BRAIN BITES

A SWEET SUCCESS

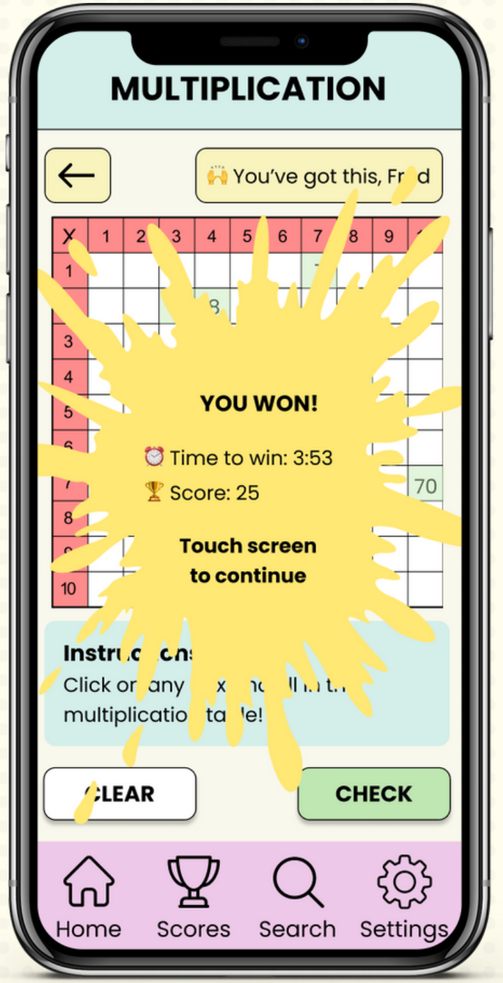
Project Overview

The product:

A new way to encourage mental and physical health by rewarding kids with a sweet treat when they complete a digital puzzle.

Project duration:

February 2023 - April 2023



Project Overview

The problem:

Caretakers are in search of new ways to encourage their children to make healthier choices

The goal:

Develop a product and app that will encourage healthier choices by using candy as a reward for completing mental puzzles

THE USER

- Target Users
- User research
  - Questionnaires
  - Cognitive task analysis
  - Persona (based on needs analysis)
- Anthropometry

Target Users

- **CUSTOMER**

Kids 6-12

- **CONSUMER**

Caretakers

Questionnaire: distributed to caretakers (babysitters + parents

Demographics:

1. **Are you a babysitter or parent?**
2. **Are you a parent/caretaker of child(ren) 6-12 years old?**

Informational:

1. **What do you find most enjoyable when taking care of (your) children?**
2. **What do you find most frustrating when taking care of (your) children)?**
3. **Do you ever have issues with (your) children consuming a lot of sugar?**
4. **Do you typically have issues monitoring (your) children? Please elaborate.**

Collected 5 responses from friends and parents

https://forms.gle/eqk29MBcmjJ7k33J8

Questionnaire: distributed to children ages 6-12

Demographics:

1. **How old are you?**
2. **What grade are you in?**

Informational:

1. **Do you like getting rewards for tasks? (Y/N)**
2. **What kind of games/puzzles do you like most? (open-ended)**
3. **What is your favorite activity to do with a babysitter? (open-ended)**

Collected 4 responses from friends' younger siblings
***Completed with caretaker**

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Questionnaire Results

Caretakers

Responses from **3 babysitters and 2 parents**

- Most find it difficult when children **do not listen**
- Most reported that children **"often" consume too much** sugar
- Babysitters reported **more trouble** with monitoring children than parents did

Children

Responses from **2nd, 4th, and 5th graders**

- **Favorite games**: Where's Waldo, Jenga, Monopoly, Jigsaw, iSpy, word search
- All said they **"often" like getting rewards** for tasks

Cognitive Task Analysis

ACTION	Leave children home alone	Checks up on children during the day	Comes home at the end of the day
TASK LIST	1. Tell children to not eat all of the candy in the house 2. Attempt to hide the candy from plain sight 3. Leave the house	1. Call children 2. Ask children what they have been doing during the day	1. Come into the house 2. Check candy cabinet
FEELING ADJECTIVE	Scared Anticipatory Hopeful	Anticipatory Curious	Relieved
IMPROVEMENT OPPORTUNITIES	Develop a mechanism that does not require hiding the candy (limit “scared”)	Add a feature that alerts caretaker when her children have opened the jar (limit “anticipatory”)	Develop a product that makes Michelle feel “relieved” prior to coming home (ie, previous improvement opportunities)

Persona

Age: 43 years old
Education: University of Ohio
Family: single mom, 2 kids
Occupation: full-time software engineer

"I need a way to get my kids to stop eating all that candy when I'm not there to watch them!"

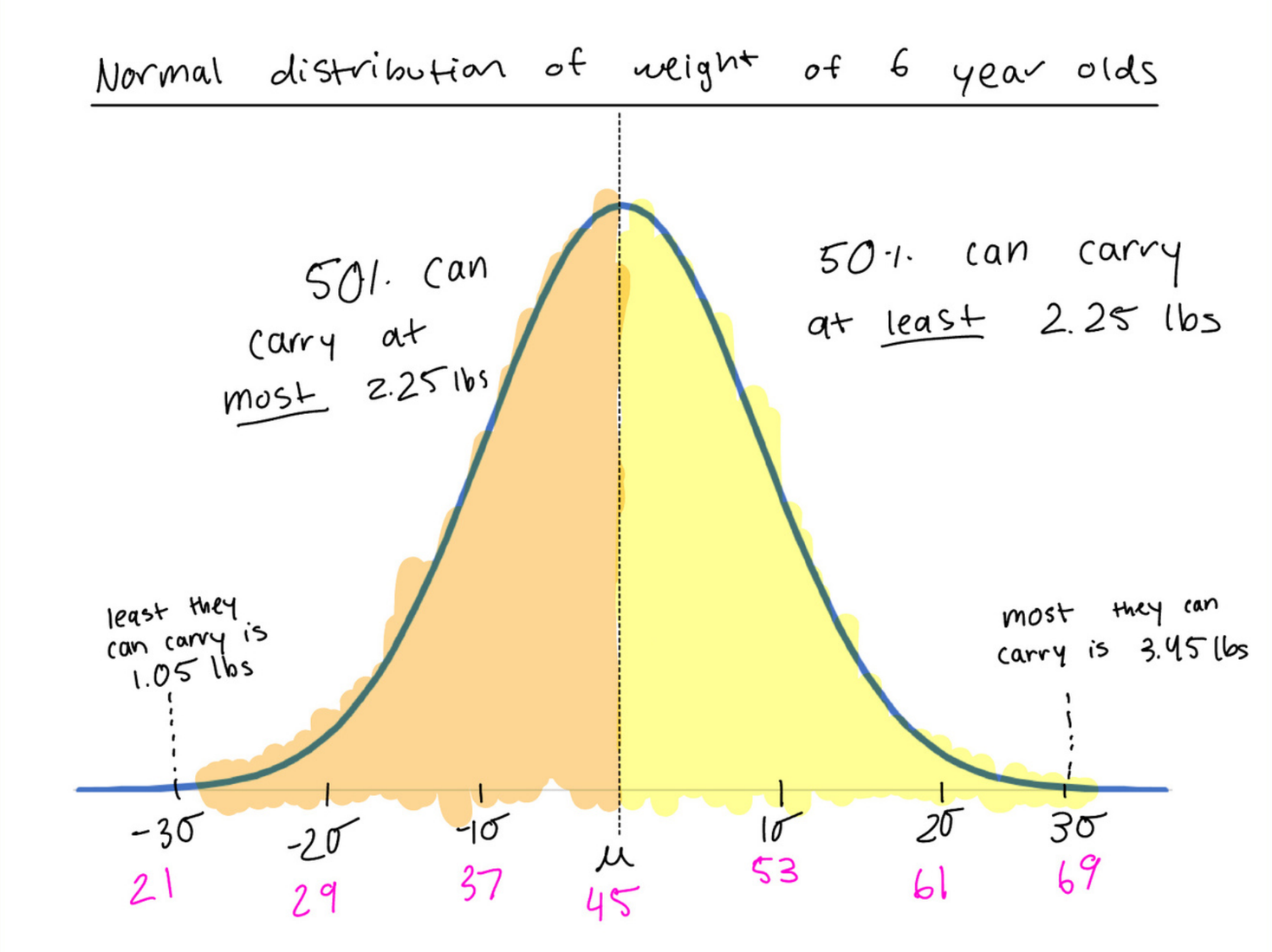
Goals:

- Get kids to eat healthier/make healthier choices
- Encourage kids to grow their mental abilities

Frustrations:

- Cannot monitor them when they are home on their own
- Cannot afford a babysitter

Anthropometry for Physical Product



- Make jar about 1 pound without anything in it
- Typical torque of jars is between 2Nm and 5.5Nm
  - Limited wrist-twisting strength: make torque of jar 2Nm

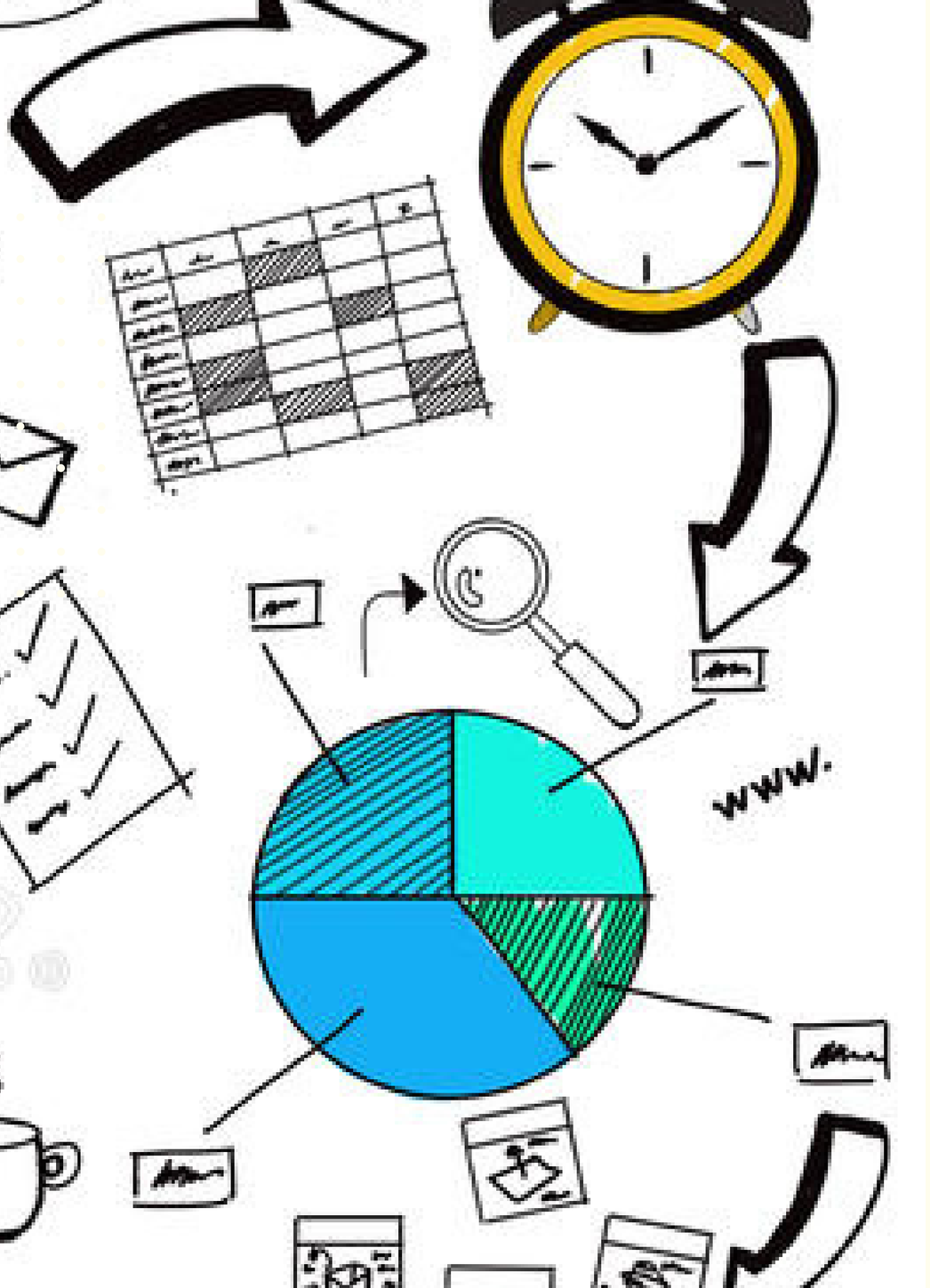
Anthropometry for Interface

Caretakers

- Larger fingers can move around the screen more
- Poorer eye sight
- Have more patience, feedback should still be instant but not as overflowing

Children

- Smaller fingers cannot reach buttons as easily
- Better eye sight
- Attention span is limited, need constant feedback and colorful screens
- Need instant feedback due to poorer communication skills and patience

