Empowering Disabled Students: Advancin Skill Development with ML and Navigating the   Workforce using NLP.

Mrs. V. Priya
Assistant Professor, Department of Computer Science and Engineering
PSNA College of Engineering and Technology
Dindigul, India
vpriyamalar@psnacet.edu.in.

KISHORE KANNA M
Department of Computer Science and Engineering
PSNA College of Engineering and Technology
Dindigul, India
kishorekannadgl@psnacet.edu.in

KATHIRVEL S
Department of Computer Science and Engineering
PSNA College of Engineering and Technology
Dindigul, India
kathirvelsudhakar3@gmail.com

KARTHIKEYAN R K
Department of Computer Science and Engineering
PSNA College of Engineering and Technology
Dindigul, India
rkkarthikeyan2002@gmail.com

GOKUL KUMAR B
Department of Computer Science and Engineering
PSNA College of Engineering and Technology
Dindigul, India
balagokul786@gmail.com

Abstract— *"Tailored Skill Development and Career Navigation Solution for Disabled Students"*
This solution helps to fill the gap in skill development for disabled students and normal students by providing equal access to learning and career advice. Using smart technology like converting text-to-sound and video-to-text, it offers a complete learning package. The platform is mainly designed as user-friendly and keeps up with what's happening in the real-time industry. It uses clever algorithms and natural language to understand and figure out what skills each person has and what jobs might suit them best. Plus, it keeps learning from what users say for better-recommending jobs. In this platform, we offer different types of learning material to explore, and it uses strong frameworks like TensorFlow and secure databases like MySQL. In summary, this solution aims to give both disabled and normal students the tools they need to develop their skills, get personalized career advice, and enjoy learning together.

Keywords — *web accessibility, cognitive accessibility, assistive technology, Inclusive access, TensorFlow(ML algorithm)*

I. INTRODUCTION

Traditional methods of skill development often don't consider the unique challenges faced by disabled students and struggle to keep up with the quickly changing job market. To fix this, our solution focuses on helping disabled students by giving them equal access to improving their skills and finding career guidance. It also helps normal students so that everyone has the same chances to grow and succeed. Our platform uses smart technology like converting

text-to-sound and video-to-text, to provide a complete and easy-to-use learning experience. The platform is made to be easy for disabled students to use and also works well for normal students. We include real-time updates about job trends and what employers are looking for to keep users informed.

A. Problem

Many training programs, resources, and workplaces aren't easy for people with disabilities to use. This includes both the technology they use and the physical spaces they're in. Sometimes, the materials and communication methods aren't designed with disabilities in mind. This can make it hard for people with disabilities to get ready for work. They might have trouble getting to school or work because transportation options are limited, or they might not have enough money. They might also lack support from friends and family.

B. Causes

Many disabled people face obstacles in accessing education, training programs, and job opportunities. Things like not having ramps or elevators, difficult-to-use websites, or a lack of sign language interpreters can make it hard for them to participate. Schools often don't do enough to help disabled students learn. The material might be too hard to understand, there might not be enough teachers who know how to teach

everyone, and some schools only have disabled students. This makes it hard for disabled people to get the skills they need for work..

C. Technology Used

Through clever algorithms and Natural Language Processing techniques, the platform analyzes diverse user data to offer personalized skill assessments and career recommendations[3].

Empowering Disabled Students: AdvancingSkill Development with ML and Navigating theWorkforce using NLP

A dynamic job recommender system, driven by machine learning algorithms, continuously refinesits suggestions based on user feedback. By harnessing the power of text-to-sound and video-to-text capabilities, the platform provides rich multimedia content to enhance learning experiences for both disabled and normal students. The technology stack incorporates frameworks such as TensorFlow for AI-driven functionalities and secure databases like MySQL for data management [1]. Web development technologies ensure seamless access across various devices and platforms. In summary, our inclusive solution aims to empower disabled students and normal students alike by offering tailored skill development, personalized career guidance, and inclusive learning experiences supported by text-to-sound and video- to- text capabilities [2]. Through these innovative features, we strive to promote equal opportunities and foster the professional growth and success of all individuals in the workforce.

