

# Hirelink: An Automated Campus Placement and Career Guidance System

Pradeep Kumar<sup>1</sup>, Shaziya Mazhar Sheikh<sup>2</sup>, Shreya Sunil Kamble<sup>3</sup>, Vaishnavi Sushil Nagrare<sup>4</sup>, Swati Raju Bagmare<sup>5</sup>, Prof. Ram Deshmukh<sup>6</sup>

<sup>12345</sup>*U.G. Student, Dept. of CSE, Guru Nanak Institute of Engineering & Technology, Nagpur, Maharashtra, India*

<sup>6</sup>*Associate professor, Dept. of CSE, Guru Nanak Institute of Engineering & Technology, Nagpur, Maharashtra, India*

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**Abstract-** The transition from academic environments to professional roles remains a significant challenge for students due to a lack of structured career pathways and inefficient manual placement processes. Conventional campus placement methods often fail to match student skill sets with specific recruiter requirements, leading to lower placement rates. This paper presents HireLink, an integrated web-based platform that automates the recruitment workflow while providing a dynamic Career Guidance Roadmap. The system utilizes a centralized database to facilitate real-time job matching, role-based dashboards for stakeholders (Students, Recruiters, and Administrators), and a skill-gap analysis module. By streamlining the communication between the Training and Placement Cell (TPC) and industry partners, HireLink enhances the efficiency of the hiring cycle and empowers students with personalized learning paths to achieve job readiness.

**Index Terms—** Campus Placement System, Career Guidance, Automated Job Matching, Skill-Gap Analysis, Full-Stack Development, React, Spring Boot, Recruitment Automation.

## I. INTRODUCTION

In the modern educational landscape, the efficiency of a college or university is frequently measured by its placement record and the professional success of its graduates. However, managing the placement process for hundreds of students manually is a labor-intensive task prone to data redundancy, communication delays, and human error. Traditional methods, which often rely on fragmented spreadsheets and manual document verification, fail to provide a streamlined experience for students, recruiters, or the Training and Placement Cell (TPC).

HireLink is designed to address these bottlenecks by providing a unified, automated digital ecosystem. The system acts as a bridge between academic preparation and professional recruitment, ensuring that the right candidates are matched with the right opportunities. Unlike conventional job portals that function merely as static repositories for resumes, HireLink actively guides the student through their career journey.

The primary objectives of this research and development project are:

- **Automation of Workflow:** To digitize the end-to-end placement process, from initial recruiter registration and job posting to final candidate selection.
- **Career Guidance Integration:** To provide a dynamic Career Guidance Roadmap that identifies skill gaps and suggests personalized learning paths for students based on their target job roles.
- **Real-Time Data Analytics:** To offer role-based dashboards that provide the TPC with live insights into placement trends, student eligibility, and recruitment statistics.
- **Enhanced Communication:** To facilitate seamless, real-time interaction between students and industry partners through a centralized platform.

By integrating automated job matching with proactive career development tools, HireLink aims to improve the overall placement rate and empower students with the technical readiness required for the evolving job market.

## II. METHODOLOGY

The development of HireLink follows a structured, full-stack approach to ensure a scalable, high-performance environment for students and recruiters. The methodology is divided into the following key phases:

### 2.1 System Design and Requirements Analysis

The first phase involved identifying the core pain points of the current manual placement process. Requirements were gathered for three distinct user roles:

- Students: Need for profile management, job application tracking, and skill development guidance.
- Recruiters: Need for efficient job posting, automated candidate filtering based on eligibility (CGPA, skills), and interview scheduling.
- Placement Cell (Admin): Need for a centralized dashboard to monitor placement statistics and verify company credentials.