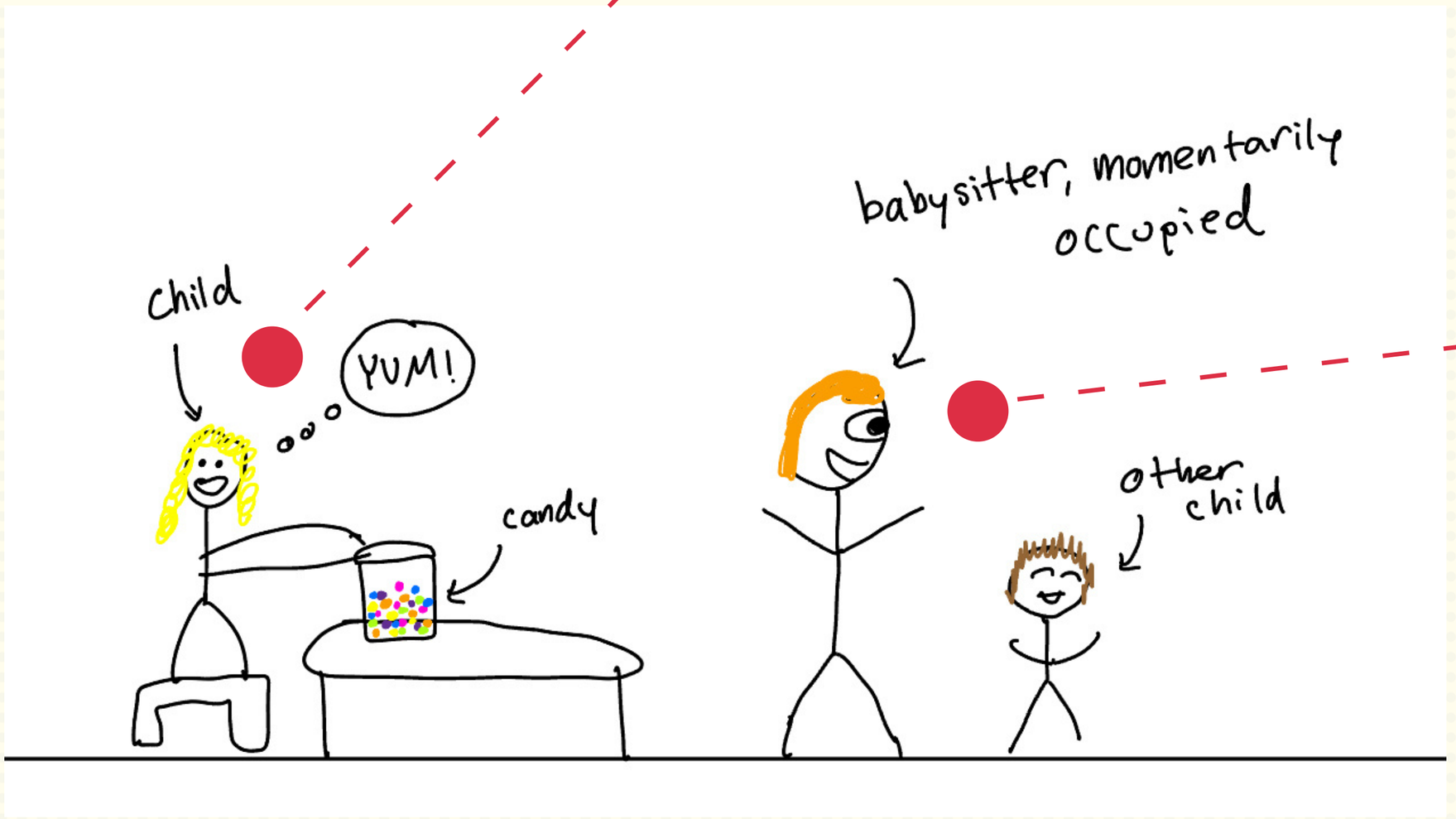


DESIGN PROCESS

- Pain Points
- Competitive Analysis
- App interface design considerations
- Paper wireframes
- Interface prototypes
- CAD model of the product

Pain Points

Child consuming too much sugar



Babysitter is not aware

Competitive Analysis

KitchenSafe

No override feature
Not meant for kids
Not accompanied with an app

CoolJarz

Keys
Poor aesthetics
Not accompanied with an app

App Interface Design Considerations

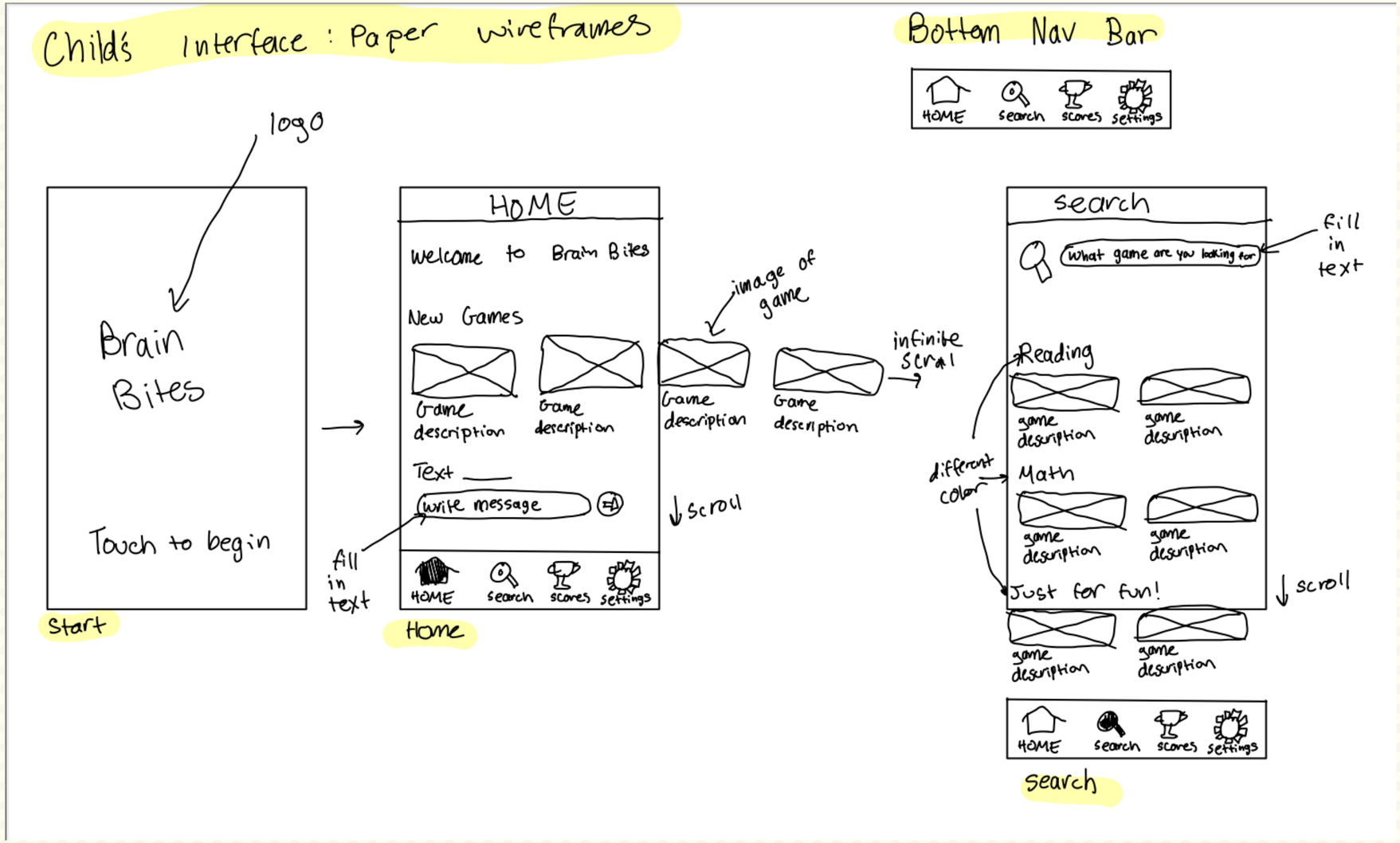
Caretakers

- Adjustable font sizes
- Can have bigger spacing
- Buttons do not need to be as colorful or large
- Design for ethical considerations