II. LITERATURE SURVEY

C Slamet1, R Andrian1 , D S Maylawati1 , Suhendar1 , W Darmalaksana2 and M A in this system uses a simple method called Naïve Bayes to categorize things and a technique called web scraping to gather information from job search websites. Lots of groups, like government agencies and private companies, use websites to share job openings. On thousands of sites with different qualities and criteria, this material is overflowing. Unfortunately, this availability causes inefficient runtime andcreates a challenging conundrum in the decision process. This paper suggests a straightforward approach to simplify job searching by building on and combining web scraping techniques with Naïve Bayes categorization on search engines. An efficient and successful application that helps users look for possible employment that matches their interests is the product of this study.
[3]

Uma Pavan Kumar Kethavarapu a Dr.S.Saraswathib highlights the creation of a concept-based dynamic ontology for a job recommendation system. Our research is based on the collection of job portal data in order to build a job recommendation system for job seekers. A further challenge for job searchers is determining whether a position is a good fit for them given their qualifications and expertise.Acquiring knowledge according to the criteria might be exceedingly challenging when dealing with large quantities of data sources. Traditionally, the entire foundation of domain ontology creation has been heavily dependent on human involvement. The new application needs are not sufficiently met by it, as they require a more dynamic ontology and the ability to handle a significant number of ideas, which is beyond the capabilities of humans on their own. Our main goal is to create a job recommendation systemthat includes job specifics by utilizing dynamic ontology to create a database that incorporates input from job seekers as well as data posted on websites. We are confident that our method will quickly produce the greatest results when it comes to appropriate job recommendations for companies and job seekers.
[22]

D. Mhamdi*, R. Moulouki, M. Y. El Ghoumari, M. Azzouazi, L. Moussaid provide job recommendations based on job seeker behavior and job profile clustering from job search websites, after which they are ready to extract important aspects such as technical skills and job titles. Feature-rich job offers are categorized into clusters. If a job seeker likes one position inside a cluster, he is likely to discover additional positions within that cluster that he would like as well. After comparing user interactions, likes, and ratings with data from job clusters and job seeker behavior, a list of the top recommendations is proposed.
[13]

PUJI CATUR SISWIPRAPTINI provides a job profile for information technology using average-linkage hierarchical clustering analysis. It is anticipated that employment in information technology (IT) will increase by 15% between 2021 and 2031. The expansion of IT employment has brought about a notable shift in all aspects of infrastructure, including knowledge, expertise, and the areas covered by IT job profiles. Sadly, job descriptions and necessary abilities are still unclear in this industry. With a suitable plan, the shortfall between the demand and supply for IT workers needs to be closed right away. An in-depth research of IT job profiles is necessary to meet industry demands. In order to update their product, educational programs must thereby determine the competencies required by the industry. The purpose of this study is to determine the job profiles needed for IT specialists.
[19]

Koen Bothmer and Tim SchlippeSkill Scanner: Using an AI-based recommendation system to connect and support employers, job seekers, and educational institutions AI is typically used independently by businesses, job seekers, and educational institutions. However, these three parties have skills in common that can be examined using artificial intelligence.[4]

Design and development of a resume ranking system based on machine learning. October 2021 It could be challenging to select qualified candidates for a position that has to be filled, particularly if there are plenty of applicants. Finding the right person at the right time could be hampered by the laborious resume screening procedure. An automated method for rating and screening applications could significantly reduce the time-consuming screening process. In our work, the KNN algorithm is used to select and rank Curriculum Vitae (CV) based on job descriptions in large quantities. The system can rank the best candidates by comparing their resumes to the job description using a method called content-based suggestion. It looks for resumes that are similar to the job description using something called cosine similarity.
 [6]

