

EchoMe: A Tangible Assistive Device for Dementia Care

Integrating photo recall, breathing, and memory play

COSC439 Group 5



Chosen User group

- Main User Group
 - People living with dementia.
 - This group is mainly over 65.
- Focused health situation
 - Belongingness and love needs
 - Support in improving cognitive performance and emotional wellbeing.
- Problem Definition
 - Existing tools demand cognitive effort, limiting comfort and connection for users and caregivers.



User persona examples



Person living with dementia

John is a bubbly man who fiercely resists dependence, despite facing challenges with memory recall beyond his routine and mobility.



Primary Caregiver

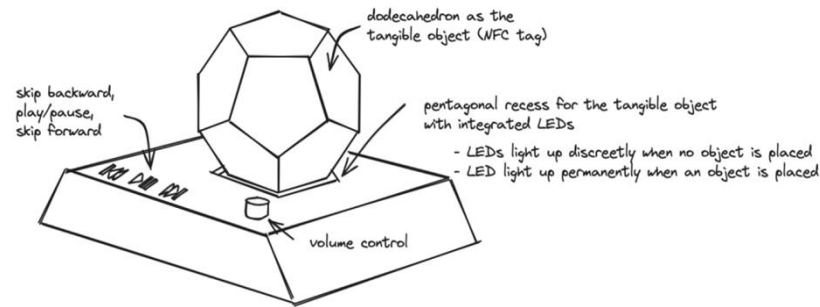
John's son is an outgoing person. He is only comfortable with basic phone functions and familiar work computer applications. He's spiritually and emotionally devoted to John.



Licensed health professional

She is a compassionate and diligent nurse. Some tasks include giving medications and monitoring health changes. She relaxes by going for walks.

Related systems



NFC-enabled dodecahedron

Includes hidden NFC tags that can be associated with an individual's customised media selections.



T-Radio

Radio controlled by tangible blocks, each controlling a radio channel.



Kibo games

Music based TUI that use physical shapes to manipulate data.

Addressing Needs of Dementia Patients

1

Simple Photo Albums

Offers emotional comfort with minimal cognitive effort.



2

Interactive Memory Games

Enhances cognitive skills while providing emotional engagement.



3

Basic Video Calls

Requires minimal cognitive effort but lacks emotional depth.



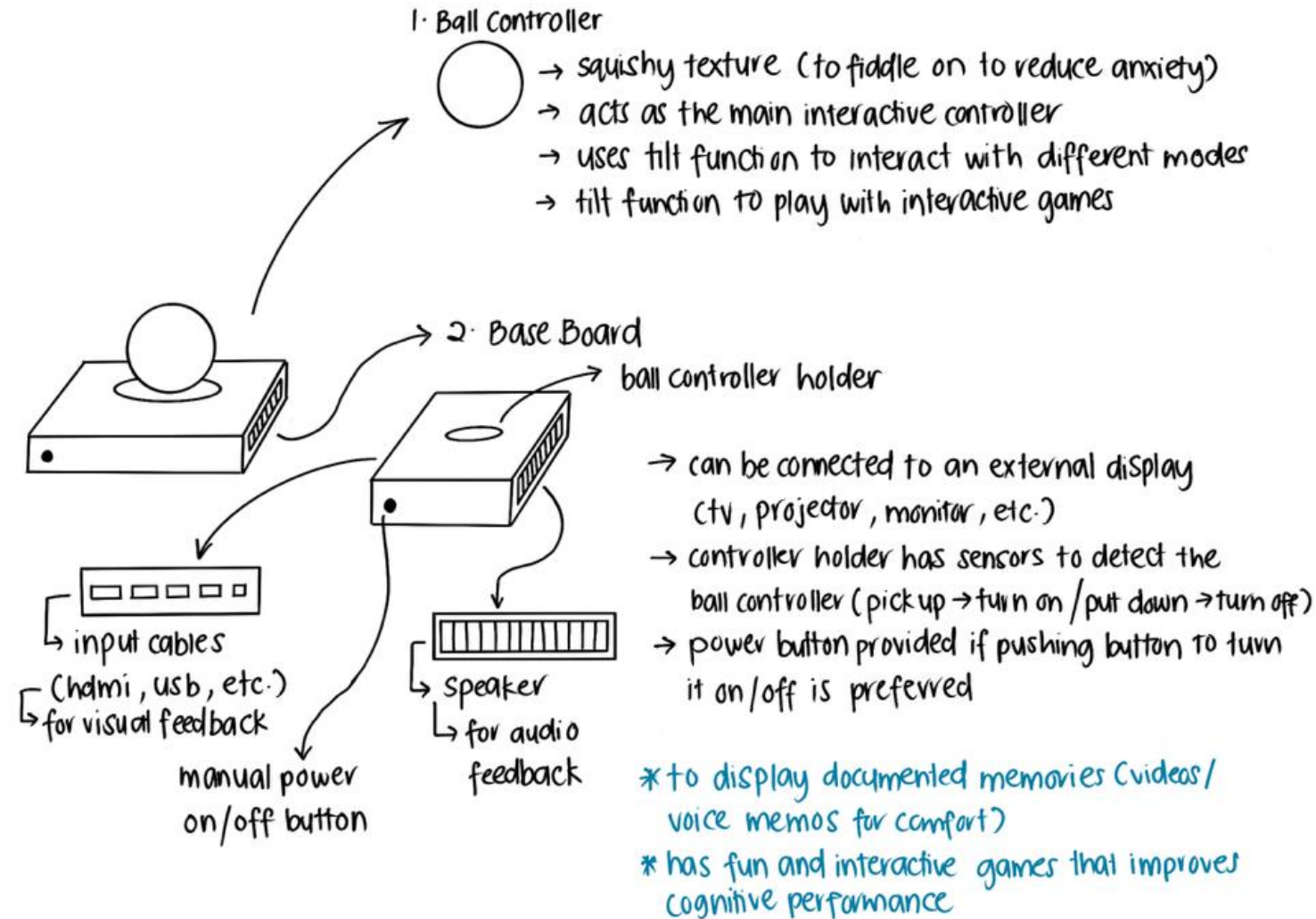
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Complex Social Media Platforms