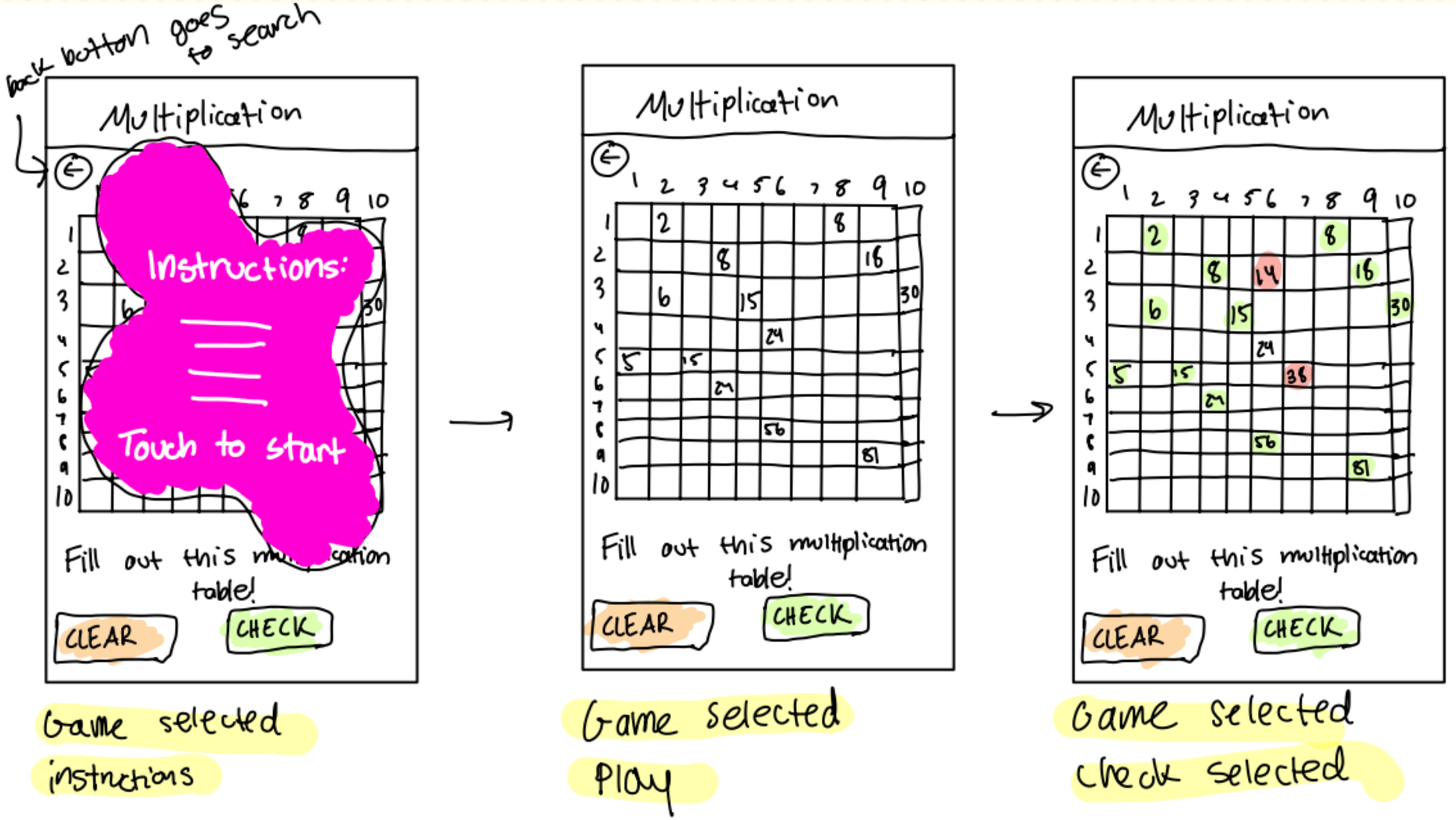
Children

- More images, less text
- Specific games based on reading and math level as inputted by caretaker
- Instant feedback
- Not too much spacing, due to limited reach

