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SkillTech: A Modern LMS for Personalized Learning and Career Growth

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***Abstract*— The rapid evolution of digital learning platforms has revolutionized education making it more accessible and interactive. However, traditional Learning Management Systems (LMS) often lack seamless career integration and personalized guidance limiting their effectiveness. This paper presents SkillTech an innovative full-stack platform that integrates an LMS with a job portal and an AI-driven chatbot to enhance learning outcomes and career opportunities. SkillTech offers interactive course modules, skill-based job recommendations bridging the gap between education and employment. The chatbot provides intelligent assistance guiding users through course selections and career pathways. The platform leverages modern web technologies including MongoDB, Express.js, React, and Node.js ensuring scalability and efficiency. By combining education, career services and AI-driven mentorship in a single ecosystem. SkillTech aims to redefine online learning and job placement fostering a more comprehensive digital learning experience.**

***Keywords*— LMS, Job Portal, AI Chatbot, Full-Stack Development, Online Learning, Career Integration**

I. INTRODUCTION

Learning Management Systems (LMS) have significantly improved digital education by providing structured course delivery, interactive learning environments, and easy access to educational resources. However, many traditional LMS platforms lack personalized career guidance and seamless integration with employment opportunities, limiting their effectiveness in supporting professional growth [1]. SkillTech addresses this limitation by integrating an LMS with a job portal and an AI-driven chatbot to enhance both learning and career development.

Advancements in full-stack web technologies, particularly the MERN stack (MongoDB, Express.js, React, and Node.js), have enabled the creation of scalable and efficient LMS platforms. These technologies allow for better user experience, real-time collaboration, and adaptive learning models [2]. Unlike conventional LMS platforms that focus primarily on content delivery, SkillTech incorporates:

- AI-driven course recommendations tailored to user progress and learning patterns.
- A built-in job portal that connects learners with relevant employment opportunities.
- An AI chatbot that provides real-time assistance and adaptive learning support.

AI chatbots play an essential role in modern LMS platforms, offering automated guidance, answering queries, and supporting users in course selection [3]. While many existing systems focus on adaptive learning, limited research has explored the integration of AI for career-oriented mentorship within LMS environments. SkillTech bridges this gap by combining structured learning with job-oriented recommendations.

Additionally, SkillTech leverages data analytics and machine learning to track learning progress, predict outcomes, and optimize course recommendations. By integrating LMS, AI-driven chatbots, and a job portal, SkillTech provides a structured, scalable, and efficient digital education platform that supports both learning and career growth [5].

II. LITERATURE REVIEW

Several studies have explored the integration of job portal, AI-chatbot and LMS platforms to enhance education and career readiness. [1] discussed the development of a full-stack LMS that improves efficiency, scalability, and user experience through real-time collaboration and interactive learning. However, their research does not address career-oriented mentorship or job market integration. Similarly, [2] analyzed the impact of AI-driven LMS on higher education emphasizing personalized learning and adaptive assessments. Despite these advancements the study lacks a focus on career pathways and job alignment.

[3] introduced "Study Notion," a MERN-based LMS with a user-friendly interface, communication tools, and robust assessment mechanisms. While this enhances digital education, it does not incorporate AI-driven mentorship for career progression. [4] reviewed AI chatbot integration in LMS aligning it with cognitive load theory and constructivist learning principles. Their work focuses on student engagement but does not explore career guidance or job-related recommendations. [5] developed an LMS using the MERN stack enabling course enrollment, content management. Although it highlights full-stack LMS capabilities, the study does not address AI-powered mentorship or skill-based learning for career development.

These studies contribute valuable insights into LMS design and AI integration. However, they do not bridge the gap between learning and career growth. SkillTech addresses this limitation by integrating an AI-driven chatbot and job portal within an LMS offering career guidance and intelligent mentorship alongside interactive learning.

