

ENHANCING INTELLIGENT MEMORY SUPPORT: DEMENTIA CARE APP

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Dementia care requires innovative solutions to support cognitive health, independence, and caregiver assistance. Our proposed AI-powered mobile application integrates machine learning (ML), natural language processing (NLP), and reinforcement learning to provide personalized cognitive exercises, memory tracking, social engagement, and wellness monitoring. The system utilizes speech recognition, sentiment analysis, and geolocation services to deliver real-time recommendations for activities, reminders, and mood-based interventions. It also incorporates Google Calendar API for scheduling, Firebase Firestore for secure data storage, and AI-driven insights for personalized care plans. Additionally, our app supports multilingual accessibility via React i18next and Flask-Babel, ensuring inclusivity for diverse users. The backend leverages LSTM models for trend prediction, BERT for natural language understanding, and reinforcement learning for adaptive content recommendations. Integration with Dialogflow enables conversational AI, enhancing user interaction and engagement. The application also features sensor-based health monitoring, AI-powered workout suggestions, and gamified cognitive activities to encourage participation. Caregivers benefit from real-time alerts, remote tracking, and structured communication tools, reducing their burden while ensuring patient well-being. By merging AI, real-time analytics, and assistive technologies, our solution provides a scalable, efficient, and user-centric approach to dementia management. Future enhancements will focus on multimodal sensor fusion, predictive analytics, and emotion-aware interventions to further personalize care and improve quality of life.