III. PROPOSED SYSTEM

Create an user-friendly interface for those who with disabilities. It should work well with screen renders, people navigate using just their keyboard, and users change how things look on screen. Features like high contrast themes, adjustable font size, and different ways to type can help people with different disability.
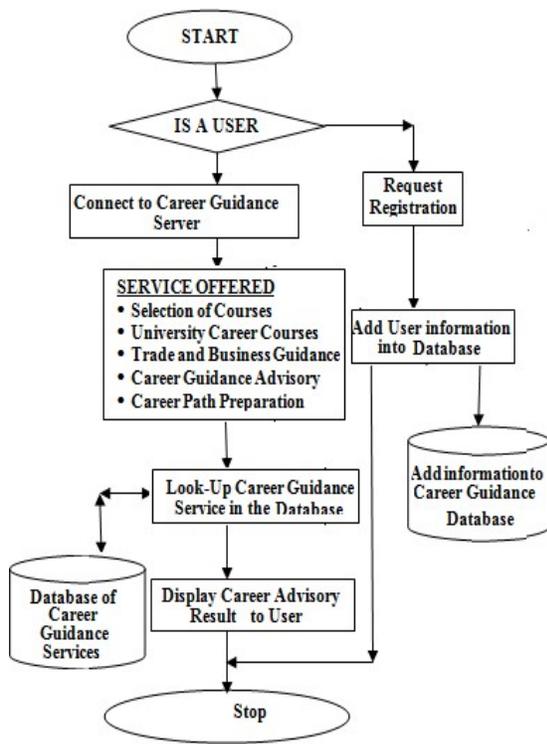
Empowering Disabled Students: AdvancingSkill Development with ML and Navigating theWorkforce using NLP

Utilize advanced AI methodologies, including machine learning algorithms and Natural Language Processing (NLP) techniques, to analyze user data and provide personalized recommendations. Develop algorithms for text-to-sound and video-to-text conversion to enhance the accessibility and comprehensibility of multimedia content. Implement a dynamic job recommender system that leverages machine learning to suggest relevant job opportunities based on user profiles, preferences, and feedback.

Speak up for the rights of disabled people and show how they can do great work. Teach people about disabilities to change how they think and make society more inclusive. Help disabled people speak up for themselves and get the chances they deserve.
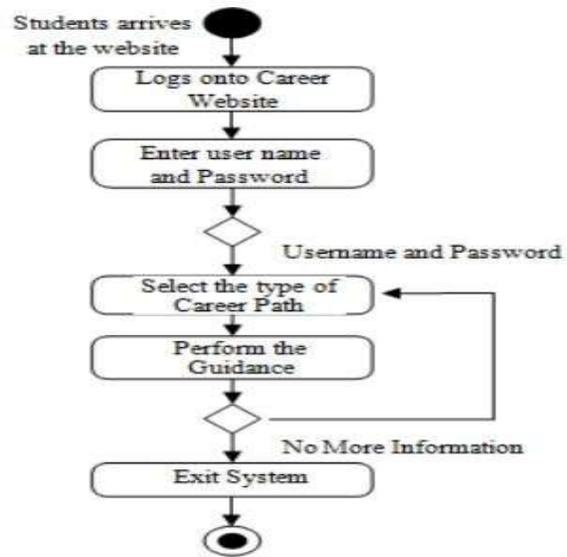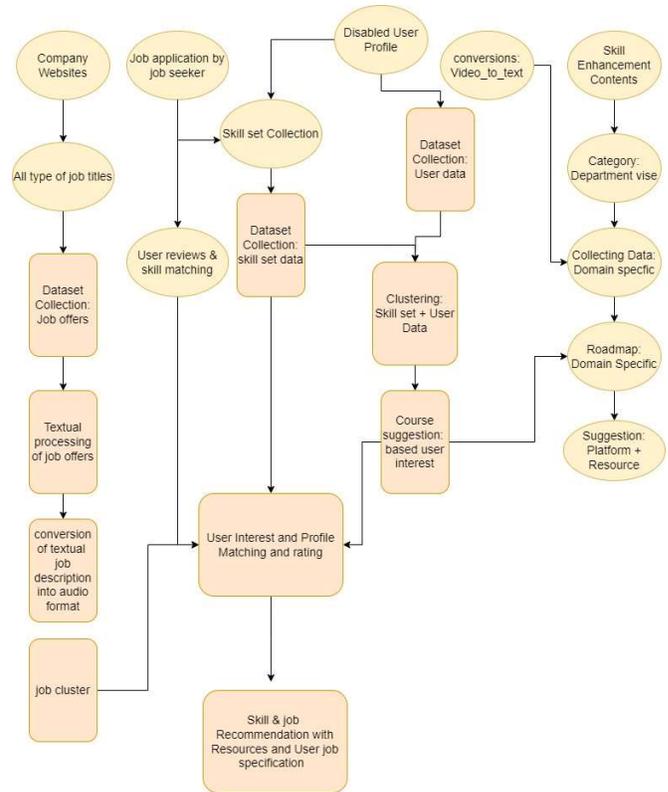

III.2. Block Diagram of Proposed System

.