III. METHODOLOGY

The development of SkillTech follows a structured methodology aimed at integrating a Learning Management System (LMS) with a job portal and an AI-powered chatbot for career guidance. The methodology consists of five key phases.

The first phase: Requirement Analysis, involved a thorough evaluation to ensure SkillTech meets the needs of learners, educators, and job seekers. This phase included reviewing existing LMS platforms to identify gaps in AI-driven career mentorship. Additionally, user surveys were conducted to understand learners' expectations from a job-integrated LMS, while job market trends were analyzed to align course offerings with current industry demands.

The second phase: System Design & Architecture, focused on building SkillTech as a modular full-stack web application. The frontend was developed using React.js to create an interactive and responsive UI, while the backend utilized Node.js with Express.js to handle API requests. MongoDB was chosen for efficient storage and retrieval of user data, course content, and job listings. Cloud services such as Cloudinary were used for media storage, and Stripe was integrated for payment processing. The OpenAI API powered the chatbot, offering AI-driven career guidance and learning support. A user-centric design approach was adopted to ensure seamless navigation across the LMS modules, job portal, and chatbot.

The third phase: Development & Implementation, followed the Agile methodology, enabling iterative improvements based on continuous user feedback. Key implementations included the LMS module, which featured course creation, content management, student progress tracking, assessments, and interactive discussion forums. The job portal offered skill-based job recommendations, resume building, application tracking, and employer dashboards for posting job listings. The AI chatbot provided real-time career guidance, personalized course recommendations based on user skills, and conversational support for FAQs and job search assistance.

The fourth phase: Testing & Optimization, ensured the system's reliability through various testing strategies. Unit testing verified individual components such as authentication, database operations, and API responses, while integration testing ensured seamless interaction between the LMS, job portal, and chatbot.

Finally, in the Deployment & Evaluation phase, the system was deployed using cloud hosting services to ensure scalability and performance. Post-deployment, SkillTech was evaluated based on user engagement metrics such as course enrollments and job applications. Additionally, the effectiveness of the chatbot in guiding users toward relevant career paths was assessed to measure its impact.

