

AI for Empowering Women in Technology

¹Dr. Amjad Kham, ²Keerti Basavraj Hampannavar

Associate Professor Department of Master of Computer Applications, BIET, Davangere-577004.

amjadkhan.biet@gmail.com, Davangere, Karnataka, India¹

P.G. Student, Department of Master of Computer Applications, BIET, Davangere-577004.

keertihampannavar01@gmail.com, Davangere, Karnataka, India²

ABSTRACT

In today's digital age, Artificial Intelligence has become an important part of how technology grows and how decisions are made using data. Even with all these advancements, women are still less represented in the technology field. Many face challenges like lack of proper education, guidance, and mentorship, which makes it harder for them to move forward in their careers.

This project, "AI for Empowering Women in Technology," is created to help bridge this gap. It uses AI to support women by understanding their skills, interests, and career goals, and then suggesting useful learning and career options. The system helps users find suitable courses, job opportunities, scholarships, and mentorship programs based on their individual profiles.

With the help of this platform, women can make clearer and more confident career choices. It also helps them identify areas where they need improvement and encourages continuous learning. The aim is to make learning resources more accessible, especially for those who may not have easy access otherwise.

Overall, the project focuses on creating equal opportunities and building confidence among women. By combining smart recommendations with mentorship support, it works towards reducing the gender gap in technology and encourages women to grow, lead, and succeed in the tech industry.

INTRODUCTION

The project "AI for Empowering Women in Technology" focuses on helping women build strong careers in the tech field with the support of Artificial Intelligence. Even today, many women find it difficult to enter or grow in this field because of limited learning opportunities, lack of proper

guidance, fewer connections, and slower career progress.

To solve these problems, this project introduces an AI-based platform that supports women at every stage of their career journey. Users can sign up and share their background, skills, interests, and future goals. Based on this information, the system suggests useful learning options such as courses, certifications, workshops, and even suitable job opportunities.

The platform also provides access to mentors and experts who can guide users and help them make better decisions. Along with this, there is a space where users can connect with others, exchange ideas, and learn from shared experiences. A progress tracking feature is included so users can see how far they have come and stay motivated to keep improving.

This project highlights how technology can be used not only for technical growth but also to create equal opportunities. By bringing learning, mentorship, and community support together, it builds a helpful environment for women who want to succeed in the IT field.

In the end, the main aim is to reduce the gap in the technology sector and encourage more women to learn, grow, and achieve success in the digital world.

I. LITERATURE REVIEW

Many studies have explored how Artificial Intelligence and Machine Learning can be used to support learning, career planning, and skill improvement. These studies show that personalized learning systems can make a big difference, as they help users stay interested and learn more effectively. This is especially important for women in technology, where proper guidance can improve both confidence and career growth.

Researchers have also developed systems that suggest courses and learning paths based on a person's skills, interests, and experience. Such systems make it easier for users to understand what they need to learn next and help them become more job-ready. Some research has also focused on mentorship platforms, where learners can connect with experienced professionals for advice and motivation.

However, there are still some gaps in these existing solutions. Most systems focus only on recommending courses and do not provide complete support. Features like career guidance, mentorship, and community interaction are often handled separately instead of being available in one place. Also, only a few studies clearly focus on the specific challenges faced by women, such as lack of guidance, unclear career direction, and the need for continuous encouragement.

From this review, it is clear that there is a need for a single platform that brings all these features together. A system that combines personalized learning, career support, mentorship, and community interaction can better support women and help them grow successfully in the technology field.

II. EXISTING SYSTEM

Today, there are many online platforms that support learning and skill development. Websites like Coursera, Udemy, and edX offer a wide range of technical and professional courses. These platforms are useful, but they mainly depend on users to search and choose courses on their own. They do not always provide proper guidance based on a person's background, interests, or learning style. Because of this, many women feel confused about which learning path to follow.

There are also communities such as Women Who Code and Girls in Tech that focus on supporting women through networking, mentorship, and career advice. While these groups are helpful, they usually provide general guidance rather than personalized support. They do not use advanced AI systems to analyze individual profiles or give customized recommendations based on personal goals.

Similarly, job portals like Indeed help users find jobs and internships. However, these platforms mostly work using keyword-based searches. They do not fully understand a user's skills, interests, or long-term career plans. As a result, it becomes difficult for many women to find job opportunities that truly match their abilities and aspirations.

Another major issue with current systems is the lack of integration. Learning platforms, mentorship communities, and job portals all work separately. Users need to create multiple accounts and manage everything on different websites. This makes the process time-consuming and can reduce motivation and engagement over time.

