

To be completed by student

Student Number (7 digits)	<b>1</b>	<b>9</b>	<b>1</b>	<b>7</b>	<b>5</b>	<b>2</b>	<b>2</b>	Year of Study:	<b>3</b>
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Unit Code	<b>INOV30003</b>			Unit Title	<b>Team Project</b>				
Assignment Number for Unit (if appropriate) e.g. 1,2,3,4:	<b>1</b>			Unit Tutor	<b>Dave Jarman</b>				
Title of Work	<b>Going In Blind</b>				Word Count	<b>N/A</b>			
Due Date	<b>28/02/2022</b>			Extension Date (if given)	<b>N/A</b>				

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## Augmented live football experience: MU fans ask “why should the blind have all the fun?”

*David Simkins at Manchester. Friday 27 Feb 2032 08:00 GMT*

TeamPlayer Sports was initially founded to facilitate the experience of VI audience members at live football games. However, they have since become the answer to Gen Z and Gen Alpha’s demand for an augmented and gamified live sporting experience.

Dave Brailsford, performance director of the British Cycling team from 2003-2014, is credited with the philosophy of aggregating marginal gains, improving all angles of a team’s training by a one percent margin (Clear, 2016). Technologies, such as Track 160 tracking software and Video Assistant Referee, have since played a role in innovating football for club performance analysts and coaches since the 2010s, but until the 2020s, these features remained merely observable for fans, not directly accessible, let alone customisable (Bundesliga, 2019). Furthermore, virtual reality featured on training grounds only, such as in the Hoffenheim Helix, a 180-degree video wall displaying a 3D image of a stadium which players interacted with. Julian Nagelsmann, former coach of 1899 Hoffenheim, attested to the “mental edge” this training technique gave his players on the pitch.

At this time, VIPs struggled to follow live football matches because simple radio connections experienced a lag against the real-time action and there was no other form of live commentary available for them to access.

When TeamPlayer Headphones were launched in 2025, they initially married the AI tracking software already available in most stadiums with audio description technology, to narrate live football games for VI football fans in a stadium. Customers bought the headphones and paid a small fee per match to connect to the stadium's circuit. An Arsenal fan with Glaucoma praised the innovation, "TeamPlayer helps me visualise the match and get closer to action."

Following their expansion in Europe with sponsorship from the UEFA, increased 4D drone photography and sensors on football players, TeamPlayer has continued to evolve.

Five years later, they celebrated the launch of the TeamPlayer Headset. The original audio description feature is now fully integrated into an augmented reality match experience for sighted users. Furthermore, all club fans can have their say on match line-ups and substitutions in a popular vote style which influences real-time club captain decisions. Naturally, VI users aren't the only ones pulling these new headsets off the shelves.

A sighted Manchester United fan commented, "This Headset helps me invest in my team like never before. I know these were originally for VIPs but why should the blind have all the fun?"

Looking around the stadium at MU's game away at Anfield last weekend, our reporter observed more than half the stadium were wearing these headsets, when only 5% of the audience members were actually VI. With the brand continuing to expand to different types of sports, including rugby and hockey, prepare to see a lot more headsets in sports of the future.

The image shows a screenshot of the Guardian website's footer navigation menu. At the top, there are links for "Football", "Live scores", "Tables", "Fixtures", "Results", "Competitions", and "Clubs". Below this is a dark blue navigation bar with five main categories: "News", "Opinion", "Sport", "Culture", and "Lifestyle".

- News:** "All the day's headlines and highlights from the Guardian, direct to you every morning" and a "Sign up for the Guardian Today email" button.
- Culture:** "About us", "Contact us", "Complaints & corrections", "SecureDrop", "Work for us", "Privacy settings", "Privacy policy", "Cookie policy", "Terms & conditions", and "Help".
- Lifestyle:** "All topics", "All writers", "Modern Slavery Act", "Digital newspaper archive", "Facebook", "YouTube", "Instagram", "LinkedIn", "Twitter", and "Newsletters".
- Support:** "Advertise with us", "Guardian Labs", "Search jobs", and "Patrons". A prominent "Support the Guardian" section includes the text "Available for everyone, funded by readers" and two buttons: "Subscribe →" and "Contribute →".

# Bibliography

Bundesliga (2019) *The Future of Football - New Technology in the Bundesliga*. Available at: [https://www.youtube.com/watch?v=Qb4vNYO\\_PuA](https://www.youtube.com/watch?v=Qb4vNYO_PuA) (Accessed 24/02/2022)

Clear, J. (2013). *This Coach Improved Every Tiny Thing by 1 Percent and Here's What Happened*. Available at: [https://jamesclear.com/marginal-gains?fbclid=IwAR3Wmud1GBR79o4s7JZLFIxHRn3do\\_L7Pune\\_v2oxX6u8Rqp1Fhh3gbLb\\_g](https://jamesclear.com/marginal-gains?fbclid=IwAR3Wmud1GBR79o4s7JZLFIxHRn3do_L7Pune_v2oxX6u8Rqp1Fhh3gbLb_g) (Accessed 24/02/2022)

Coleman, L. (2017) *How the VR Concert Industry Is Boldly Jockeying For A Slice Of A Projected £660M Pie*. Available at: [https://www.forbes.com/sites/laurencoleman/2017/02/23/how-the-vr-concert-industry-is-boldly-jockeying-for-a-slice-of-a-projected-660m-pie/?fbclid=IwAR1\\_NgZtOJHO5Zizr-YoEhslu559gyDlXKsvYomiHTxMB2Wif6WtiONZMKo&sh=5a44a54e1094](https://www.forbes.com/sites/laurencoleman/2017/02/23/how-the-vr-concert-industry-is-boldly-jockeying-for-a-slice-of-a-projected-660m-pie/?fbclid=IwAR1_NgZtOJHO5Zizr-YoEhslu559gyDlXKsvYomiHTxMB2Wif6WtiONZMKo&sh=5a44a54e1094) (Accessed 23/02/2022)

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# **TEAM 10: GOING IN BLIND**

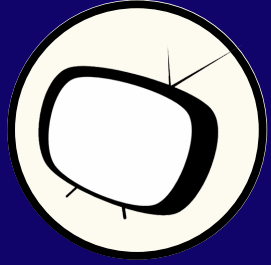
**PROGRESS REPORT 21/22**



**ENTREPRENEURIAL ALIGNMENT**



**URBAN SPACE RESEARCH**



**ENTERTAINMENT PIVOT**



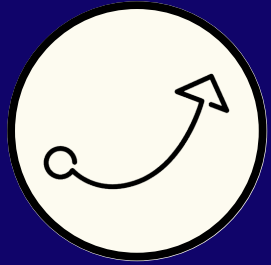
**INTERVIEWS & PROFILING**



**LIVE AD RESEARCH**



**CONCEPT CAPTURE & PROTOTYPING**



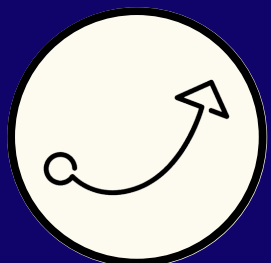
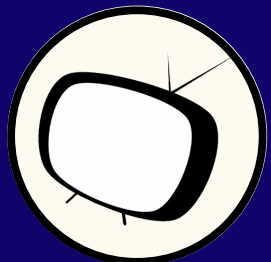
**FUTURE ASSUMPTIONS TESTING & EVALUATION**



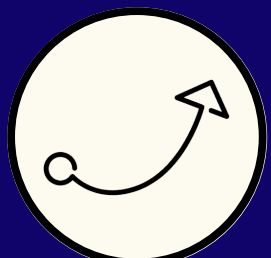
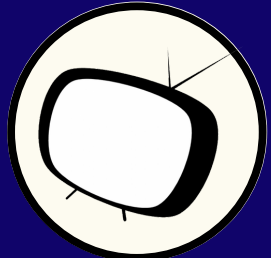
# INTRODUCTION



This project was founded out of none other than a wish to ease the burdens felt by the VI community every day. What may seem like a minor inconvenience to a sighted person can be a major obstacle for those with sight loss. We understood from the start that we wouldn't be able to cure blindness, however if we can make a noticeable difference to just one aspect of the life of VIPs, then we will have met our goal.







# WHO IS THIS FOR?

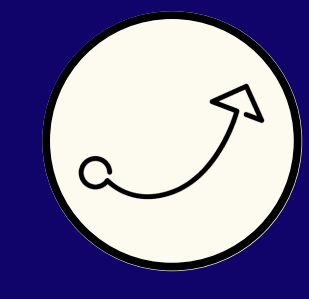
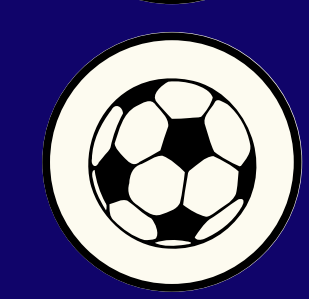
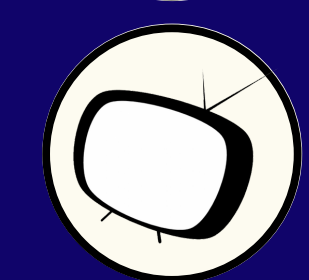
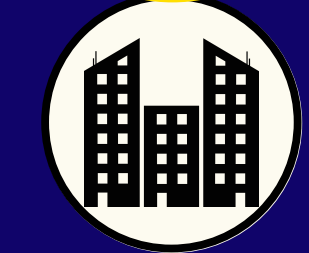
We regard our project as a social enterprise, but we still need to make a profit. Lack of funding would significantly inhibit the success of the project. We lack experience in this area, so to organise and prioritise our expenses, a CFO would be required.

*Abbreviations dictionary:*

*VI - Visually Impaired*

*VIPs - Visually Impaired People*

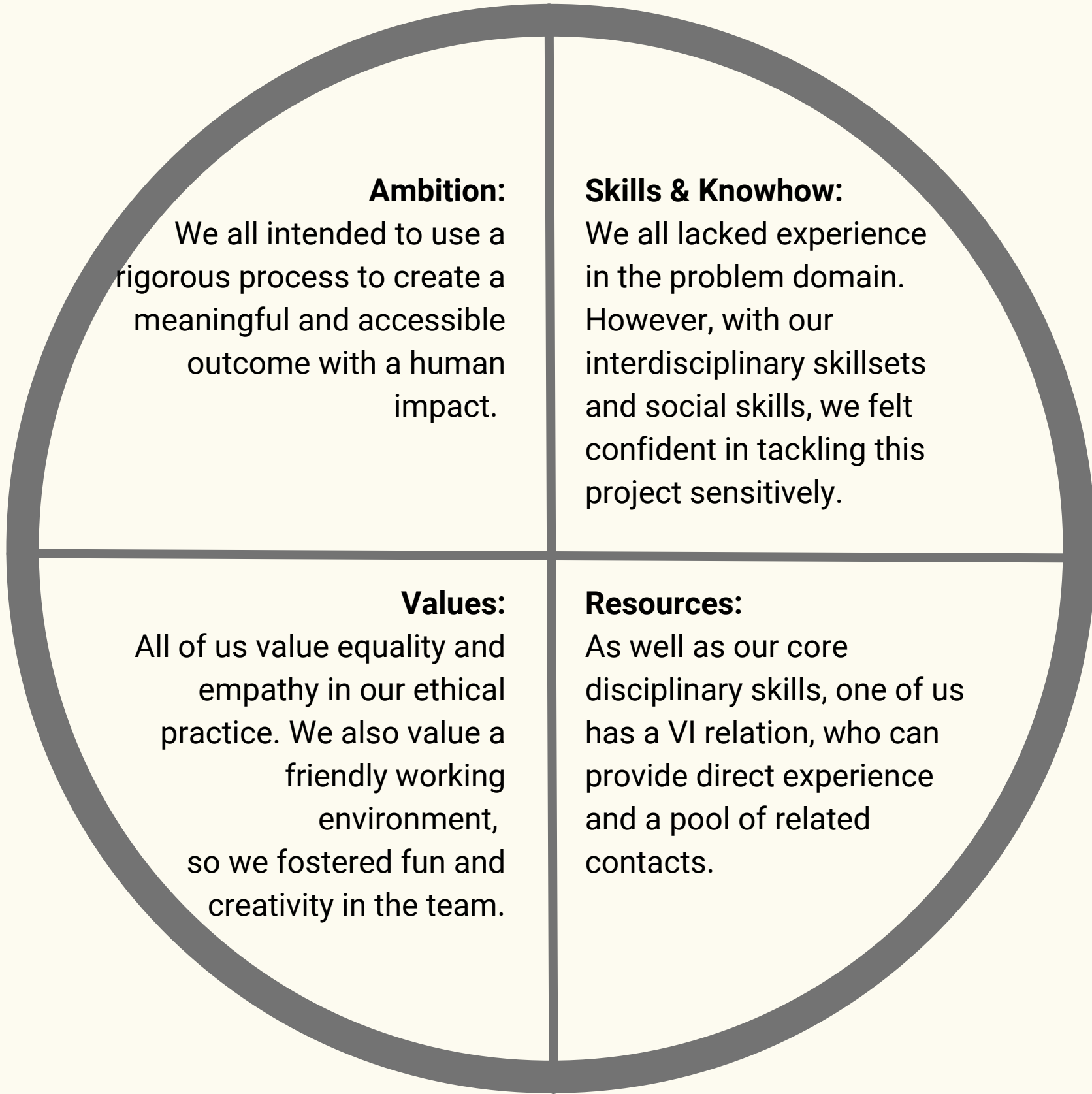
*AD - Audio Description*

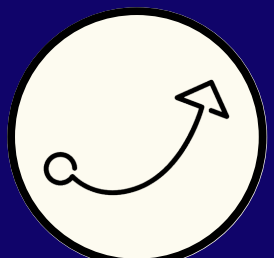
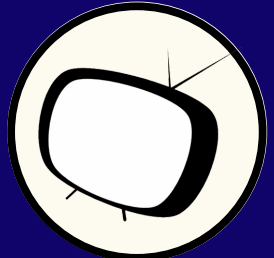
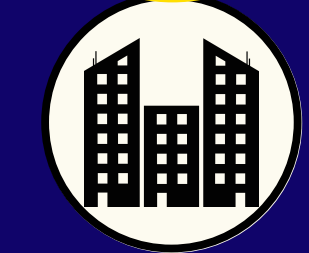


# ENTREPRENEURIAL ALIGNMENT CANVAS: STAKEHOLDERS

We used Jarman's Entrepreneurial Alignment Canvas to build our team's vision for the project (2019). To begin with, we discussed our individual Stakeholder profiles, which helped develop our understanding of our team's strengths, weaknesses, and values.

