Visual Impairment Awareness

Stream C
Dynamic Destroyer

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The Problem

We aim to devise an interactive way to improve attitudes towards people with visual impairment within the community, by increasing awareness of their experiences.

From the previous concepts created, we chose the three we thought was most effective and created prototypes of each for testing. Based on test feedback with potential users, we narrowed down to the concept that best conveys to users the realities of visual impairment and what they can do to help.

Approach

1

Based on feasibility and the strength of our initial concepts, we narrowed our ideas from 5 to 3.

This was tested and improved on from insights.

2

Merged 2 concepts together and added features to the remaining concepts based on feedback.

We tested these concepts again.

3

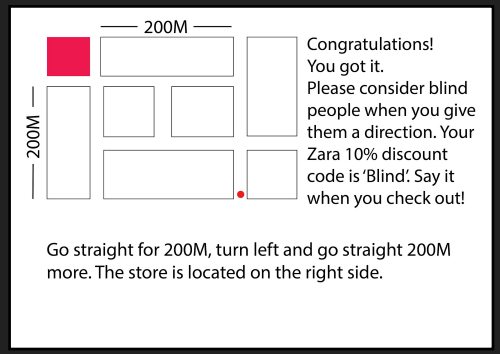
Chose the most successful concept and improved visual interface and interactions to create mid-fidelity prototype to test.

4

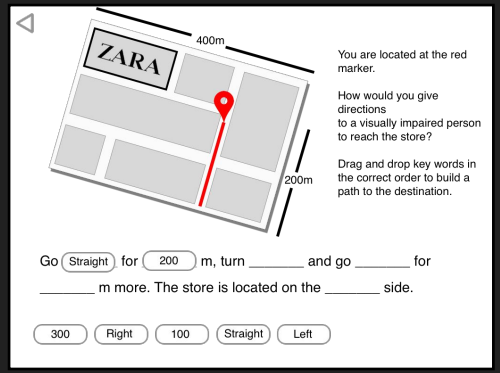
Iterated on final concept based on feedback and evaluation.