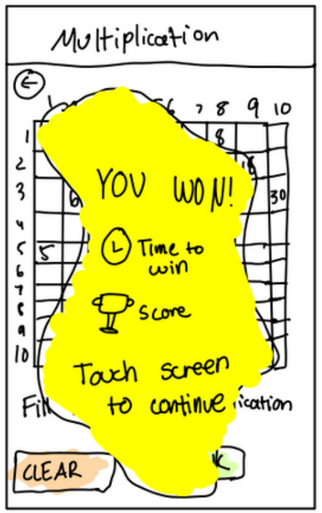
Child's Interface: Paper Wireframes



Child's Interface: Paper Wireframes

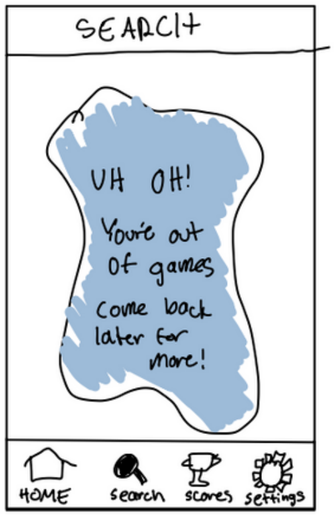


Child's Interface: Paper Wireframes



Winning screen

Jar unlocked screen



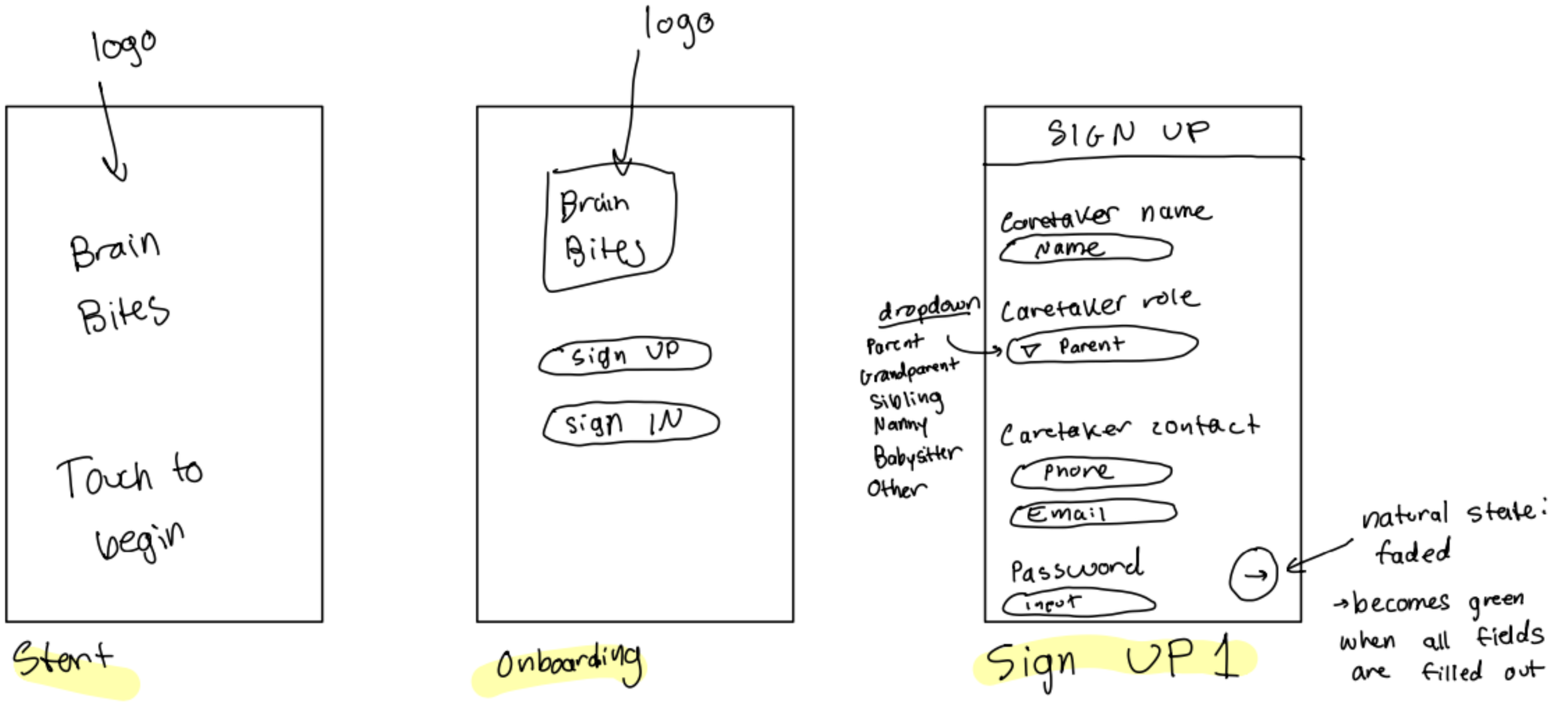
Out of games screen

→ when user clicks search and games are over

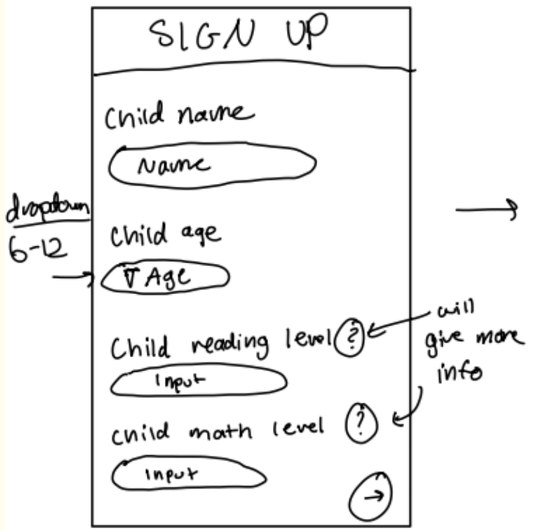
Scores screen

Settings

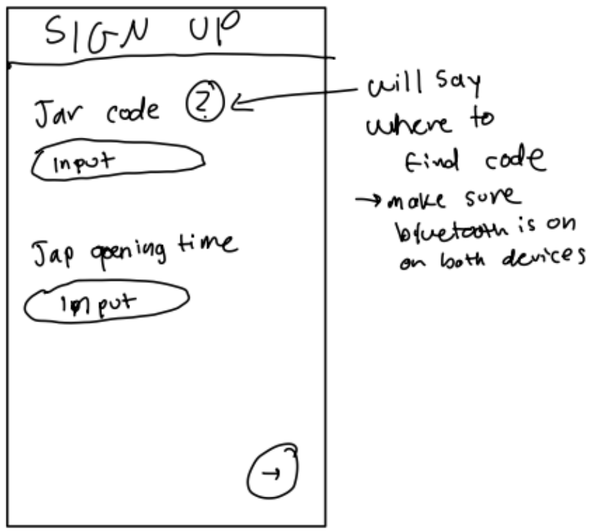
Caretaker's Interface: Paper Wireframes



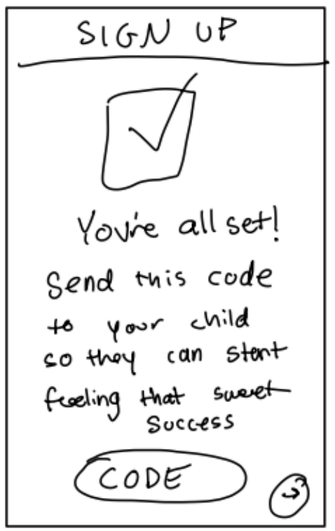
Caretaker's Interface: Paper Wireframes



