

DECO2014 ASSIGNMENT 4

Appendix

SOL3202
EFER0647
SKEL0496

A Note on Terminology

We would like to acknowledge our usage of terminology.

Whilst we acknowledge that the term “blind” is often seen as a subset of “visually impaired”, throughout our work we have chosen to use both terms interchangeably when referring to the spectrum of vision impairments.

During our process we attempted to consolidate sources on inclusive language, although there is no universal agreement on the usage of these terms.

Our choice has been influenced by the literature we read as well as the kind assistance of visually impaired individuals who engaged with us throughout the project.

Design Brief Two: Sensing the body in motion

Brief Two invites you to explore into the realm of bodily experiences, perceptions and interactions within sports and recreational activities. This exploration aims to amplify, diversify, or transform participant's sensory and cognitive experiences of the moving body. This could be achieved through the integration with digital and physical design elements, such as interactive installations, wearables, or signal systems.

The Problem Space

Initial Research Problem Statement:

"To investigate the experience of the visually impaired in engaging with sporting and physical activities."

Our investigation was conducted through **interviews, surveys, and qualitative research methods:**

Initially, our focus was on identifying a specific sport or piece of equipment that could be developed to enable visually impaired individuals (VIs) to participate in sports typically played by sighted individuals. However, our research revealed that most sports have already been effectively adapted for the blind community. The gaps we intended to explore in sport and rule adaptations were found to be well addressed. Instead, our findings highlighted critical issues such as insufficient public awareness, inadequate funding, limited access to facilities, and lack of support.

Based on these insights, our research led us to create the following design problem statement:

Inclusive sport requires careful considerations to strike a balance between individualistic and sport-wide adaptation or assistance, catering to the specific emotional and physical needs of each individual.

Understanding these requirements to facilitate accessible sport is furthermore challenged by current infrastructure and assumptions resulting from a lack of public education. Hence making it difficult for blind individuals to access inclusive sports.

Our Solution

Our solution is to have an educative pop up that would appear at local sports games, educating individuals on blind sports and the physical capabilities of the visually impaired...

Iteration & Testing...

Mid-Fidelity Storyboard

ITERATION 2 FULL EXPERIENCE

1

After playing at his local soccer game on the weekend, Justin is walking around the pitches with his friends and sees a tent with "Learn About Blind Sports".

2

Justin had no idea that visually impaired individuals could play sports and began to wonder how they work. His interest was piqued and decided to see what was going on in this booth.

3

Upon entering the booth, Justin saw an interactive kiosk and intrigued by the sports clips that were displayed walked over and began to interact with it.

4

The kiosk displayed three athletes, and picking one, he was able to follow their journey with interview videos, articles, and information about the sport they play and their visual impairment.

5

After he had completed the athlete kiosk journey, he saw a large quiz screen and began to watch a group of people compete in a short quiz.

6

Calling his friends over they decided to compete against each other on the quiz about blind sports.

7

The quiz was fun, competitive, and informative. Justin and his friends had been surprised by many of the answers and felt like they had learnt a lot.

8

Justin finally saw an interactive experience, where he could experience guiding a blind athlete.

9

After learning the importance of guides during the experience, Justin was inducted into the interactive experience learning about the importance of the types of support and significant questions he needed to ask before guiding.

10

He approached the man who introduced himself as Ben, asked how he would like to be assisted and began to slowly guide him through the obstacles using a mix of verbal instructions and a gentle grip on his arm.

11

Justin felt the importance of being a guide and felt that it was a great way to give back to the community.

With a new found appreciation for blind sports and visually impaired athletes, he was put in contact with a guide agency, so he can volunteer to guide visually impaired athletes in future events.

ITERATION 3 ATHLETE KIOSK

1

After playing at his local soccer game on the weekend, Justin is walking around the pitches with his friends and sees a tent with "Learn About Blind Sports".

2

Justin had no idea that visually impaired individuals could play sports and began to wonder how they work. His interest was piqued and decided to see what was going on in this booth.

3

Justin saw an interactive kiosk with an athlete saying "Hello I'm Lisa and I play goalball!" He was intrigued because he didn't know anything about goal ball and wanted to find out what it was about.

4

Justin navigates through an interactive experience where Lisa goes through her sporting career as a goal ball player and the sport itself. He watches a mix of videos and interactive elements to learn about her and her sport.

5

At the end of the experience the machine gives him a real life goal ball and he gets to have a go rolling it into the goal underneath the screen he interacted with.

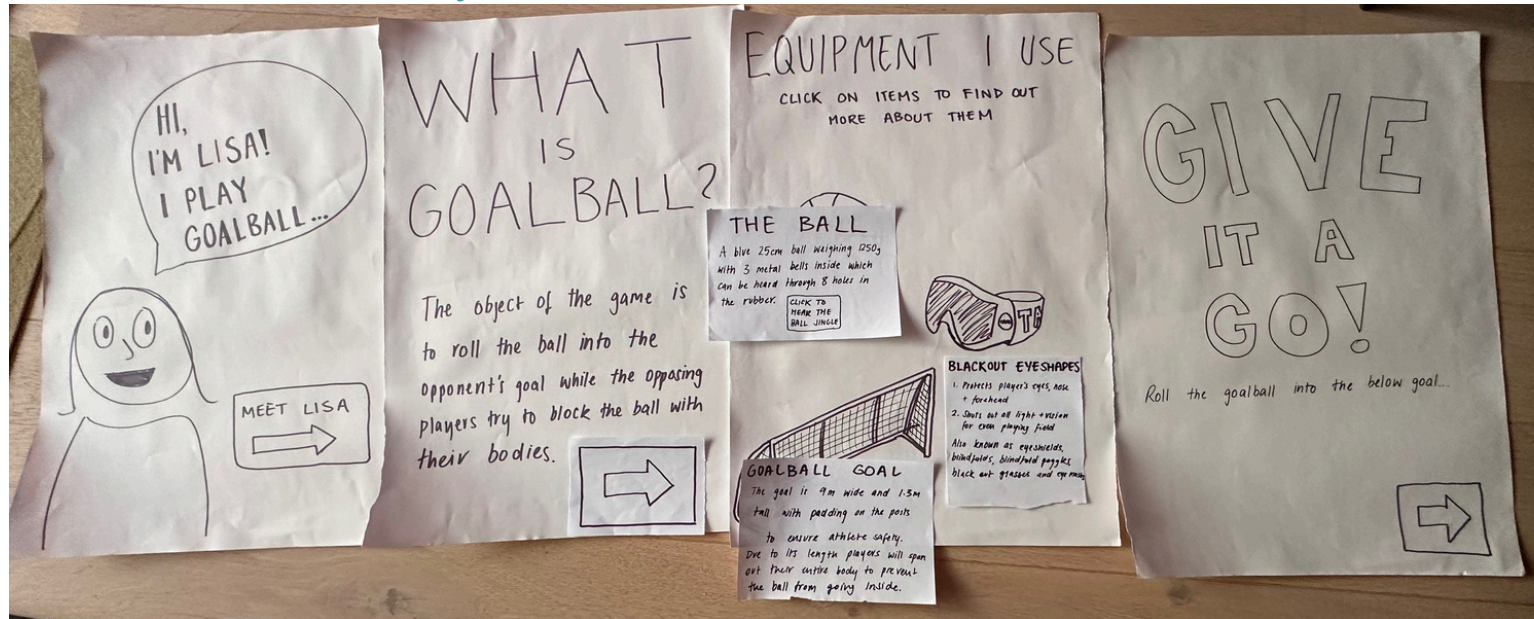
6

Justin learnt a bunch of new information about goal ball and he thinks it is such a cool sport. He's inspired by Lisa and realises how skilled she is as an athlete even with her visual impairment.