Overview of Tested Concepts

Iteration 1



Iteration 2

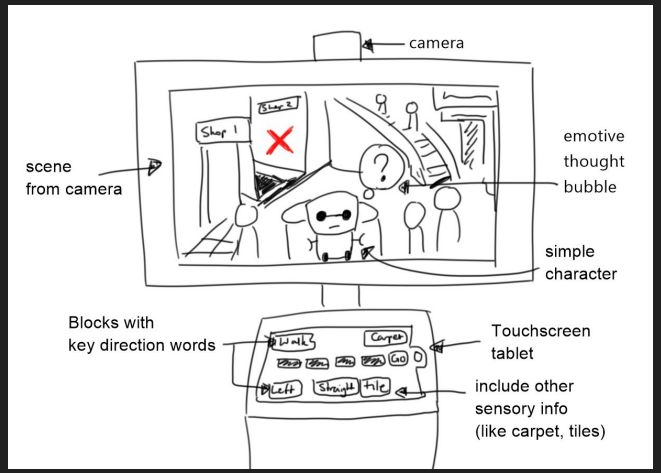


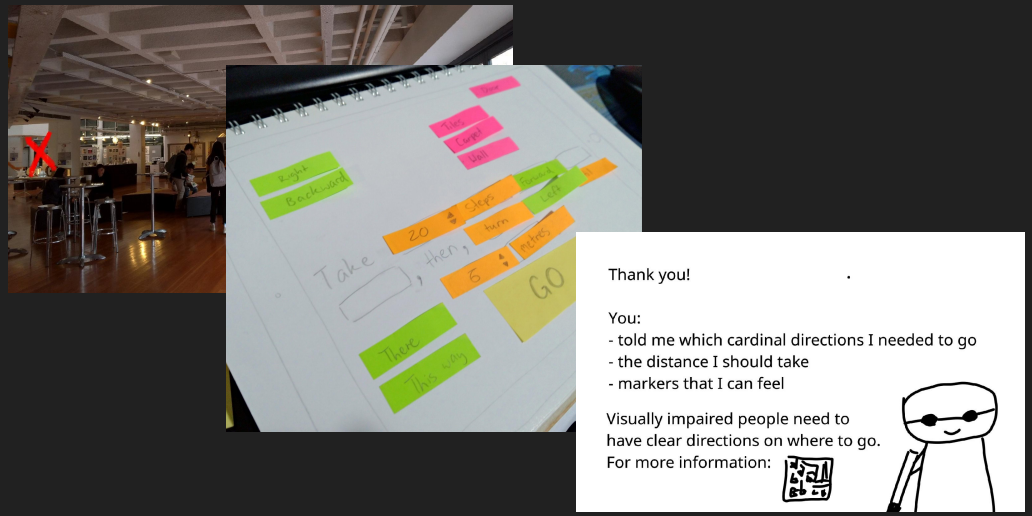
Iteration 3

Shopping Mall Kiosk

The participant who uses the kiosk is treated equally as blind people. The kiosk gives a vague and unclear directions to the users before giving more clear and specific directions to prompt them to consider how to give a directions to blind persons.

In iterations 2 and 3, it also took the main activity from the next concept as an incentivised activity.

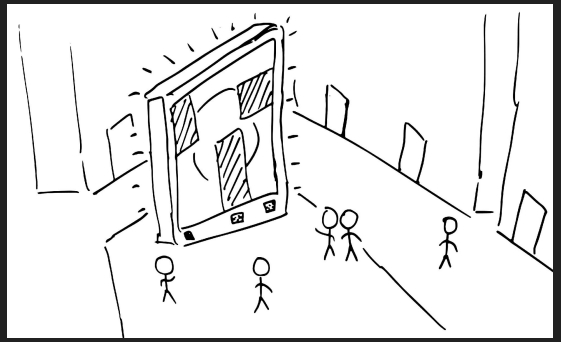




Where is There

Where is There? Is an interactive experience which questions how you would get a visually impaired character to an “x” mark in a perspective scene.

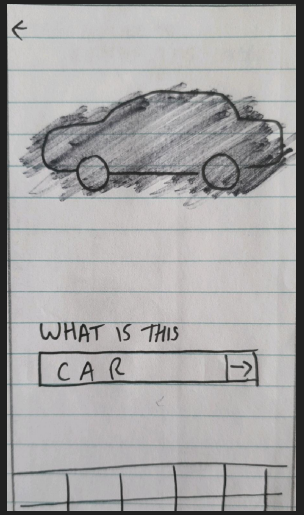
The user is then given a set of word blocks for directions plus visual and textural landmarks which users can drag and drop into spaces on a touchscreen. The user-built directions will then either be carried out to see if the robot can get to the mark or it will express confusion over the words.



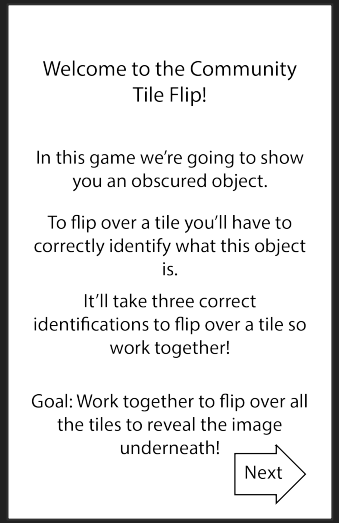
Community Tile Flip

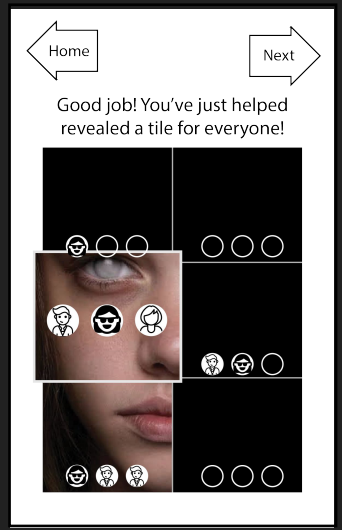
This concept playfully invites the community to get a glimpse of the struggles that low-vision people face in their everyday lives.

It involves a big screen of tiles that users can work with others to progressively flip using an app accessible via QR code. Each tile portrays blurred objects to be guessed to reveal an impactful image and facts about visual impairment.