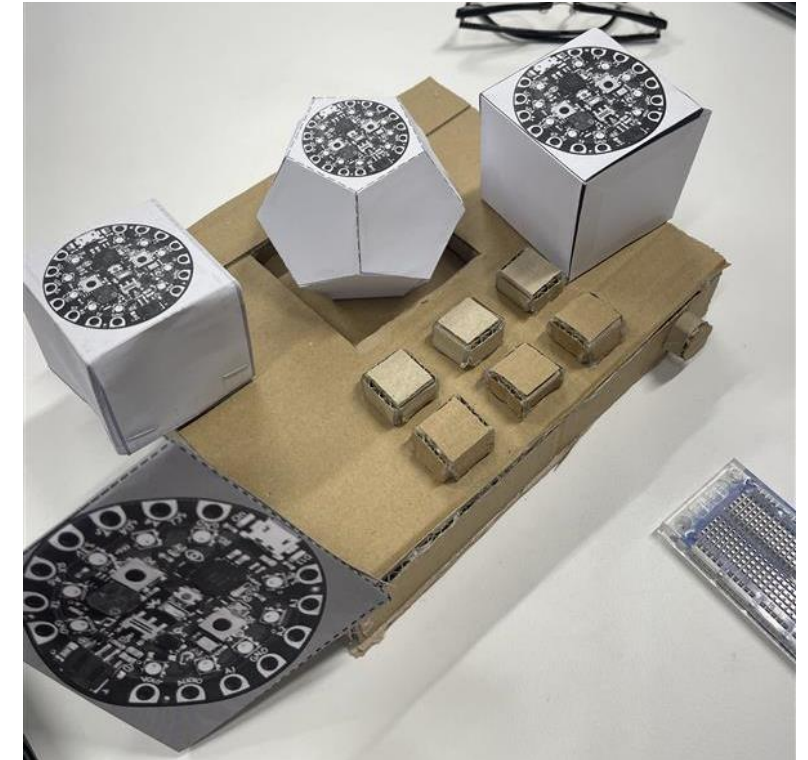
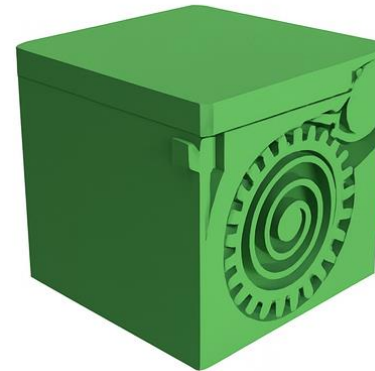
Demands high cognitive skills with limited emotional support.