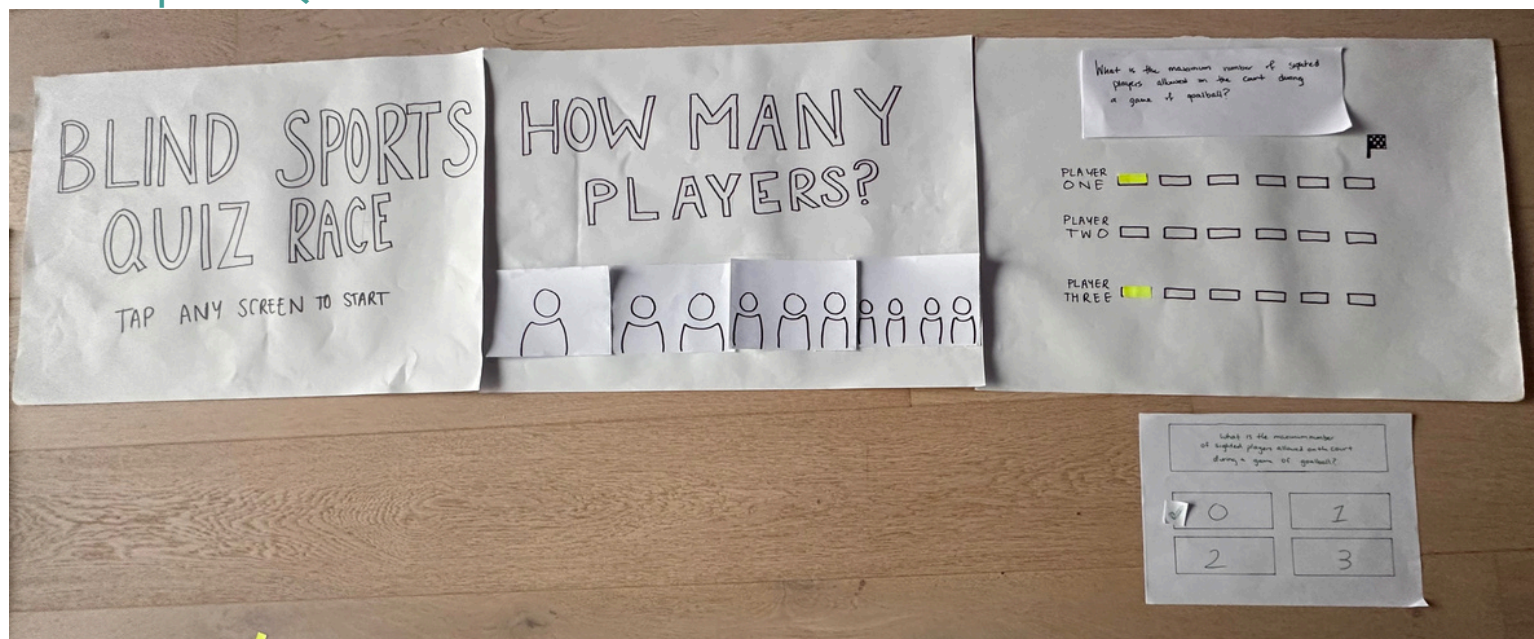
Iteration & Testing...

Mid-Fidelity Prototype

Lisa's Athlete Journey Kiosk



Blind Sports Quiz



Accessibility Considerations

Initial Ideation

Adaptations made after testing survey with screen reader:

Changed "18-24" to "18 to 24"

Changed "ex" to "example:"

Changed Likert scale to multiple choice questions cascading down.

SURVEY

<https://ala.ca/resource/tip-sheets/blindness-visual-impairment/-text=Typical%20adaptations%20in%20blind%20sport.%2C%20equipment%20alterations%2C%20and%20more>

Pre-Screening Requirements

- Legally Blind (Sydney talked to Maurice Gleeson re making sure to clarify participants)

Research Objectives:

- To understand the current experience of people with visual impairments in sport & physical recreational activities
- To understand the social and institutional barriers that visually impaired individuals face while engaging in sport & physical recreational activities
- To investigate the pre-existing structures and tools used by the visually impaired to accommodate sport & physical activities

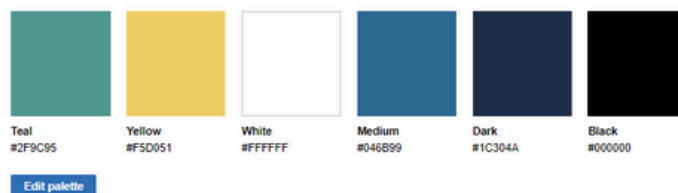
Survey Questions:

- 1) How old are you?
 - a) -18
 - b) 18 - 24
 - c) 25 - 34
 - d) 35 - 44
 - e) 45+
- 2) Were you born legally blind?
 - a) Yes
 - b) No
- 3) How frequently do you engage in sports/physical activity in a week?
 - a) <1 hours
 - b) 1 - 3 hours
 - c) 4 - 6 hours
 - d) 6 + hours
- 4) What type of sports/physical activity do you engage in? (Check All That Apply)
 - a) Walking/Running
 - b) Team Sports
 - c) Weight Lifting/Strength Training
 - d) Swimming
 - e) Yoga
 - f) Other:
- 5) Do you adapt the sport/physical you engage in in any way? (Check all that apply)
 - a) Audible equipment
 - b) Support personnel
 - c) Equipment alterations
 - d) Rule adaptations
 - e) Other:
- 6) (Optional) What tools, if any, do you use to participate in these sports?
 - a) Short answer

WCAG Guidelines

We completed research on our color palette to ensure our booth would be accessible to those with visual impairments

Accessible color palette builder



Accessible color combinations

Please don't use these color combinations; they do not meet a color contrast ratio of 4.5:1, so they do not conform with the standards of Section 508 for body text. This means that some people would have difficulty reading the text. Employing accessibility best practices improves the user experience for all users.