Once we had developed these profiles, we were able to form an Organisation Canvas which represented the whole team's beliefs.





# ENTREPRENEURIAL ALIGNMENT CANVAS: STAKEHOLDERS

<p><b>Vision:</b> We acknowledge that any solution to this project won't solve visual impairment, more act as a relief to a specific pain point in the VI experience.</p>	<p><b>Critical Competences:</b> We identified that our team struggles with tolerance of ambiguity, as defined in Heath's Reasonable Adventurer (1964). This means we feel impatient to converge our ideas in the exploratory phase. We decided to keep a clear agenda of workload and targets as a team.</p>
<p><b>Mission:</b> Our values to drive the accessibility and social impact of our project aspire towards the higher echelons of Bain &amp; Company's Elements of Value pyramid (2018). These can be summarised in our key aims.</p>	<p><b>Resource Requirements:</b> The team lacks direct personal lived experience with severe VI, so we will rely on primary research to find the right problem and design a suitable solution with the users.</p>

Our three key aims:

- Value over Profit: our project should be meaningful to the VI and to us.
- Empathy in Ethics: we should treat the subject with sensitivity, respect and human focus.
- Open Working Environment: we will foster clarity, learning and creativity within our group.

We will evaluate our approach to any concepts that we ideate using these criteria, in order to create a worthwhile body of work and make the best difference for the VI.





# AUTOETHNOGRAPHY

We recognise that one of our team's key limitations in this project is that none of us are VI. As a result, we took an autoethnographic approach to throughout to directly empathise with our target audience.

In this instance, an autoethnographic method gave us an insight into how the VI find their way through city streets. In a pair, the first researcher was blindfolded while the second researcher assisted their colleague and recorded their colleague's experience whilst also ensuring their safety.

## KEY INSIGHTS

- We become incredibly self-conscious when we lost the sense we rely on the most.
- Whilst we could visualise some locations from memory, we could not predict where natural phenomena were which disrupted our traversal.

## HOW MIGHT WE

- HMW reduce the insecurities of VIP's during traversal?
- HMW integrate detecting natural phenomena into a satellite navigation system?

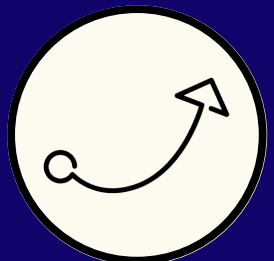
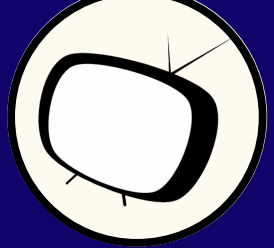


# TRAVERSING URBAN SPACES: STEEPLE

As part of our political research, we reached out to NGOs such as 4sight UK, Blind Veterans, and RNIB. These three charities provide everything from entertainment services to accessible technology for VIPs. RNIB is the largest of the organisations, with over 3000 UK volunteers and nearly 2 million members. Their ethos focused on removing the stigma surrounding sight loss, so that VIP's lives aren't defined by it (RNIB, 2022). We decided we should take this ethos on board in our values and therefore our final design should integrate the VIPs and the Sighted, not segregate them. Furthermore, we noticed a lot for products being offered by these charities were for domestic uses only, with the leisure and entertainment products being for a younger customer.



In our technological research, we found that the navigation market was already saturated with products designed to help VIPs navigate urban spaces. Therefore, we decided to move into the leisure and entertainment space, because we believed there were more possibilities to innovate within this market.



# TRAVERSING URBAN SPACES: STEEPLE



**S** **Social:** Research into demographics within visual impairment (Perkins, 2019).

**T** **Technological:** Products and technologies which facilitate the VI experience.

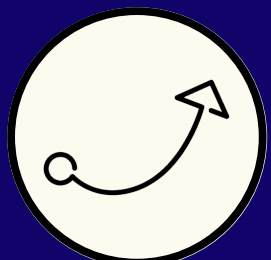
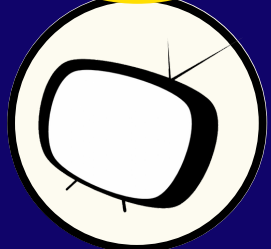
**E** **Economic:** Costs associated with visual impairment, the indirect costs of sight loss total close to £5.65 billion (Pezzullo et. al., 2018).

**E** **Ethical:** Legal requirement for accessibility under the Equality Act (2010).

**P** **Political:** Government grants to NGOs.

**L** **Legal:** Government benefits granted to VIP's under disability law (NHS, 2021).

**E** **Environmental:** how natural solutions (e.g. echolocation) could inspire our ideation (Explained Desk, 2021).



# ENTERTAINMENT & LEISURE: VIDEO GAMES

Our research in the leisure and entertainment space began by exploring how VIPs might spend their free time.

## RPGs (Zork)

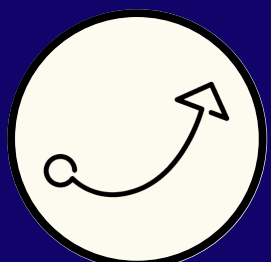
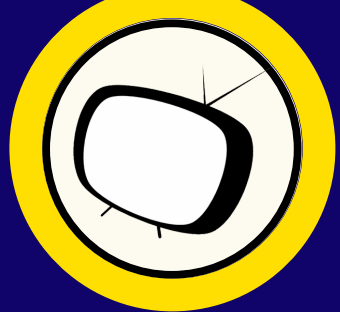
Zork (2022) is a text-based RPG which we adapted into an audio-only game for an exercise. One member of the team read out the AI created storyline, while the other members of the group attempted to navigate through the imagined world described in the story.

### KEY INSIGHTS

- It is difficult to store so much information in your head without the ability to reread it.
- The AI engine can be frustrating to use because it has limited vocabulary.

### HOW MIGHT WE

- HMW use other senses in a game could create a more immersive and relatable experience?



# ENTERTAINMENT & LEISURE: VIDEO GAMES

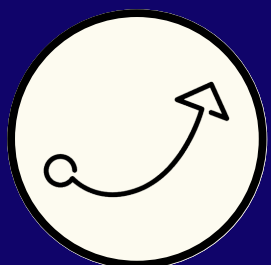
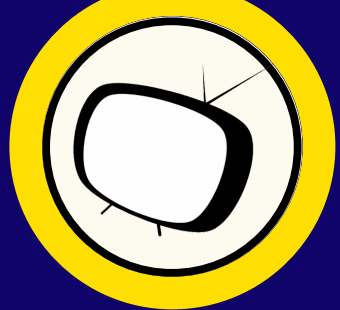
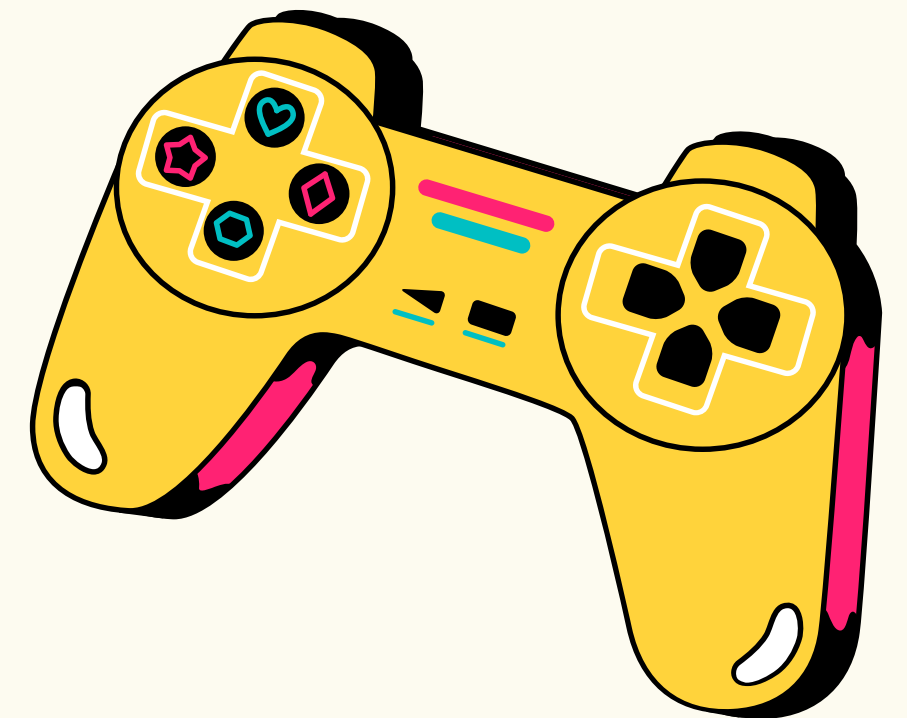
Our research in the leisure and entertainment space began by exploring how VIPs might spend their free time.

## Audio-Based Games

Audiogames.net (2022) and Kitchensinc.net (2022) were good resources of simple videogames adapted and designed for VIP's. After testing a selection including Access Invaders, Audiomoto Championship and Mastermind, we summarised our insights.

### KEY INSIGHTS

- Only simple games were able to be adapted.
- Closing your eyes made any of the graphical games impossible to play.



# ENTERTAINMENT & LEISURE: BOARDGAMES



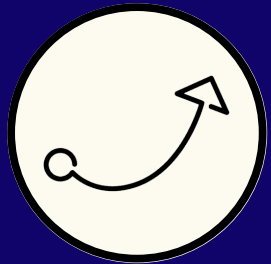
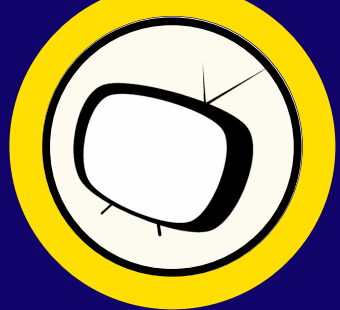
Board Games are a great way to spend quality time with friends and family. They bring people together, enhance creativity and teach many valuable skills like problem solving and critical thinking (Bates, 2020). However, they often rely primarily on the sense of sight. Our group decided to try playing these blindfolded for an autoethnographic approach.

## KEY INSIGHTS

- A secret hand of cards is difficult to access.
- Keeping track of visual info is a barrier to the game.

## HOW MIGHT WE

- HMW physically mark different decks of cards so that they can be differentiated?





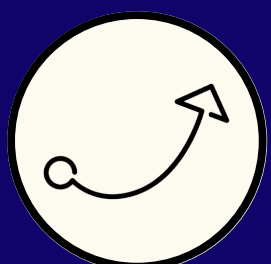
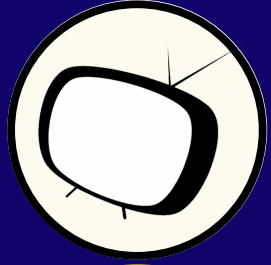
# SEMI-STRUCTURED INTERVIEWS

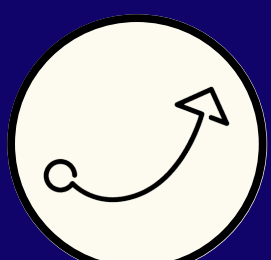
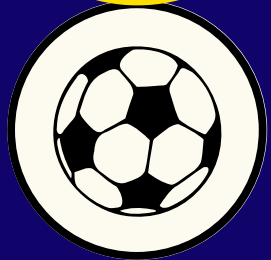
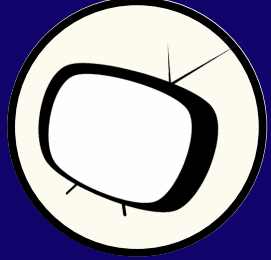
We used our network and connection to the VI charity 4sight to reach out to 6 participants of varying backgrounds and degrees of visual impairment. Each interview followed a similar structure around the following questions:

What forms of entertainment/leisure/exercise do you engage in on your own/with sighted people/with other VIPs?

What leisure activities do you find the hardest to enjoy?

What leisure activities haven't you tried due to inaccessibility?





# PARTICIPANT PROFILING

After each interview, we extracted key details and clustered them into usable insights.

To cluster these insights, we identified 16 different profiles from our interviewees which represented different challenges they faced as VIPs. These specific personas were framed as problem statements in the form:

**GROUP X NEEDS A WAY TO DO Y BECAUSE Z**

This helped us narrow our focus to think about who our target market might be and what problem could be solved for them to create the most value. We also decided to cluster these profiles according to the larger problem trends from our data.

The profile needed a unified communication platform

The profile needed help accessing written info

The profile needed help accessing live events

The profile needed a specific technical solution

The profile needed education



# CLUSTERED PARTICIPANT PROFILING 1

## PLATFORM



The DESIGNER/INNOVATOR needs a central space where the VI community share news and products, to sell their products in a market that is dispersed on inaccessible internet platforms.



The JOB SEEKER needs access to jobs without discrimination because employer stigma and interview processes don't allow them the opportunity to prove their abilities.

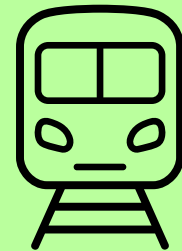


The ATHLETE needs a way to empower them to adapt sports activities/fitness equipment because they want to follow a passion and keep fit.