Early Ideation Sketches

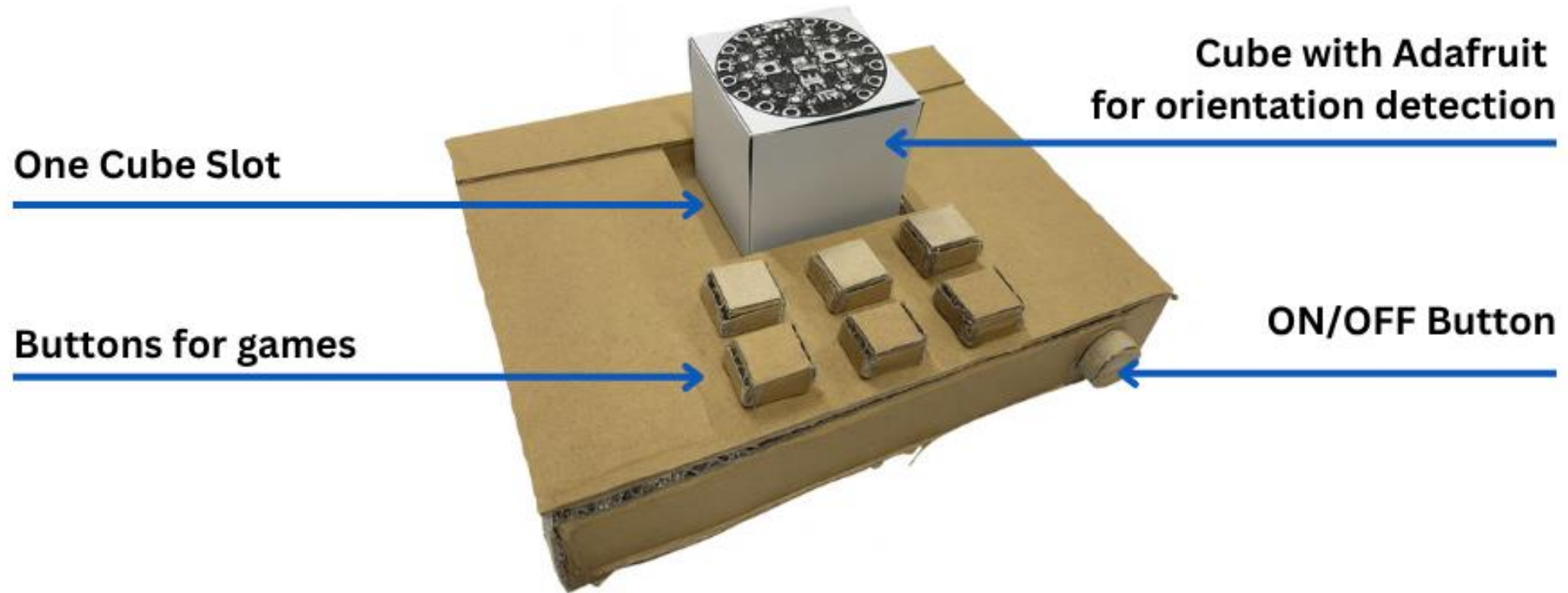


Brainstorming – Cube Design

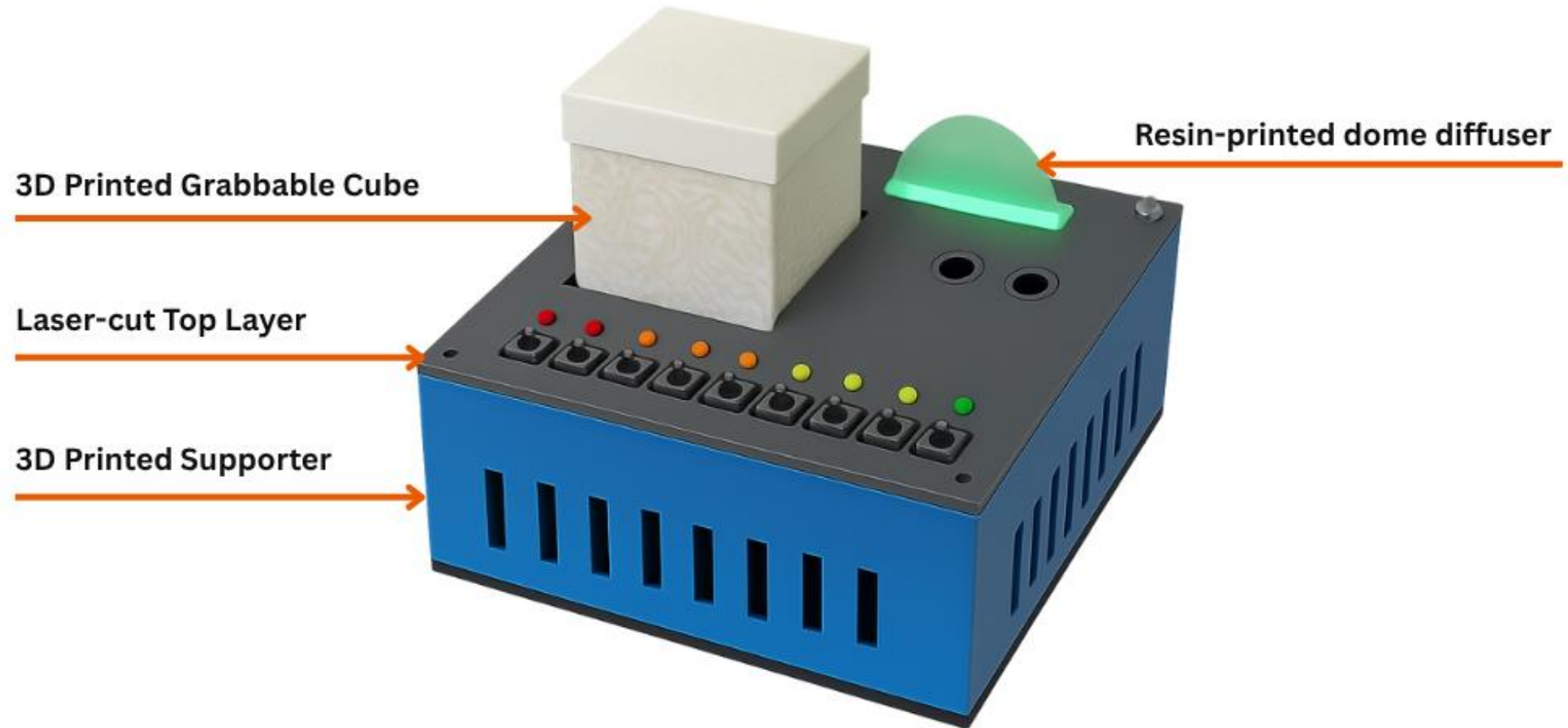


EchoMe

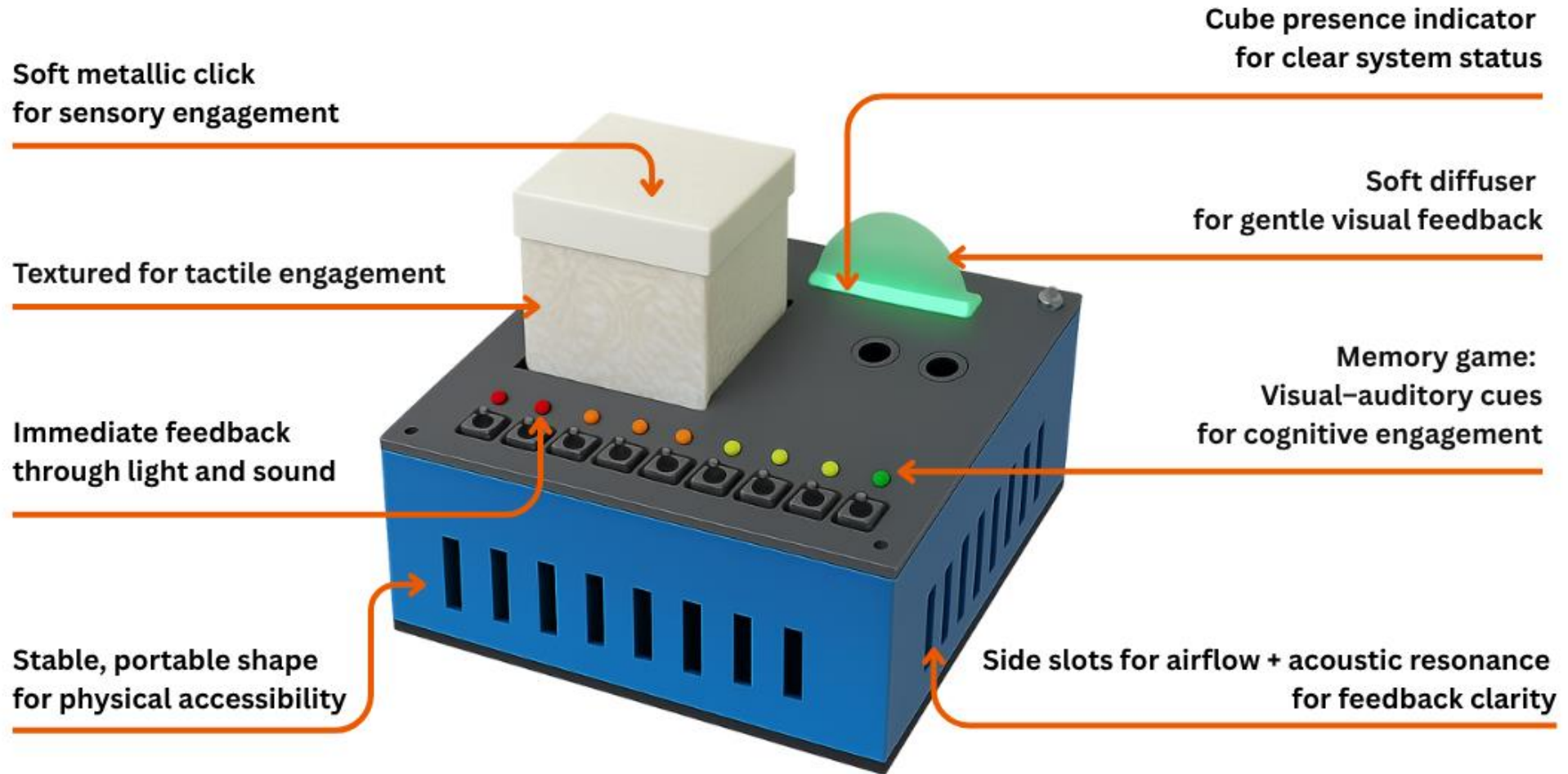
