



AI DRIVEN JOB AND INTERNSHIP PLATFORM: TRANSFORMING TECHNICAL EDUCATION PLACEMENTS IN RAJASTHAN

Pranjul Jain, Karnot Bhagyawardhan Singh, Shauryam Bhatt

Under the guidance of Mr. Pankaj Kumar Vaishnav

Department of CSE,
Geetanjali Institute of Technical Studies, Udaipur, India

Abstract: This research paper explores the development and implementation of an AI-driven job and internship platform specifically designed to address the challenges faced by technical education graduates in Rajasthan. The platform leverages artificial intelligence to match students with appropriate job opportunities, predict industry skill demands, and provide personalized career guidance. By bridging the gap between academia and industry requirements, this system aims to enhance placement rates, particularly for students from rural areas who face geographical and informational barriers. The paper outlines the system architecture, implementation process, and potential impact on the technical education ecosystem in Rajasthan.

Keywords: AI-driven platform, Job and internship matching, Technical education graduates, Rajasthan, Career guidance, Industry skill demand prediction, Placement enhancement, Rural students, Academia-industry gap, System architecture, Informational barriers, Personalized recommendations, Employment opportunities, Skill mapping

INTRODUCTION

In today's rapidly evolving digital landscape, the process of job searching and application has undergone a remarkable transformation. With the integration of advanced technologies, particularly Artificial Intelligence (AI), the traditional methods of finding employment and internships are being redefined to create a more personalized and efficient experience. Recognizing this growing need, we have developed "HirEdge", an AI-powered job and internship portal designed to bridge the gap between aspiring professionals and relevant career opportunities. The primary objective of this platform is to simplify the job-hunting journey by providing tailored recommendations based on an individual's skills, interests, and career aspirations. Unlike conventional portals that list opportunities generically, HirEdge intelligently creates job and internship suggestions, enhancing the user's chances of finding roles that align perfectly with their profile. This system empowers users to not only explore government and private-sector opportunities but also engage with mentors for personalized career guidance.

HirEdge offers an integrated solution where users can create and manage their profiles, upload resumes, track their applications, and receive timely notifications about job updates. Additionally, the platform features a mentorship module that allows users to book sessions with experienced professionals, further supporting their career development journey. The user-friendly interface, responsive design, and interactive features such as resume and cover letter management make the platform accessible and effective for a wide audience, including students, fresh graduates, and professionals seeking growth.

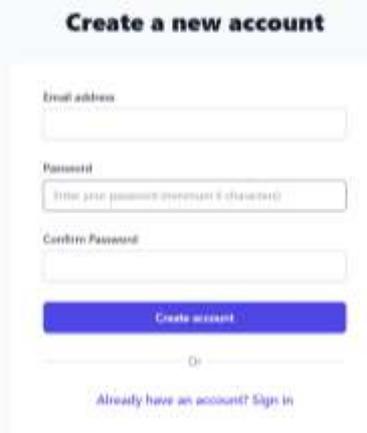
Our approach focuses on leveraging AI algorithms to match job seekers with the most relevant opportunities. By analyzing various parameters like job preferences, skill sets, and application history, HirEdge ensures a highly personalized experience. The platform also incorporates essential features like FAQs, a dynamic blog section for career tips, and an intuitive contact system for support.

AI DRIVEN JOBS AND INTERNSHIPS PORTAL (HirEdge):

HirEdge is an intelligent, AI-powered web platform designed to transform the job search experience by offering highly personalized and efficient job recommendations. By leveraging advanced machine learning algorithms and real-time data analysis, HirEdge connects users with job opportunities that perfectly align with their skills, preferences, and career aspirations. From seamless user registration to curated job suggestions, every feature is crafted to ensure a smooth, user-friendly journey.

This platform addresses common challenges faced by job seekers, such as overwhelming job listings, irrelevant postings, and the time-consuming nature of manual searches. With its smart recommendation engine, HirEdge filters through vast amounts of data to present only the most relevant job opportunities. Users can effortlessly create their profiles, list their skills, and instantly receive tailored recommendations.

HirEdge includes an intuitive Landing Page that welcomes users with a clean and engaging interface, a secure Register User Panel for safe and easy onboarding, and an efficient AI Jobs Recommendation Page that displays personalized job matches. By integrating AI at its core, HirEdge not only saves time but also empowers users to make informed career decisions, enhancing their chances of landing their desired roles.