The TECHNOPHILE needs a way to engage with products and activities in the visually community and network because they want to follow their passion and facilitate their lifestyle.

## ACCESS INFORMATION



The COMMUTER needs to know the up-to-date transport timetables, because they want to access public transport.

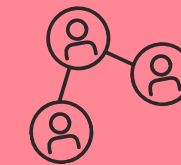


The BROWSER needs a way to access key information, because current cumbersome AD provides too much complicated metadata.

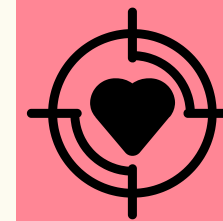


The CINEPHILE needs a way to access films and TV with meaningful AD because current AD is insufficient for providing a worthwhile entertainment experience.

## EXPERIENCE LIVE EVENTS



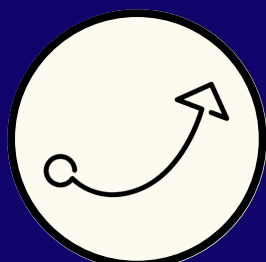
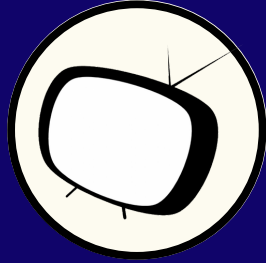
The SOCIALITE needs a way to orientate themselves in a noisy environment, because they feel unsafe in crowded public spaces, agoraphobia.



The PLEASURE SEEKERS need access to live entertainment (e.g. escape rooms, theatres, sports, bowling (with full tech support) because they cannot engage fully in live experiences.



The SPORTS FAN needs to access the referee microphone and AD Broadcasters in order to follow the match.



# CLUSTERED PARTICIPANT PROFILING 2

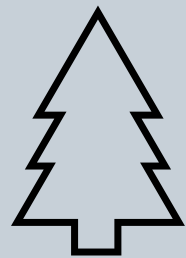
## INFRASTRUCTURE



**GAMERS** need accessible games/tailored games to their visual impairment because there are few accessible videogames.



The **CYCLIST** needs an audible way to identify cycle lanes because cycle lanes are only marked visually and the partially sighted often use bikes as a car replacement.

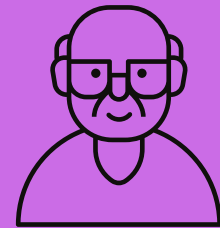


The **OUTDOORSEY** needs shielding from the sunlight because sunlight makes it harder for the visually impaired to distinguish between different objects.

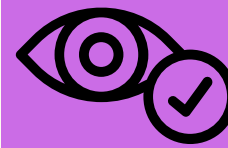


The **TOURIST** needs a tactile to distinguish foreign currencies to manage their physical finances to avoid embarrassment and delay.

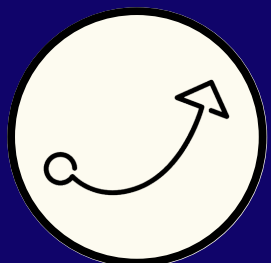
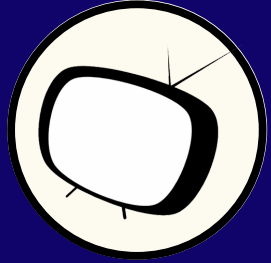
## EDUCATION



The **ELDERLY** a way to access technical support/encouragement because infrastructure is becoming increasingly digital.



The **SIGHTED** need specific education to challenge their assumptions of the visually impaired because open minded people will enable more opportunities for the visually impaired.



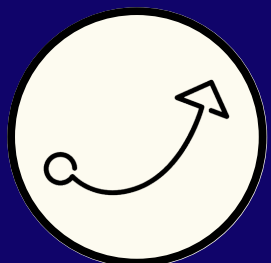
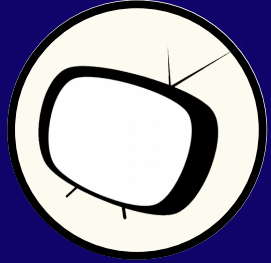
# CLUSTERING CONCLUSIONS FROM PARTICIPANT PROFILING

Clustering the personas proved that a wider group of stakeholders with varying needs may benefit from adaptations of one solution. This could allow for expansion into new markets following the launch of our service and inform how we scale up our initial designs.

What are we passionate about?

What does our research tell us about gaps in these broader markets?

Where is the biggest opportunity to scale up and create the most value?

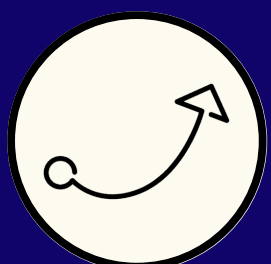
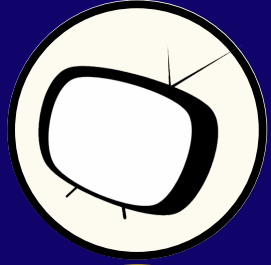


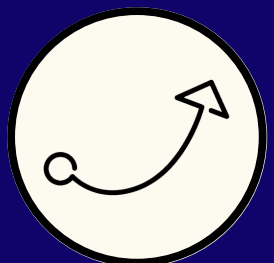
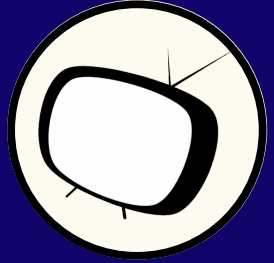
# CLUSTERING CONCLUSIONS FROM PARTICIPANT PROFILING

In answering the first questions, we decided that education didn't inspire us as much as the other areas did. Moreover, research into societal trends showed that the improvement of diversity in all areas is a hot topic and decided that our solution may be drowned out amongst this movement without adding much value.



We were also sceptical about the specific technical solutions, which included accessible kitchen appliances, tactile currency and videogames. Our research suggested that there were already solutions in place, and we questioned if focussing on a niche would restrict our possible value creation in the long term. This left 3 possible categories – the unified communication platform, the accessibility of written information and the accessibility of live events or activities. The group decided these would be the categories to pitch in our expert interview to converge our focus on one singular aspect of the leisure space.





# EXPERT INTERVIEW

We arranged an expert interview with the CEO of the charity 4Sight, who would be able to use her experience of the needs within the VI community to advise us on how the blind community engages with current solutions. In the interview, we pitched our three problem domains and gathered her feedback:

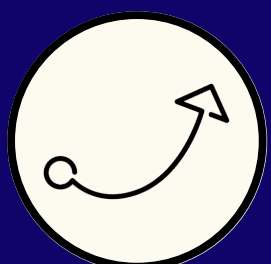
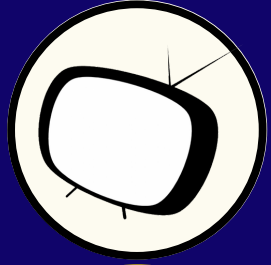
## **Unified communication platform**

The CEO immediately pointed us to RNIB's Facebook forum, which offers a centralised community like the one we proposed. We decided that competition with this institution would be unwise and therefore ruled out this problem domain.

## **Accessibility of information**

The next pitch produced another underwhelming reaction. She felt that there was only so much that can be done with voice over, and that its current state was quite good. Review of our secondary research confirmed this market saturation and we realised there was less opportunity to add considerable value within this problem domain, so we ruled it out.





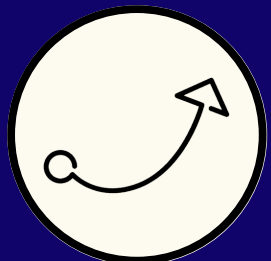
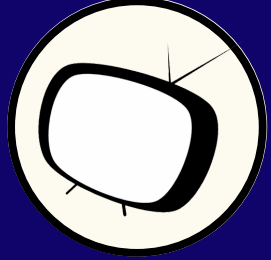
# EXPERT INTERVIEW

## Accessibility of live events/activities

This problem domain caught her attention. She was an avid theatre goer, and while the technology there could be improved to enhance the experience. Furthermore, she claimed that one common theme amongst the members of her charity was that they wished to attend live sports events, but they didn't feel the activity could be catered to their needs. She went on to explain that "there is usually a 5 second difference between when a sighted fan celebrates and when a VIP celebrates," because they take longer to understand when a goal has been scored.

While those 5 seconds may not seem like a lot to a sighted person, it makes all the difference to a VIP. We therefore decided to dive into this problem domain.





# THE PROBLEM AND OUR SOLUTION

Within the problem domain of live events and activities, we used our prior research and interviews to focus on live sport and within that, football, as the most popular sport in the UK:

**HOW CAN WE IMPROVE THE VISUAL EXPERIENCE OF A LIVE FOOTBALL MATCH?**

We explored different avenues within this problem space including transport to the match, access to seating and refreshments and the lack of real-time audio-description and decided the latter was the most compelling and had the greatest scope to be used across different industries. Our final problem statement was:

**THE VISUAL FOOTBALL FAN NEEDS REAL-TIME COMMENTARY,  
BECAUSE THEY STRUGGLE TO ENGAGE WITH THE LIVE  
ATMOSPHERE AND THE EVENTS OF THE GAME.**



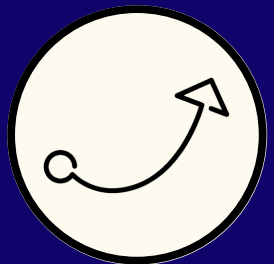
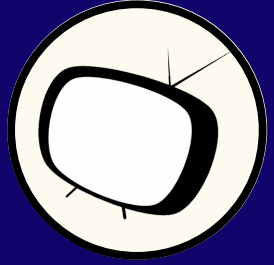
# AI MAPPING

While conducting the secondary research around this question, we came up with the idea of an AI commentary software which updates the VIP of the real-time action on the pitch.

Artificial Intelligence and Machine Learning algorithms could achieve this process by using pattern recognition, optical flow and motion estimation from live images captured by cameras around a stadium (CK, 2020). This software keeps track of the ball and players position on the pitch.

A database developed from past football match recordings would contain all the possible moves and actions a player could take. Machine learning could identify the new actions in the AI image processing use statistics and probability to conclude whether this information should be part of the live commentary feed or not. This would also be influenced by discussions with both VI and sighted fans about what commentary they like to hear.

The final step is to convert the software output from text to audio which can be easily done by existing text-to-speech technologies.

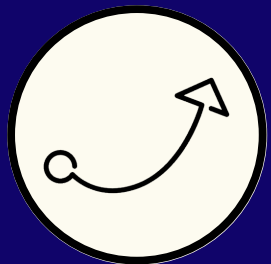
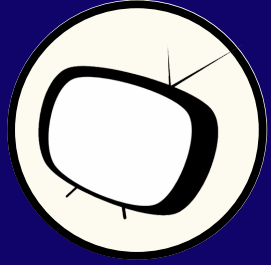


# SECONDARY RESEARCH AND IDEATION

After having decided to pursue AI driven audio-description in live sport, we decided to iterate our product based on data collected by those already in the field through secondary research.



An audit of videogames for VIP's and the literature around this showed that games were more enjoyable and accessible if they had been co-created with their target user (Sanchez and Hassler, 2007) and if they had an accessible visual element for those who had not completely lost their sight (Giannakopoulos et al., 2018). We decided that a co-creative approach would be useful to ensure the commentary and product we produced was tailored to our audience.

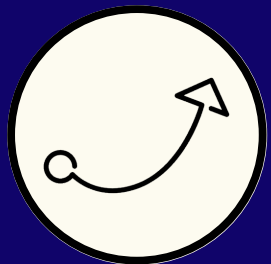
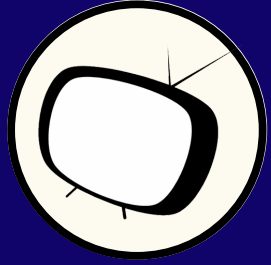


# SECONDARY RESEARCH AND IDEATION

We discovered a debate around whether VIPs prefer more entertaining 'colour commentary', akin to the elaborated description of sports commentators, or a simpler audio description style, which doesn't interpret the action (Udo and Fels, 2009, p.179-180). This insight led to our decision to prototype multiple channels on our concepts (one for AI audio description and one for a colour commentary radio link). We also decided to include an extra betting channel, since gambling for many people is an inseparable part of the sport.

In a study by Naraine, Fels and Whitfield, it was observed that participants did not agree on a preferred speed for audio description (2018, pp.18-9).

We plan to integrate this insight into future prototypes of our design by allowing users to be able to control the pace of the AI narration element in the commentary.



# CONCEPT CAPTURE

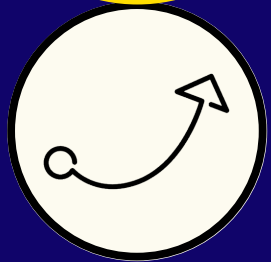
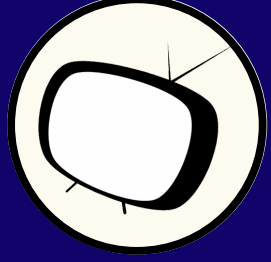
Following our research into AI and AD, we decided to design a service which delivered three channels of information to the user:al-time AI-created commentary.