Design Iteration I



Design Iteration II



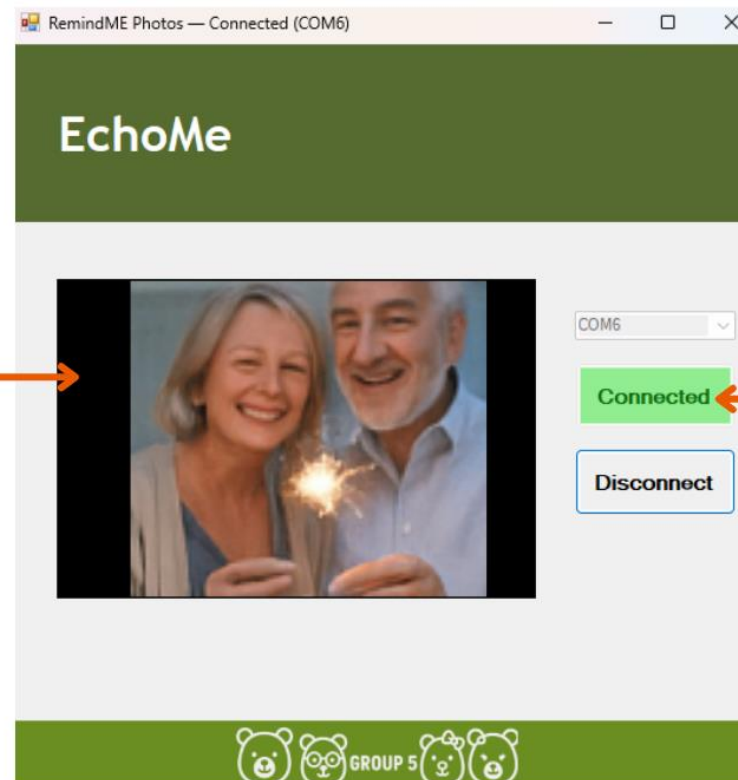
Key UI/UX Features



Key UI/UX Features

Dementia-friendly UI
