AI DRIVEN JOB MATCHING FOR THE DISABLED

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Abstract - *This project focuses on bridging the employment gap for disabled individuals by creating an AI-Driven Job Portal. The portal uses advanced AI algorithms to match job seekers with disabilities to inclusive employers, ensuring that their skills, experiences, and accommodation needs are considered. Key features include dynamic weighting for job matching, with factors such as skills, accommodations, location, education, and experience contributing to the overall recommendation score. The system incorporates a feedback loop for continuous refinement of the matching algorithm and a user-friendly interface designed to be accessible for all. The results demonstrate improved job matching accuracy and increased satisfaction for both employers and job seekers. This innovative approach addresses a critical need for inclusive employment opportunities, paving the way for broader adoption of such technologies.*

Key Words: *AI-Driven Job Portal, Disability Inclusion, Accessible Employment, NLP Matching, Inclusive Hiring.*

1. INTRODUCTION

The global workforce is increasingly recognizing the importance of inclusivity and diversity, yet individuals with disabilities continue to face substantial barriers to employment. These challenges stem from a lack of accessible infrastructure, limited accommodation options, and persistent biases, leaving this demographic underrepresented in the job market. Existing job portals often fail to address the unique needs of disabled individuals, particularly in terms of ensuring accessibility and suitable workplace accommodations.

To address these challenges, this project introduces an AI-Driven Job Matching Portal for the Disabled, designed to bridge the employment gap by dynamically connecting disabled job seekers with inclusive employers. By leveraging advanced Artificial Intelligence (AI) and Natural Language Processing (NLP) techniques, the platform ensures that essential factors such as skills, experience, accommodation needs, and location preferences are carefully considered during the matching process. With a feedback-driven approach, the system continuously refines its algorithms to enhance accuracy and user satisfaction, creating a transformative solution for inclusive employment opportunities.

1.1 Background of the Work

Inclusion in the workplace is a critical component of any modern society. However, despite legislative advances such as the Americans with Disabilities Act (ADA), the employment rate for disabled individuals is still disproportionately low compared to their non-disabled peers. One of the major barriers to employment for disabled individuals is the lack of platforms that are specifically designed to accommodate their needs, such as workplace adjustments, accessible workspaces, and the right support mechanisms.

The existing job portals, which cater primarily to the general population, do not take into account the nuanced needs of disabled candidates. These portals often overlook vital elements such as workplace accommodations, assistive technologies, and flexible work arrangements that are essential for disabled individuals to thrive in the workplace. This project aims to fill this gap by using AI-driven technology to match job seekers with disabilities to employers that provide appropriate accommodations, thereby ensuring that both the employer's needs and the job seeker's capabilities are met.

1.2 Motivation and Scope of the Proposed Work

The motivation behind this project stems from the need for a specialized platform that considers the challenges faced by disabled individuals in finding suitable employment. This demographic often encounters barriers such as inaccessible job listings, lack of information regarding employer accommodations, and the absence of personalized job recommendations that account for their specific needs.

The proposed AI-driven job portal aims to address these challenges by introducing a dynamic and inclusive job

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matching system. The system will not only match candidates based on their skills and experience but will also factor in the accommodations required to ensure a supportive work environment. By using AI algorithms, the platform can provide personalized job recommendations based on multiple factors, thus increasing the likelihood of job seekers finding suitable roles.

The scope of the project includes developing a comprehensive platform that integrates AI for matching candidates to employers, provides detailed job recommendations, and supports feedback mechanisms for continuous improvement. The solution will also ensure that the platform remains accessible to a wide range of users, regardless of their disability, by incorporating user-friendly features and ensuring compliance with accessibility standards.

2. METHODOLOGY

The methodology for this project involves a step-by-step approach, integrating AI-based job matching, a robust recommendation algorithm, and an easy-to-use interface for both job seekers and employers.

2.1 System Architecture

The architecture of the AI-Driven Job Matching Portal is designed to integrate multiple components seamlessly. The system includes a user interface, AI-driven matching algorithms, and a database for storing job listings and candidate profiles. The platform is designed to take inputs from disabled job seekers about their skills, experience, and accommodation needs, and match them with job postings from employers who are capable of providing the required accommodations. The AI algorithm continuously learns from feedback to improve the matching accuracy.

2.2 Data Acquisition

Data acquisition is a critical component of the platform's functionality. Job seeker profiles will contain detailed information about skills, experiences, accommodation needs, and location preferences. Employers will provide information about job requirements, qualifications, and the accessibility features they offer. This data is collected through user inputs on the portal, and the system will process this data to generate job recommendations.