### 2.2 Technology Stack Selection

To ensure a modern and responsive user experience, the following technologies were integrated:

- Frontend: React.js with Vite was chosen for its fast build times and component-based architecture.
- Styling: SASS/SCSS was utilized to create a modular and maintainable design system, ensuring a professional and consistent UI across all dashboards.
- Backend: Spring Boot (Java) or Node.js was implemented to handle RESTful API services, business logic, and secure authentication.
- Database: MySQL or MongoDB was used for structured data storage, handling complex relationships between students, applications, and job listings.

### 2.3 Core Feature Implementation

- Automated Job Matching: An algorithm was developed to compare student profile data against recruiter-defined criteria, automatically flagging eligible candidates.

- Career Guidance Roadmap: A logic-based module that analyzes a student's declared skills and generates a step-by-step learning path to bridge the gap for specific job roles.
- Real-Time Notifications: Implementation of automated alerts to keep students updated on their application status and upcoming placement drives.

### 2.4 Testing and Deployment

The system underwent rigorous unit and integration testing to ensure data integrity and security. Deployment was planned using platforms like GitHub for version control and cloud hosting services to ensure the application remains accessible to all stakeholders in real-time.

## III. SYSTEM ARCHITECTURE AND DESIGN

The architecture of HireLink is designed as a modular, high-performance ecosystem that facilitates seamless interaction between students, recruiters, and the college administration. The system follows a Client-Server Architecture to ensure scalability and data integrity.

### 3.1 Core Architectural Modules

The proposed system is divided into four integrated functional modules:

- User Authentication and Role-Based Access: A secure gateway that identifies users as Students, Recruiters, or Administrators, granting specific dashboard permissions based on their credentials.
- Student Career Development Module: This module hosts the Career Guidance Roadmap, which identifies skill gaps and provides a step-by-step learning path to help students achieve job readiness.
- Recruitment Management Module: A dedicated interface for industry partners to post job descriptions, set automated eligibility criteria (such as minimum CGPA), and manage candidate pools.
- Placement Analytics (Admin) Module: A centralized dashboard for the Training and Placement Cell (TPC) to monitor real-time

placement statistics and verify recruiter authenticity.

### 3.2 Data Flow and Database Design

To maintain a single "source of truth" for all placement-related information, the system utilizes a centralized database:

- **Centralized Storage:** All student academic records, recruiter job postings, and application statuses are stored in a MySQL or MongoDB database.
- **Unique Identification:** Each student and job posting is assigned a unique identifier to link academic performance directly to relevant job opportunities.

### 3.3 Automated Job Matching Workflow

The system implements a proactive matching logic:

- **Input Processing:** Student profiles and recruiter requirements are ingested through the React-based frontend.
- **Matching Engine:** The backend logic compares student skill sets and academic criteria against job descriptions in real-time.
- **Real-Time Alerts:** Once a match is identified or an application status changes, the system dispatches automated notifications to ensure timely communication.

### 3.4 System Design Overview

The design prioritizes a Fast and Responsive UI using Vite and React, styled with SASS/SCSS to provide a professional, user-friendly experience for all stakeholders. This modular approach allows for future expansions, such as integrating AI-driven resume parsing or mock interview simulations.

## IV. IMPLEMENTATION AND INTERFACE

The implementation of HireLink focuses on creating a high-performance, responsive environment that bridges the gap between academic preparation and professional recruitment. The system is built using a modern full-stack architecture to ensure scalability and a seamless user experience.

### 4.1 Technology Stack and Development Environment

The system is implemented using the following specialized tools and frameworks:

- **Frontend:** Developed using React.js with Vite to provide a fast, component-based user interface that handles real-time updates efficiently.
- **Styling:** SASS/SCSS is utilized for modular and maintainable styling, ensuring a professional and consistent UI across all user dashboards.
- **Backend:** A robust API layer built with Spring Boot (Java) or Node.js to manage complex business logic, secure authentication, and database interactions.
- **Database:** MySQL or MongoDB is used for structured data management, handling student records, job listings, and application statuses.
- **Version Control:** GitHub is used for collaborative development and deployment management.

