MEMO

TAKE A SCROLL DOWN MEMO-RY LANE.

MEET THE TEAM

- - - - X

Arjun Karanam

Hana A Tadesse

Hanh T Giao

VALUE PROPOSITION

- - - - X

Take a scroll down memo-ry lane.

MISSION STATEMENT

- - - - X

Our goal is to provide those facing neurodegenerative disorders mementos created by their caregivers and loved ones to help enhance memory recall.

TARGET USER

- - - - X

Individuals with Early Onset Dementia

PROBLEM

- - - - X

There currently does not exist a means for patients with Early Onset Dementia to document sensory media in their life to support greater cognitive recognition in the latter stages of their progression to help stabilize them during moments of forgetfulness.

SOLUTION

- - - - X

Memo albums that storyboard one’s life to aid patients in retaining their identity and lived experiences.

SKETCHES

Concept Sketches

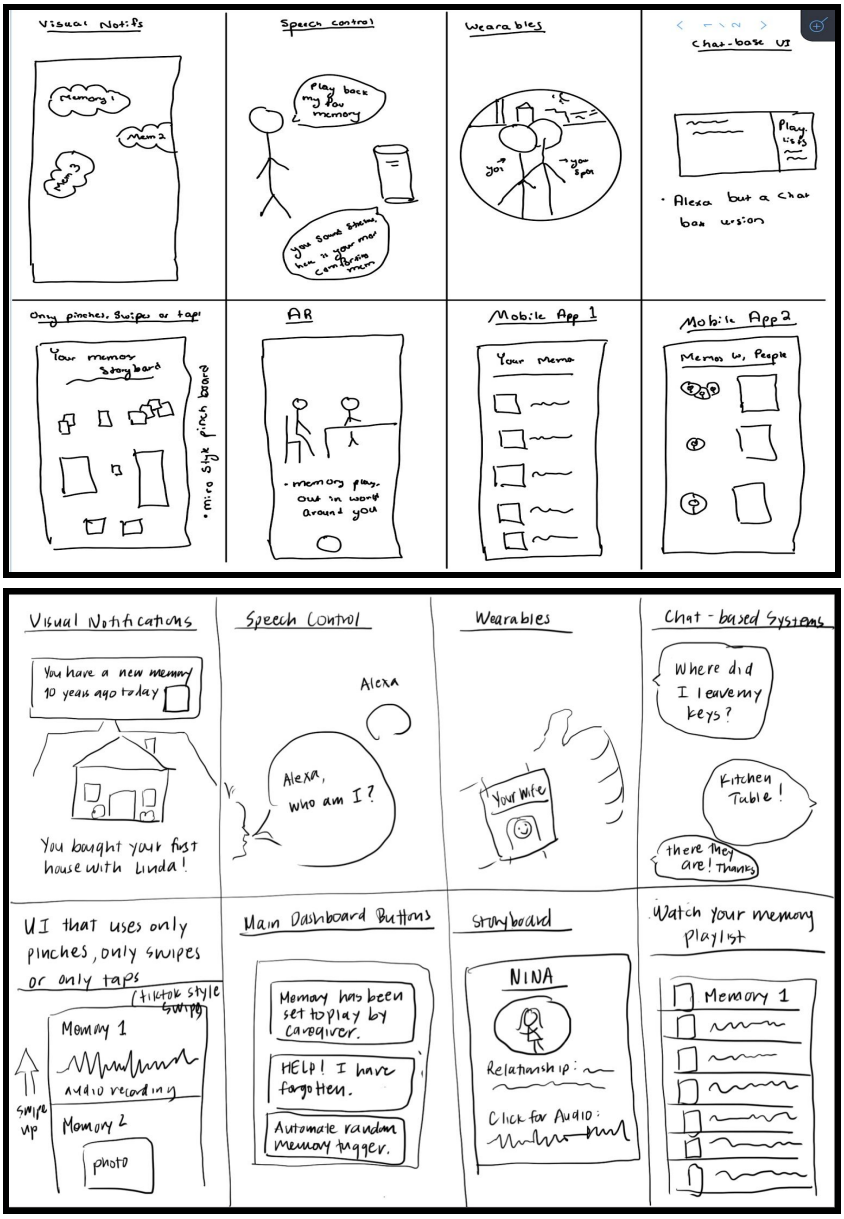

Figure 1: Initial interface sketches for various modalities of application

SELECTED INTERFACE DESIGN + UI STORYBOARDS

Top 2 Designs

Our top designs were *Mobile Application Interface* and *Voice-Control Interface* for their accessibility to our target user.

