Alzheimer's Patient Assistant Application

Design Challenge - Fall Hackathon

Event Date: Nov 4 - Nov 11, 2024

1. Background on Alzheimer's Disease

Alzheimer's disease is a chronic, progressive neurodegenerative disorder that profoundly affects an individual's memory, thinking, and behavior. As the leading cause of dementia globally, Alzheimer's impacts over 55 million people, with the number expected to rise as populations age. The condition is characterized by the gradual breakdown of brain cells, leading to the deterioration of cognitive functions and the inability to manage daily activities.

Alzheimer's begins with subtle symptoms such as mild forgetfulness and difficulty recalling recent events, but it advances over time to more severe stages where individuals may lose the ability to communicate, recognize loved ones, or perform basic tasks like dressing and eating. Eventually, patients require full-time care and support.

For Alzheimer's patients, the progressive loss of cognitive abilities creates numerous challenges in maintaining independence and managing daily life. Technology offers an opportunity to assist these patients in managing memory, engagement, and routines more effectively.

2. Challenge Overview

Participants in this hackathon are tasked with conceptualizing an **Alzheimer's Patient Assistant App** that can offer practical support to Alzheimer's patients. The app should provide memory aid, cognitive engagement, and daily routine assistance while being accessible and user-friendly for patients and caregivers.

While participants are not expected to build a fully functional app, they should provide a clear concept, design, and feasible features that demonstrate how the app would work, along with its technical implementation potential.

3. Suggested Features for the Alzheimer's Assistant App

The features mentioned below are only suggestions. Participants are encouraged to re-examine the problem and come up with their own list of features, which may include some or all of these suggestions or new ideas based on their analysis of the problem.

a. Smart Memory Recall and Cognitive Assistance

- Memory Support: Offer interactive memory recall features to remind patients of recent events or tasks.
- Contextual Prompts: Provide proactive reminders based on the patient's daily routine and activities.

b. Daily Routine Management and Tracking

- Task Reminders: Help patients stay on track by reminding them about daily tasks such as taking medication, eating, or exercising.
- Voice Interaction: Use voice prompts and visual cues to guide users through routines.

c. Empathetic and Adaptive Communication

- AI Chatbot: Engage in conversation with patients to help alleviate feelings of isolation and reduce repetitive questions.
- Q&A Tracking: Track frequently asked questions to provide helpful reminders before patients repeat themselves.

d. Cognitive Games and Exercises

- Brain Stimulation: Offer engaging brain-training exercises and games that adapt to the patient's cognitive abilities over time.
- Gamification: Use gamification strategies to incentivize engagement with mental exercises.

e. Integration with Wearable Devices and Smart Home Technologies

- Monitor Physical Health: Integrate with smartwatches to monitor physical activity or health metrics.
- Smart Home Management: Use smart home devices to manage lights, locks, or other home devices to support independent living.

f. Privacy and Data Security

- Ensure the app complies with data privacy regulations (e.g., HIPAA) and uses encryption to protect sensitive data.
- Enable caregivers to monitor the patient's progress while ensuring data security.

4. Deliverables and Design Requirements

Participants are expected to submit the following deliverables:

a. **Design Document**: A detailed description of the app's features, user interactions, and technical structure.
b. **Wireframes or Prototypes**: Visual representations of the app's interface, including how users would navigate through its key features.
c. **Presentation**: A video explaining the app, its potential impact, and how it addresses the challenges faced by Alzheimer's patients and caregivers.

5. Judging Criteria

Submissions will be evaluated on the following criteria:

a. **Information Gathering and Gap Analysis (15%):**

- Effectiveness in researching current methods of attendance tracking and safety monitoring.
- Identification of unmet needs or challenges in existing solutions.

b. **Features (20%):**
   - Relevance and utility of the proposed features in addressing the needs of event organizers, educators, industrial supervisors, and attendees.
   - Integration of privacy and data protection measures within the application's functionality.

c. **Design and Usability (15%):**
   - User-centric design accommodating the needs of both administrators and users.
   - Clarity, intuitiveness, and accessibility of the user interface.

d. **Feasibility (15%):**
   - Practicality of implementing the application with current technology.
   - Consideration of scalability and adaptability to different environments.

e. **Creativity (10%):**
   - Innovation in problem-solving and feature development.
   - Unique approaches to balancing functionality with privacy concerns.

f. **Collaboration and Presentation (25%):**
   - Teamwork and effective collaboration demonstrated during the hackathon.
   - Quality and persuasiveness of the presentation materials.

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6. Submission Instructions

All participants must submit their projects as a single zip file, which should include all supporting documents, a set of presentation slides, and a recorded video of their presentation. Please ensure submissions are uploaded by **November 10, 2024**. Stay tuned to the Slack announcements channel for ongoing updates and important information.