Real-time AI-created commentary

Radio Commentary

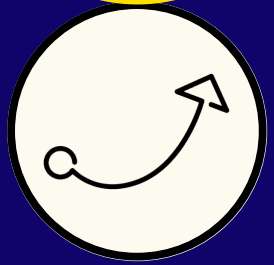
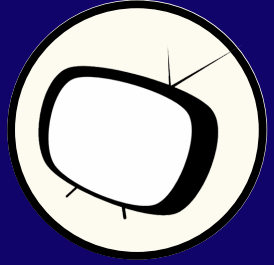
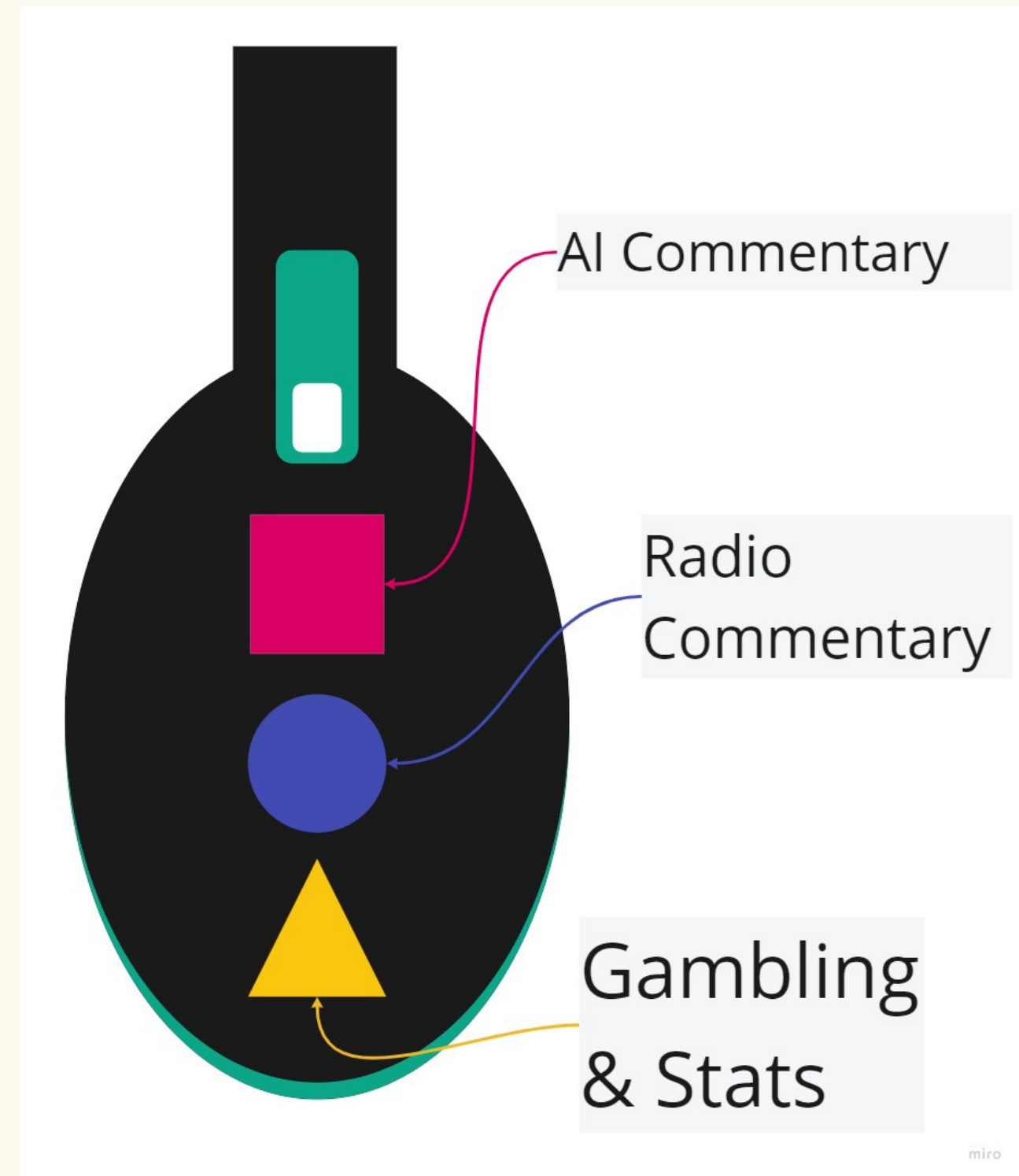
Betting Odds and Gambling Statistics

We chose "**TeamPlayer**" as a brand, because we felt it encapsulated our inclusive ethos and linked nicely with sport. To visualise our ideas for a device, we used Concept Capture Sheets to design three possible ways of receiving this technology:



# TEAMPLAYER HEADPHONES

Inspired by silent disco headphones, these wireless headphones have three large, physically distinguishable buttons, one for each channel.

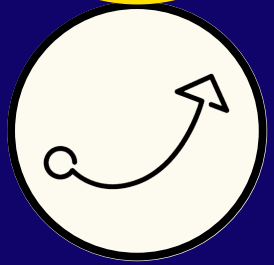
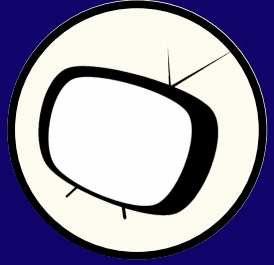
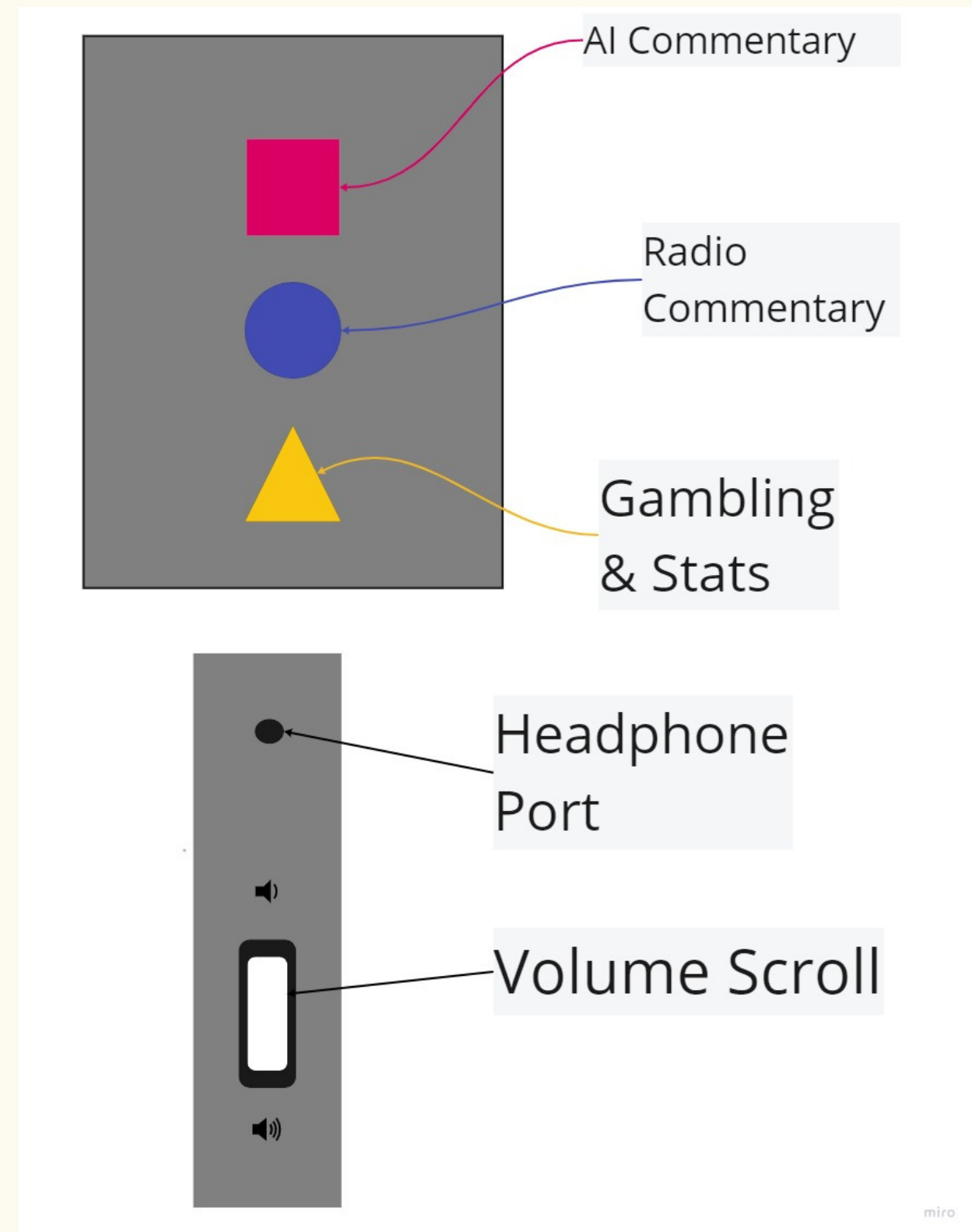




# TEAMPLAYER BOX

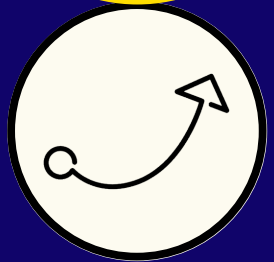
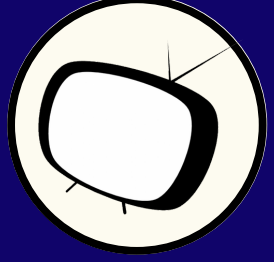
This handheld device has equally distinguishable buttons and allows the user to use their own headphones.

The device can be worn on a lanyard so as not to burden the user.

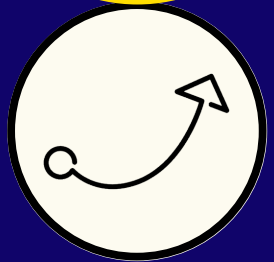
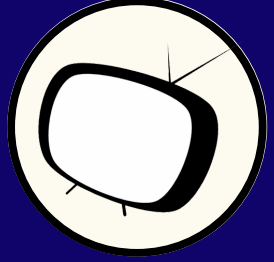


# TEAMPLAYER APP

The app would be as simple as possible. To access the different channels, the user would swipe in opposite directions, to avoid any confusion caused by on-screen buttons. The user would supply their own headphones.







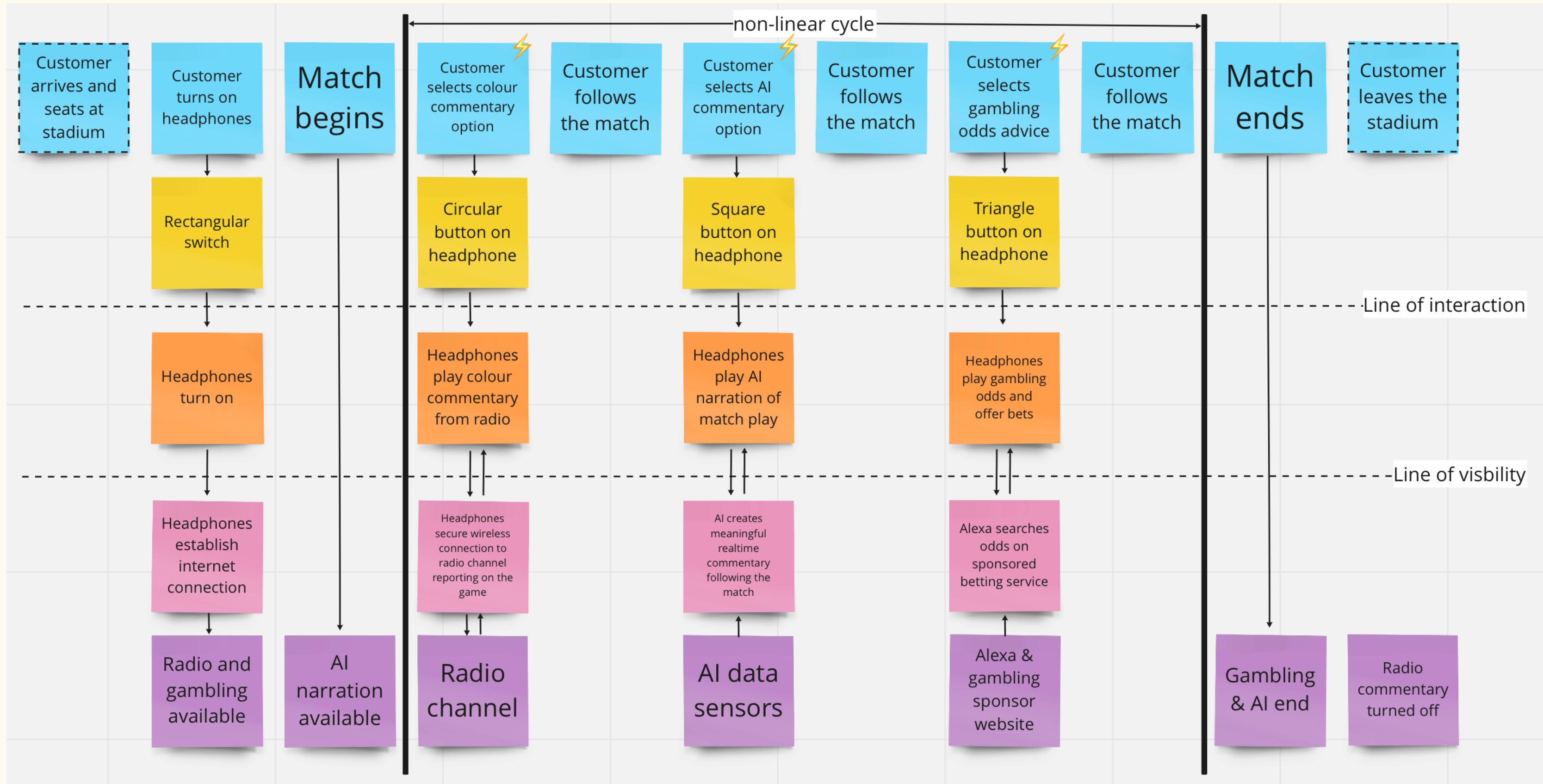
# SERVICE BLUEPRINT

Based on the Headphone prototype, we designed a service blueprint to flesh out how the product would work.