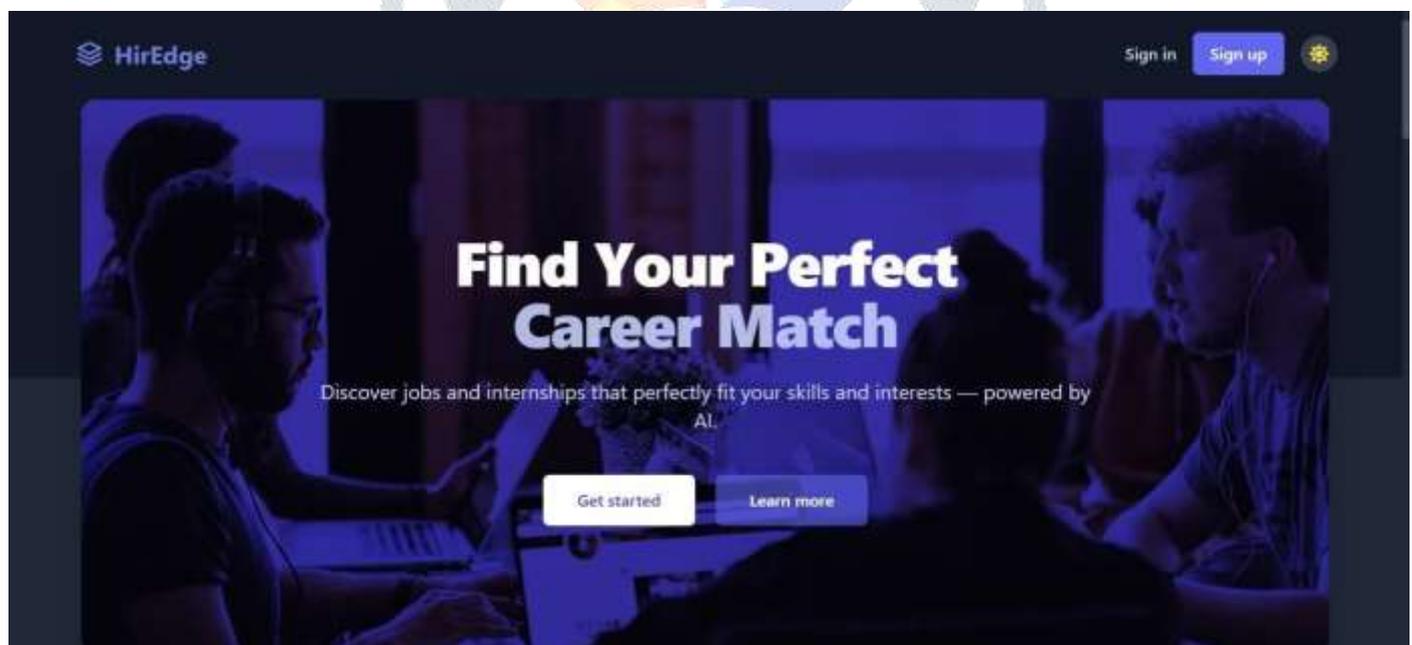


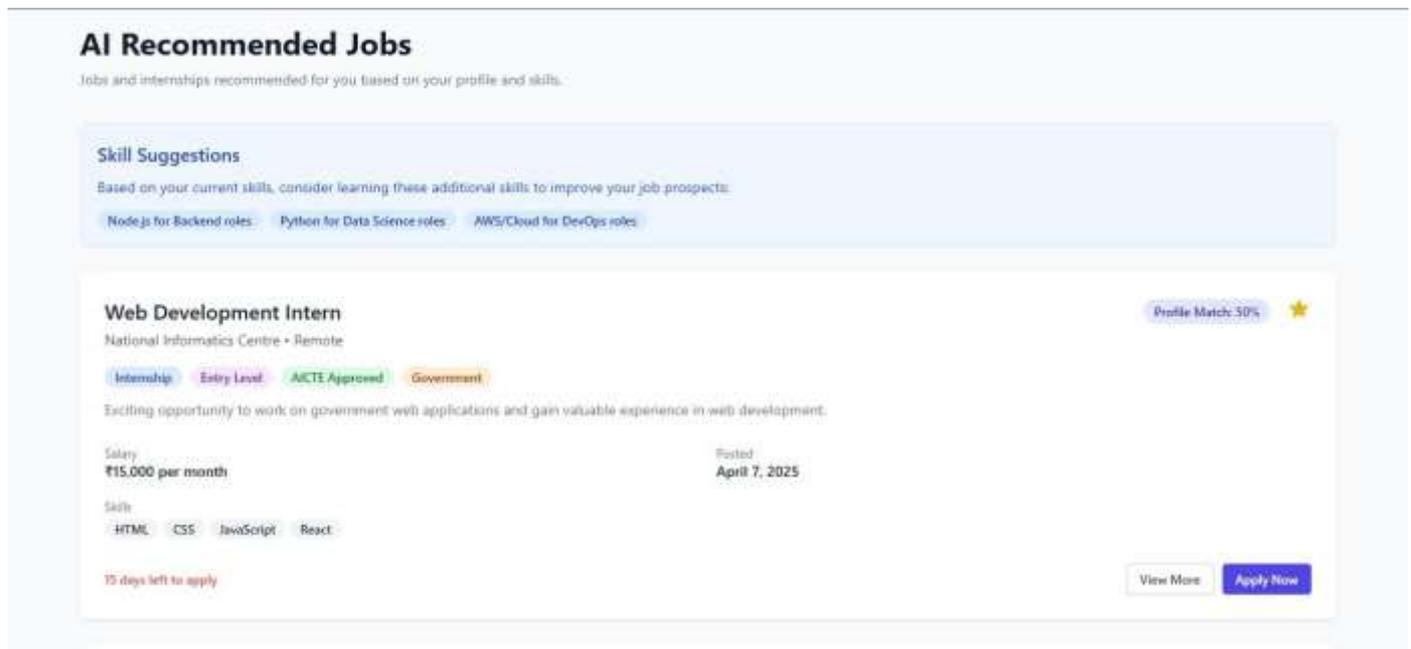
The image shows a registration form titled "Create a new account". It contains three input fields: "Email address", "Password" (with a hint "Enter your password (minimum 8 characters)", and "Confirm Password". Below the fields is a blue "Create account" button. At the bottom, there is a "Or" separator and a link "Already have an account? Sign in".

REGISTER PANEL USING FIREBASE

The HirEdge platform features a secure and user-friendly Login Panel powered by Firebase Authentication, ensuring that only authorized users can access the system. Firebase provides a robust backend for managing user authentication with high-level security standards, supporting multiple sign-in methods such as email/password, Google, and other providers.

This login system not only streamlines the onboarding process but also protects user data with encrypted authentication processes. It ensures quick and seamless access for both job seekers and administrators, maintaining data privacy and integrity. Users can easily create an account, log in, or reset their password through a straightforward and responsive interface, making the platform accessible and hassle-free.





INTERACTIVE LANDING PAGE AND PERSONALIZED AI JOB RECOMMENDATIONS

The Personalized AI Job Recommendations feature in HirEdge is one of the platform's most impactful components, aimed at enhancing the user experience by providing highly targeted and relevant job and internship opportunities. By leveraging advanced artificial intelligence algorithms, this feature carefully analyzes user data, including their input skills, professional interests, educational background, and preferred industries.

When a user creates or updates their profile, the AI engine processes this information in real-time to curate a list of job recommendations that are best suited to their individual profile. The system considers multiple factors such as job role requirements, location preferences, company type, and even trending opportunities in the market, ensuring that every suggestion feels personalized and meaningful to the user.