→ No complex navigation

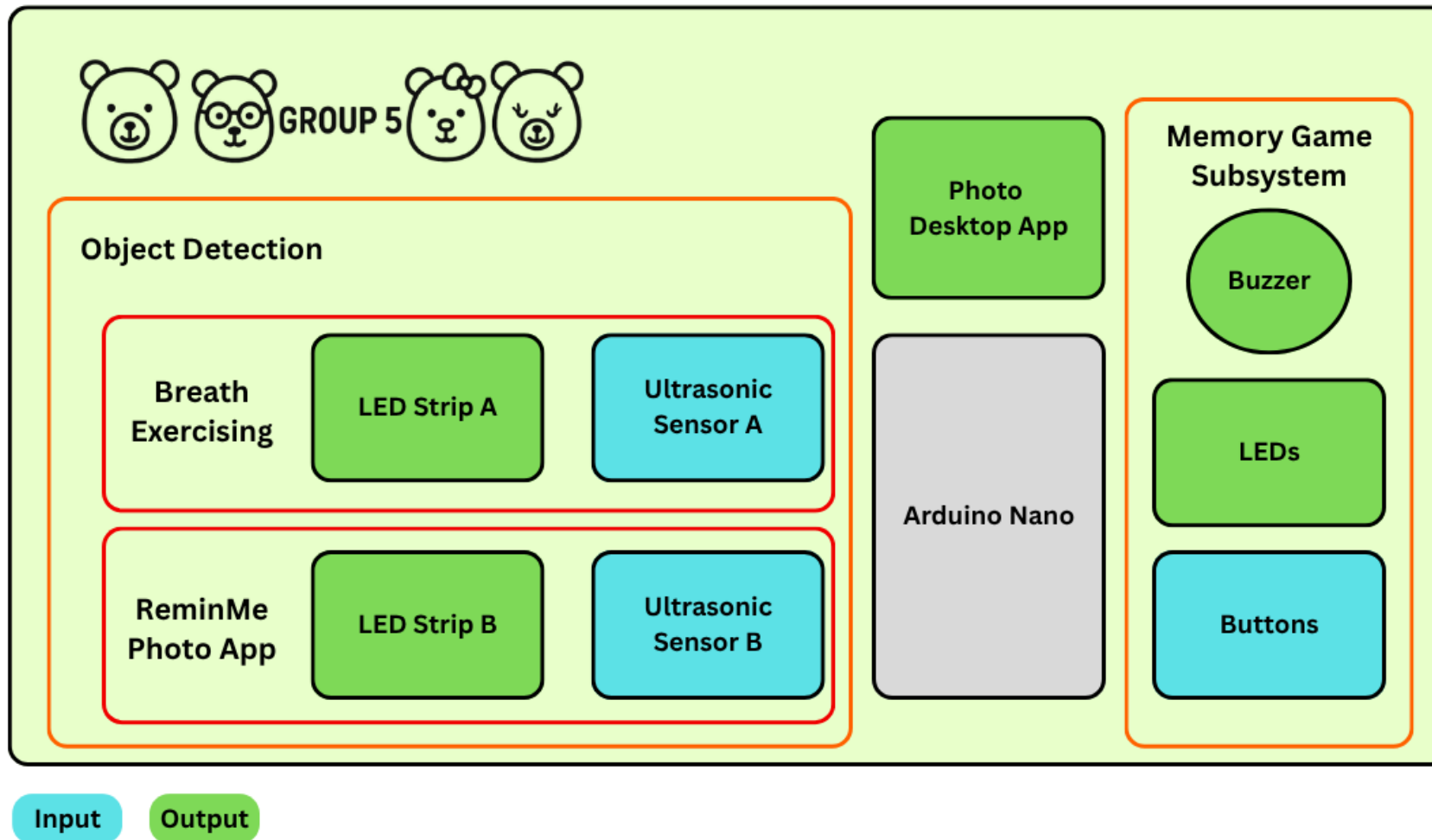
Large photo area &
minimal buttons



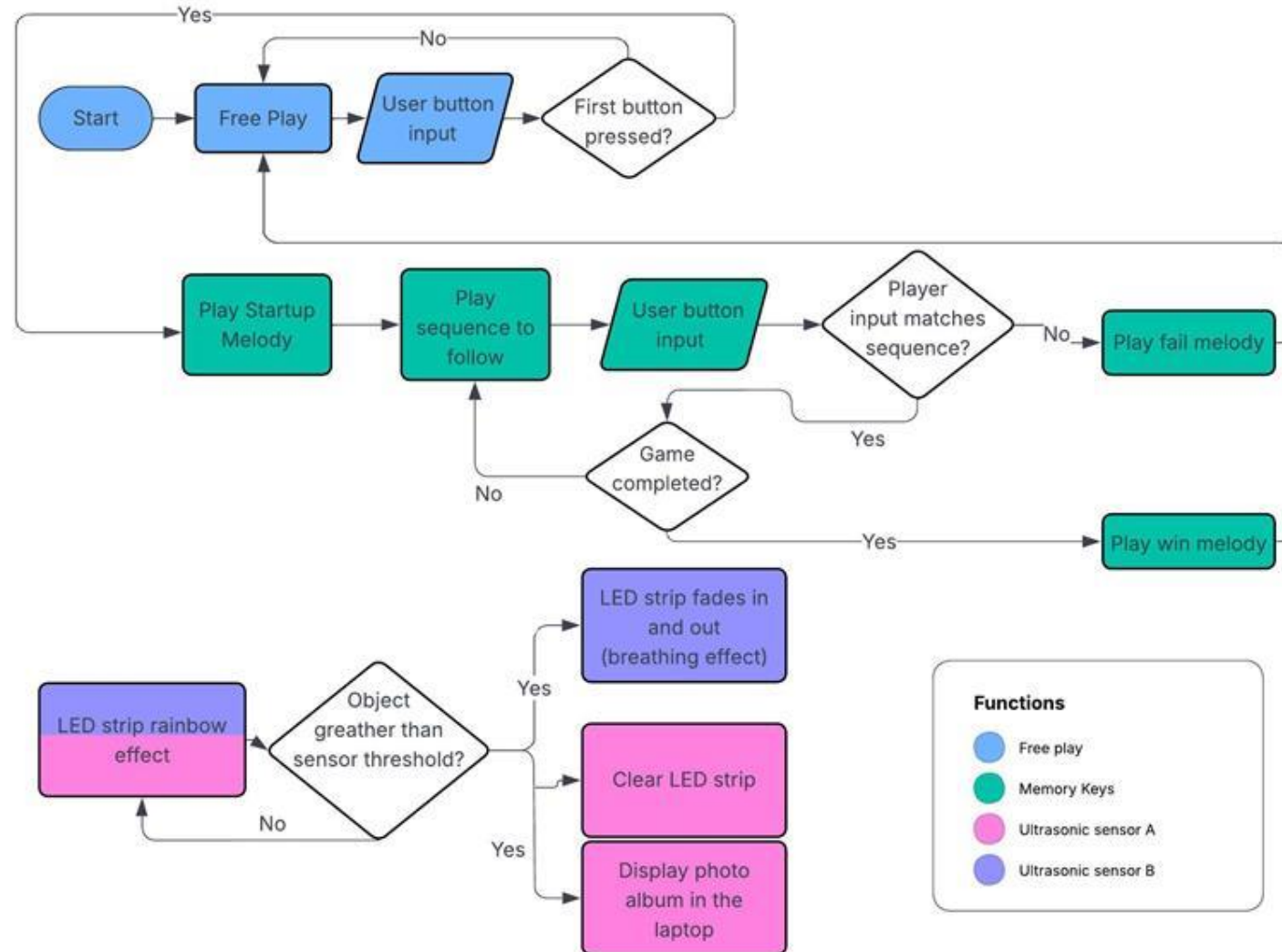
Clear status feedback

EchoMe