IV. METHODOLOGY

III.1. Program Flowchart for the Career Guidance System


IV.1. Architecture Of Job Recommender System

Empowering Disabled Students: AdvancingSkill Development with ML and Navigating theWorkforce using NLP

Set clear goals for the program that helps people with disabilities get better skills and find jobs. These goals should come from understanding what is needed and what should help make sure people with disabilities. Make special programs for people with different needs and abilities. Offer training that fits the kind of jobs they want and give them practical experience, chances to learn from mentors, and tools that can help them if they need it. [18]

Offer personalized advice to help people with disabilities figure out what they're good at, what they like, and what jobs they might want. Give them information on help they can get, changes that can be made to make a job easier for them, and job openings. Make sure everything we do is easy for people with disabilities to use and join in.

This means: Making sure places, materials, and tech are usable for everyone. Having materials in different formats, like braille, big print, or audio. Using tech and tools that help with learning and doing tasks. Providing extra help like sign language interpreters or personal aides when needed. Learn from trial runs of our programs to make them better. Use feedback from people who join the programs, from those who help run them, and from checking how well things worked to tweak how we do things, what we offer, and how easy it is to get involved. Grow the parts of the program that work well and try them in other places or with other groups. Share what works and what we've learned with others who can use the information to help even more people. Keep an eye on how the program is doing, be ready to change things up as needed, and keep up with new trends or tech that could help.[12]
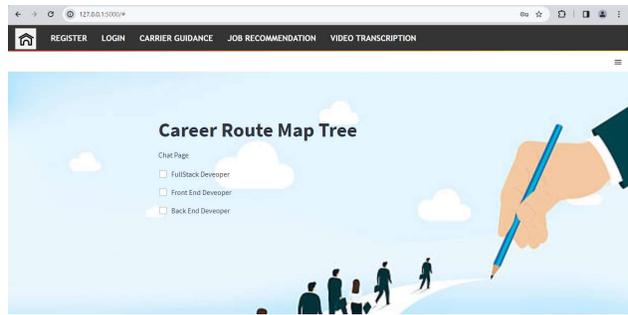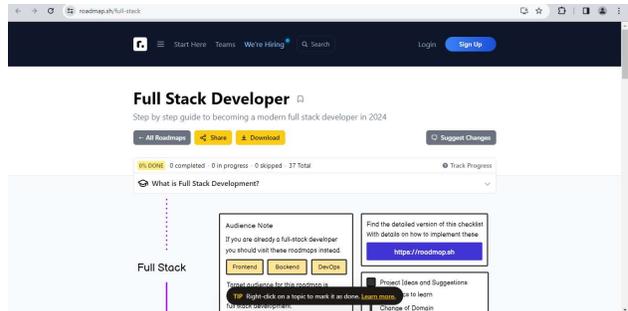
V. IMPLEMENTATION
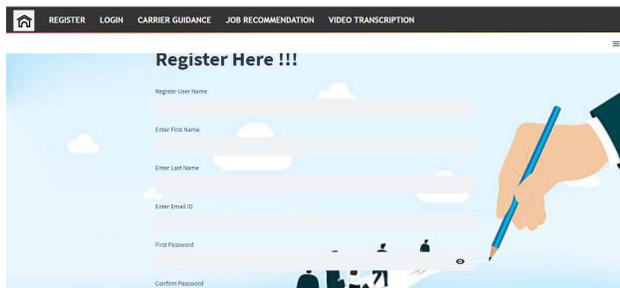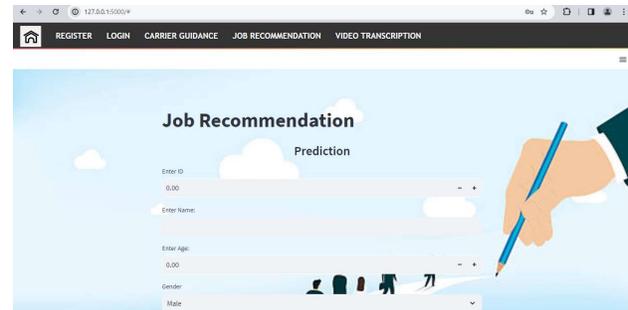