Real Time Data Analysis:

The HirEdge platform incorporates real-time data analysis to deliver the most accurate and up-to-date job and internship recommendations to its users. By constantly monitoring live job market trends, employer postings, and candidate interactions on the platform, HirEdge ensures that the opportunities presented to each user are always relevant and fresh.

This real-time data processing capability allows the system to instantly adapt to changing job market dynamics, such as newly posted positions, closing vacancies, or trending roles based on industry demand. As a result, users benefit from immediate access to opportunities that align perfectly with their profiles and interests.

Save Job Functionality:

The Save Job Functionality in HirEdge empowers users to bookmark job opportunities for future reference, adding a layer of convenience and strategic planning to their job search journey. Understanding that users might not always be in a position to apply immediately, this feature allows them to create a personalized list of potential job prospects at their own pace.

With a simple click, users can save desirable job listings to their account dashboard, ensuring quick and easy access whenever they return to the platform. This functionality is particularly useful for users who wish to compare multiple opportunities, research employers further, or prepare tailored applications before applying.

Apply For Job Functionality With Auto Generated Cover Letter:

The Apply Job Functionality in HirEdge takes the hassle out of the application process by not only allowing users to apply for jobs directly through the platform but also by automatically generating personalized cover letters based on the user's profile, skills, and preferences.