SIGN UP 2



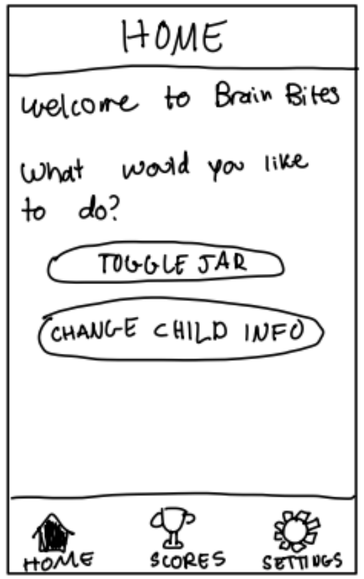
SIGN UP 3



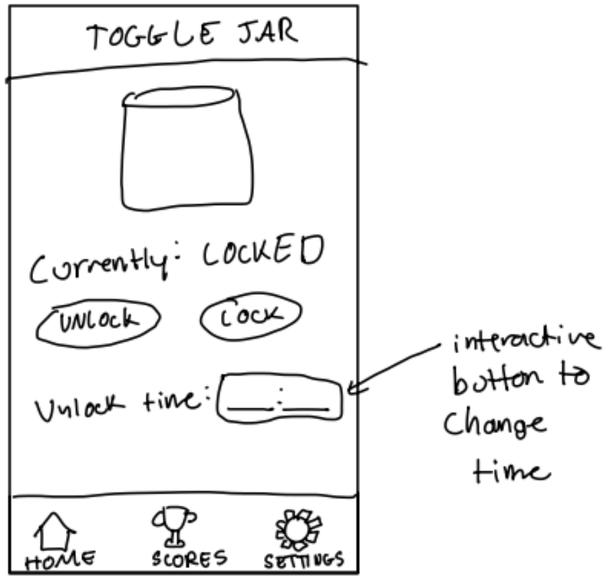
SIGN UP 4

Sign In Screen

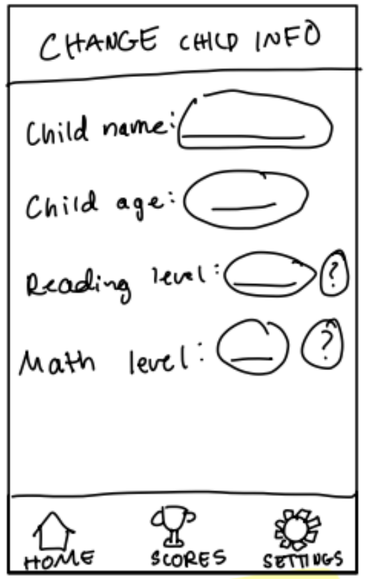
Caretaker's Interface: Paper Wireframes



Home



Toggle Jar

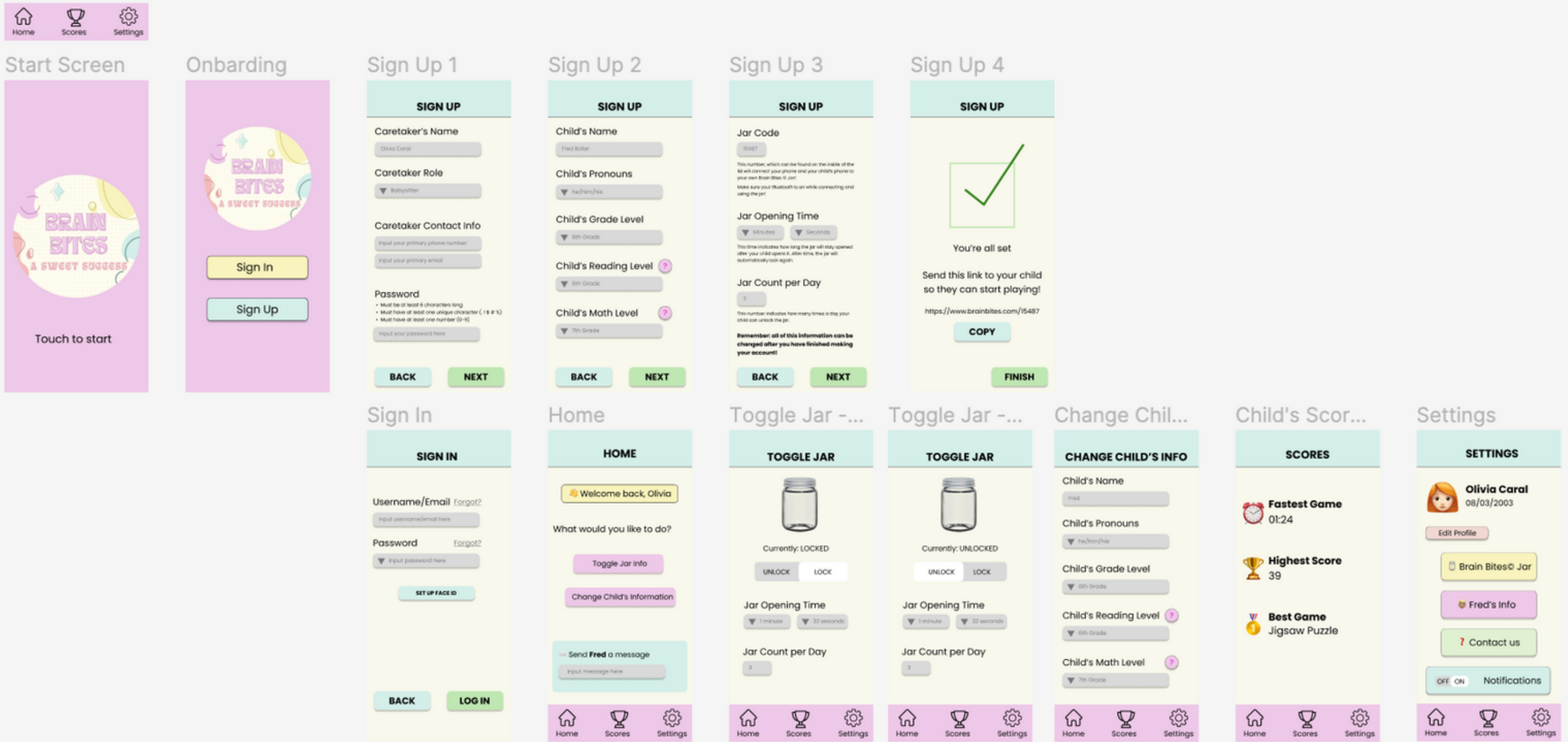


Change Child Info

Scores Screen

Settings

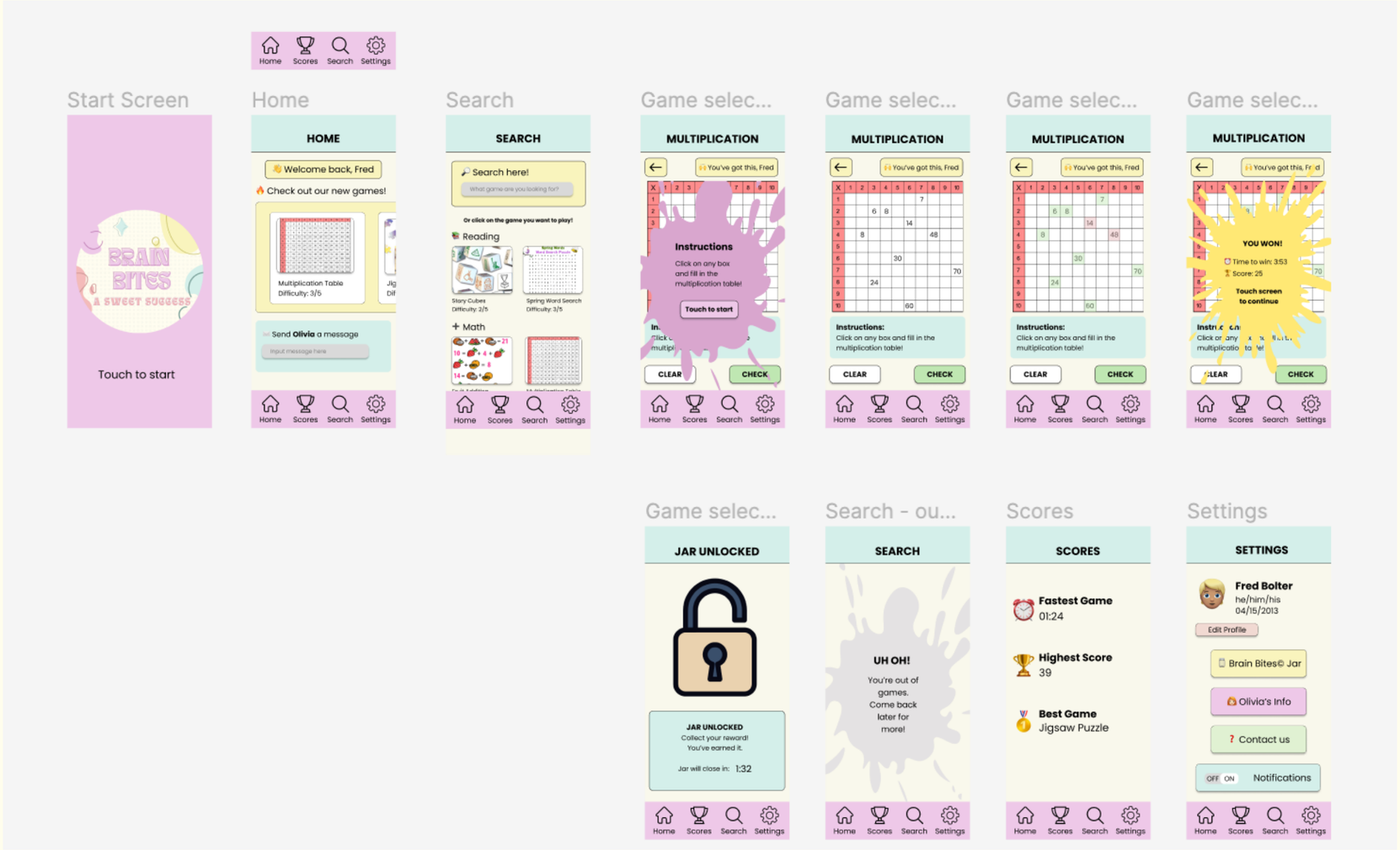
Caretaker's Interface: Prototype



Interact here:

https://www.figma.com/proto/uE0sJkKQDWiOVWWhpMg6c3/Brain-Bites---Caretaker?node-id=1-6&scaling=scale-down&page-id=0%3A1&starting-point-node-id=1%3A6