Key challenges in existing systems include:

- Lack of personalized learning and career guidance
- Limited use of AI to identify skill gaps
- Learning, mentorship, and job search available on different platforms
- Less accessibility for beginners and non-technical users

III. PROPOSED SYSTEM

The proposed system, "AI for Empowering Women in Technology," is designed to overcome the limitations of existing platforms by creating a single, intelligent, and interactive platform that supports women in their learning and career development journey. The main goal of this system is to help women identify their strengths, bridge skill gaps, and access the right opportunities through the (AI) and (ML). The system registers and their education level, technical skills, areas of interest, and career goals. Using this data, the AI model analyses each profile and generates personalized recommendations for courses, certifications, job roles, and mentorship opportunities that match the user's background and aspirations.

The service allows users to connect with experienced mentors from the technology industry who offer provide power and expertise, offer valuable information, and enable informed decision-making. In addition, having a discussion forum enables users to communicate with fellow users, share experiences, as well as in dialogues connected with technology, learning, and personal development. For supporting continued development, it is utilized in providing an individual dashboard for monitoring personal achievements, courses finished, and progress made overall. The proposed system has the following major features: AI-Based Personalization Learning Paths are tailored to the individual profiles, interests, and skill levels of the users.

Mentorship Integration Users are paired with trained mentors for advice relevant to skill improvement and career planning Career Guidance Module The system provides recommendations for intern, job, and scholarship position needs to be determined in relation to users' abilities and aspirations Community Support A community space where networking, dialogue, and knowledge-women in technology Progress Tracking Dashboard Tracks progress in terms of learning milestones, achievements, and the learning goals for the future User-Friendly Interface and friendly to everyone, including new users and those less technical experience In general, such a system aims it is smart, inclusive, and supportive women can learn, develop, and thrive in the technology space Involving AI recommendation systems in mentorship and community interactions, this system enables women to thrive and progress within their technology careers.

Advantages:

- ☐ Provides personalized learning paths based on individual skills and interests
- Helps identify skill gaps and suggests suitable courses to improve
- Offers career guidance tailored to user goals and market demand
- ☐ Connects users with mentors for support, guidance, and confidence building
- ☐ Recommends jobs, internships, and upskilling opportunities
- ☐ Promotes equal access to technology education and careers
- ☐ Reduces gender bias through fair, data-driven AI systems
- Enables flexible and self-paced learning for better accessibility
- ☐ Improves decision-making with data-driven insights
- ☐ Encourages continuous skill development through regular feedback
- Builds confidence and motivation among women learners

– Supports remote learning and career growth, especially for those with limited access

System Architecture

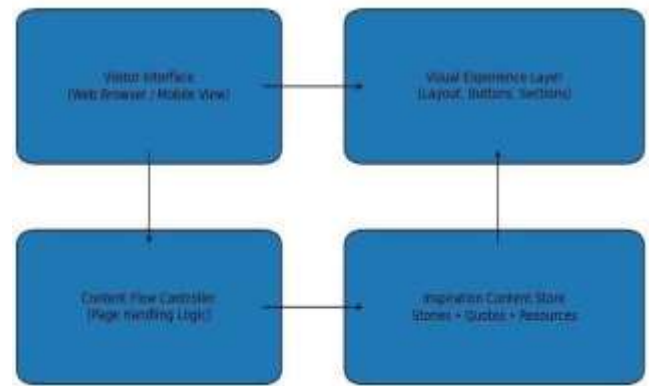


Fig 1. System Architecture

V. METHODOLOGY

Proposed Methodology

The implementation phase is one of the most important parts of the project development process. In this stage, all the planned ideas and designs are converted into a working system. For the project “AI for Empowering Women in Technology,” the focus is on developing an AI-based platform that supports women by offering personalized learning suggestions, mentorship, and career guidance in the technology field.

The development is carried out in a step-by-step manner to make sure everything works smoothly. It starts with understanding what users need, followed by collecting useful data and designing suitable algorithms. After that, the complete system is built and tested. Different parts of the system, such as user registration, recommendation features, mentorship support, and the dashboard, are developed individually and then combined to form a single, fully functional platform.

1. Data Collection

Data is collected from various online sources such as course platforms, job portals, scholarship listings, and mentorship programs available on sites like Coursera, LinkedIn Learning, and Udemy. In addition to this, user details including name, qualifications, technical skills, and areas of interest are gathered during the registration process. All this information is stored in a structured database so it

can be easily accessed and used for further analysis.