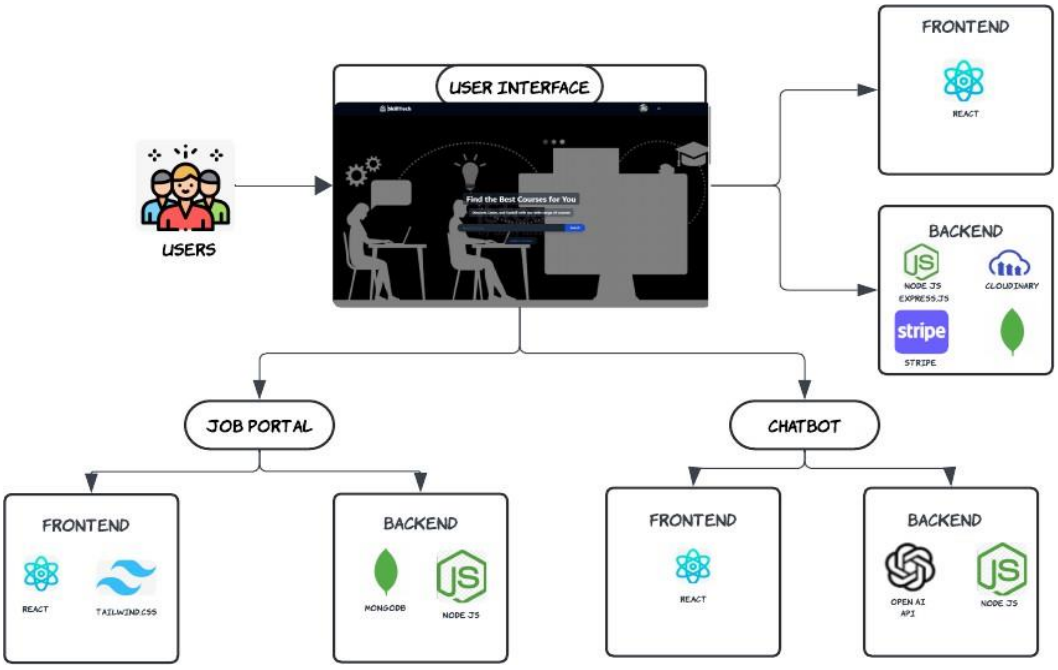

Fig1. System Architecture

IV. RESULTS AND ANALYSIS

A The SkillTech dashboard provides a unified platform that integrates an advanced Learning Management System (LMS), an AI-powered chatbot, and a job portal. The system is designed to enhance user experience by offering seamless course management, intelligent assistance and career opportunities, all within a single interface.

The LMS module in SkillTech is designed to provide a structured and interactive learning experience, ensuring seamless course management and effective knowledge acquisition. Users can browse through a catalog of available courses and enroll in those that align with their interests or career goals. The enrollment process is simple and intuitive allowing learners to join courses effortlessly. Once enrolled, they gain immediate access to structured course materials which promote progressive learning. SkillTech supports multiple learning formats, including high-quality video lectures, which help learners grasp complex concepts through visual demonstrations. The platform ensures accessibility across different devices such as desktops, tablets, and mobile phones enabling users to engage with learning materials anytime and anywhere.

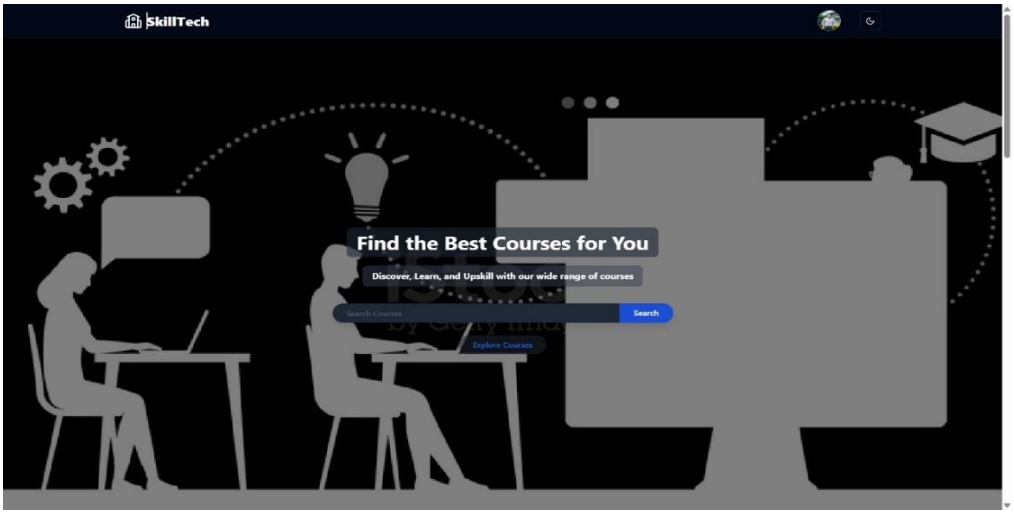

Fig2(a) Dashboard

Instructors play a crucial role in the SkillTech ecosystem and the platform provides them with comprehensive tools to create and manage courses efficiently. They can upload and organize course materials in a logical sequence, modify content in real-time and update resources based on student needs and industry trends. The instructor dashboard allows educators to track student progress and provide timely feedback. SkillTech also incorporates a progress tracking system, helping learners monitor their course completion and stay on track with their educational journey.