### 4.2 Core Functional Interfaces

The interface is designed with a role-based access control system, providing unique experiences for different stakeholders:

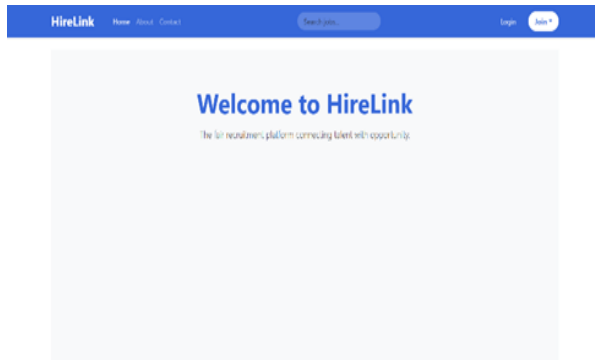
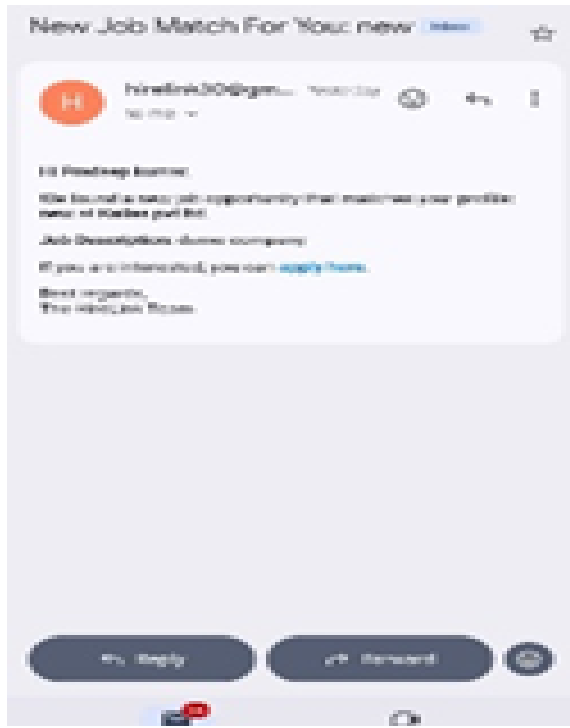
- **Student Dashboard:** An interactive interface where students manage their profiles and access the Career Guidance Roadmap. It provides a visual, step-by-step preparation guide based on identified skill gaps.
- **Recruiter Portal:** A streamlined interface for industry partners to post job descriptions and set automated eligibility criteria (such as minimum CGPA or specific technical skills).
- **Admin (TPC) Control Panel:** A centralized dashboard for the Training and Placement Cell to monitor real-time placement statistics, verify company credentials, and broadcast notifications.

### 4.3 Key Implementation Features

- **Automated Job Matching:** The backend implements a matching algorithm that compares student profiles against recruiter requirements in real-time, highlighting eligible candidates automatically.
- **Real-Time Notifications:** An automated alerting system that dispatches updates regarding application status, upcoming placement drives, and new job postings.
- **Responsive Design:** The interface is fully optimized for various devices, ensuring that students and recruiters can access the platform via

desktops or mobile devices without loss of functionality.

#### 4.4 Visual Proof



### Candidate Registration

Full Name:  Last:  Phone:

Country:  State:  City:

Select Country:  State:  Select City:

