

SkillBridge: A Digital Solution for Bridging the Gap Between Skills and Employment

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Abstract- The SkillBridge app aims to link professionals from a variety of industries with people who wish to acquire practical skills. Traditional learning approaches occasionally fall short of offering real-time mentoring and hands-on experience in today's quickly changing digital world. SkillBridge fills the need of developing a platform where students can find mentors, access skill-based resources and work together on learning opportunities. The software encourages knowledge sharing, community-driven learning, and skill development across a range of professions. Through the use of technology, SkillBridge assists professionals, students, and lifelong learners in increasing the effectiveness, accessibility, and interactivity of skill learning.

Keywords- Object-Oriented Programming, Expense Splitting, Abstraction, Code Reusability, Maintainability.

I. INTRODUCTION

Background of the Study

In today's world, it is essential for students and even professionals to develop practical and extra skills along with the overall knowledge. While many online learning platforms provide theoretical knowledge, they often lack real-world coaching and interactive learning opportunities. This makes it difficult to respond to situations in the real world, which leaves a negative impression and reduces general knowledge. The SkillBridge Application seeks to bridge this gap between students and qualified professionals by providing a digital platform for talent exchange and mentorship.[1] The program allows users to experiment with different skills, connect with experienced mentors, and participate in cooperative learning activities.

Skill Bridge's user-friendly interface and well-organized communication system facilitate professional development, peer learning, and information sharing. It seeks to establish a community where people may improve their current talents, pick up new ones, and support one another's educational endeavours. [2]

Problem Statement

As there are very less platforms that helps talented workers to find the companies directly, in many places they struggle in search of employment prospects. Both traditional job search methods and the current digital platforms do not effectively display practical skills, provide personalized matching, or enable bilingual and local communication. Because of this, there is a gap between companies looking for particular

competencies and skilled individuals.[3] As a result, there is a need for an intelligent and user- friendly system that can effectively match employees with relevant career opportunities based on their preferences, skills, and experience while also making it easy for businesses to locate competent candidates. By offering a digital platform that enables skill-based matching and conversation, the SkillBridge program seeks to eliminate this problem.

II. LITERATURE REVIEW

An overview of current research and systems pertaining to skill development technologies, mentorship programs, and digital learning platforms is given by the literature review. Numerous studies emphasize the increasing significance of technology-driven platforms that offer accessible learning opportunities and link students with professionals. [1] Researchers have investigated a number of approaches to improve skill acquisition, such as online learning platforms, collaborative learning environments, and community-based information sharing environments.

These studies highlight how digital tools, data-driven insights, and interactive systems can improve learning accessibility and efficiency.[2] However, there is a corrective-drawbacks like restricting real world deployment and there is no individual mentorship as required. In order to create a more efficient and cooperative skill-learning environment, the analysis of these research studies aids in identifying gaps and inspires the development of the SkillBridge application.

Table: Literature Survey related this SkillBridge System

Sr. No	Authors	Objective	Method / Tools	Key Contribution	Limitation
1.	Sharma et al.	Explore digital platforms and intelligent Systems for improving Learning and collaboration efficiency	System architecture design, algorithm implementation, and experimental evaluation	Demonstrates how technology-driven platforms can enhance knowledge sharing and user interaction	Limited real-world implementation and evaluation with large user communities
2.	Kumar & Singh	Analyze challenges and opportunities in modern education systems and skill development	Survey research, policy analysis, and educational framework evaluation	Highlights the importance of digital learning environments and skill-based education	Focuses mainly on theoretical and policy aspects rather than practical application development
3.	Patel et al.	Study socio-economic development and educational needs of communities	Field surveys, stakeholder interviews, and regional data analysis	Identifies gaps in education, skill development, and community learning resources	Limited to specific geographic regions and may not represent wider populations
4.	Gupta & Verma	Investigate the role of e-learning platforms in enhancing employability skills	Case studies, data analytics, and user feedback analysis	Shows how digital platforms bridge the gap between academic learning and industry requirements	Depends heavily on user participation and internet accessibility
5.	Reddy et al.	Develop and evaluate a smart skill-matching system for job seekers	Machine learning algorithms, recommendation systems, and prototype testing	Provides personalized skill recommendations and improves job matching efficiency	Requires large datasets for accuracy and may face scalability challenges

III. SYSTEM ARCHITECTURE

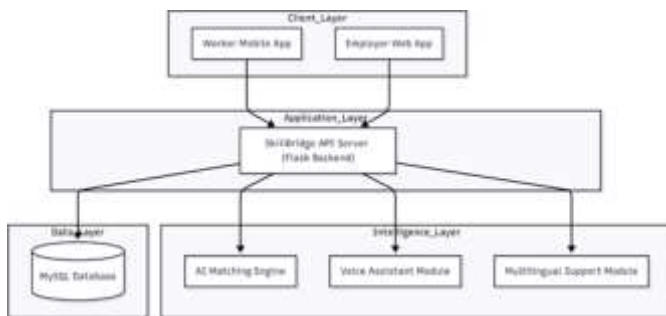


Fig 3.1: Layered System Architecture

The four primary layers of the SkillBridge system's architecture are:

Client Layer: This layer includes the Worker Mobile App and the Employer Web App. While employees use the mobile app to create

profiles, add skills, and uncover career opportunities, employers utilize the web app to post positions and identify qualified candidates.

Application Layer: The central system handles user data, links various platform components, and processes requests from both applications is the SkillBridge API Server (Flask Backend).

Data Layer: All pertinent data, including user profiles, job advertisements, and skill sets, is stored in the MySQL database.

Intelligence Layer: This layer consists of the AI Matching Engine, Voice Assistant Module, and Multilingual Support Module, which facilitate voice communication, match employees with jobs, and support multiple languages for improved accessibility.