	Teal text #2F9C95 Aa	Yellow text #F5D051 Aa	White text #FFFFFF Aa	Medium text #046B99 Aa	Dark text #1C304A Aa	Black text #000000 Aa
Black background #000000	Aa	Aa	Aa			
Dark background #1C304A		Aa	Aa			
Medium background #046B99			Aa			
White background #FFFFFF				Aa	Aa	Aa
Yellow background #F5D051					Aa	Aa
Teal background #2F9C95						Aa

<https://toolness.github.io/accessible-color-matrix/?>

[n=teal&n=yellow&n=white&n=medium&n=dark&n=black&v=2F9C95&v=FFCD29&v=FFFFFF&v=046B99&v=1C304A&v=000000](https://toolness.github.io/accessible-color-matrix/?n=teal&n=yellow&n=white&n=medium&n=dark&n=black&v=2F9C95&v=FFCD29&v=FFFFFF&v=046B99&v=1C304A&v=000000)

Final Hi-Fidelity Prototype

Sketches of Final Prototype (Kiosk #1 and #2):

Initial ideation of our kiosks based on the athlete profiled and their sport

Sketches

Kiosk #1 - Lisa

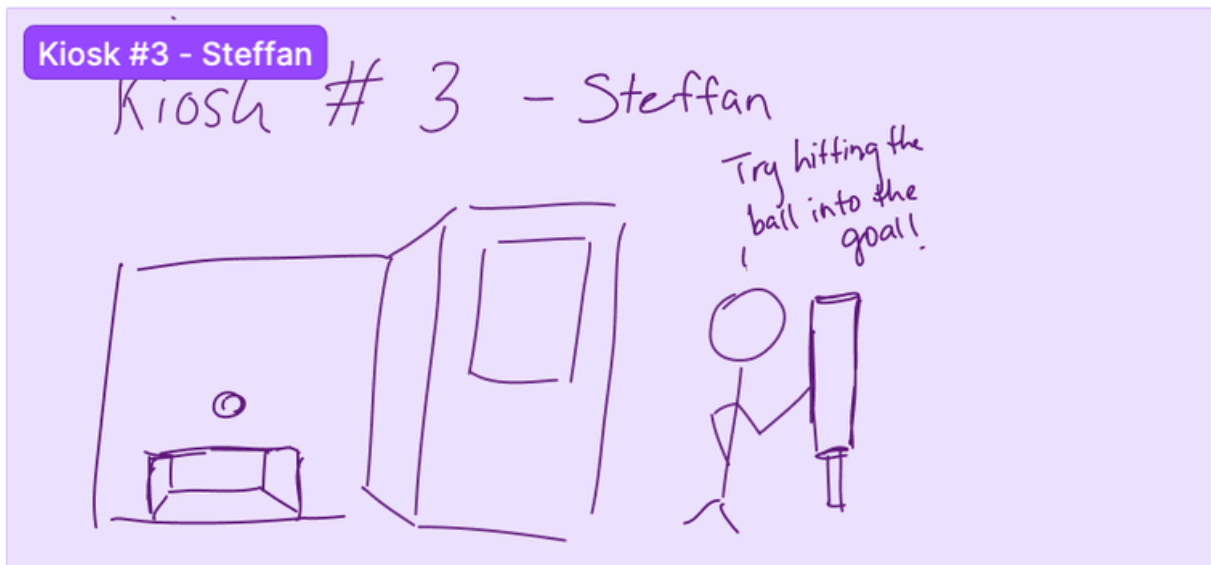


Kiosk #2 - Arato



Final Hi-Fidelity Prototype

Sketch of Final Prototype (Kiosk #3)



Sketch of Final Prototype (Blind Sports Quiz Race):

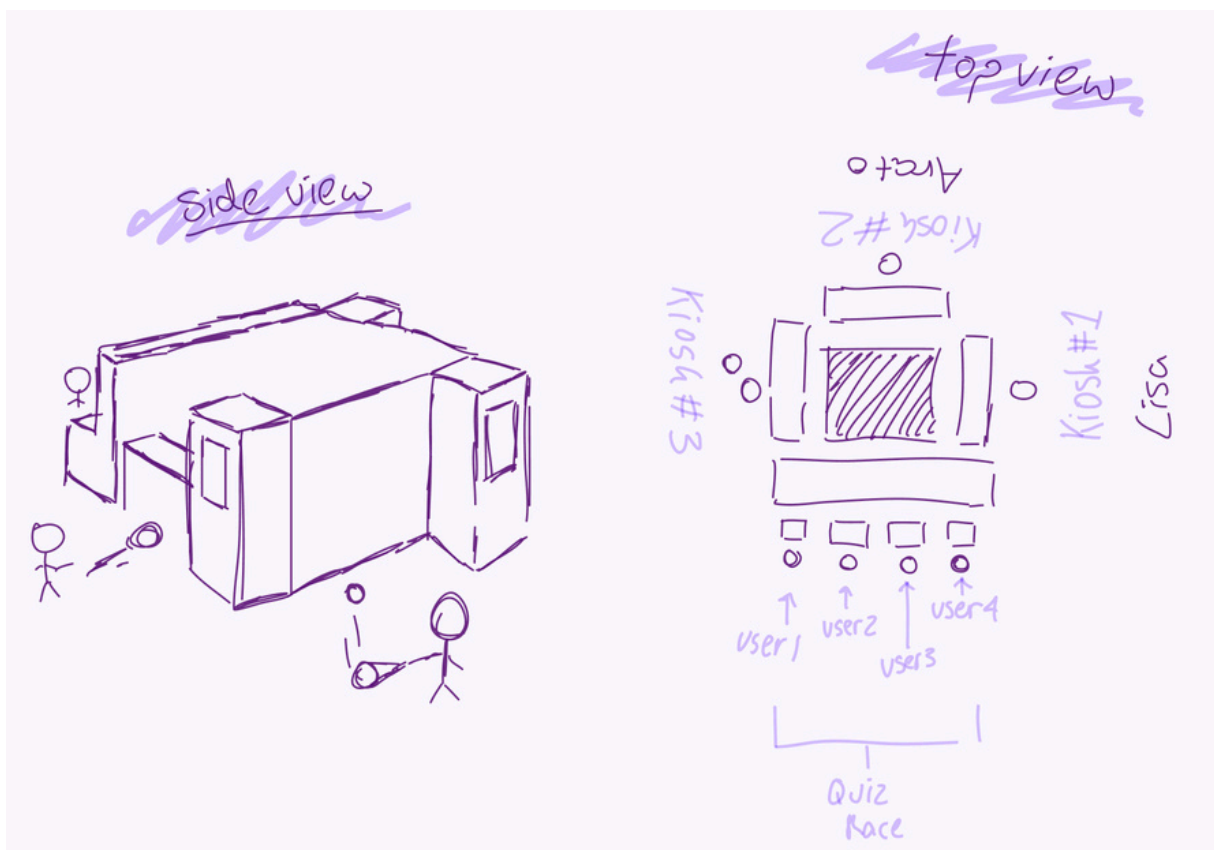
Initial ideation of the quiz booth and how it would be interacted with by 1-4 users