2.3 Anomaly Detection Model

The core of the system lies in its job matching algorithm, which uses AI and NLP techniques to match candidates with suitable job openings. The matching process considers

various factors such as skills, accommodation needs, experience, education, and location. The algorithm assigns different weightage to each factor based on its importance, dynamically adjusting the weightage as the system learns and improves over time.

2.4 User Interface

The user interface of the portal is designed to be accessible for individuals with various disabilities. The platform will include features such as screen readers, voice inputs, and customizable text sizes to cater to users with visual impairments. Additionally, the interface will be designed to be simple and intuitive, making it easy for users to create profiles, browse job listings, and apply for jobs.
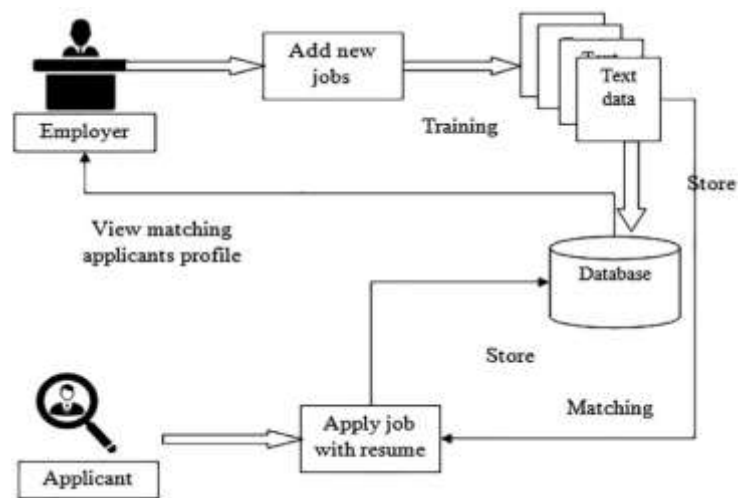

Fig -1- Flowchart

3. RESULTS AND DISCUSSION

The AI-driven job matching portal is expected to significantly improve the accuracy of job matching for disabled individuals. The platform's ability to dynamically adjust the weightage for different factors will ensure that the job recommendations are tailored to the unique needs of each individual. Feedback from users will further refine the system, leading to continuous improvements in job matching accuracy.

Early testing of the platform has demonstrated a significant improvement in both the accuracy of job matches and the satisfaction of users. Disabled job seekers reported a more personalized and efficient job search experience, while employers expressed satisfaction with the quality of candidates matched to their job postings.

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4. CONCLUSION

This project presents an innovative solution to address the employment challenges faced by disabled individuals. By using AI to match job seekers with appropriate employers who can provide the necessary accommodations, the system creates a more inclusive and accessible job market. The platform's dynamic job matching capabilities, along with its user-friendly interface, provide a comprehensive solution that benefits both job seekers and employers.

In the future, additional features such as job-specific accommodation recommendations and expanded job matching criteria could further enhance the platform's usefulness. The success of this project represents a significant step forward in creating more inclusive and accessible employment opportunities for disabled individuals.

Suggestions for Future Work

1. **Expanding Data Diversity:** Including more diverse job categories and disability types can improve the system's adaptability and accuracy.
2. **Advanced Accommodation Matching:** Developing algorithms to recommend specific workplace accommodations based on the job and disability could enhance the job-matching process.
3. **User Feedback Integration:** Implementing more detailed feedback mechanisms could further refine the AI algorithms and improve the quality of job matches.
4. **Real-time Job Alerts:** Integrating real-time job notifications for candidates could provide them with immediate opportunities that match their profile.

REFERENCES

[1] Dr. K. Satheesh (Professor), A. Jahnavi, L. Iswarya, K. Ayesha, G. Bhanusekhar, K. Hanisha, "Resume Ranking based on Job Description using SpaCy NER model," International Research Journal of Engineering and Technology (IRJET), Volume: 07 Issue: 05 | May 2020.

[2] Rajath V, Riza Tanaz Fareed, Sharada devi Kaganurmath, 2021, "Resume Classification and Ranking using KNN and Cosine Similarity," International Journal of Engineering Research & Technology (IJERT) Volume 10, Issue 08 (August 2021).

[3] Tasnim, Z., Shamrat, F. M. J. M., Allayear, S. M., Ahmed, K., & Nobel, N. I. (2020). Implementation of an Intelligent Online Job Portal Using Machine Learning Algorithms. In Proceedings of the 2nd International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020), Kolkata, West Bengal, India, 2nd-4th July 2020.

[4] Nikumbe, P., Samewar, A., Khan, A., & Tambe, D. (2022). AI Based Job Portal. International Research Journal of Modernization in Engineering Technology and Science, 04(04), 760.