IV. METHODOLOGY

This study employs a systematic methodology to create an efficient digital solution for education and skill enhancement. A mixed-method approach is employed, integrating qualitative and quantitative techniques to guarantee a thorough comprehension of the issue and the suggested system. The study commences with a literature review to evaluate current research, discern trends, and underscore research deficiencies.

Then, requirement analysis is done to find out what students and teachers need. To make sure the data is reliable, it is gathered from surveys, questionnaires, interviews, and other sources. With these ideas in mind, the system is built on a modular architecture that includes a user-friendly interface, backend processing, and a database. There is a recommendation feature that gives users suggestions that are relevant to what they type in. PHP, JavaScript, HTML, and CSS are used to build the system.

The implementation phase consists of system development, followed by testing and validation to make sure it works, is easy to use, and is correct. User input is turned into useful outputs, and feedback is used to make things better. Finally, performance metrics and user satisfaction analysis are used to judge the system. The methodology effectively integrates research with practical implementation, despite some limitations, such as reliance on data accuracy.

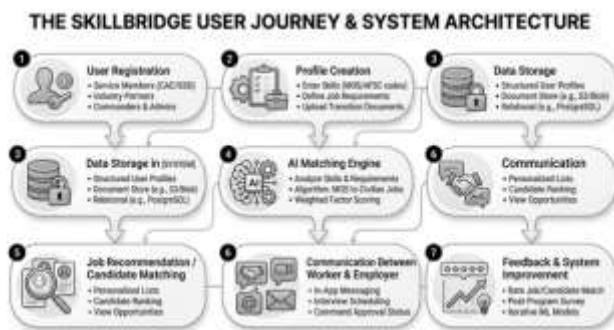


Fig 4.1: System-flow

The SkillBridge system begins with user registration, where workers and employers create accounts. Workers enter their skills, experience, and preferences, while employers provide job requirements. The database has this data. After processing the stored data, the AI matching engine finds qualified candidates for open positions. After that, the system lets both parties communicate and makes recommendations. Finally, feedback from users helps improve the system's performance and matching accuracy.

Proposed System Methodology

The SkillBridge system works on the methodology of connecting skilled workers with employers using an intelligent digital platform. Through mobile and web interfaces, the system gathers user data, including location, employment requirements, experience, and talents. The backend server processes this data before storing it in a structured database. In order to suggest the best prospects for employees and pertinent candidates for employers, an AI-based matching module evaluates the data. Additional modules such as voice assistance and multilingual support improve accessibility and usability. The overall methodology ensures efficient skill matching, faster recruitment, and better communication between users.

V. EXPERIMENTATION, RESULT AND DISCUSSION

The experimentation phase of this study concentrates on assessing the performance and efficacy of the developed digital learning and skill enhancement system. The system was built with PHP, JavaScript, HTML, CSS, and a MySQL database. It was tested in a controlled setting with users like students and learners. We ran a number of tests to see if the system worked, how well it processed data, and how accurate the recommendation feature was. User inputs such as interests, preferences, and skill requirements were given to see how well the system makes outputs that are useful.

The results show that the system works well when it comes to processing user data and making good suggestions. The MySQL database makes sure that data is stored safely, can be quickly retrieved, and that backend operations run smoothly. The user interface was easy to use and interactive, making it easy for users to find their way around and get personalised suggestions. During testing, the system also showed good response time and reliability.

Testing:

To make sure that the proposed system worked, was reliable, and performed well overall, it was tested. We made a number of test cases to make sure that different parts of the system worked, such as handling user input, processing data, using MySQL for database operations, and the recommendation feature. Testing for functionality was done. We also tested the system with different input scenarios to see how accurate it was and how quickly it could come up with useful suggestions. Also, database testing was done to make sure that data was stored, retrieved, and kept consistent in a way that worked well. Testing showed that the system works well with few mistakes, but its accuracy depends on how well the user inputs are. In general, the testing phase shows that the system is stable, dependable, and ready for real-world use.



Fig 5.2: System evaluation metrics

The results and discussion show that the proposed system does indeed help people learn and improve their skills through a digital platform. Using MySQL makes it easier to manage data and makes the system more reliable. Future improvements could include adding more data to the database, making the recommendation algorithms better, and making the system more scalable for real-world use.



Fig 5.3: Website Dashboard

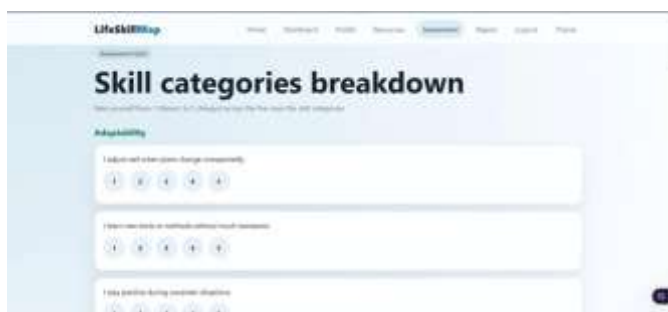


Fig 5.4: Questionnaire webpage

VI. CONCLUSION

Through the creation of an interactive and collaborative learning environment, the SkillBridge application exemplifies the potential of digital platforms in bridging the gap between learners and competent professionals. The study and literature

analysis highlight the growing need for platforms that support real-time knowledge exchange and community-based learning, which are often absent from conventional educational systems.

The suggested system's outcomes support the idea that a structured skill-sharing platform can greatly increase access to educational materials and professional advice. SkillBridge helps create a supportive learning environment for professionals and students by encouraging teamwork and the development of practical skills. Future developments like sophisticated recommendation systems, scalability improvements, and integration with professional networks can further boost the platform's efficacy and reach, even though the current implementation concentrates on essential capabilities.

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