Final Hi-Fidelity Prototype

Sketch of Final Prototype (Exterior/Full Booth/Stall):

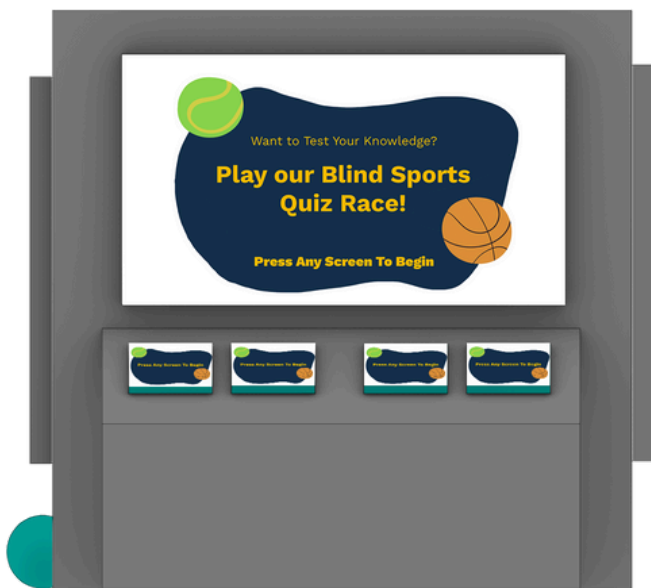
We decided on a hollow cube in which users could access and interact with features from all sides.



Final Hi-Fidelity Prototype

Booth 2D Mockups

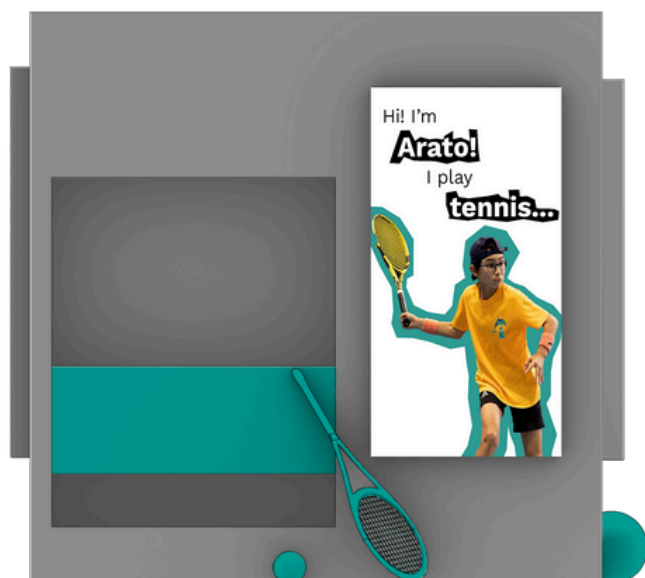
From the sketches we made 2D renderings and turned the booth into a solid cube to give it a more sturdy, less wishy-washy feel



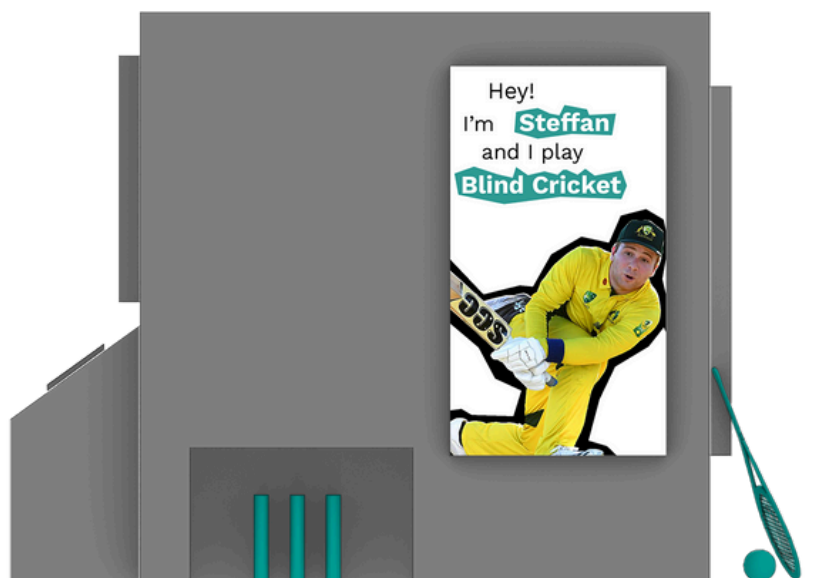
Quiz Booth



Lisa Kiosk



Arato Kiosk



Steffan Kiosk

Final Hi-Fidelity Prototype

Booth Final Mockups

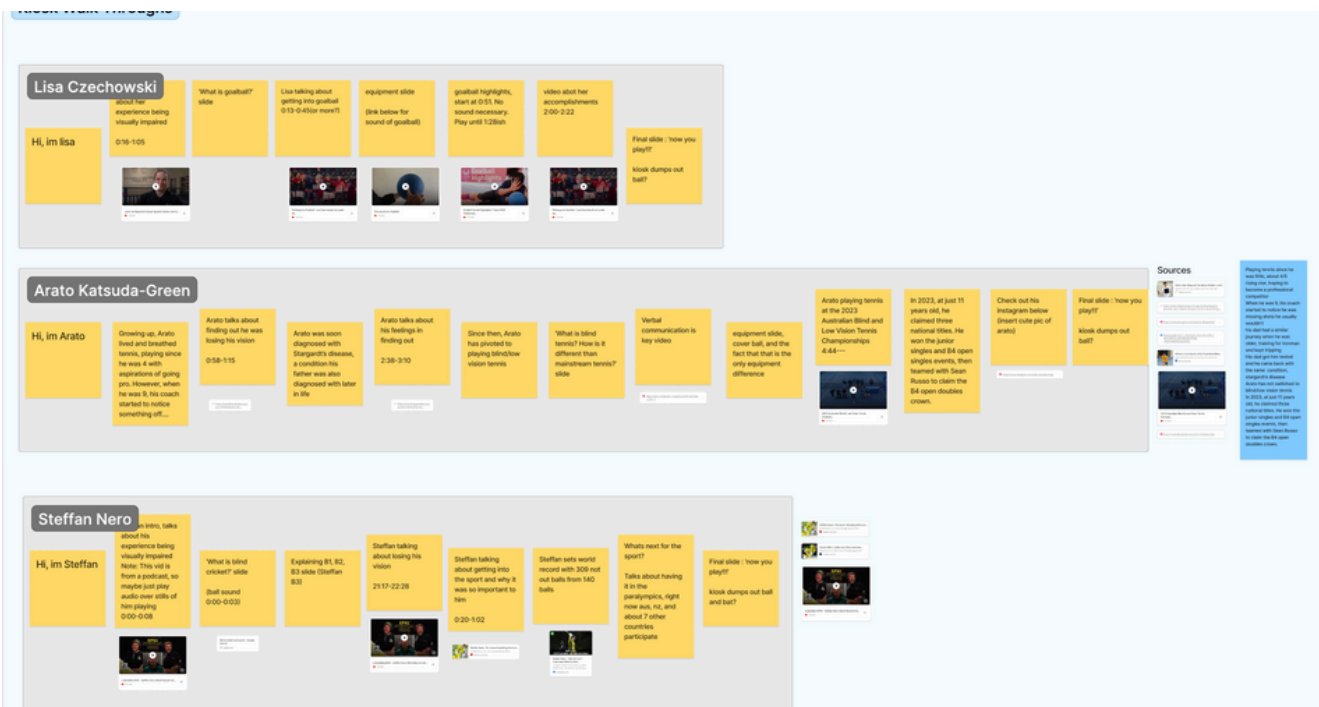
When rendering in 3D we decided to make the booth more interesting by adding some color and placing it in context with a background



