

MindEasy: Real-Time Personalization of the LLM based Learning Process Through Brain Activity Analysis

Abstract

The MindEasy application is an innovative educational tool designed to personalize learning experiences through real-time analysis of brain activity. Using a Muse EEG headset in conjunction with Google's Gemini chatbot, MindEasy adapts educational content based on users' cognitive states, such as focus or frustration, to enhance engagement and optimize learning outcomes. Tailored for diverse learners, including those with special educational needs, the system dynamically adjusts content complexity to align with each user's learning readiness. A pilot study validated the system's technical capabilities, though a limited sample size highlighted the need for further research with broader participant demographics. Future work aims to explore additional language models and advanced neural feedback mechanisms to improve adaptability across educational settings.