System Architecture - Hardware

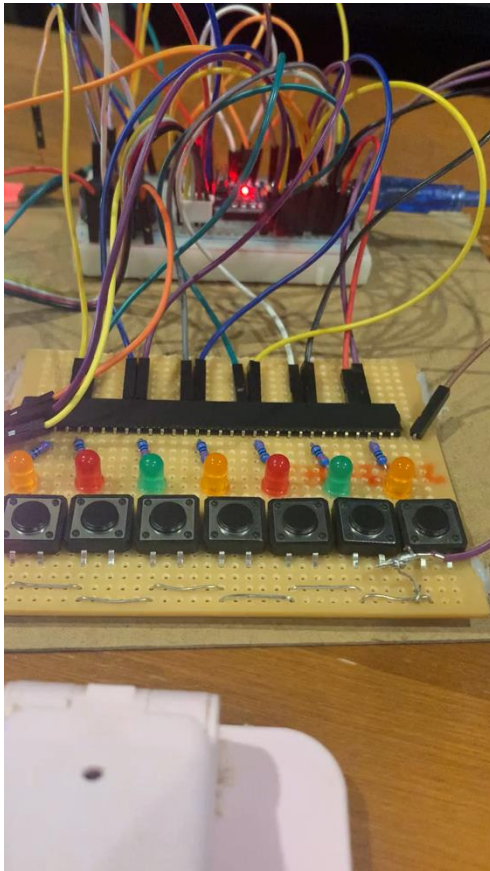


System Architecture - Software

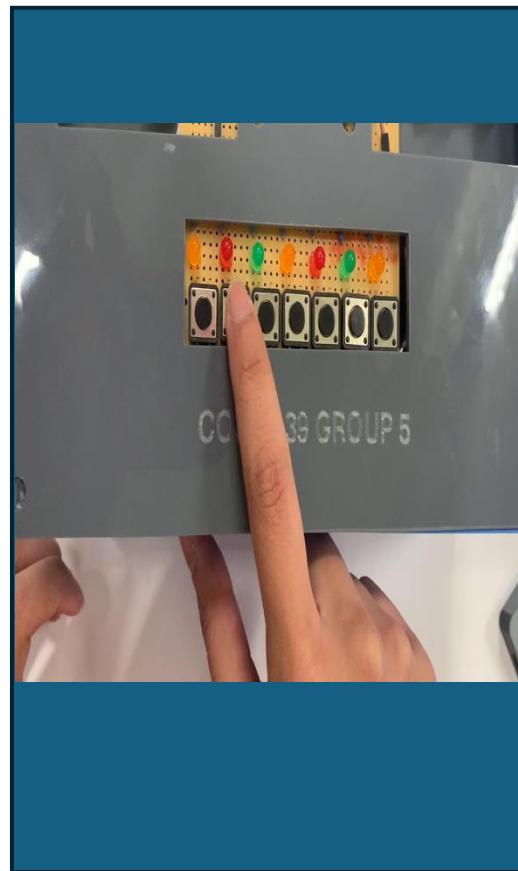


Function snippets