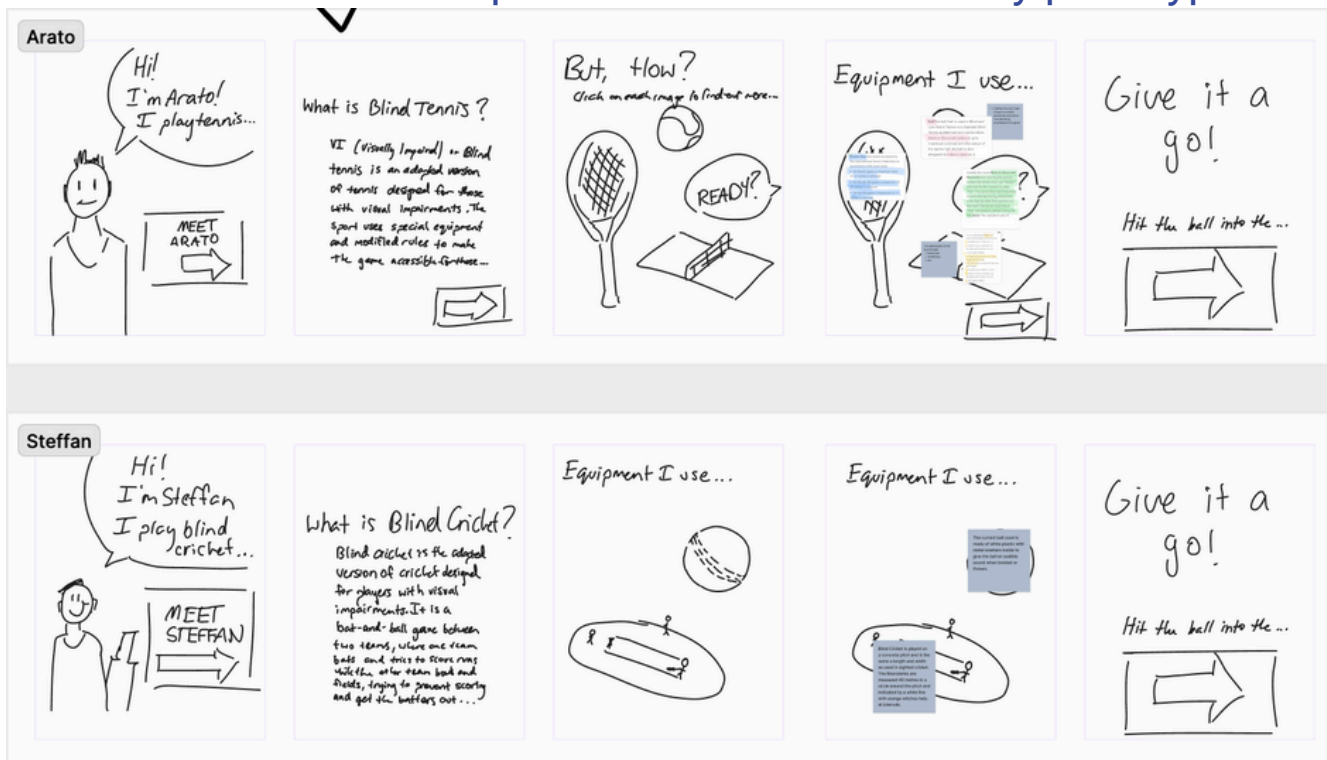
Final Hi-Fidelity Prototype

Outline of Kiosk Walk Throughs

After doing research and compiling video clips, we outlined the story we wanted to tell about the athlete and their sport using sticky notes in Figma. We then sketched out the screens.



Note: Lisa's outline completed in earlier mid-fidelity prototype



Final Hi-Fidelity Prototype

Lisa's Kiosk Photoshop Stills

Next, we made our high-fidelity prototypes of each athlete's kiosk journey. We added in animations and video clips later as can be seen in our submitted video.



Final Hi-Fidelity Prototype

Arato's Kiosk Photoshop Stills (1/2)

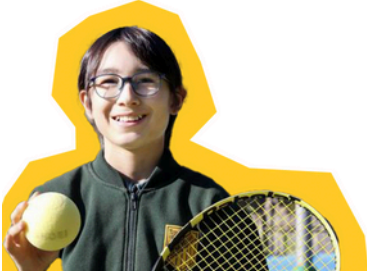
Hi! I'm **Arato!**
I play **tennis...**



What is **Blind Tennis?**

VI (visually impaired) or Blind Tennis is an adapted version of tennis for those with visual impairments.

The sport uses special equipment and modified rules to make the game accessible.



But, how?

Click on each image to find out more about rules and equipment...



But, how?

Click on each image to find out more...

The Racket



Racket Size: Any racket accepted by the International Tennis Federation in accordance with court sizes will do!

- For the B1 game (players who are totally blind), a max size of 23" is allowed
- For B2, B3 games a max size of 25" is allowed
- For the B4 game a max size of

But, how?

Click on each image to find out more...

The Ball




This ball is used in Blind and Low Vision Tennis. It is only manufactured in Japan and holds a small washer inside, making the ball audibly jingle as it is hit back and forth. It comes in florescent yellow and black to give

But, how?

Click on each image to find out more...