After they've connected their headphones, the customer primarily follows a non-linear cycle of actions using the button interface on the side of the headphone to access its different features. The staff actions and support processes, including the technology, respond to the customer's commands.

The service blueprint helped us align our ideas of how the prototype would work, forcing us to think critically about designing an accessible interface. It will also be useful to present to future (sighted) interviewees and potential investors.

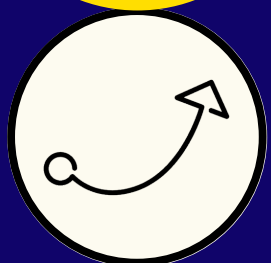
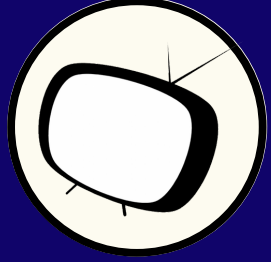
# SERVICE BLUEPRINT





# AUTOETHNOGRAPHIC VALIDATION

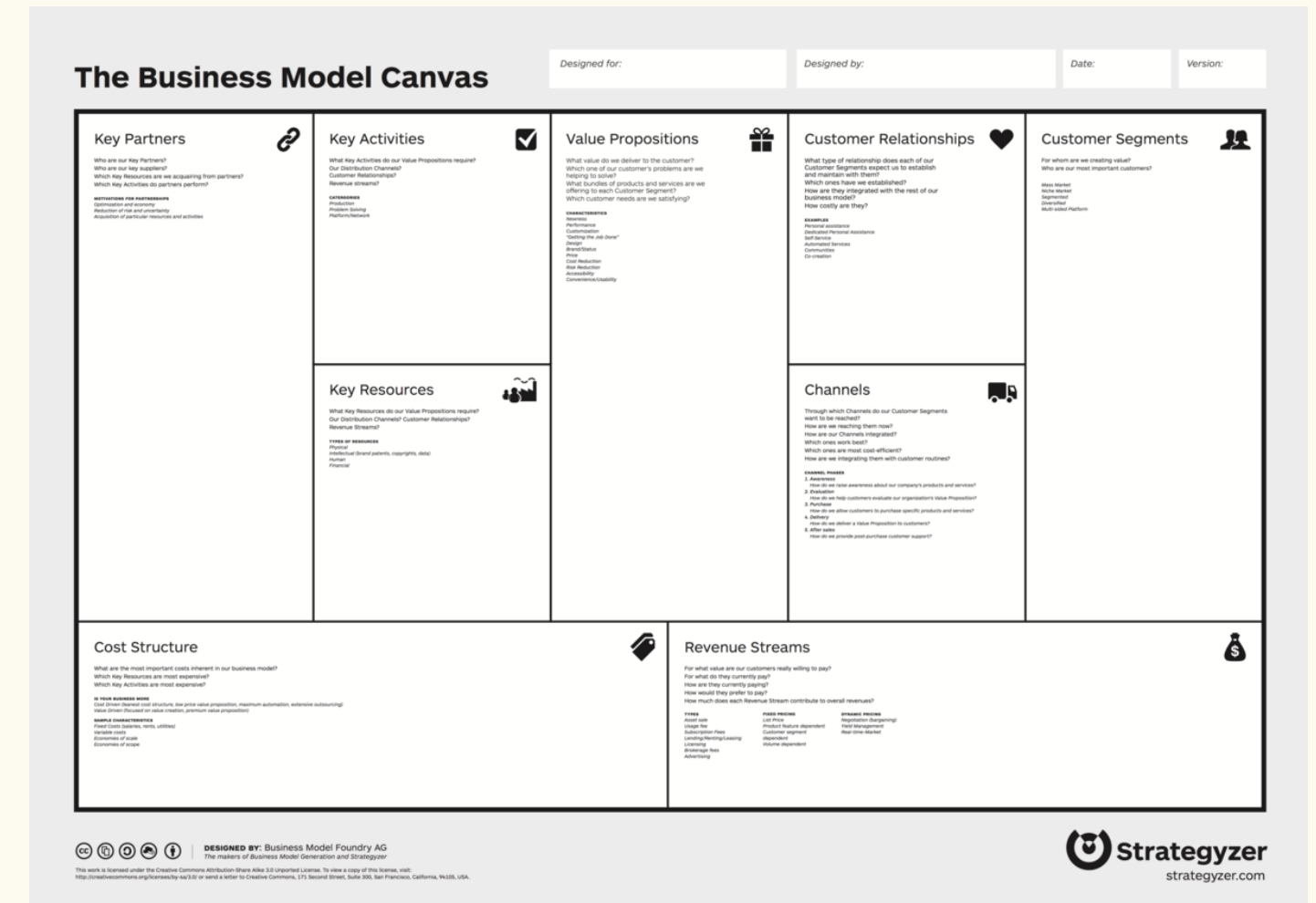
In order to understand the experience of the VI football fans, we decided to go to a live football match. We chose Bristol City FC as it is a reasonably sized local club with enough investment to consider our technology. One of the most crucial areas we wanted to test was the effectiveness of the current radio commentary. On testing the connection to the BBC commentary from the stadium, we found there was an approximate 2-3 minute delay, which impacted our immersion in the match. This validated the need to create a better commentary to follow the action in real time.



# KEY ACTIVITIES

These activities will be crucial in delivering our value proposition:

- Supply chain management to ensure we have enough supply to meet demand
- Hardware and software development to continually improve the product
- Maintaining relationships with the stadiums, football teams, charities and data and technology providers
- Research and development to improve our offering
- Advertising and marketing to reach our target audience





# VALUE PROPOSITION

## Products or Services:

- Real-time AI developed commentary
- Colour commentary giving statistics and background information
- A physical device or app

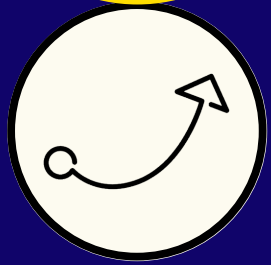
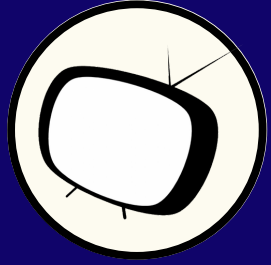
## Gain Creators:

- Personalised volume and speed
- Simple buttons make it accessible
- Real-time commentary reduces the delay of the radio
- Real-time knowledge of the game allows the user to fully engage with the atmosphere of the game and bond with other fans
- This solution makes use of the newest AI and machine learning technology

## Pain Relievers:

- AI commentary allows the user to follow the events of the game in real time
- Audio panning will help the user orientate themselves
- Realtime knowledge of the match will reduce the divide in experience between sighted and VI fans

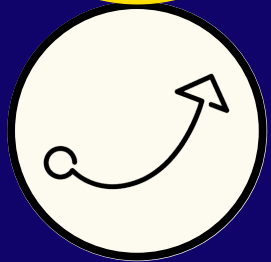
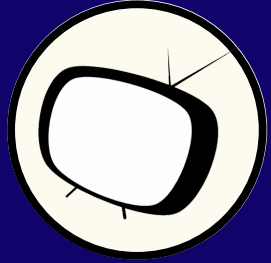
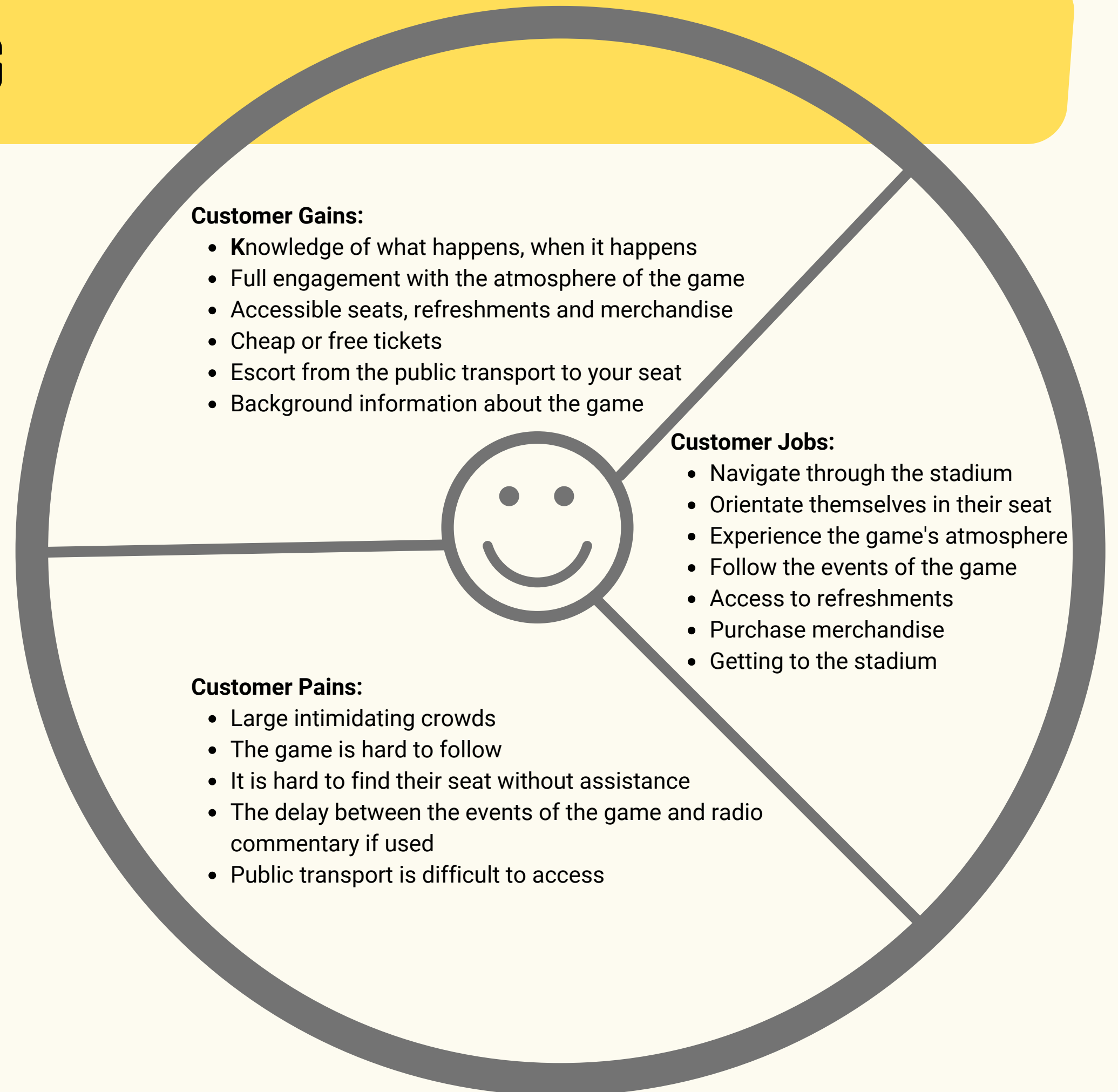
Our product will help the VI football fans fully engage with the real-time events and atmosphere of a live football match by leveraging the newest AI and machine learning technologies to produce up-to-date commentary delivered in an easily accessible way.





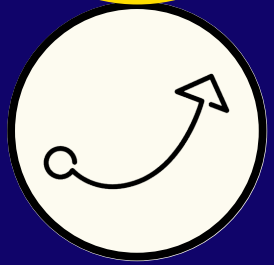
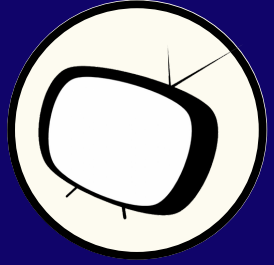
# CUSTOMER SEGMENTS

We will be targeting VI football fans as the early adopters of our product. When watching a live football match, they have many jobs to be done and the experience of completing these jobs can be hugely impacted by a series of pains and gains.



# CUSTOMER RELATIONSHIPS

We intend to build a strong relationship with our customers, fuelled by co-creation and human centred design. Our aim will be to work closely with users to understand what information our commentary should include and how to present it to create the best experience. We will work with charities who support VIP's to reach our target audience, improve our credibility and to build trust around the brand.

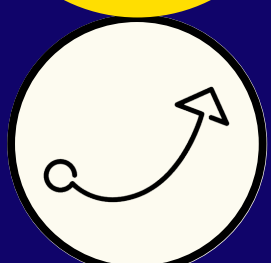
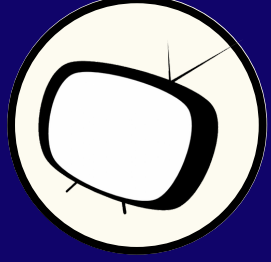


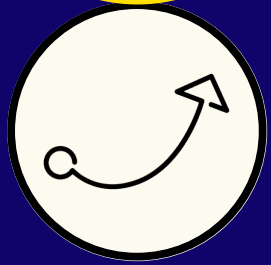
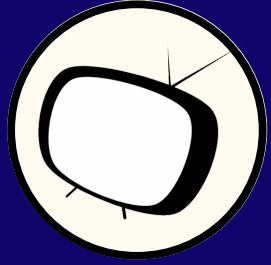
# CUSTOMER VALIDATION THROUGH AB TESTING

We decided to pitch our three concepts to seven VI sports fans from the charity Blind Veterans, to find out whether they'd prefer the hardware product of Concept 1 or the app software in Concept 3. Using an AB Testing method, we pitched these exactly as follows for each interview, to avoid biasing the results with varied descriptions.

*Activate your TeamPlayer Headphones and live football commentary by paying extra on your match ticket. On the side of your headphone, use the square button to access the detailed AI commentary of the match. Use the circular button to tune in to live radio commentary. And use the triangular button to access online betting. Enjoy a personalised football experience, you've never been closer to the action!*

*Download the free TeamPlayer app and pay on the app for every new match you attend to activate your live football commentary. Swipe right for the detailed AI commentary of the match. Swipe left for the live radio commentary of the match. And swipe up for online betting. Enjoy a personalised football experience, you've never been closer to the action!*





# CUSTOMER VALIDATION THROUGH AB TESTING

The participants were then asked which concept they preferred and invited to discuss their reasons and ask questions.

