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MindCare

Early diagnosis for Alzheimer's

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Idea Abstract

Alzheimer's disease continues to be one of the most challenging neurodegenerative disorders, affecting millions globally and placing significant strain on both patients and caregivers. Early diagnosis, personalized care, and continuous support are crucial for managing the disease effectively. This project proposes an innovative, technology-driven solution that leverages Artificial Intelligence (AI), Virtual Reality (VR), and mobile health (mHealth) technologies to improve Alzheimer's screening and enhance caregiver support.

The system is composed of three integrated components. First, an AI-driven cognitive assessment module uses a virtual avatar to administer the Mini-Mental State Examination (MMSE). This avatar interacts with users through speech recognition and natural language processing, providing a more engaging and accessible approach to early cognitive screening. The responses are then analyzed using machine learning models to detect signs of cognitive decline.

Second, a VR-based cognitive training environment delivers interactive exercises tailored specifically for Alzheimer's patients. These exercises are designed to stimulate memory, attention, and problem-solving abilities, adapting to the user's cognitive level to provide a personalized and effective training experience.

Finally, a mobile application for caregiver support offers a comprehensive set of tools including real-time tracking of patient progress, medication and routine reminders, educational content, and emergency handling guidance. This app ensures caregivers are equipped with the information and assistance needed to provide effective and compassionate care.

By combining AI, VR, and mobile technologies into a unified platform, this project not only aims to aid in the early detection of Alzheimer's but also to enhance the daily lives of patients and their caregivers through intelligent, user-friendly, and accessible digital tools.