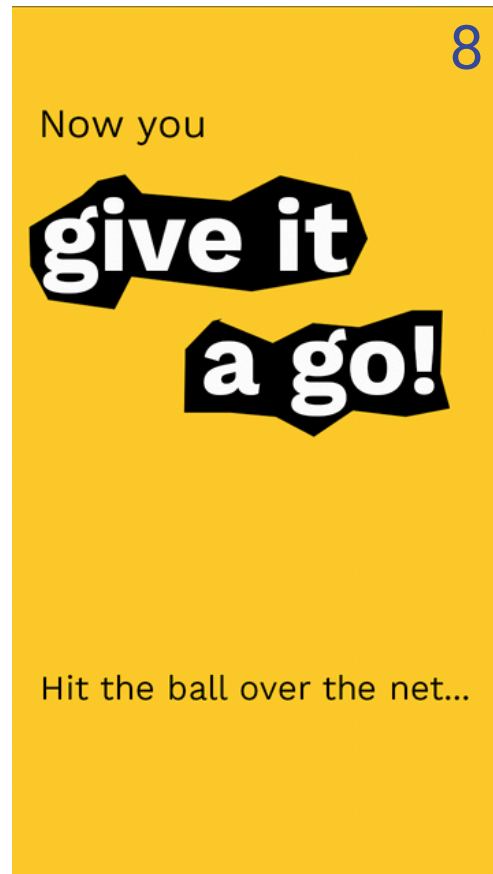
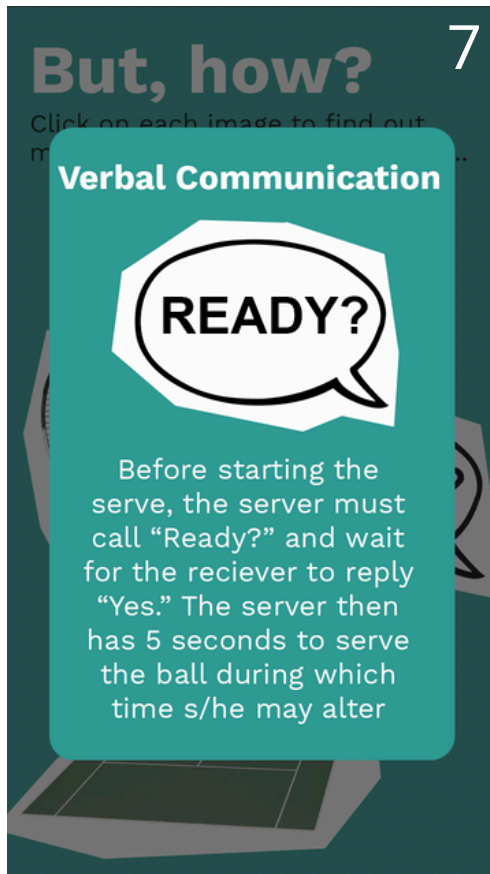
The Court



In B2-4 tennis, the court size, net height, and service lines are no different than a mainstream tennis court. The only difference is the tactile lines used around the court to help the player know where they are in relation to the court. In B1 tennis, the size

Final Hi-Fidelity Prototype

Arato's Kiosk Photoshop Stills (2/2)



Final Hi-Fidelity Prototype

Steffan's Kiosk Photoshop Stills

1

Hey!
I'm **Steffan**
and I play
Blind Cricket

A man in a yellow cricket uniform and cap, holding a cricket bat, looking towards the camera.

2

What is
Blind Cricket?

A man in a yellow cricket uniform and cap, holding a cricket bat, looking towards the camera.

Blind Cricket is the adapted version of cricket designed for players with visual impairments. Similar to the mainstream version, Blind Cricket is a bat-and-ball game with some accomodations made...


3

Equipment
I use:

A white cricket ball and a diagram of a cricket pitch with players positioned on it.

4

Equipment
The Ball



The ball is made of white plastic with 20 metal washers inside to give the ball an audible sound when bowled or thrown.

5

Equipment
The Pitch



Played on a concrete pitch, the field is the same size used in sighted cricket. While bowling, players are only allowed to throw underhand for safety.

6

Now it's
your turn!



Try bowling the ball!

Final Hi-Fidelity Prototype

Quiz Photoshop Stills (1/4)

We went on to make hi-fi prototypes for the quiz, including the large main screen and the individual users screens. These were also animated later on (as can be seen in our video).

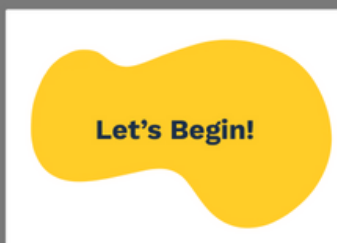
Main screen



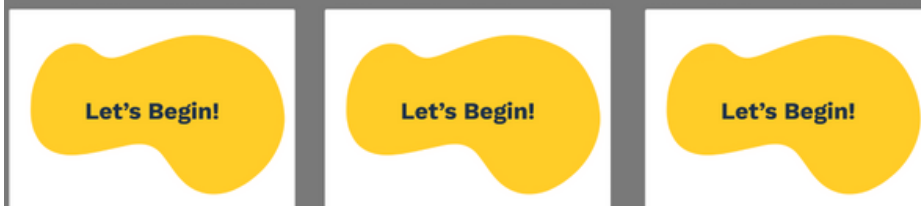
Individual screens



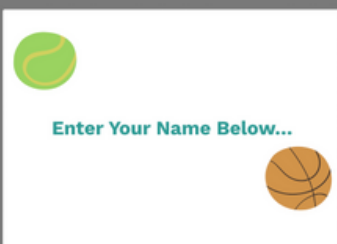
Main screen



Individual screens



Main screen



Individual screens



Final Hi-Fidelity Prototype

Quiz Photoshop Stills (2/4)

Main screen

4

Individual
screens



Main screen

5

Individual
screens



Main screen

6

Individual
screens

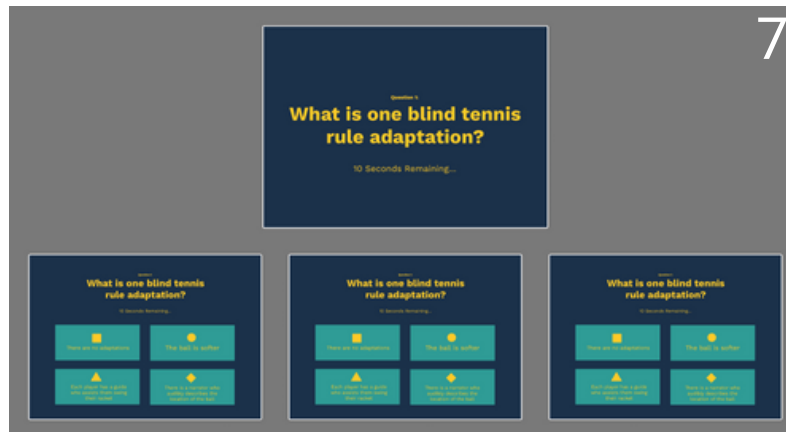


Final Hi-Fidelity Prototype

Quiz Photoshop Stills (3/4)