## KEY INSIGHTS

- 7 preferred the Headphones VS 0 who preferred the app.
- All seven participants said they would buy the product, one said they'd invest in the business.
- The app would rely on individual's connections, phone quality and usability of the app.
- Many participants reacted against the betting channel and the values it represents.
- Users would not want to feel wholly excluded from the atmosphere of the stadium.

## HOW MIGHT WE

- HMW replace betting with another channel option?
- HMW adapt the headset to avoid cancelling out stadium noise? E.g. flat headphone, singular earpiece or jawbone design.
- HMW use audio panning techniques to represent the movement off the ball around the pitch?

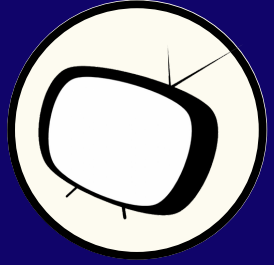
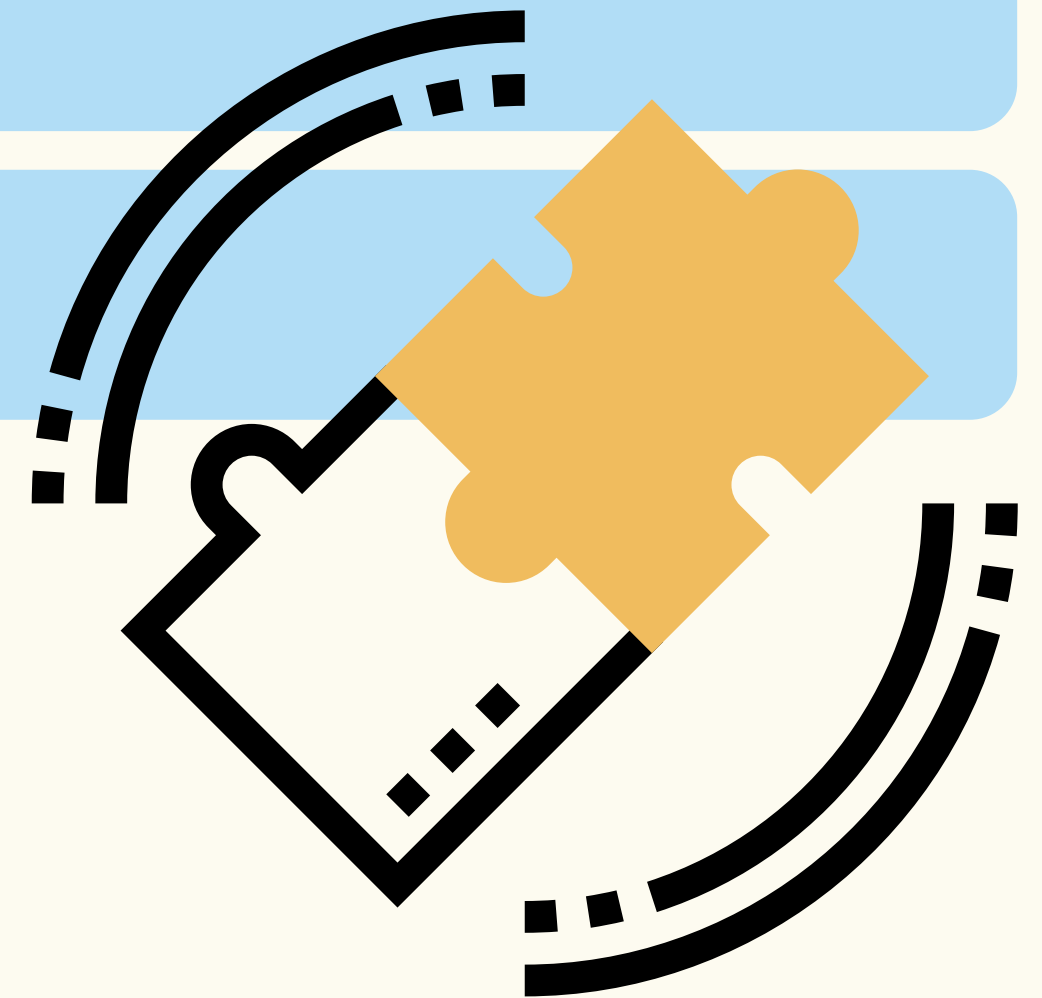
# TESTING ASSUMPTIONS

Before our product can be brought to market, there are some assumptions we still need to test:

Desireability - Will enough customers want to buy our product?

Feasibility - How difficult will the technology be to create?

Viability - Is our product scalable?







# TESTING ASSUMPTIONS

## VIABILITY - VALUE PROPOSITION DEVELOPMENT

Our product relies on partnership with stakeholders beyond our customers. To establish, understand and nurture these relationships, we would need to conduct interviews with representatives from stadiums, football teams, charities and data and technology providers and create value propositions for each.

Furthermore, we are keen to design a product that could also enhance a sighted person's experience. A separate value proposition should be developed for this wider audience.

## DESIRABILITY - CUSTOMER VALIDATION

Following our initial round of AB testing, we plan to use the insights gained to make iterations of our designs and test them with a wider audience. This may involve posting example adverts on social media platforms and asking for feedback.

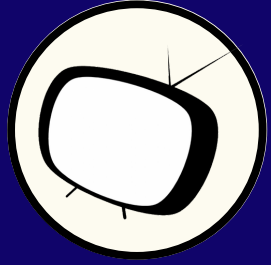
# TESTING ASSUMPTIONS

## FEASIBILITY - EXPERT GUIDANCE AND A HUMAN-CENTERED APPROACH TO SOFTWARE DEVELOPEMENT

Our idea requires the repurposing of already existing technology. We are contacting a professor who specialises in image processing and computer vision. We hope he will confirm our initial premises and support us in implementing such technology.

We aim to co-create the AI commentary with future users. During prototyping, we distributed a probe where participants were asked to describe the events during a football videoclip and to decide what they would like to hear from commentary. To increase the response rate, we will redesign the probe and redistribute it across more public channels.

Further to this research, a prototype of the technology will need to be developed using available football footage and analysis and tested with football fans.



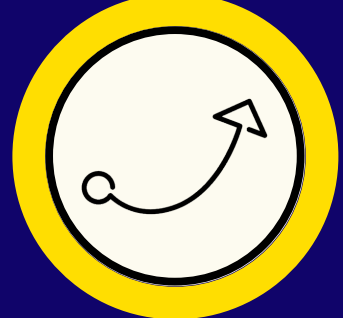
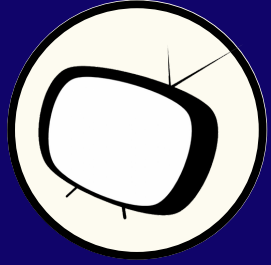
# PROCESS EVALUATION AGAINST EAC CANVAS

As we expected, our project has not found a cure for visual impairment. Instead, we have settled on a specific pain point of the VI experience: following a live football match in a stadium.

The group frustration for having to tolerate ambiguity did show before we settled on this specific pain point. However, this also proves we did not rush our research, which validates the value judgements we made to converge on our final concepts. Therefore, we are proud of our process, and we believe that learning patience in this project has positively impacted our practice as designers.

We used the resources provided by our initial contact to find a vast and varied network of VI contacts. Our thorough interview process and testing created a continuous feedback loop between us and the VI demographic, enabling us to ideate new iterations of both problems to solve and solutions we could create. Therefore, we believe TeamPlayer Headphones are designed *with* our user and not just *for* them.

Our research so far has aligned with our mission.





# PROCESS EVALUATION AGAINST EAC CANVAS

## VALUE OVER PROFIT

We are invested in our project and so far VI people have been engaged by it too. We would need a CFO or more modelling to create a sustainable business plan.

## EMPATHY IN ETHICS

All participants provided written consent prior to their interview. All participants gave us positive feedback regarding our sensitivity towards them and the subject matter.

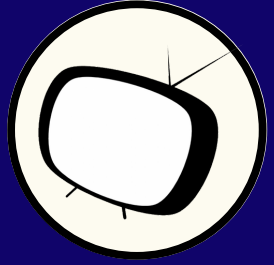
## OPEN WORKING ENVIRONMENT

We hung out socially as a group away from the project and regularly checked in as team about our workload and vision.

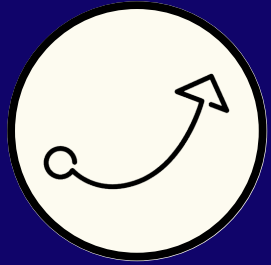
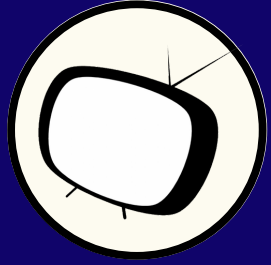


# CONCLUSION

In conclusion, on evaluating our process against our entrepreneurial alignment at the beginning, we believe our group has successfully stuck to our initial vision for the project.



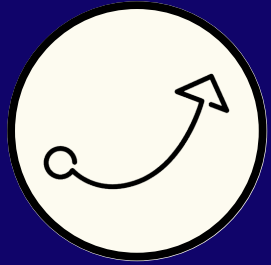
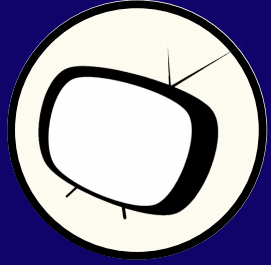




# THANK YOU

A very special thank you to Blind Veterans UK and 4Sight Vision Support for their endless help in connecting us with the Visually Impaired Community.





# EQUITY SHARE

*Equity Share is as follows:*

*David Simkins - 25%*

*Eden Simkins - 25%*

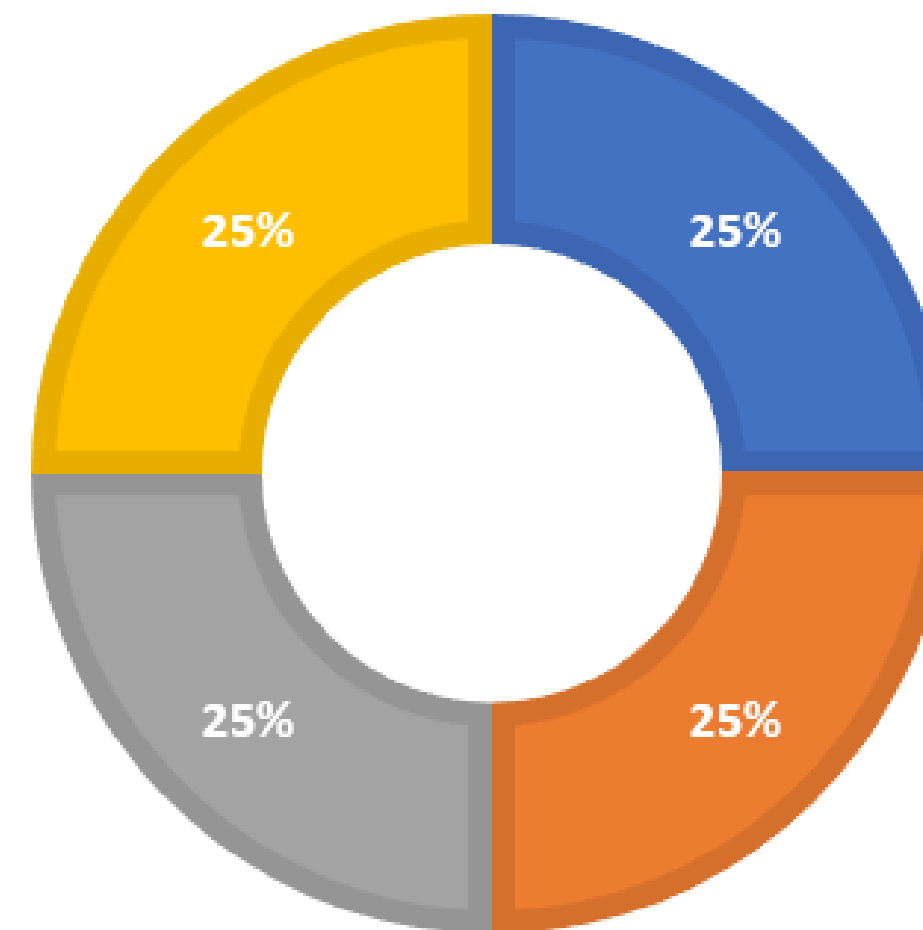
*Michał Stolarczyk - 25%*

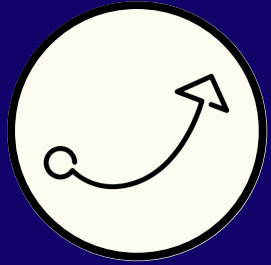
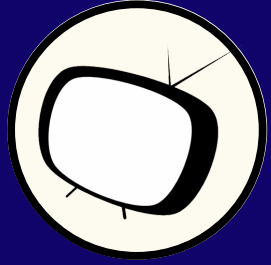
*Rowan Jenkins - 25%*