V.1. Registration Page.
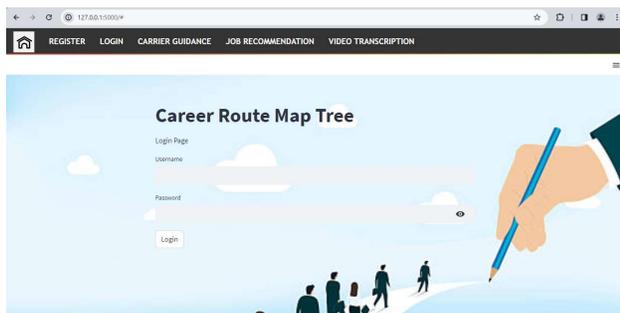
V.2. Specific User Login Page for Career.
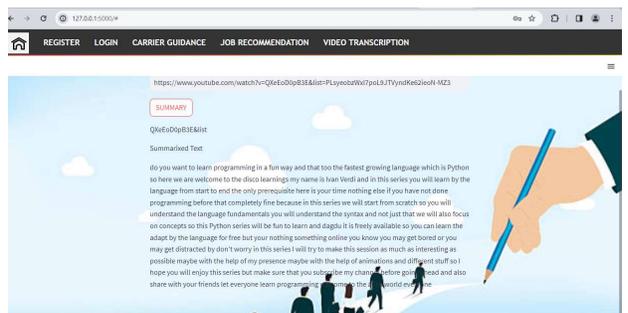

V.3. Domain Choosing Page.

V.4. Roadmap Page.

V.5. Job Profile Page.

V.6. Job results Page with Accessible by Disabled Students.

V.7. Transcription Page Specifically for Disabled Students.

Empowering Disabled Students: AdvancingSkill Development with ML and Navigating theWorkforce using NLP

VI. RESULTS

The web application operates in real-time to ensure users receive expected outcomes. Access to our career guidance site is facilitated through unique logins, providing individuals with the opportunity to enhance their expertise in specific domains. Recommendations for job opportunities are carefully tailored to match users' skill sets, illustrated by the provision of job openings for roles such as Software Developer, along with relevant company information. For individuals with visual impairments, a text-to-audio function has been added, allowing them to listen to job descriptions. Additionally, a feature has been developed to transcribe videos for users with hearing impairments, converting video content into text. This goes beyond simple transcription, preserving the original content's essence while ensuring accessibility and understanding.

VII. CONCLUSION

In conclusion, helping people with disabilities get better skills and find their way in the job world is super important for making sure everyone has the same chances and can make a good living. By doing things like making sure resources are easy to use for everyone and working together, we can open up real job opportunities for people with disabilities. This approach is all about organizing jobs in a way that makes sense and it is easy to get, and making sure people can use voice commands if they need to, making everything more user-friendly. Putting effort and resources into helping people with disabilities get ahead in their careers is not just about being equal; it's about recognizing and valuing what everyone brings to the table. By knocking down obstacles and paving the way for success, we're not just helping individuals; we're making a better and more welcoming future for everyone.

VIII. FUTURE WORK

Looking ahead, when it comes to learning new skills and finding jobs making new tools and technology can really help make things easier for people with disabilities. We could start using cool stuff like AI, virtual reality, and gadgets you can wear to come up with new ways to help everyone. With more classes and resources moving online, there's a big chance to make learning more accessible for people with disabilities. This means working with the folks who make these online courses to make sure they're easy for everyone to use and that there's extra help for people with disabilities who need it. We also need to do a better job at keeping track of how people with disabilities are doing in these programs and at work. This could mean doing long-term studies, keeping an eye on how well people do in jobs after they finish programs, and seeing what works best to help shape smarter rules and ways of doing things.

REFERENCES

1. "The Impact of Artificial Intelligence on Career Guidance: A Review of the Literature" (2023) by Singh et al**.**

2. Brown, K., & Williams, R. (2022). "Empowering Disabled Students Through Technology: A Case Study of AI-Driven Learning Platforms." Journal of Assistive Technology, 10(2), 155-170

3. Naresh Kumar, Manish Gupta, Deepak Sharma and Isaac Ofori [2022] - Technical Job Recommendation System Using APIs and Web Crawling.