As soon as a user selects a job to apply for, the system intelligently analyzes their profile data — including skills, past experiences, achievements, and career goals — to craft a customized, professional cover letter that aligns with the specific job requirements. This ensures that every application reflects the candidate's strengths and relevance to the role, increasing their chances of making a strong impression on potential employers.

PROPOSED METHODOLOGY

Frontend Development:

The user interface of the platform is developed using Next.js and styled with Tailwind CSS, ensuring a responsive, modern, and consistent design across devices and browsers. This setup provides fast rendering, seamless navigation, and intuitive user experience.

Backend Development:

The backend infrastructure is managed through Firebase, offering a secure and scalable serverless architecture. It efficiently handles API requests, user data, and real-time updates, forming the backbone of the platform's functionality.

Database Management:

The application utilizes Firestore (NoSQL-based) for managing data. This secure and scalable database stores critical records including user profiles, job listings, applications, and interactions, ensuring high availability and performance.

AI & Data Processing:

AI-driven functionalities are powered by TensorFlow.js, enabling intelligent skill-job matching and personalized recommendations based on user input. Additionally, custom scripts are used to dynamically fetch and integrate data from the AICTE website, ensuring up-to-date internship and job listings.

RESULTS AND DECLARATION

Bridging the Gap Between Talent and Opportunity:

In the current scenario, many students—especially from rural or Tier-2/Tier-3 cities—struggle to find quality internships and jobs due to a lack of centralized, reliable platforms. This portal acts as a bridge by aggregating verified opportunities and matching them intelligently with users' skills.

Reducing Dependency on Traditional, Slower Processes:

Job searches often rely on outdated job boards or word-of-mouth referrals. This platform modernizes the process with AI recommendations, real-time data fetching, and instant access to relevant roles—speeding up job discovery and reducing friction.

Improving Accessibility of Government-Listed Internships and Jobs:

By automatically fetching data from the different websites, the portal ensures that government-approved internships and jobs are easily discoverable, promoting equal opportunity and awareness of central schemes among all students.

HARDWARE AND SOFTWARE REQUIREMENTS

HARDWARE:

For End Users (Mobile/Desktop):

- Processor: Intel i3 / AMD Ryzen 3 or higher (for desktops and laptops)
- RAM: Minimum 4 GB (8 GB recommended for optimal performance)
- Storage: At least 1 GB of free space for cached data and temporary files

Mobile Devices:

- Android: Version 8.0 (Oreo) or higher
- iOS: Version 12.0 or higher
- Processor: Intel i5 / AMD Ryzen 5 or higher
- RAM: Minimum 8 GB (16 GB recommended)
- Storage: Minimum 10 GB free space (for development tools, libraries, and local databases)

SOFTWARE:

Development Tools:

- Code Editor: VS Code / WebStorm
- Version Control: Git, GitHub
- Package Manager: npm / yarn

Deployment & Hosting:

- Firebase Hosting (for web app deployment)
- GitHub Pages / Vercel / Netlify (alternative hosting options)

Real-Time Database:

Firestore Realtime Database for storing and syncing data in real-time across all connected users.

CONCLUSION AND FUTURE SCOPE

By leveraging artificial intelligence, the platform can provide personalized recommendations, predict industry demands, and create equitable access to opportunities across geographical and social boundaries. The implementation of such a system has the potential to significantly enhance placement rates, improve the quality of employment outcomes, and strengthen the overall technical education ecosystem in Rajasthan.

Future Scope:

This research paper has presented the conceptualization, design, and implementation approach for an AI-driven job and internship platform aimed at transforming technical education placements in Rajasthan. The proposed system addresses critical challenges including inefficient placement processes, skill mismatches, and barriers faced by rural students.

By leveraging artificial intelligence, the platform can provide personalized recommendations, predict industry demands, and create equitable access to opportunities across geographical and social boundaries. The implementation of such a system has the potential to significantly enhance placement rates, improve the quality of employment outcomes, and strengthen the overall technical education ecosystem in Rajasthan.

Future work will focus on:

- Expanding the AI capabilities to include:
 - Natural language processing for resume parsing and job description analysis
 - Computer vision for video interview assessment
 - Voice analysis for communication skill evaluation
- Developing industry-specific modules for:
 - IT and software development
 - Manufacturing and production
 - Renewable energy sector
 - Healthcare technology
- Developing integration with national employment initiatives such as:
 - National Career Service
 - Skill India
 - Digital India
 - Startup India
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