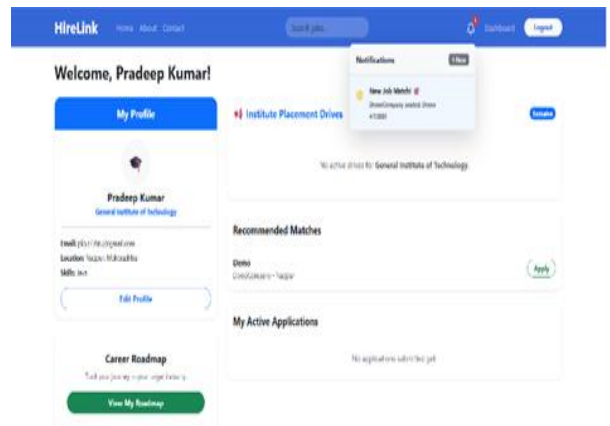
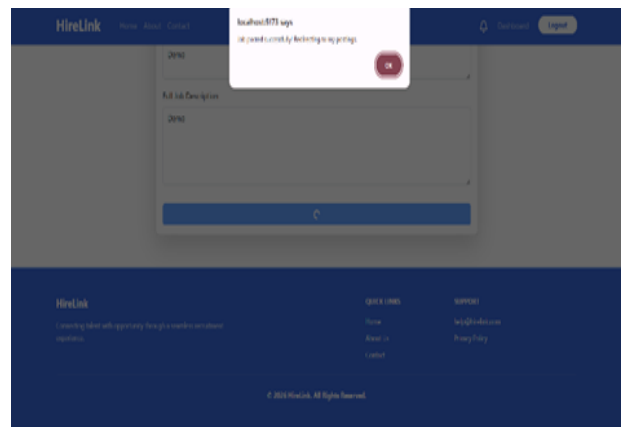
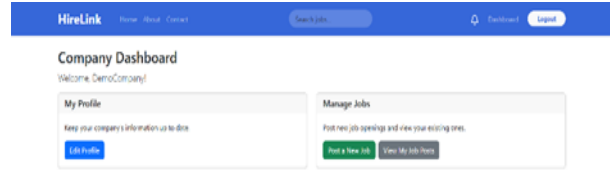
Institute / University:  PIN Code:

Select Institute:

Password:  Confirm Password:

Qualification:  Experience Years:

Skills:



#### V. FUTURE SCOPE

While HireLink provides a robust foundation for campus placements, the system is designed to evolve with emerging technologies to further enhance student employability. The following areas are identified for future expansion:

- AI-Driven Resume Scoring: Integration of Natural Language Processing (NLP) to provide students with real-time feedback and "ATS-friendliness" scores for their resumes.

- Virtual Mock Interviews: Implementation of AI-powered video interview modules that use facial expression analysis and speech recognition to help students practice common HR and technical questions.
- Predictive Placement Analytics: Utilizing Machine Learning models to predict a student's likelihood of placement in specific industries based on historical data and current skill trends.
- Blockchain for Document Verification: Incorporating blockchain technology to securely store and verify academic transcripts and certificates, reducing the manual verification workload for the TPC.
- Mobile Application Deployment: Expanding the platform into a native mobile application for Android and iOS to provide instant push notifications and on-the-go access for students and recruiters.
- Automated Skill-Based Testing: Integrating coding environments and aptitude testing directly into the recruiter portal to streamline the first round of technical assessments.
- Efficiency: Reducing the time-to-hire through automated eligibility filtering.
- Guidance: Offering personalized preparation paths to improve student job readiness.
- Transparency: Providing real-time updates and analytics via role-based dashboards.

Future iterations will continue to refine these processes by incorporating advanced AI-driven features and secure verification methods, ensuring the platform remains at the forefront of educational technology and professional recruitment.

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#### VI. CONCLUSION

The development and implementation of HireLink represent a significant advancement in automating the academic recruitment lifecycle. By transitioning from manual, spreadsheet-based tracking to a centralized, full-stack digital ecosystem, the platform effectively reduces administrative overhead for the Training and Placement Cell (TPC) while enhancing the accuracy of candidate selection for recruiters.

The integration of the Career Guidance Roadmap ensures that the system serves as more than just a job portal; it functions as a proactive developmental tool that empowers students to identify and bridge their specific skill gaps. Preliminary analysis of the system's architecture and matching logic indicates a more streamlined communication flow between all stakeholders—Students, Recruiters, and Administrators.

Ultimately, HireLink addresses the critical challenges of modern campus placements by providing:

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