*Signed & agreed by all.*

## EQUITY SHARE

■ Michał ■ David ■ Eden ■ Rowan





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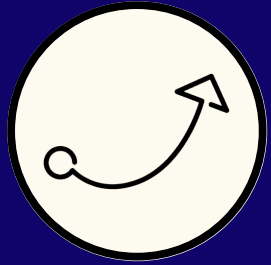
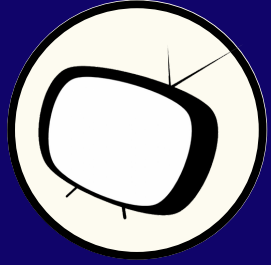
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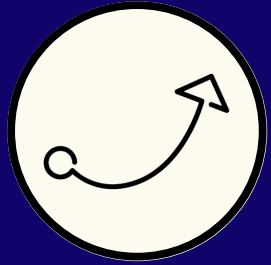
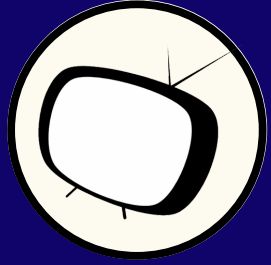
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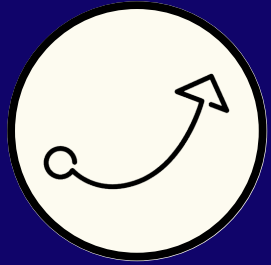
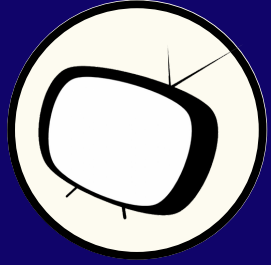
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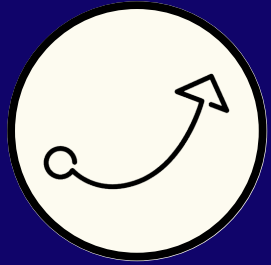
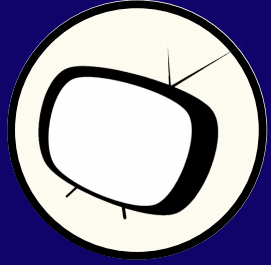
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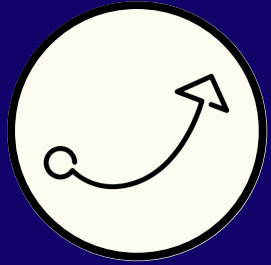
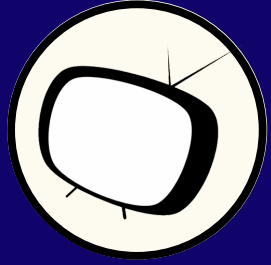
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[http://textadventures.co.uk/games/play/5zyoqrsugeopel3ffhz\\_vq](http://textadventures.co.uk/games/play/5zyoqrsugeopel3ffhz_vq) [Accessed 22 February 2022)

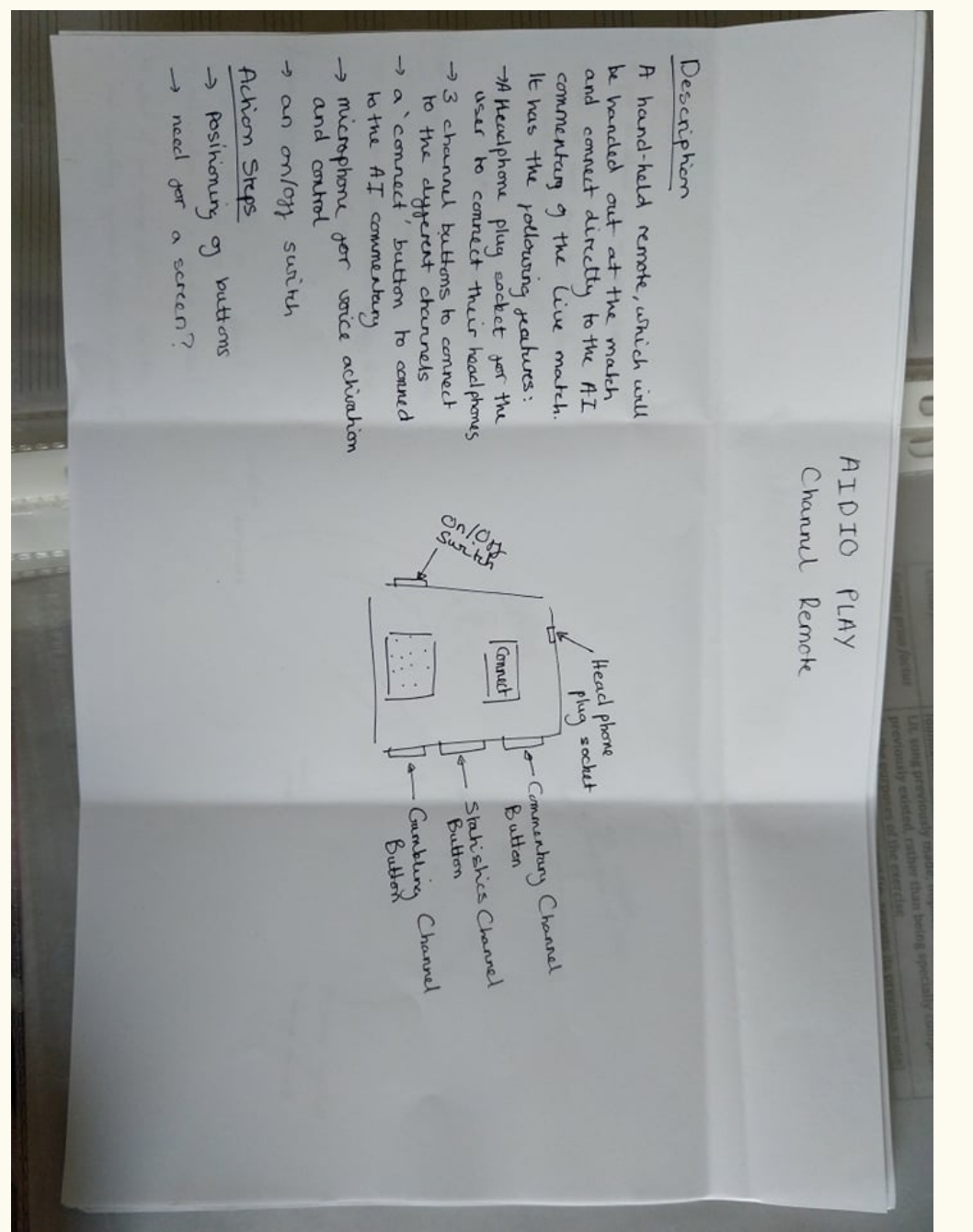
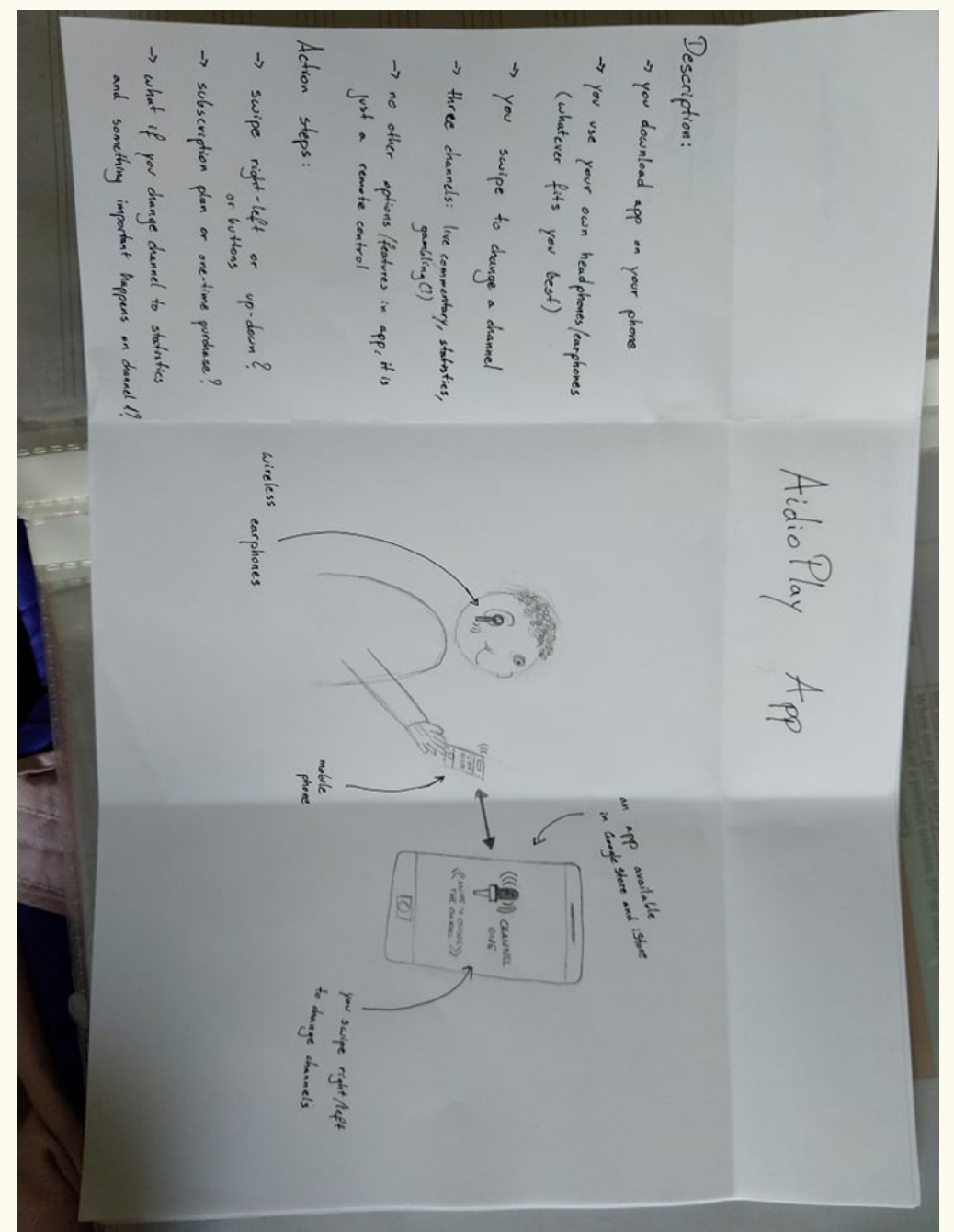
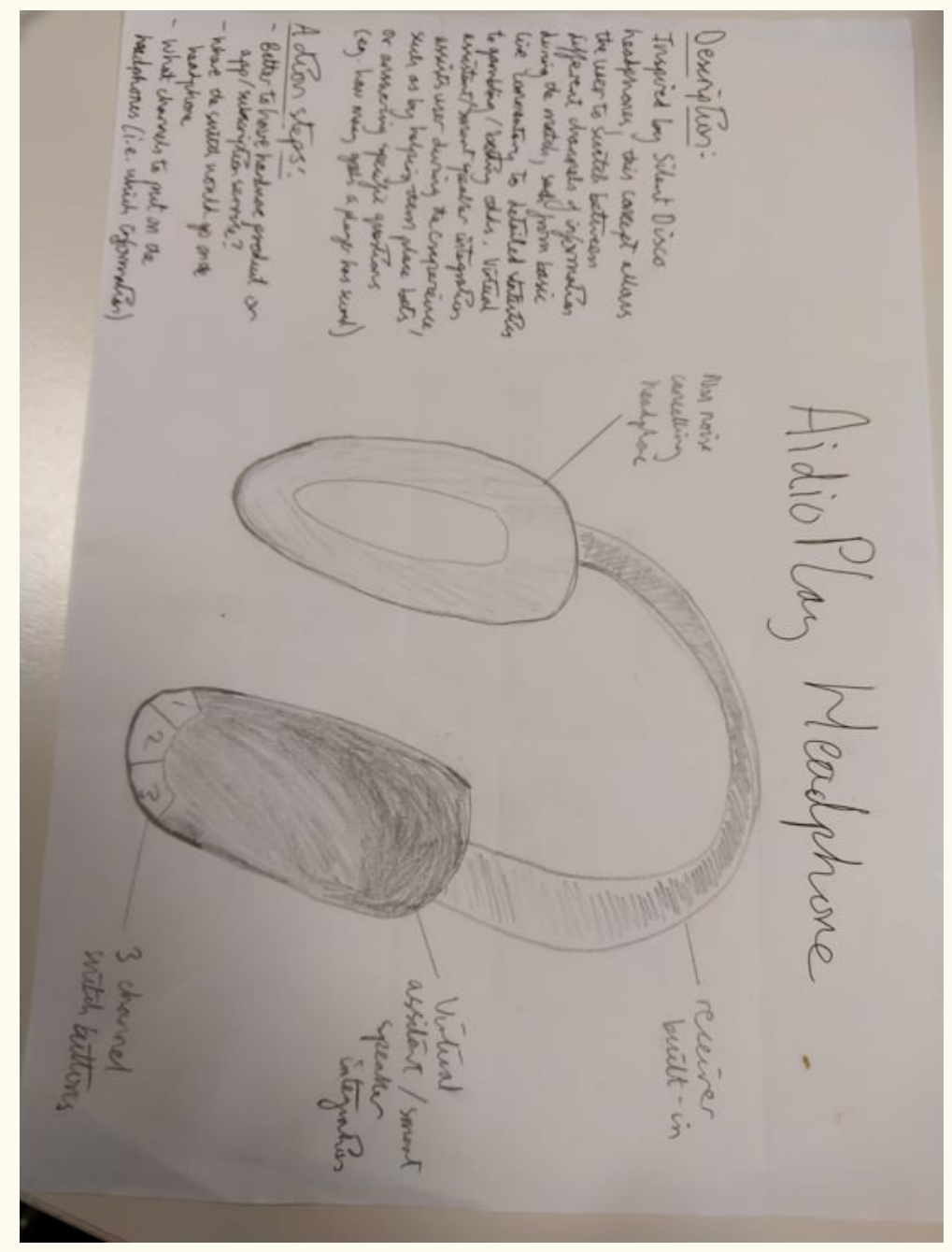


