

Capstone Project: AI Companion for Dementia Support

This capstone project focuses on developing a wearable AI companion designed to assist individuals with dementia. The system provides personalized memory support, reminders, and guidance, while offering emergency assistance and caregiver connectivity. Over time, the AI adapts to the user's cognitive needs, ensuring safety, independence, and caregiver peace of mind.

User Stories

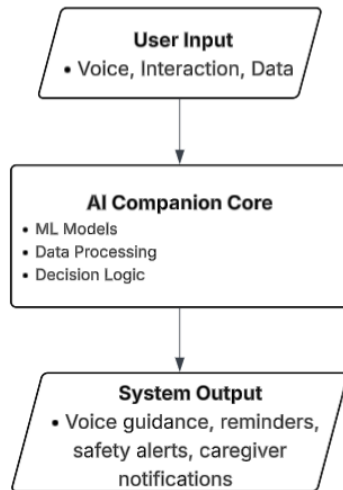
1. As a person living with dementia, I want to ask the AI questions about who I am and what I'm doing, so that I can feel reassured and maintain independence.
2. As a caregiver, I want to receive alerts and notifications from the AI system, so that I can monitor the safety and well-being of my loved one.
3. As a primary care provider, I want the AI companion to send me emergency alerts when the patient is confused or unsafe, so that I can respond quickly and ensure proper medical care.
4. As a family member, I want the AI's voice to be customized to sound like someone familiar, so that my loved one feels comforted and less anxious.
5. As a smart home user, I want the AI companion to integrate with devices like lights and stoves, so that I can receive reminders and avoid dangerous situations at home.

Design Diagrams

The following diagrams depict the system's design, showing increasing levels of detail:

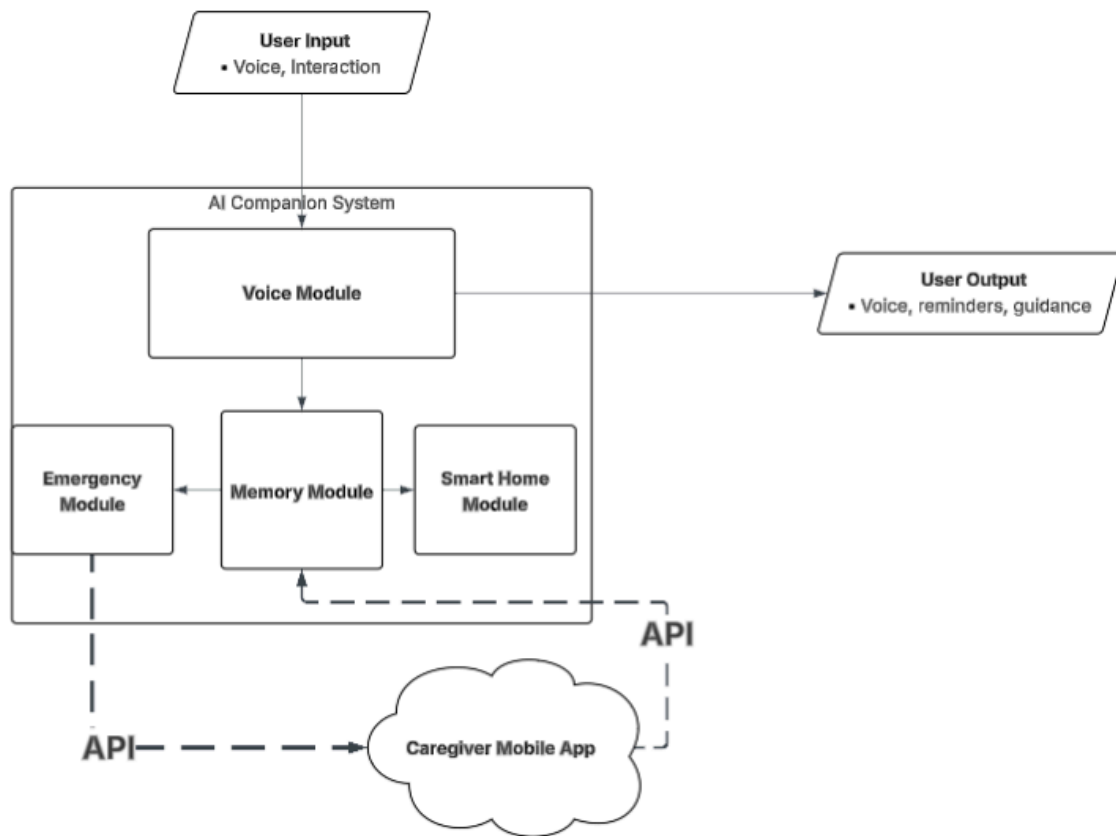
Design D0: High-Level Overview

The system collects inputs (voice, sensors, caregiver app, smart home), processes them with AI and decision logic, and provides outputs (voice feedback, reminders, emergency alerts, caregiver updates).



Design D1: Subsystem Modules

This level introduces the major modules of the AI Companion system: voice interaction, memory support, emergency handling, caregiver app, and smart home integration.



Design D2:

Design D2 provides the most detailed view of the Wearable AI Companion system, expanding each module into its subcomponents and showing how data flows between them. This level highlights the full integration of all subsystems, emphasizing real-time support, personalization, and emergency responsiveness.