Iteration 1





Iteration 2

Concept Evaluation

Data Collection

Qualitative Feedback

This allowed us to understand their opinions on concepts on a more personal level, therefore drawing out more insights.
Information collected:

- users' thoughts and frustrations after testing
- actions during testing including pain points

Method: interviews, observations

Binary

Our data also involved binary, yes/no answers which clarified how they felt about interactions and ideas. This was used in the interview and questionnaire. This was encouraged to be elaborated on for more insight on their thoughts.
Method: interviews, questionnaires

Analysis

Affinity diagramming

Decision matrix

To decide on which concepts to go forward with we created a decision matrix with criteria based on our goals and the needs found through user testing. This allowed us to merge concepts together and decide on our final concept.

Methods

Observations

- Note down how users reacted
- think-a-loud actions, time took on tasks and questions asked
- Record user reactions to inform our next iterations.

Post-test Interviews

- Semi-structured
- Explicitly express their thoughts about our concepts
- Questions aim to draw out people's likes, pains and frustrations

Questionnaires

- During first round of testing
- Experience with helping people with visual impairment
- Determine preferred concept

Findings

Shopping Mall Kiosk	Where is There	Community Tile Flip
• Offering a discount motivates people • Intuitive and straightforward • Insight that visually impaired people require a special interpretation of directions	• Enjoyed sentence creation activity • Fairly intuitive • Raised awareness quite successfully	• Enjoyed the gamification • Intuitive interactions • Users were more engaged in guessing images
• Text-heavy • Less engaging due to text • Hard to discern distance	• Frustrated with the limited word pool • Needed clearer instructions • Difficult to discern distance • Complex due to many possible combinations	• Lacked the community presence • Statistics and facts were text-heavy

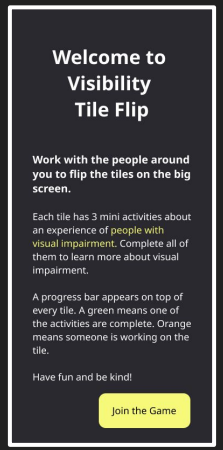
Final Concept

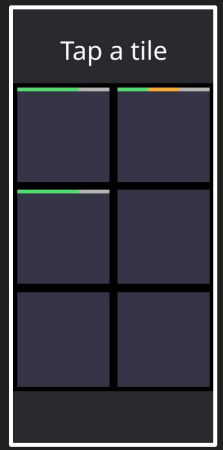
Visibility Tile Flip

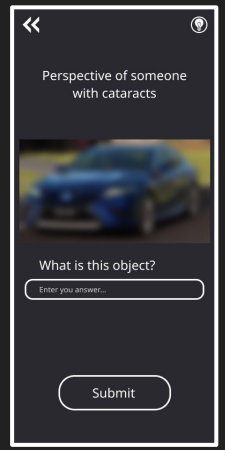
Visibility Tile Flip is a public installation in the form of a large screen that encourages people to play together and work toward a common goal. In the process, they will gain a new perspective in the everyday life of the visually impaired.

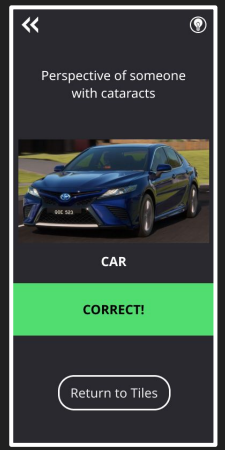
Features:

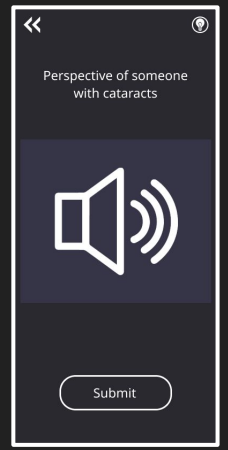
- Experience of the world with various kinds of vision impairment through identification tasks
- Intuitive interaction with mobile app
- Sound as hints
- Reduced text and high-contrast
- General facts about visual impairment