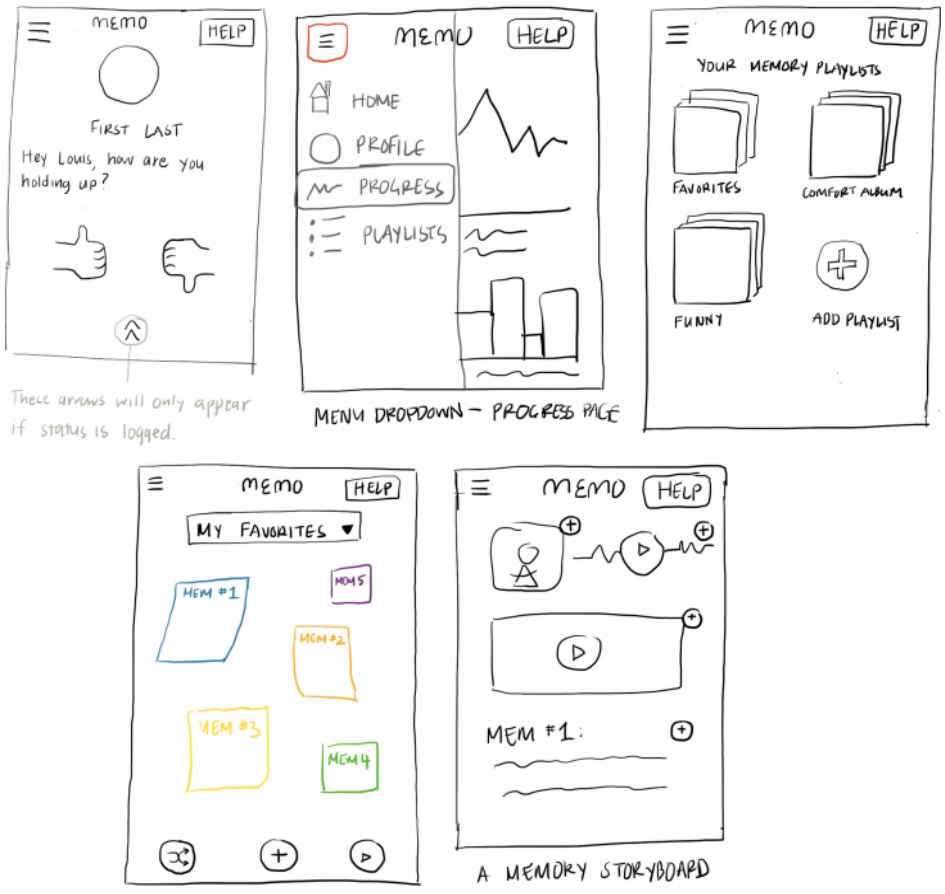

Figure 4: Mobile Application Interface

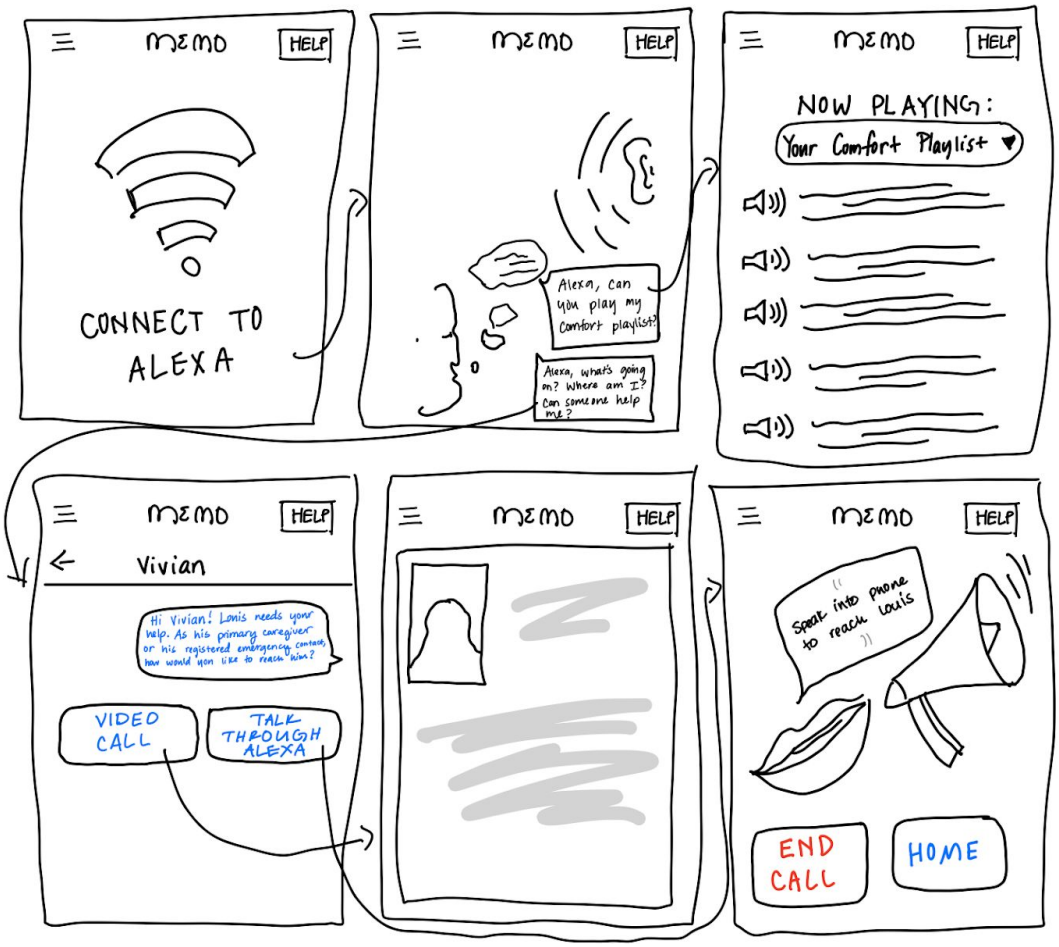

Figure 5: Voice-Control Interface

Voice-Control Interface

PROS	CONS
• Easier to ask for assistance over having to learn how to navigate digital interfaces • More personable • System is always on	• Voice-control devices are less accessible than mobile phones/tablets • Doesn't always respond correctly • Doesn't apply to those with hearing disabilities

Mobile-App Interface

PROS	CONS
• Apps are more familiar to users, especially with older generation • More manual control over the functions (easier to navigate between interfaces; more access points to various functionalities over speech-control)	• Lose human touch of speaking with device • Less stimulating/soothing than audio

REASONING

Our team decided to go with the mobile application modality because it is a more intuitive interface that's available across multiple devices, such as smartphones and tablets. We wanted to make it accessible to users with hearing disabilities, which would be difficult with the voice-control modality. We also felt that a mobile application would enable users to interact with multiple sensory media whereas voice-controlled devices would be restricted to audio media.

One drawback with a mobile app interface is that a user would need to go into our app to access its features, whereas voice-control devices can be activated with simple voice commands. Despite this, we believe the benefits of a mobile app outweigh its drawbacks.

