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(57) Abstract :

The present invention discloses an AI-Based Personalized Learning Assistant System for Children that integrates advanced hardware components with Artificial Intelligence (AI) and Internet of Things (IoT) technologies to enhance personalized education. The system comprises a Central Processing Unit (CPU) for real-time data processing, a sensor network (motion, biometric, and environmental sensors) for monitoring child behavior and environment, and an Edge Computing Device for localized data processing. A Display Interface provides interactive educational content, while a Speech Recognition Unit enables two-way verbal communication using Natural Language Processing (NLP). A Real-Time Feedback Module dynamically adjusts content based on child engagement and physiological feedback. Wearable devices, including smart bands and EEG-enabled headbands, collect cognitive and physiological data to further tailor content. IoT-enabled communication ensures seamless data exchange, and Power Management Integrated Circuits (PMIC) optimize energy efficiency. The invention offers a novel, dynamic, and adaptive learning environment for children. Accompanied Drawing [Fig. 1]

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