testing and validation, and evaluation.

Functional requirements include registration, login, profile management, company registration, job posting, eligibility verification, applications, shortlisting, interview scheduling, and report generation. Non-functional requirements include security, scalability, usability, reliability, and performance.

The workflow is student registration, recruiter registration and verification, job posting, eligibility verification, AI candidate-job matching, online application, recruiter review, shortlisting, interview scheduling, status updates, and placement reporting. Functional, integration, and user-acceptance testing are identified in the report.

VII. DATABASE DESIGN

MongoDB is used as the primary database because of its flexibility for structured and semi-structured placement data. Student records contain personal details, academic qualifications, technical skills, certifications, project and internship information, resumes, and placement status. Recruiter records contain company and recruitment information. Job records contain titles, descriptions, eligibility criteria, skills, salary information, and deadlines. Application records contain applications, interview schedules, selection status, and placement outcomes.

Centralized storage reduces duplicate records, supports consistent retrieval, and enables modules to work with updated placement information.

VIII. SECURITY CONSIDERATIONS

The system handles sensitive student, academic, resume, recruiter, and recruitment data. Secure authentication, role-based access control, password protection, and protected database management are therefore essential. JWT-based authentication is used for secure access.

AI recruitment can introduce bias when historical or training data are incomplete, imbalanced, or biased. The report recommends diverse data, regular evaluation, fairness, and transparency. Accurate and current student profiles are also important because incorrect information can affect eligibility decisions and recommendations.

IX. CASE STUDIES AND DISCUSSION

The first case study considers an educational institution. The centralized platform manages student profiles, academic records, resumes, company details, job postings, eligibility, applications, interviews, and placement records. The report states that the implementation reduces administrative work, improves coordination, provides automated notifications, and offers dashboards and reports.

The second case study considers a corporate recruitment environment. Recruiters can create openings, define eligibility, review profiles, schedule interviews, and monitor applications. Candidates can maintain profiles, upload resumes, apply for opportunities, and receive status updates. The report states that centralized management reduces manual effort and data duplication and improves communication and tracking.

Limitations include dependence on accurate information, timely recruiter updates, reliable internet connectivity, data security, privacy, and scalable infrastructure.

X. IMPLEMENTATION AND RESULTS

The implementation uses React.js for the frontend, Node.js and Express.js for backend processing, MongoDB for data storage, and JWT for authentication and role-based access. Students manage profiles and applications; recruiters manage jobs and candidates; and placement officers oversee recruitment through centralized administration.

Automated eligibility verification reduces manual checking. AI-assisted recommendations compare candidate profiles with job requirements. Notifications, application tracking, dashboards, and reports provide visibility across the recruitment lifecycle.

The report concludes from its case studies that the implementation reduces manual administrative effort, eliminates data duplication, improves communication, accelerates application tracking, and produces a more transparent recruitment workflow. The report does not provide

numerical benchmark measurements, so none are introduced here.

XI. FUTURE ENHANCEMENTS

Future directions identified in the report include AI-based resume screening, skill-gap analysis, predictive placement analytics, personalized career guidance, online assessments, virtual interviews, third-party job portals, cloud deployment, mobile applications, real-time communication, advanced analytics dashboards, and automated career guidance.

Future research can evaluate recommendation quality with measurable metrics, improve fairness and explainability, and integrate external recruitment services and cloud-based deployment.

XII. CONCLUSION

The Career Connect Placement System provides a centralized, secure, and intelligent approach to campus recruitment. By integrating student profiles, recruiter activities, job posting, eligibility verification, applications, interviews, placement tracking, and reporting, it reduces dependence on fragmented manual processes.

The React.js, Node.js, Express.js, MongoDB, and JWT architecture provides a modular foundation for secure placement management. AI-assisted candidate-job matching supports personalized job recommendations and recruiter-side candidate ranking. The report concludes that the system improves transparency, communication, coordination, and operational efficiency across the placement lifecycle.

The project demonstrates the feasibility of combining modern web technologies, centralized data management, secure authentication, and AI-assisted recommendations in an integrated career placement platform.

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