TASK STORYBOARDS

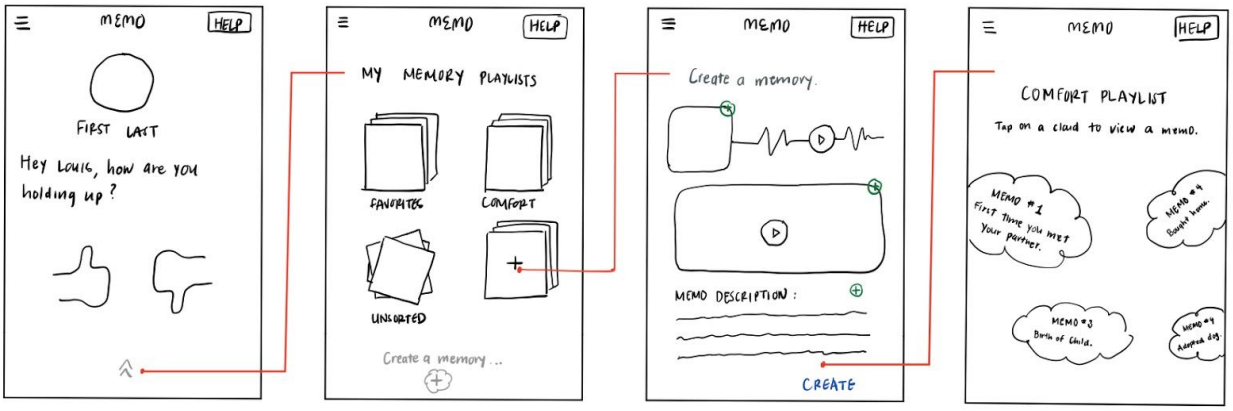

Figure 6: Simple Task - Create and view new memory

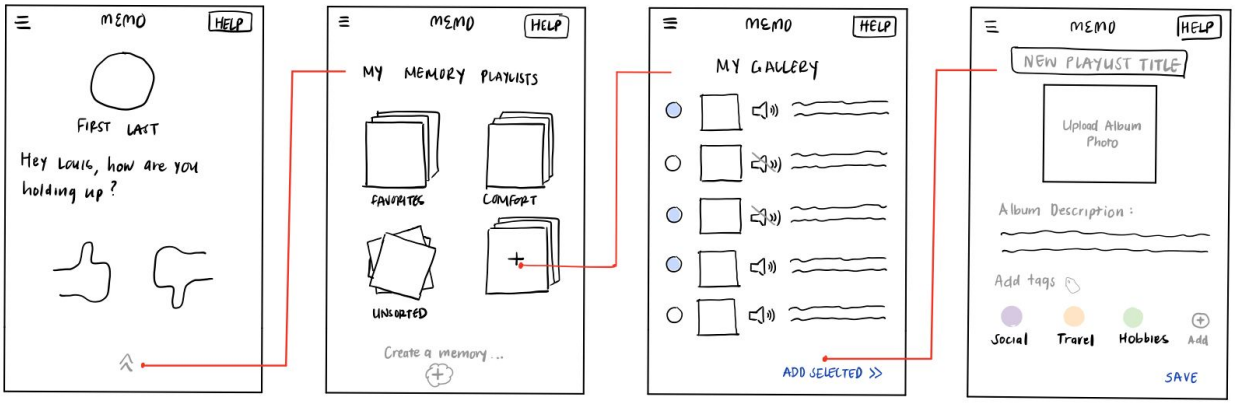

Figure 7: Moderate Task - Create a new playlist

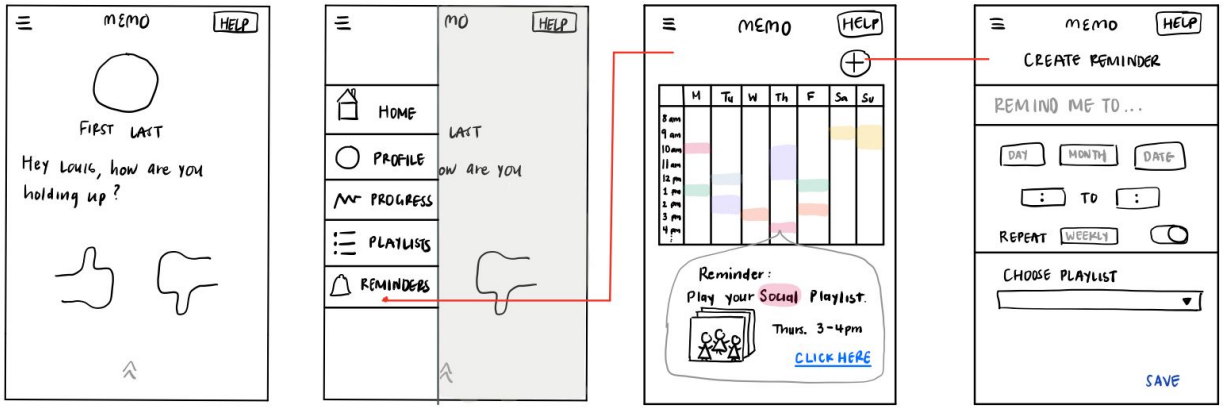

Figure 8: Complex Task - Create and view reminders

Design Interface	Functionality and Reasoning
Home Screen	A user responds to the daily prompt by pressing thumbs up or down before swiping up and entering the memory playlist screen.
Memory Playlists	This screen allows the user to either create a new memory or a new playlist and interact with existing playlists.
Memos	Floating clouds capture the different memories the user has created. They can view a memory and its associated sensory media by pressing on a cloud.
Side Navigation Bar	Navigate to any activity interface, such as home page, profile, progress, playlists, and reminders. This makes each feature easily accessible to users.
Reminders	Calendar view of the patient's set reminders. A user can link a playlist to be viewed at the designated date and times.
Progress	This tracks the user's state of mind over time. We solicit this data when they first enter the app and create a progress report of the changes over time.