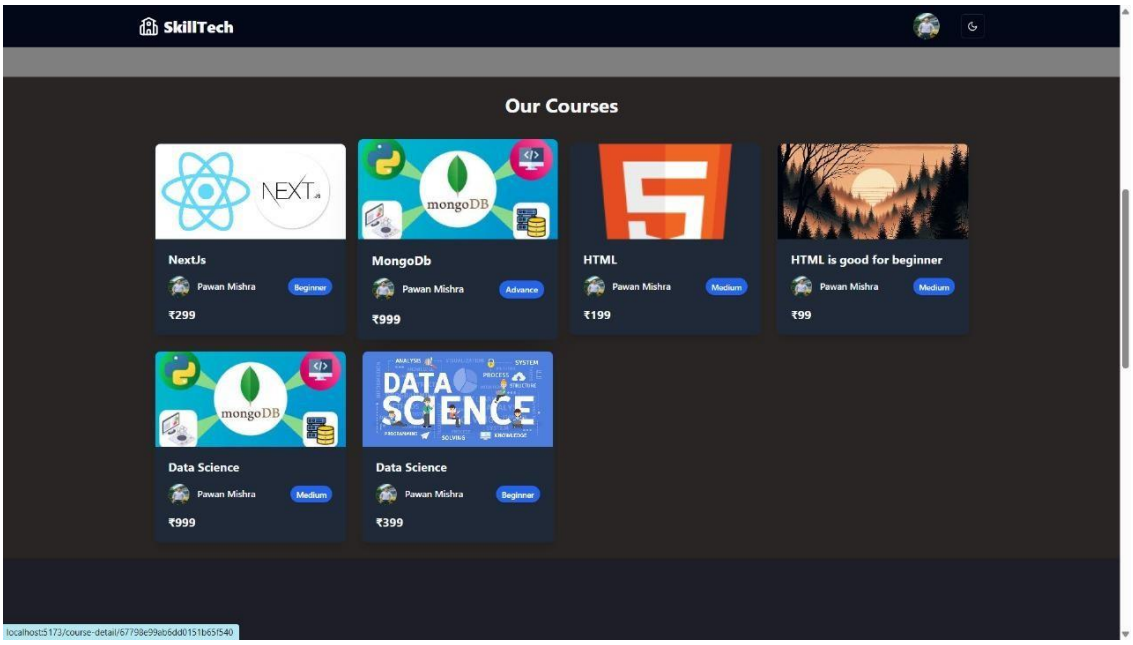

Fig2(b) Courses Layout

Alongside its LMS functionalities, SkillTech integrates a job portal to bridge the gap between learning and employment. The portal provides job listings tailored to users' acquired skills and completed courses allowing them to explore career opportunities in alignment with their expertise. To enhance user engagement and support, SkillTech integrates an AI-driven chatbot that acts as a virtual assistant for learners. The chatbot provides instant responses to course-related queries, offers personalized recommendations and assists in job searches. By leveraging AI, SkillTech ensures a seamless learning experience while empowering users to make informed career decisions.

V. CONCLUSION

SkillTech serves as a comprehensive platform that seamlessly integrates education and career development by combining a Learning Management System (LMS), a job portal, and an AI-powered chatbot. The LMS provides a structured and interactive learning experience with diverse course materials, real-time progress tracking, and adaptive learning tools that help learners stay engaged and motivated. Instructors benefit from a dynamic dashboard that enables efficient course management, facilitates content updates, and monitors student performance, ensuring a responsive and data-driven educational environment. The platform's AI-driven course recommendations further enhance personalized learning by adapting content delivery based on user progress and preferences. Beyond its educational capabilities, SkillTech empowers users in their career journey through its integrated job portal, which aligns job opportunities with users' acquired skills and completed courses. This integration allows learners to search for jobs based on their skill sets, track applications in real time, and access employment opportunities that match their qualifications. By bridging the gap between academic learning and professional requirements, SkillTech provides a direct pathway to employment, making career transitions more seamless and efficient. Additionally, the AI-powered chatbot enhances user engagement by offering instant responses to queries, guiding learners through course selections, and providing personalized career recommendations. The chatbot's ability to assist in job searches and application processes further improves the job-seeking experience, making it more streamlined and accessible.

VI. REFERENCES

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