

E-BASA: A READING APPLICATION USING MACHINE LEARNING

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PROJECT STUDY ABSTRACT

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Reading proficiency is a fundamental skill that significantly influences academic success and lifelong learning. This study aimed to design and develop E-BASA, a reading application utilizing machine learning to enhance reading engagement, motivation, and proficiency among developing readers. The application was designed with core functionalities, including machine learning for personalized learning, audio-visual aids for engagement, and progress tracking for performance



monitoring. Additionally, it incorporated age-appropriate and culturally relevant content, such as phonics, syllabication, and basic reading exercises, to cater to various literacy levels. Other key features included audio guides for pronunciation accuracy, visual aids for enhanced comprehension, and user authentication for personalized progress tracking. The system was rigorously evaluated using the ISO 25010 industry standards to ensure high functional suitability, efficiency, usability, security, and reliability.

Findings from the system's development, testing, and evaluation demonstrated the successful integration of machine learning, audio-visual aids, and progress tracking, making E-BASA an effective tool for adaptive learning. The application's age-appropriate and culturally relevant content was well-received, supporting literacy development across different reading levels. The inclusion of audio guides significantly improved pronunciation and fluency, while visual aids enhanced user engagement and comprehension. The system's authentication features enabled secure tracking of individual performance, ensuring a personalized learning experience. Based on ISO 25010 standards, E-BASA achieved an overall rating of 4.42, indicating that the system is "Highly Applicable" in terms of functionality, efficiency, compatibility, usability, reliability, security, maintainability, and portability.

The study concluded that E-BASA effectively delivers an engaging and adaptive reading experience by incorporating machine learning, multimedia resources, and



structured literacy content. Its ability to provide personalized reading support and track learner progress highlights its potential as a valuable educational tool. The successful adherence to ISO 25010 standards confirms the system's reliability, efficiency, and usability, making it a highly suitable platform for enhancing reading literacy among developing readers.

To further improve E-BASA, future research should focus on enhancing machine learning algorithms for deeper personalization, updating content to align with evolving literacy standards, and expanding the app's compatibility across multiple platforms. Additional features such as gamification, interactive storytelling, and multi-factor authentication could further enrich the learning experience. Regular system evaluations and updates based on user feedback should be conducted to ensure continued efficiency and relevance in literacy education.