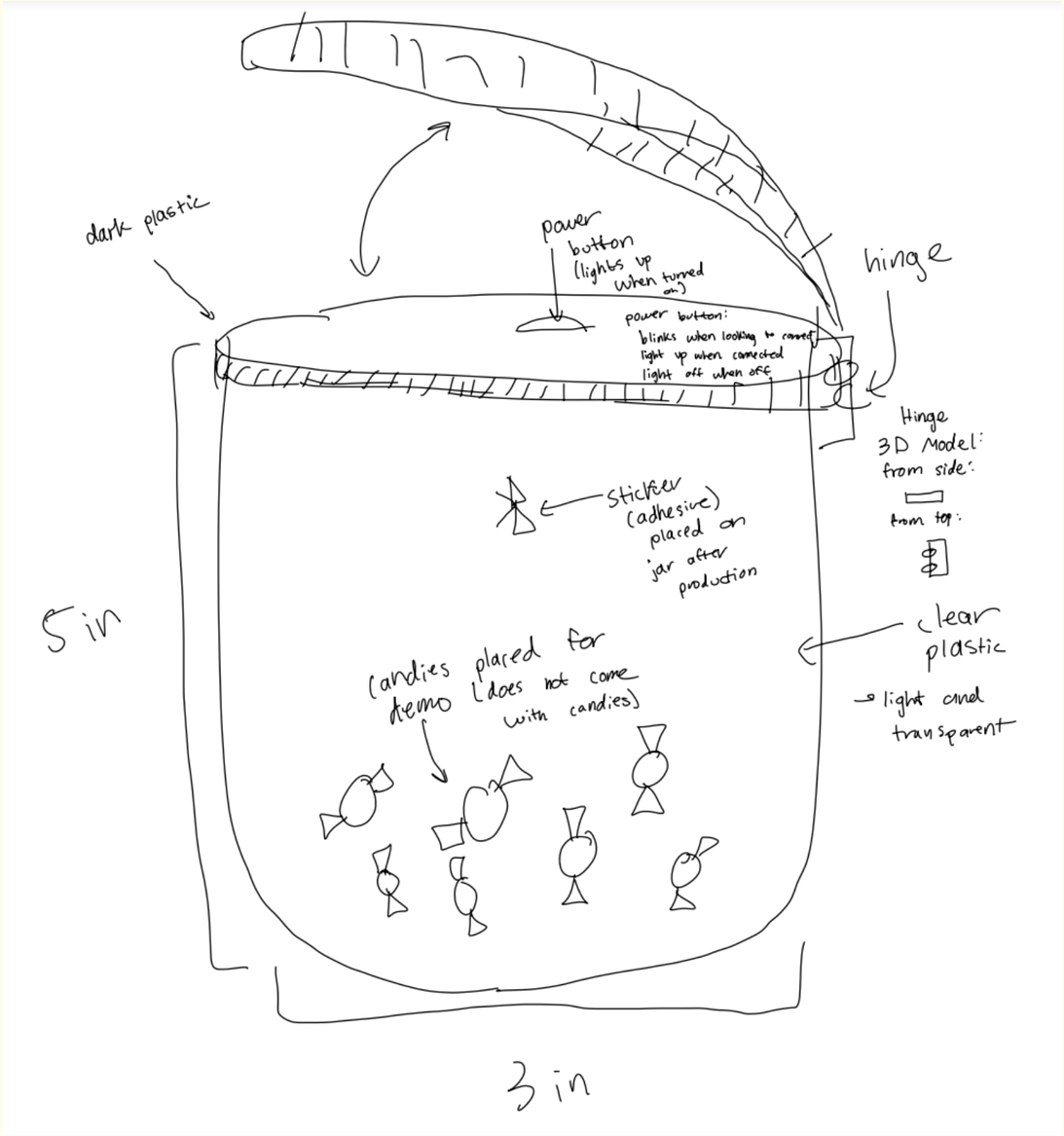
Child's Interface: Prototype



Interact here:

https://www.figma.com/proto/Iyv8gf2eMKwHx360iI8FEb/Brain-Bites---Child?node-id=1-9&scaling=scale-down&page-id=0%3A1&starting-point-node-id=1%3A9

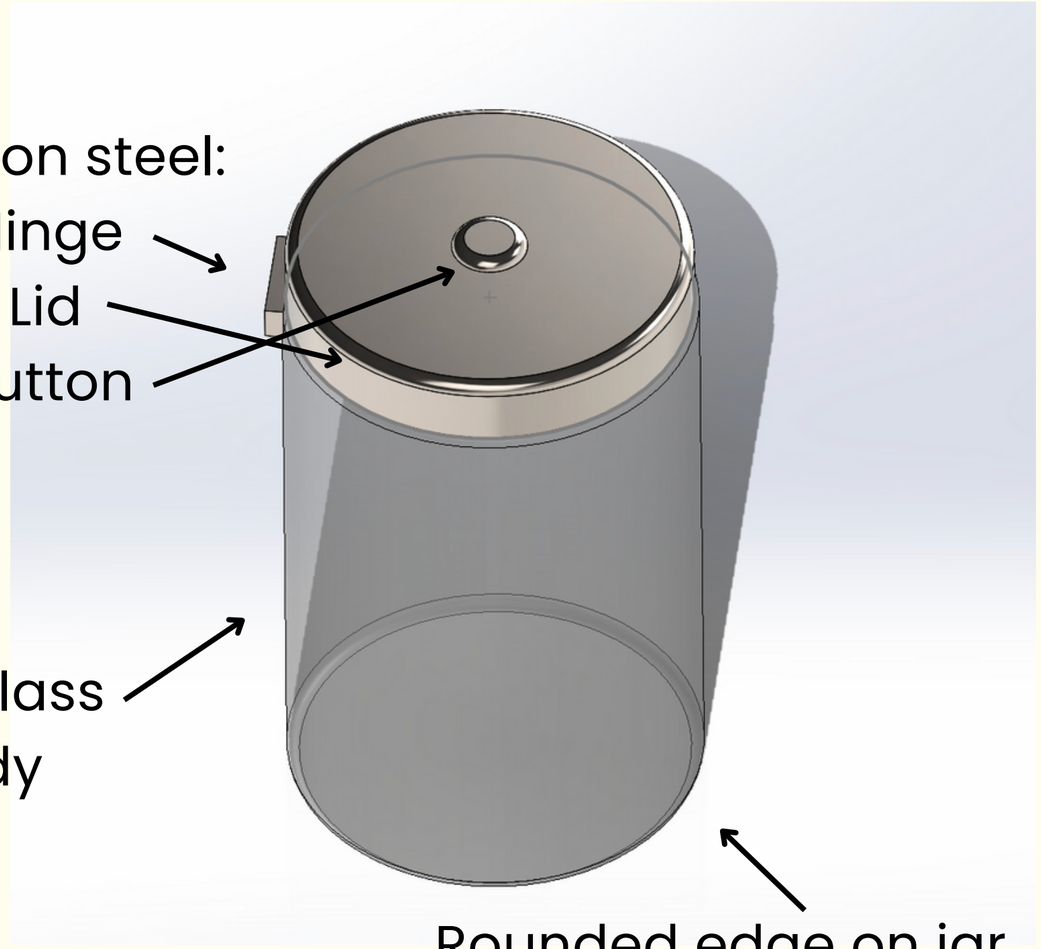
The Jar - Sketch



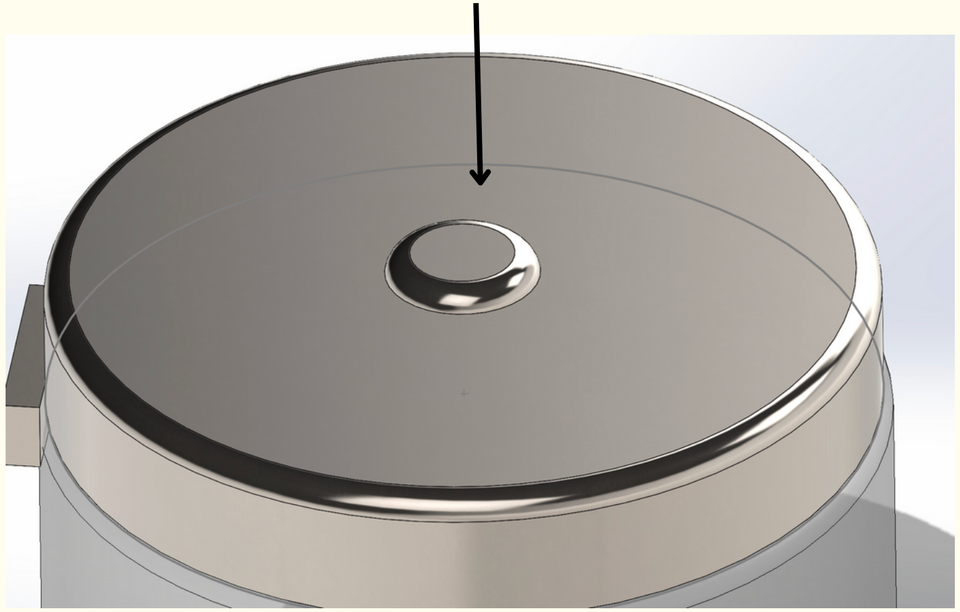
Design Considerations

- Power button with **mental model for Bluetooth functionality** (also in instructions manual)
- 5x3 to mimic size of **average jar** while fitting **anthropometry of user**
- **Carbon steel** lid, hinge, and button (one of the lightest steel)
- **Plexiglass** (clear plastic) material is light and transparent
- Rounded off edges to **minimize risk** of potential harm to child