Button	Function
Thumbs Up/Down Buttons	Gauge users state of mind when they log onto the app and create report progress.
HELP Button	Contact a family member or caregiver when a patient is in need of help.
Create Memory Button	Create a new memory by uploading sensory media such as photo, video, audio, and/or a description of the memory.
Create Playlist Button	Create and customize playlist by adding a cover photo, title, description tags.
Create Reminder Button	Set a reminder for a specific day/time and link a playlist they'd like to view during that time.

PROTOTYPE

We designed our screens to mimic an interactive mobile app by using an iPhone outline and drawing inside it.

Figure 9: All Screens

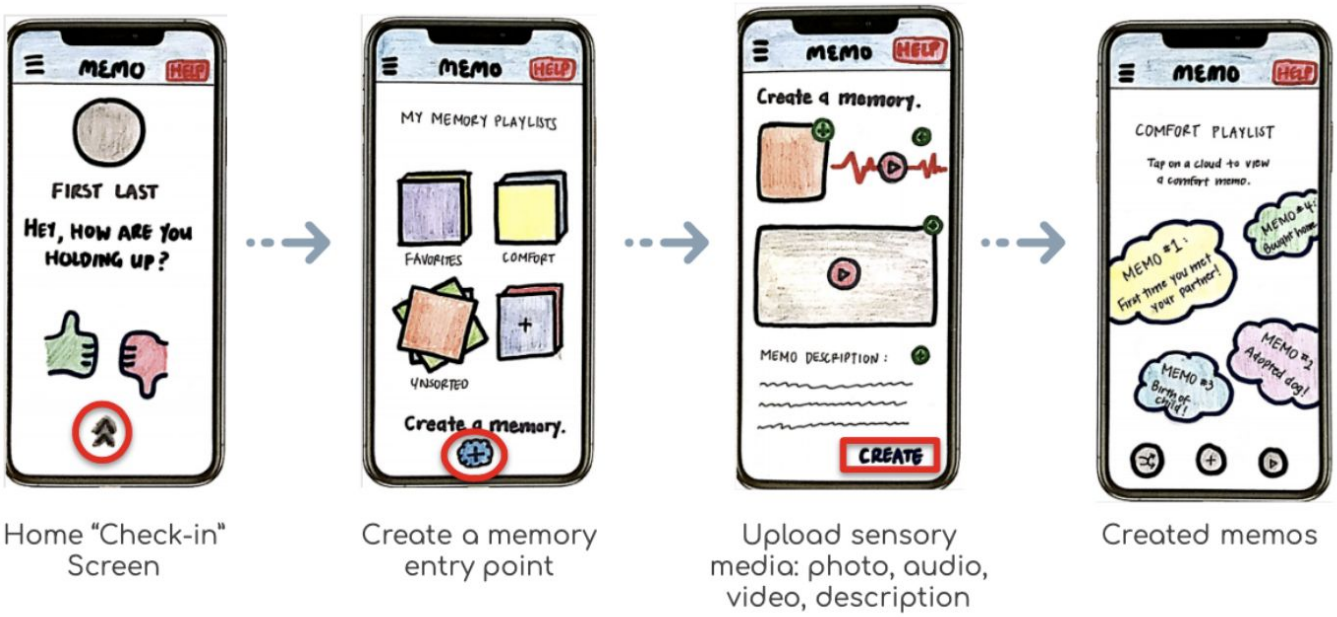

Figure 10: Simple Task – Create and view memories

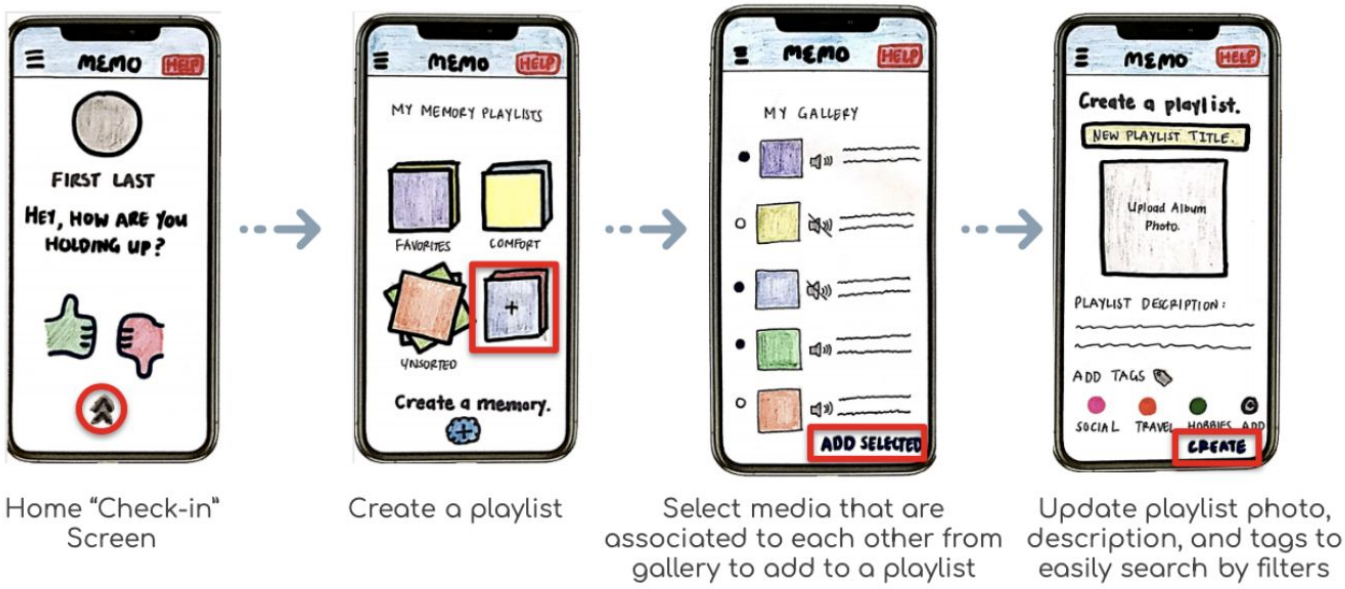

Figure 11: Moderate Task – Create a new playlist

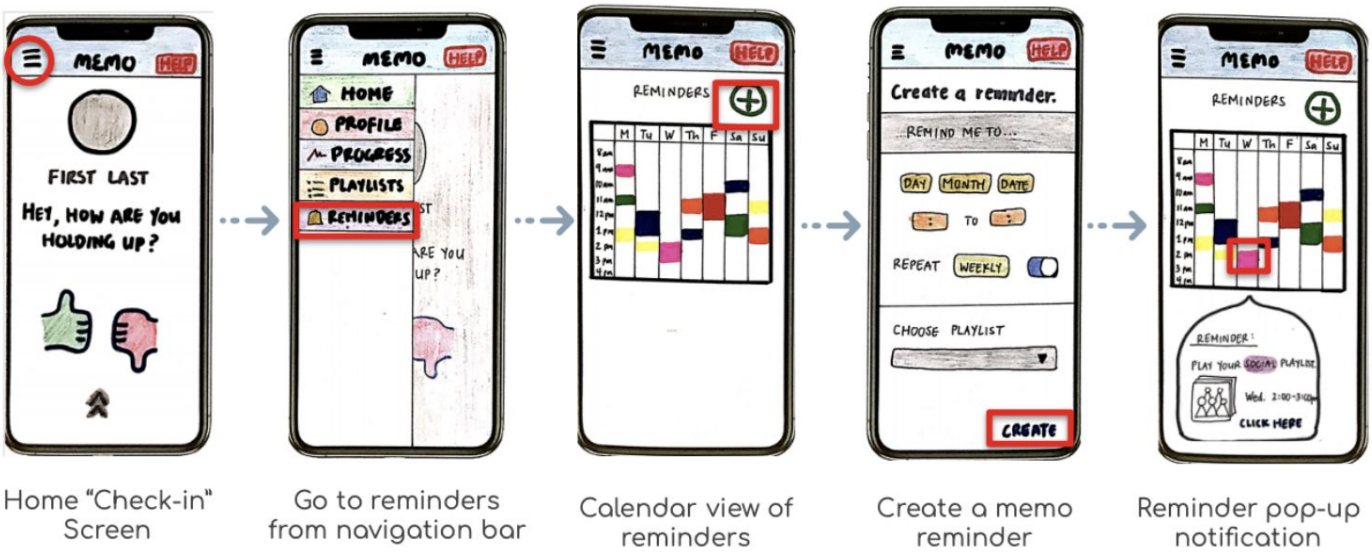

Figure 12: Complex Task - Create and view reminders

METHOD

Once we'd created the paper prototype and uploaded it into Figma, we set out to recruit participants and aggregate feedback.