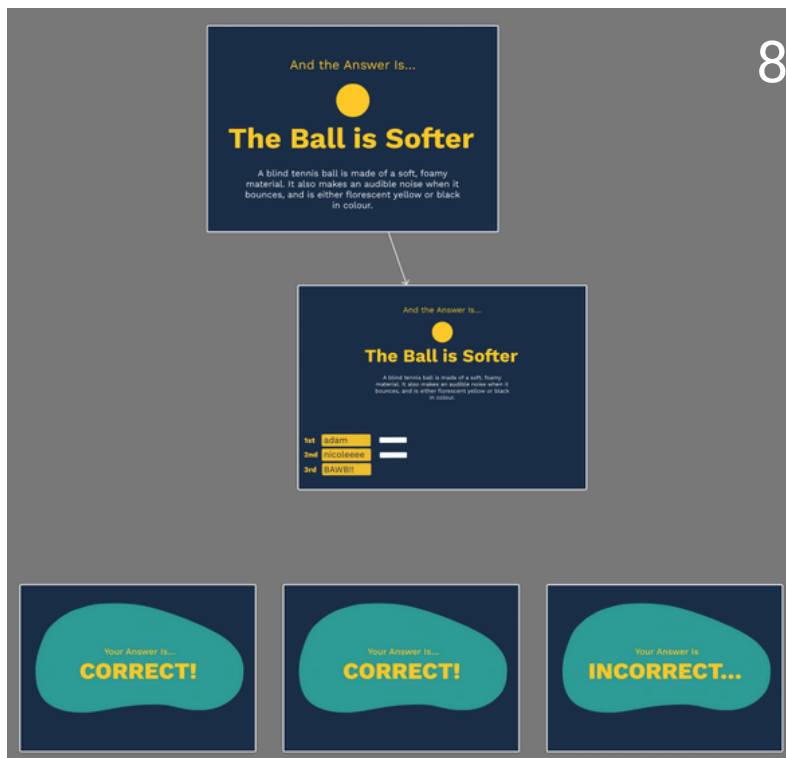
Main screen

Individual screens



Main screen

Individual screens



Main screen

Individual screens



Final Hi-Fidelity Prototype

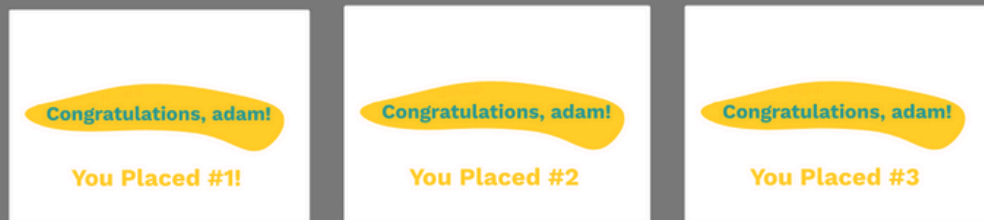
Quiz Photoshop Stills (4/4)

Main screen

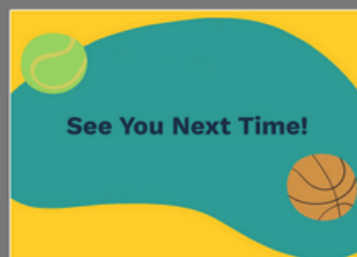


10

Individual screens

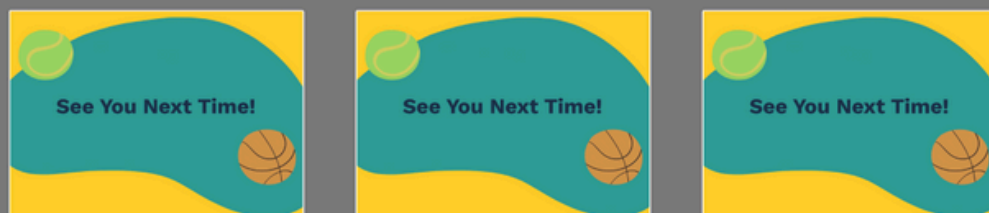


Main screen



11

Individual screens

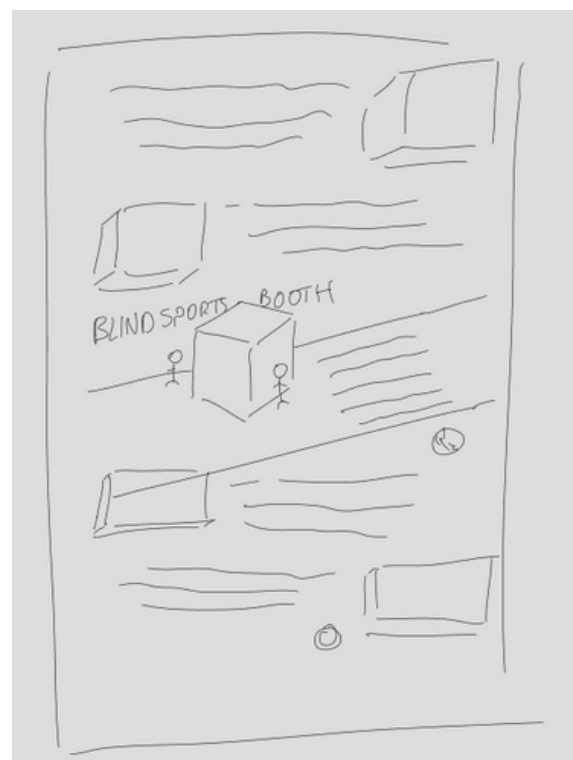
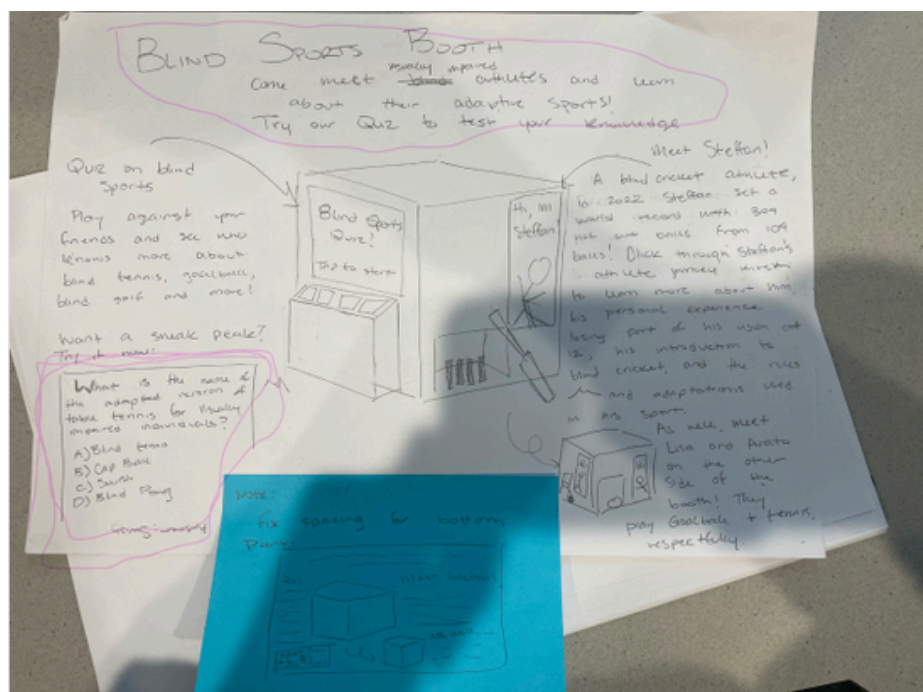
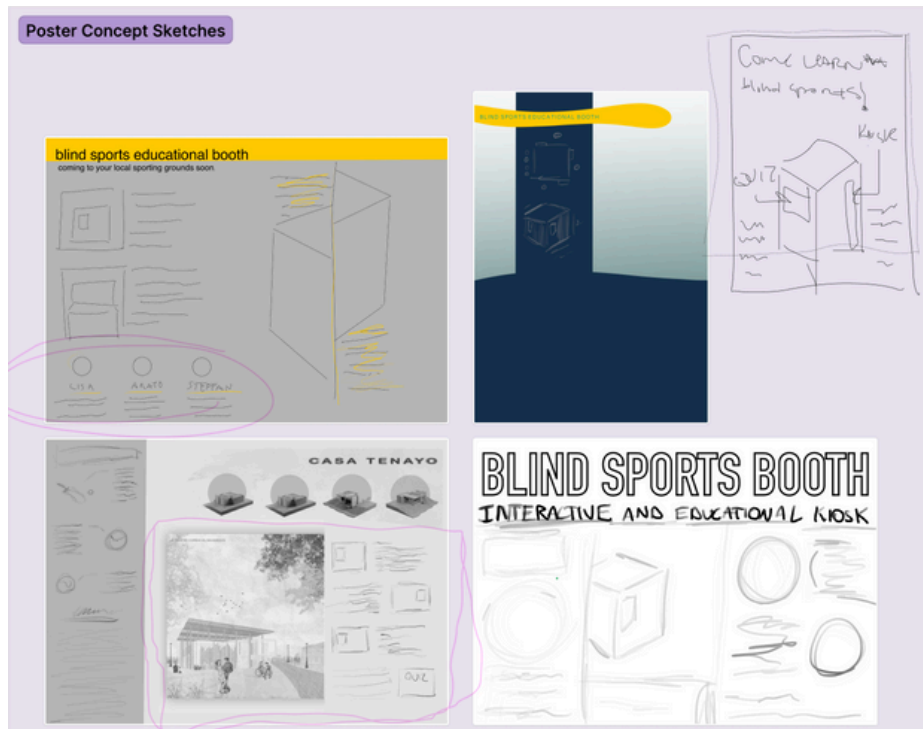