The Jar - Prototype



Button with rounded edges



Expected weight: 1.2 lbs

Not pictured in 3D model: light on jar that indicates Bluetooth connection

REFINING DESIGN

- Usability testing and outcomes
- Redesign
- Accessibility considerations

Unmoderated Usability Testing

- **CONSUMER**

Ella, 21 years old
Cousin
Babysits at least once a week

Outcomes of Testing

1

Instructions

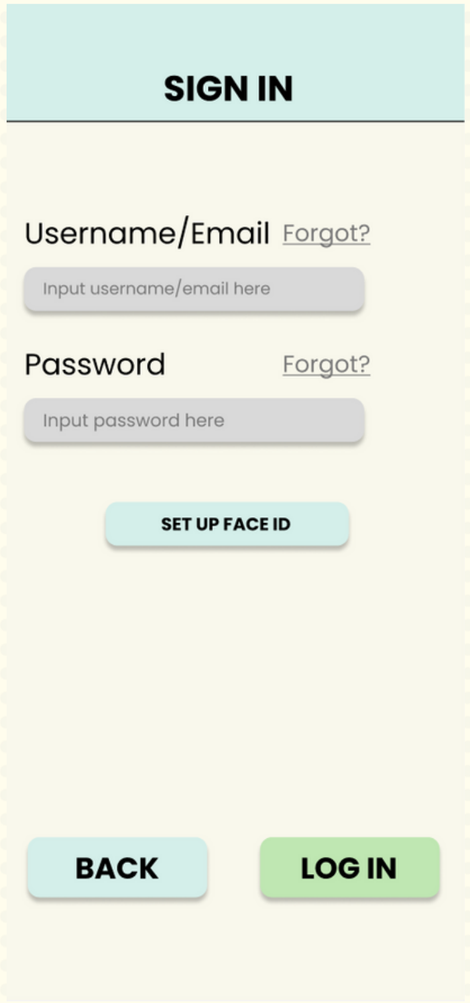
Expressed that she would prefer there be some sort of instruction manual to come with product to navigate Bluetooth functionalities

2

Face ID

Discussed that adding an option to use a Face ID would make the interface more efficient

Redesign



Sign In Screen

Added a Face ID feature

Instruction Manual

Instructions will come with jar and detail how to navigate the Bluetooth connection

Unmoderated Usability Testing

- **CUSTOMER**

Alma, 12 years old
Friend's sister

Outcomes of Testing

1

Difficulty Feature

Expressed that she did not understand the purpose of the difficulty information. Pointed out that different kids find different topics more difficult, which can make the current interface discouraging

2

Scores Screen

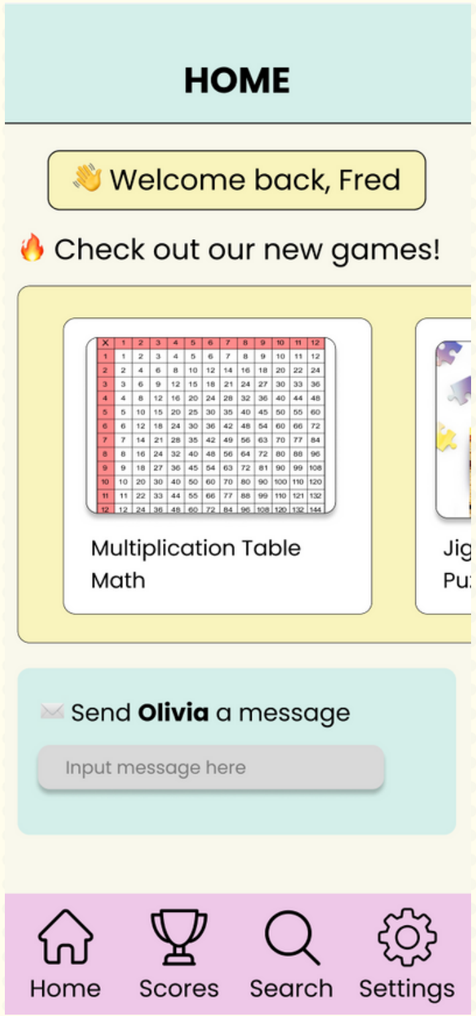
Discussed that a "level" feature on the app could make it more competitive and encourage kids to play more

3

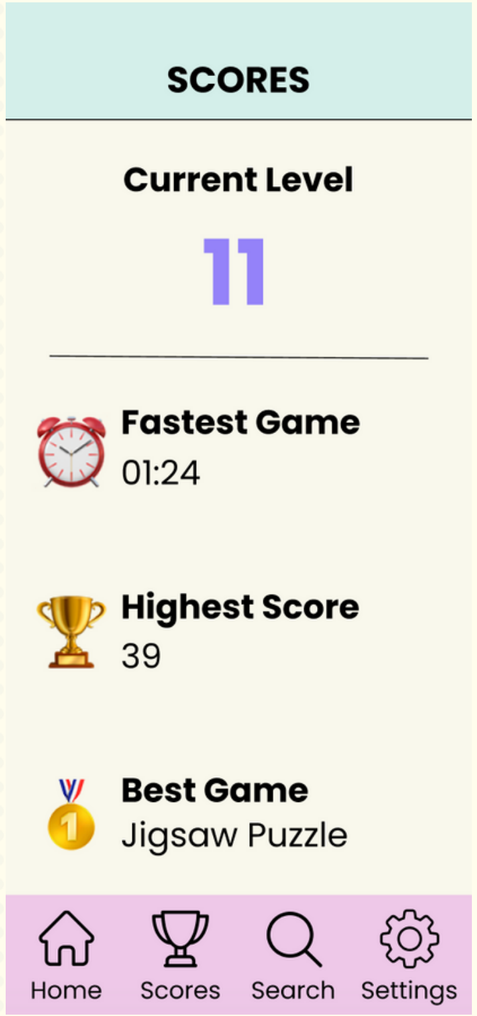
Scroll Features

Horizontal and vertical scrolling are glitchy and need better centering and spacing

Redesign



Difficulty Features
Changed difficulty to say the subject



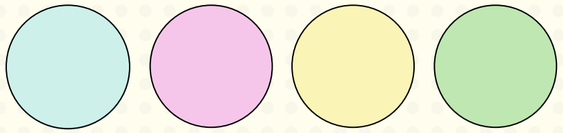
Scores Screen
Added a level feature

Accessibility Considerations

1

Color Palette

For users who are colorblind or visually impaired:



2

Size of Icons/Buttons

For users who are visually impaired/have small fingers:

"TOUCH SCREEN TO CONTINUE"

3

Consumer/Customer

Creating completely different interfaces for caretakers and children in order to maximize the efficiency of the product

KEY TAKEAWAYS

- Impact
- What I learned
- Future steps
- Thank you!

Impact

Throughout my product and app development experience, I:

- Utilized methods learned involving **user research**
  - Observations, questionnaires, persona development
  - Performed a cognitive task analysis on a caretaker
- Incorporated knowledge of **anthropometric measurements**
- Discussed **pain points**, a **competitive analysis**, and the proper **design considerations** that fit the user
- Formed **paper wireframes** and **high-fidelity prototypes** using Notability and Figma
- Created a **3D model** of the product using Solidworks
- Performed **usability tests** on a 12 year old (child) and a 19 year old (caretaker)
- Accounted for redesign and **accessibility considerations**

What I learned

Throughout this project:

- Importance of gathering feedback from usability testing
- The difference between the consumer and the customer, and the importance to account for both
- How to use various features of Figma and Solidworks

Throughout this course:

- A variety of useful techniques used in human factors engineering
- Usability testing, informal/formal observations, group design, psychophysical methods, questionnaire design
- **THE IMPORTANCE OF THE USER**

Future Steps of Brain Bites

1

Conduct more user research

Further usability testing with more users

Secondary research and interviews

2

Gather customer feedback

Assess feedback from users who rate the app and product online

3

Incorporate AI

Use AI to predict. what types of games the child will select

Use AI to predict when a child has gone up in a reading/math level

Thank you!

Feel free to reach out with any comments, questions, or concerns:

Email: ymanor03@gmail.com

LinkedIn: https://www.linkedin.com/in/yahav-manor-5814a21b2/