Participants + Environment

For our first participant, we reached out to a previous interviewee, Wolfgang Kreuger, and spoke with his wife, Mary - a 58-year old French teacher who has lived with Dementia for 1.5 years.

Our other interviewees were recruited via Reddit. We were contacted by Eliza, a 51-year old woman from North Carolina who's a full time caretaker for her father with Dementia, Jeffrey. We also interviewed her father, Jeffrey, separately to obtain both caretaker and patient views of our app. Interfaces that might be intuitive to one group might be completely alien to the other.

Due to COVID, all of our interviews were conducted over Zoom, with participants interacting with our "paper" prototype on Figma.

Tasks

1 - Create and access memories

2 - Create a memory playlist

3 - Create a reminder to trigger at specific times

Procedure

After an introduction about who we were and our goals, and consent forms, we did the following:

1 - Introduce our app and broadly explain what the app was for.

2 - Share our Figma board with the interviewee

3 - Tell them the task and observe them navigating the interface.

4 - If the user makes an incorrect action, ask them about their thought process and direct them correctly.

5 - Quick debrief upon completion of task

6 - Repeat steps 4 - 6 for tasks 2 and 3

7 - Debrief and gather feedback on the holistic experience.

Measures

We measured the performance of our interface using these categories:

Successes

- Users are able to navigate through the screen effortlessly with no incorrect assumptions of what the screen is for or what each button does.

Uncertainty

- Measure of how many times a user was uncertain about a screen or various UI elements. They were able to navigate through the task but uncertain at parts / asked the interviewer for clarification.

Errors / Incorrect assumptions

- User navigates to the incorrect screen or the user couldn’t figure out what to do next.

Roles

Hana - Facilitator / Greeter

Arjun - Computer

Hanh - Observer / Note Taker

RESULTS

We received a lot of high quality feedback from all our participants that covered the gamut of high-level concepts, UI elements, and the flow between screens.

The first task was to create and view a memory. Starting from the home screen, we received feedback that the thumbs-up and thumbs-down buttons were unintuitive. Additionally, amidst viewing the memories, one of our participants began tearing up. She told us that when she reflects upon memories, some are much more emotionally charged than others. She proposed adding “trigger warnings” on memories upon creation. But overall, the use of clouds to display memories was very well received, with participants saying it brought them more joy than regular photo albums.

The second task was to create a memory playlist. The main feedback was regarding the terminology; whether “playlist” was referring to a music playlist. A few suggested changing this to “album”. We now recognize that certain universal symbols and terminology may not be intuitive to dementia patients. Regarding tags, multiple participants called it overwhelming, and stated that they probably wouldn’t use it.

For the third task, we asked participants to create and view reminders. Our first participant explained that remembering dates could be challenging for some patients and suggested using a timer that’d set reminders based on x minutes as the metric. A common source of confusion was whether to tap on the calendar view to add a new reminder or the “+” button. Despite these areas of confusion, our participants liked that they could set reminders to view playlists and found creating new reminders to be fairly intuitive to use.

DISCUSSION

After rigorous examination of our mobile application during user testing, we've identified insightful feedback and hope to integrate these considerations into our next round of product iteration.

Overall, our application was well-received. We were able to test our low-fidelity prototype on both patients currently diagnosed with Dementia and their caretakers--a very niched demographic. Our participants resonated with how the application encapsulates all of the major functionalities that they hoped to see in an app, especially reminders and incorporation of a variety of sensory stimuli.

A significant UI change will center around how patients and caretakers can use the app separately. Our current design accesses all features via one entry point which is less intuitive, especially for the elderly who are less agile when navigating digital interfaces. A potential solution is to change the flow of the app so that the memories screen (i.e. the primary use case for patients) is the first entry point, and other less-significant features follow.

Moving forward in future iterations of application prototyping and development, we hope to improve our current task flows as discussed in our findings and continue improving the user experience by re-organizing app structure. Our goal is to ultimately maintain user engagement with the app so that frequent review of memos will aid memory retention long term.

[Word Count: 1500!]