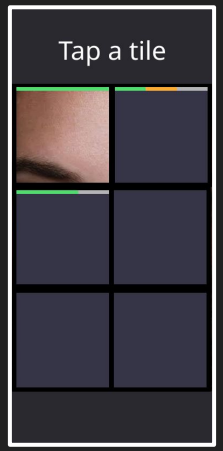


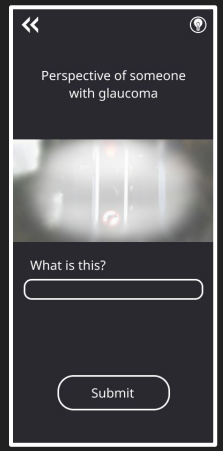


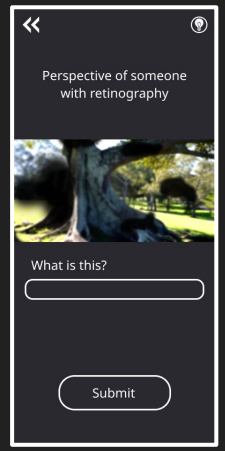


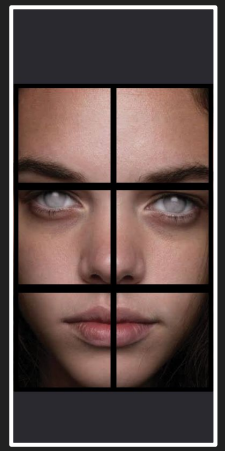










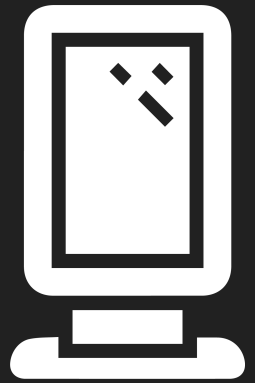


How will we implement?

Hardware

Large display screen that will be located in a public space

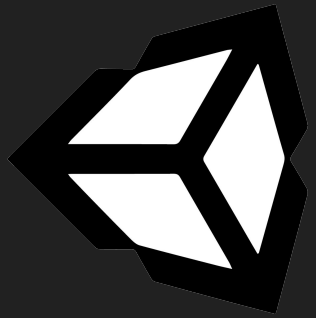
Laptop that will be connected to the internet and hosting the node.js server that users will connect to



Display stand for information and QR code to join the game from your mobile

How will we implement?

Software

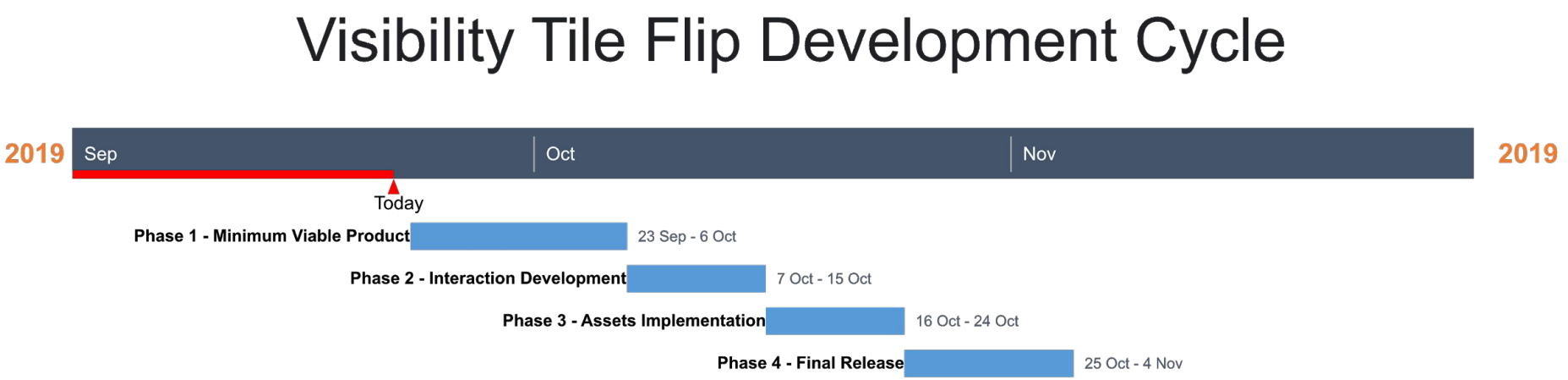


Unity (C#) to create the game

Node.js (Javascript) to handle the server requests

Adobe Suite to create the assets, UI elements and animations

Timeline


Visibility Tile Flip Development Cycle
2019
Sep
Oct
Nov
2019
Today
Phase 1 - Minimum Viable Product
23 Sep - 6 Oct
Phase 2 - Interaction Development
7 Oct - 15 Oct
Phase 3 - Assets Implementation
16 Oct - 24 Oct
Phase 4 - Final Release
25 Oct - 4 Nov

References - Icons & Images

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