Memory Keys



Free Play



Breathing Exercise

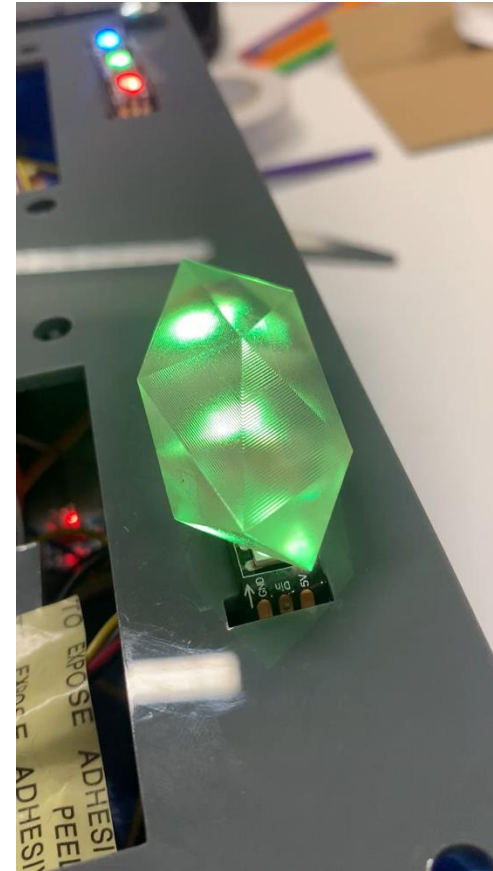
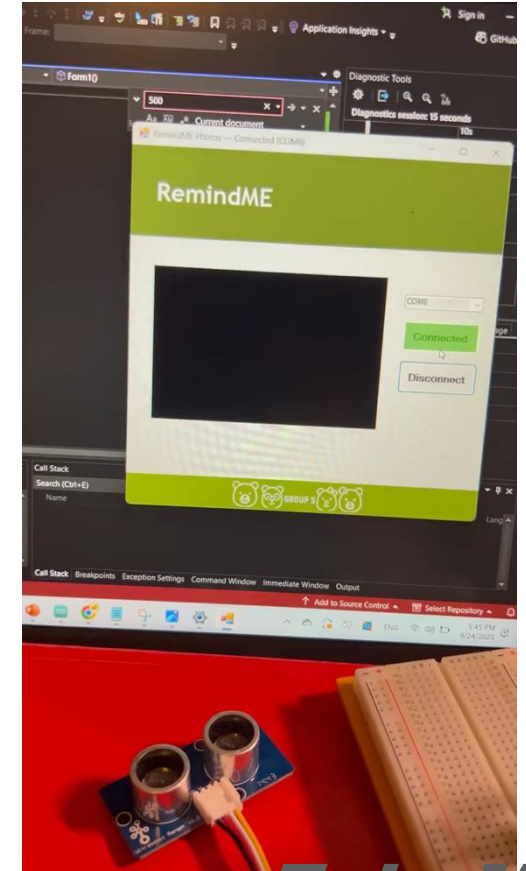
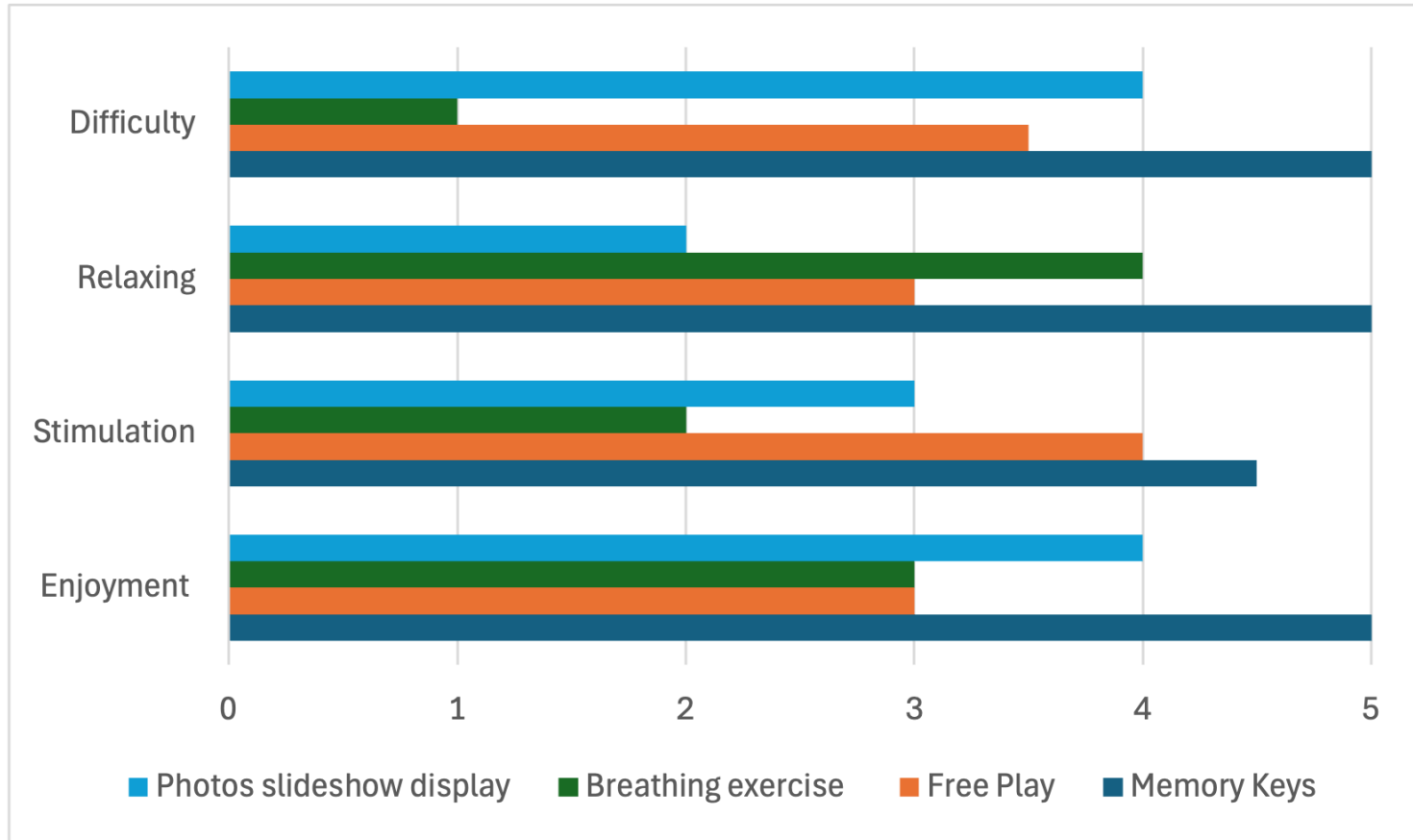


