MGM's College of Engineering, Nanded

Department of Computer Science &Engineering

"SPEAKUP - LANGUAGE LEARNING APP"

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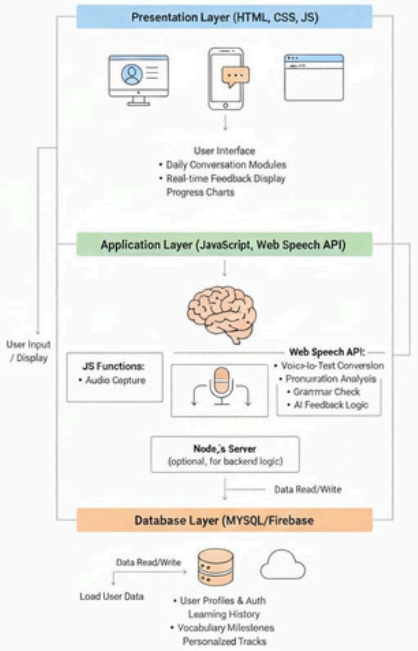
Introduction:

Traditional language learning often lacks real-time interaction, making it difficult for students to master oral fluency. To address this, SpeakUp is proposed as an innovative web-based platform that automates the feedback loop for language learners. By integrating advanced speech recognition APIs, the system provides a centralized digital environment to practice speaking and listening. It streamlines the learning process by offering instant validation of pronunciation, reducing the need for manual tutoring while ensuring an engaging and personalized user experience.

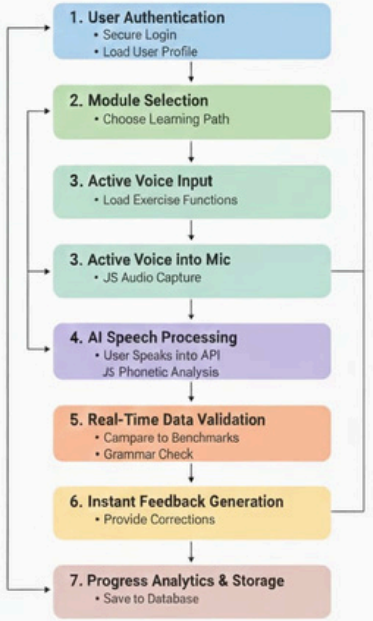
System Architecture:

SpeakUp is built on a high-performance, three-layered architecture. The Presentation Layer uses HTML, CSS, and JS to provide a responsive UI with real-time progress tracking. The Application Layer serves as the core engine, leveraging the Web Speech API for instant voice processing and phonetic feedback. The Database Layer (MySQL) ensures secure data persistence for user profiles and personalized learning milestones. This modular structure allows for rapid data processing, ensuring users receive feedback without any lag.



Methodology:

The workflow begins with a secure user login and profile setup, leading to a personalized dashboard where learners select specific modules. During interactive practice, users speak directly into the system, triggering real-time AI processing via the Web Speech API to analyze pronunciation and accents. The application then provides instant, color-coded feedback. Finally, the system updates the user's progress report, generating a comprehensive summary of user's history. This gamified approach ensures that every interaction, from vocabulary retention to accent training, is both engaging and data-driven.



Conclusion:

The SpeakUp application successfully bridges the gap between theoretical study and practical conversation by leveraging modern web technologies and AI-powered speech recognition. The system creates a faster, more accurate, and highly accessible path to language acquisition through its interactive feedback loops. Ultimately, SpeakUp provides an efficient, scalable, and user-friendly solution for learners aiming to achieve fluency in a digital-first environment.

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