Once the data is collected, it is carefully cleaned and prepared before use. This step includes removing duplicate entries, correcting errors, handling missing values, and organizing the data into a proper format. Text-based data, such as skills or job roles, is also processed so that the system can understand and use it effectively for generating accurate recommendations.

2. AI Model Development

The AI model is the main part of the system that makes everything work intelligently. It studies each user's profile, including their skills, interests, and goals, and then suggests options that suit them best. To do this, the system uses different machine learning methods that help match users with the right courses, job roles, and mentors.

It looks at what the user likes and also compares it with similar users to give better suggestions. Over time, as users interact with the platform, the system learns from their choices and feedback. This helps it become more accurate and provide recommendations that feel more personal and useful.

3. Frontend Development

The frontend of the system is designed to be simple, attractive, and easy to use for everyone. It is built using HTML, CSS, and JavaScript to create responsive and interactive web pages. Through this interface, users can sign up, log in, and easily view the recommendations provided by the system.

Features like buttons, forms, and clear navigation menus help users move smoothly between different sections without confusion. The overall design focuses on making the platform easy to understand, accessible to all users, and comfortable to use, ensuring a good experience throughout.

4. Backend Development

The backend acts as the brain of the system, managing data processing, user authentication, and communication between the frontend and AI modules. It is implemented using Python with frameworks such as Flask or Django. The backend handles tasks like storing data in the database, executing AI algorithms, retrieving recommendations, and sending responses to the

frontend. Security features such as password encryption and user authentication are also integrated to ensure data privacy and system protection.

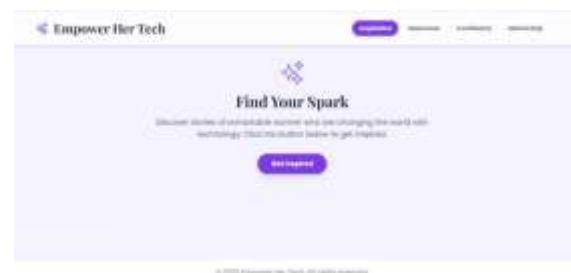
5. Database Integration

A strong and dependable database is important for handling data in an organized way. In this project, MySQL is used to store different types of information such as user details, course data, job opportunities, mentorship records, and system activities.

The database is carefully structured so that data is well connected and easy to access whenever needed. Techniques like proper organization and indexing help in retrieving information quickly and accurately. To keep the system stable and secure, regular backups are taken and the data is checked to avoid errors or loss.

VI. RESULT

The results of the proposed system show that it is very effective in supporting women in the technology field with the help of AI. The platform brings together different features like personalized learning suggestions, career guidance, mentorship support, and motivational resources in one easy-to-use system.



The system studies each user's skills, interests, and career goals to suggest suitable learning paths, courses, and job options. These suggestions make it easier for users to choose the right direction, reducing confusion and helping them make better decisions about their careers and skill development.

The platform is designed in a simple and easy-to-use way, with sections like Inspiration, Resources, Confidence, and Mentorship. One of the key features, "Get Inspired," shares real success stories of women in technology, which helps motivate users and builds their confidence.

By using AI methods, the system can quickly find skill gaps and suggest the right resources to improve them. This helps users become more prepared for job opportunities. Overall, the platform works reliably and can handle real-world use. It has strong potential to support more women in joining, continuing, and succeeding in technology careers while promoting equal opportunities and growth in the industry.

REFERENCES

1. Russell, S., & Norvig, P. (2020). Artificial Intelligence: A Modern Approach. Pearson Education.
2. Goodfellow, I., Bengio, Y., & Courville, A. (2016). Deep Learning. MIT Press.
3. Marr, B. (2019). Artificial Intelligence in Practice: How 50 Successful Companies Used AI and Machine Learning to Solve Problems. Wiley Publications.
4. Sharma, P., & Kaur, R. (2022). "AI-Driven Personalized Learning Systems for Women Empowerment." International Journal of Computer Applications.
5. Gupta, S., & Verma, A. (2021). "AI in Career Guidance and Mentorship Programs." Research.
6. United Nations (2021). Women in Technology: Bridging the Gender Gap. UN Women Report.
7. Coursera. (2024). AI and Machine Learning Courses. Retrieved from <https://www.coursera.org>
8. Udemy. (2024). Technology and AI Learning Resources. Retrieved from <https://www.udemy.com>
9. edX. (2024). Online Courses in AI, Data Science, and Technology. Retrieved from <https://www.edx.org>
10. LinkedIn Learning. (2024). AI and Technology Career Development Resources. Retrieved from <https://www.linkedin.com/learning>