# APPENDIX

## **Miro Board:**

[https://miro.com/welcomeonboard/WjJEdERVWzZkamNNaWdLS1owSHpwWndVOUJ3UXkyUG85U2tycTVzQ1J2bTFybk1XY0R5dGExSDBhS1dkanpvY3wzNDU4NzY0NTE3MjM4MDEwODk3?invite\\_link\\_id=206827130568](https://miro.com/welcomeonboard/WjJEdERVWzZkamNNaWdLS1owSHpwWndVOUJ3UXkyUG85U2tycTVzQ1J2bTFybk1XY0R5dGExSDBhS1dkanpvY3wzNDU4NzY0NTE3MjM4MDEwODk3?invite_link_id=206827130568)

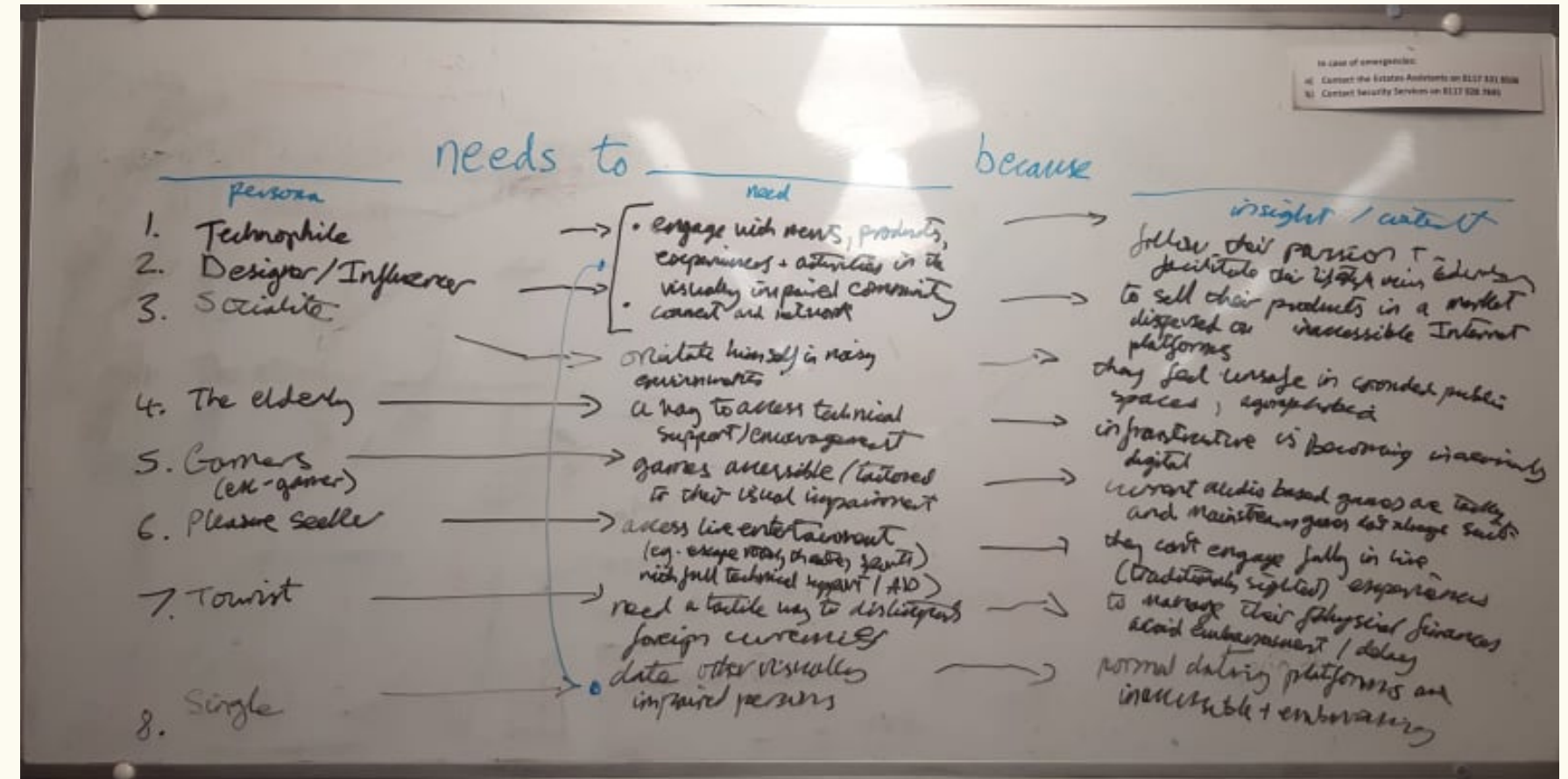
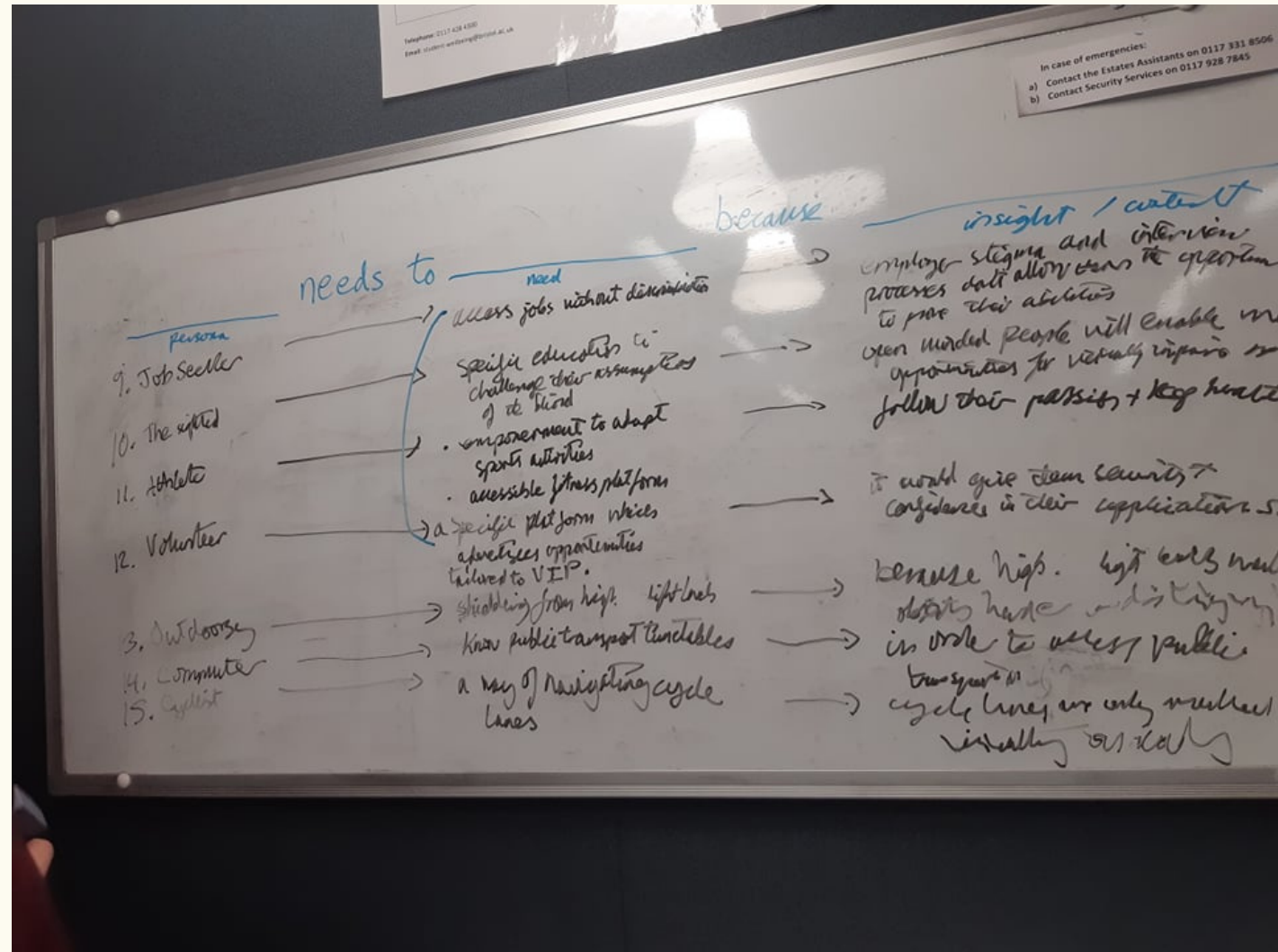
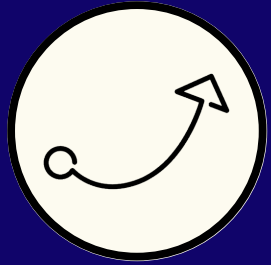
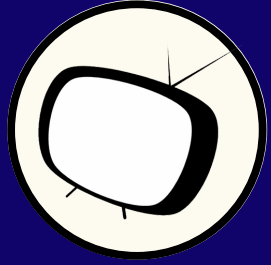
# APPENDIX



Original concept capture sheets



# APPENDIX



## Profile Capture

# Interview Summaries

## Interviewee 1

Interviewee 1 was a young woman who enjoyed staying active and had taken many steps to enable herself to participate in activities which would usually be inaccessible. She enjoyed climbing and boxing as well as volunteering in Scope and had recently taken an arts class online. When we spoke, she was looking into the possibility of going skiing.

### Key Problems:

- Struggles to walk outside with high sunlight levels
- Faced disability discrimination and narrowmindedness in job interviews
- Finds it difficult to follow normal audio description of live events and finds it obstructive
- Unable to read bus stop and train station departure and arrival times
- Cannot go bowling anymore, because of the lack of light and overwhelming background noise
- Identified that there are few accessibility solutions and that the onus is on the individual to find their own ways of taking part in the activity
- Relies heavily of sighted friends and coaches to accompany her when engaging in sport

## Interviewee 2

Interviewee 2 was a university student who has been visually impaired since birth. He had never sought the aid of any charities, however, his uncle also suffers from sight loss and has been his guide as he grew up. Before university, he played piano for the royal academy, specialising in Jazz because of its improvised nature. Now in his downtime, he plays rugby, enjoys TV and movies and occasionally videogames in infrared mode and he listens to audio books. Cycling is hugely important to him as he will never be able to drive and needs an independent way of getting around. When he frequently watched sports games, he uses the referee mike to gain a more detailed information on the gameplay.

### Key Problems:

- Experienced there being little effort to make activities accessible
- Lacked a central information point where he could find opportunities for the visually impaired to access leisure activities, voluntary and paid work.
- Worried about access to jobs following his degree
- Was discouraged from applying to university
- Wanted more cycle lanes in Bristol
- Finds it hard to read for an extended period
- Reading presentation screens in lectures and in company boardrooms
- Limited supply of referee mikes means he often misses out to sighted members of the audience

### Interviewee 3

Interviewee 3 is a self-professed technophile and is developing a gaming engine which enables any blind person to create their own RPG world navigated through sound, using a 'drag and drop'-like system. He observed that visual impairment and technophobia are both common in older generations, especially now digitalisation has made braille obsolete. Since losing his sight, he misses swimming and driving, but makes use of charities, like Speed of Sound, to access opportunities like driving for the blind and uses the newest technologies offered by companies like Microsoft's Seeing AI (Seeing AI App from Microsoft, 2022) and SoundScape (Microsoft Soundscape - Microsoft Research, 2022) to help with navigation and other daily needs.

#### Key Problems:

- No central place to advertise or find out about new innovations for the visually impaired
- Finds it hard to orientate himself in noisy environments like pubs
- Struggles to differentiate between different currencies
- Feels awkward using dating apps
- Struggles to access live sport and theatre

Microsoft Research. 2022. *Microsoft Soundscape - Microsoft Research*. [online] Available at: <https://www.microsoft.com/en-us/research/product/soundscape/> [Accessed 22 February 2022].

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### Interviewee 4

Interviewee 4 was a 53 year old man who had lost his sight 3 years ago and lives alone.. Before losing his sight, he was a marathon runner, running 5 marathons in 5 days only 9 months before losing his sight, and enjoyed a lot of exercise. Since becoming visually impaired, he has tried to find ways to continue to take part in marathons such as running with a sighted guide and wanted to volunteer to support other blind runners. He has aspirations to run 100 marathons. He also enjoys walks on his own, using known markers and repetition to learn routes and listens to audio books.

#### Key Problems:

- It is easy to cause injury when cooking
- Audio description of websites is unable to pick out key details
- Struggles to access the gym on his own
- Can't read off the training statistics from the treadmill UI
- Lacks a central platform for sharing solutions to everyday problems used by the visually impaired community

- Lacks a sense of community and feels excluded
- Feels scared of large crowds

### **Interviewee 5**

Interviewee 5 has been visually impaired since birth and strongly believes visual impairment should not prevent him from taking part in mainstream activities. He worries that relying too heavily on charities can cause you to feel excluded from the sighted community and so avoids purely visually impaired communities and spends the majority of his time with sighted friends. He enjoys jogging, cooking and walking as well as listening to music and audiobooks. Very well versed in technology, he uses smart speakers and Alexa and the internet to access information and works in a company which teaches others how to use technology.

#### **Key Problems:**

- Feels there is a divide between the sighted and visually impaired
- Cannot access some sports including golf and cricket
- Struggles with transport to leisure activities
- Is unable to navigate cinemas and train stations
- Finds the delay in commentary of live sports isolating
- Is overwhelmed by the audio description of films and TV

### **Interviewee 6**

Interviewee 6 was a 71 year old woman. She has Stargardt's disease and at the time of her interview had very little sight left. Her sight loss has been very gradual and she was able to work as a nurse for 20 years after her diagnosis. Extremely motivated and resourceful, she ran 2 nursing homes and is involved with many organisations including 4Sight as a trustee. She enjoys walking with a guide dog, eating out with friends and going to Chichester theatre who offer audio-description and extra services for the visually impaired.

#### **Key Problems:**

- Frequently falls over and bumps into things causing injury and hospitalisation
- Found pedestrians would often kick her cane and not allow her enough girth to move around