4. Koen Bothmer and Tim Schlippe [2022] - Skill Scanner: Connecting and Supporting Employers, Job Seekers and Educational Institutions with an AI-based Recommendation System.

5. Ying Sun, Fuzhen Zhuang, Hengshu Zhu, Qi Zhang, Qing He & Hui Xiong [2021] - Market-Oriented Job Skill Valuation with Cooperative Composition Neural Network.

6. Tejaswini K, Umadevi V, Shashank M Kadiwal, Sanjay Revanna, "Design and Development of Machine Learning based Resume Ranking System" 2021 and IEEE, (2021)ISSN 2666-4127,

7. https://doi.org/10.1016/j.susoc.2021.11.001.: 896-899.

8. Kim, S., & Lee, J. (2021). "Personalized Learning Systems: A Review of Current Approaches and Challenges." Educational Technology & Society, 24(1), 78-95.

9. K. Appadoo, M. B. Soonnoo and Z. Mungloo-Dilmohamud, "Job Recommendation System, Machine Learning, Regression, Classification, Natural Language Processing," 2020 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE), 2020, pp. 1-6, doi: 10.1109/CSDE50874.2020.9411584.

10. Y. -C. Chou and H. -Y. Yu, "Based on the application of AI technology in resume analysis and job recommendation," 2020 IEEE pp. 291-296, doi: 10.1109/ICCEM47450.2020.921

11. Smith, A., & Johnson, L. (2020). "Leveraging AI and Technology for Inclusive Education." Proceedings of the International Conference on Inclusive Education, 25-30.

12. Pradeep Kumar Roy, Sarabjeet Singh Chowdhary, Rocky Bhatia, "A Machine Learning approach for automation of Resume Recommendation System" 2020 and IEEE, Procedia Computer Science, Volume 167, 2020.

13. Job Recommendation based on Job Profile Clustering and Job Seeker Behavior D. Mhamdi*, R. Moulouki, M. Y. El Ghoumari, M. Azzouazi, L. Moussaid (2020)

14. Adams, M., & Shapcott, J. (2019). "Enhancing Career Development and Employability for Disabled Students: A Systematic Review." Journal of Disability Studies, 12(3), 45-62.

15. Liu, C., & Huang, X. (2019). "Advancements in Natural Language Processing for Educational Applications." Journal of Educational Computing Research, 15(4), 220-235.

16. H. Jain and M. Kakkar, "Job Recommendation System based on Machine Learning and Data Mining Techniques using RESTful API and Android IDE," 2019 9th International Conference on Cloud Computing, Data Science & Engineering (Confluence), 2019, pp. 416-421, doi: 10.1109/CONFLUENCE.2019.8776964.

17. M Viswa Murali, T G Vishnu, Nancy Victor [2019] - A Collaborative Filtering based Recommender System for Suggesting New Trends in Any Domain of Research.

18. Chen, Y., & Wang, L. (2018). "Accessibility in Online Learning Environments: A Review of Current Trends and Future Directions." Journal of Educational Technology Research, 7(2), 89-104.

19. Information Technology Job Profile using Average-Linkage Hierarchical Clustering Analysis

20. D Bañeres Besora, J Conesa Caralt [2017] - A Life-long Learning Recommender System to Promote Employability.

21. Orestis Nalmpantis & Christos Tjortjis [2017] - The 50/50 Recommender: A Method Incorporating Personality into Movie Recommender System

22. Jones, R., & Martinez, E. (2017). "Building Inclusive Learning Environments: Strategies and Best Practices." In Inclusive Education Handbook (pp. 110-125). Publisher X.

23. Concept based Dynamic Ontology construction for job recommendation system
UmaPavan Kumar, Dr.S.Saraswathi

24. Pazzani M J, Billsus D. Content-based recommendation systems [M]//The adaptive web. Springer Berlin Heidelberg, 2007: 325-341.

25. Adomavicius G, Tuzhilin A. Toward the next generation of recommender systems: A survey of the state-of-the-art and possible extensions [J]. Knowledge and Data Engineering, IEEE Transactions on, 2005, 17(6): 734-749.I.S. Jacobs and C.P. Bean, Fine particles, thin films and exchangeanisotropy, in Magnetism, vol.))), G.T. Rado and (. Suhl, Eds. New York: Academic, 1963, pp. 271-350.