Poster

Ideation

In sketching out our poster we wanted to make sure we had a good balance of visuals and words, making our poster both appealing and informative

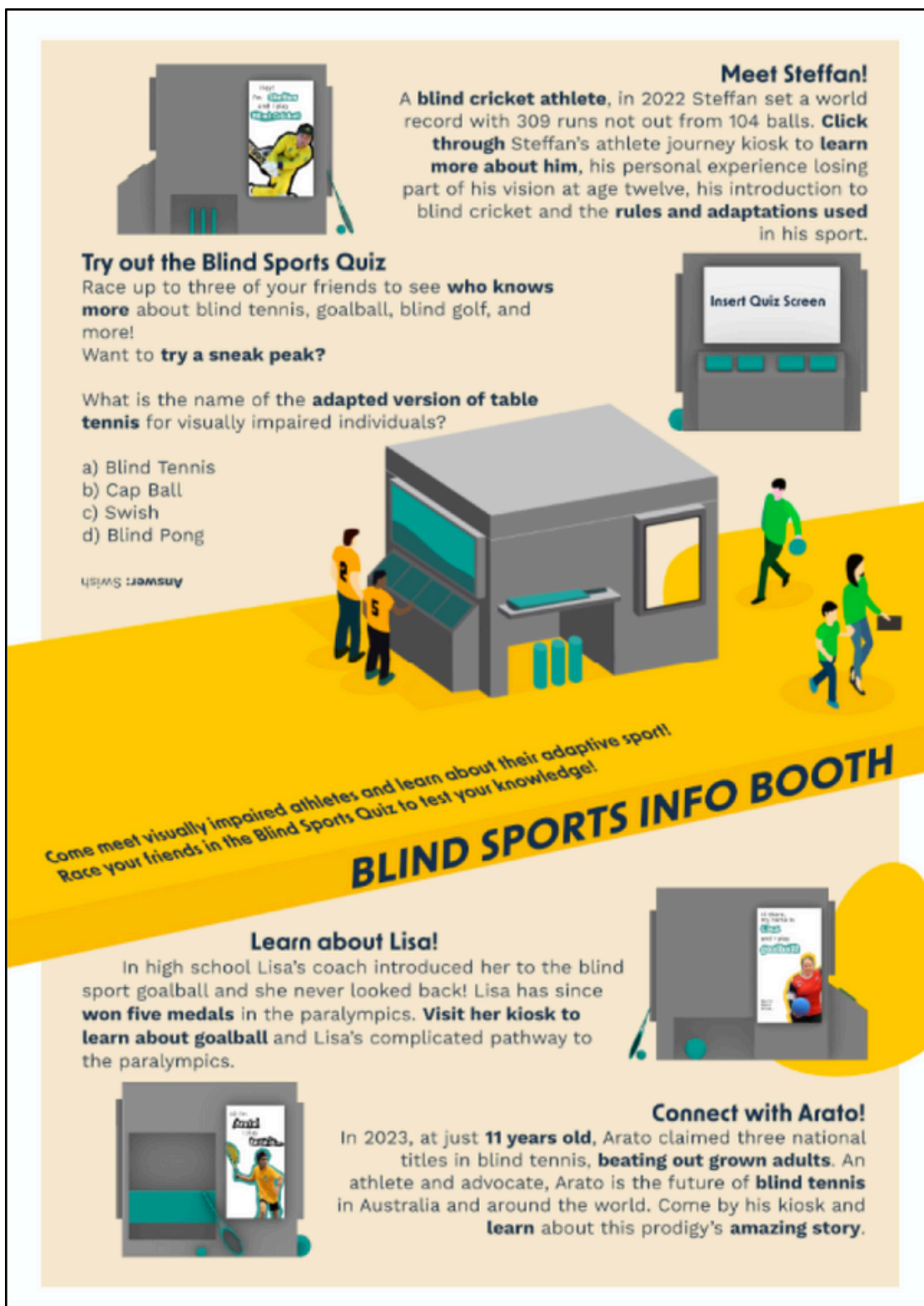
Poster Concept Sketches



Poster

Iteration 1

We wanted to include all three kiosks and the quiz in order to ensure the user understood our booth. We also added in the 2D renderings for all sides to help the user visualize.



Poster

Final

Our first iteration was much too cramped and busy. Here we paired down, trying to rather highlight what the booth was actually trying to accomplish through the quiz and kiosk journeys. We still included the profiled athletes but at a higher level, just noting their name and sport rather than a whole paragraph on each of them.