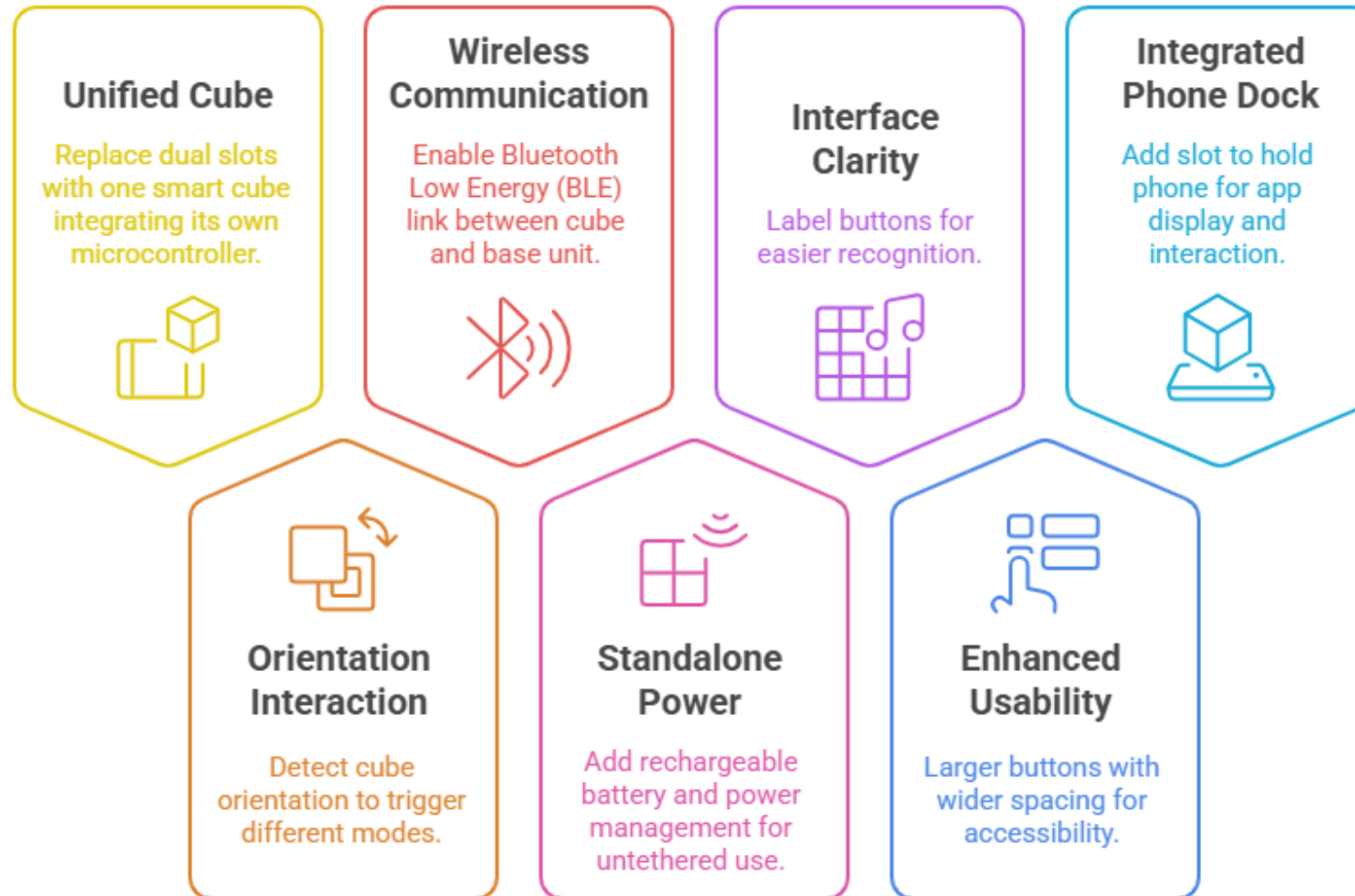
Photo Display



Task-based Evaluation user ratings



Future Enhancements



What if EchoMe was a product?

Instagram



COSC439_Group5
Sponsored



2,026 likes

@COSC439_Group5 Together, We Remember



- **Mobile Companion App** – caregivers can upload/tag photos and customise breathing/game settings.
- **Standalone Device** – wireless, rechargeable, care-home ready
- **Market Vision** – dementia-friendly, tangible alternative to screens

EchoMe