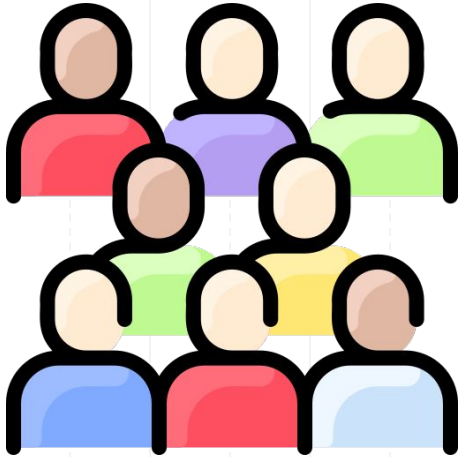
AAC: Accessible Avatar Customizer for Social Virtual Reality



Enabling users to create accessible designed avatars

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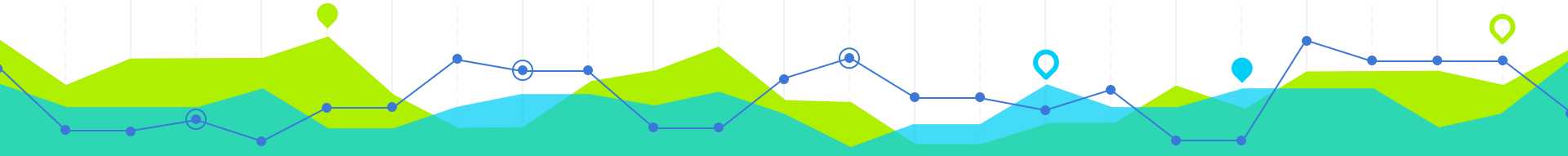
Abstract

Accessibility is an essential topic in Social VR avatar design

- Freedom to express oneself
- Basic Customization for People of Color and People with Disabilities
- Allow for modifiable content to meet unaddressed needs and to allow for accessible character customization

Process over the work period:

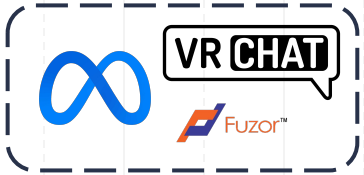
- Problem Identification
- Design Thinking
- Paper Prototype
- Bodystorming
- Playtesting
- Feedback Analysis
- Final Iteration



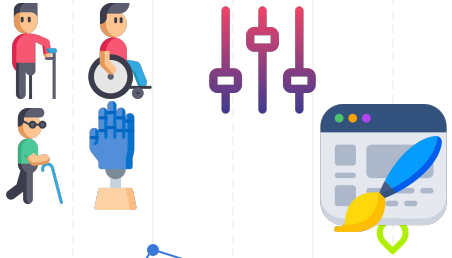
Introduction

- VR advancing and becoming more commercially successful
  - Need for accessibility
  - Current gap in representation for people with disabilities
- We wanted to make an Accessible Character Customizer
  - address the issue of inaccessible design
  - assistive device representation,
  - body customization,
  - diverse skin tone settings.

Current Development in Field:



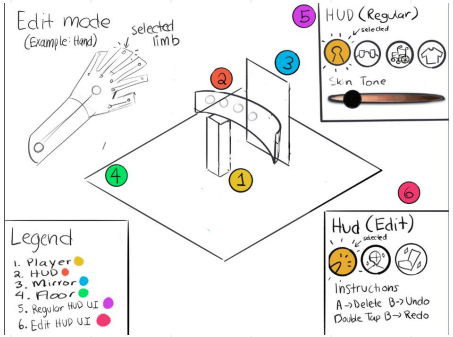
Accessibility Considerations:

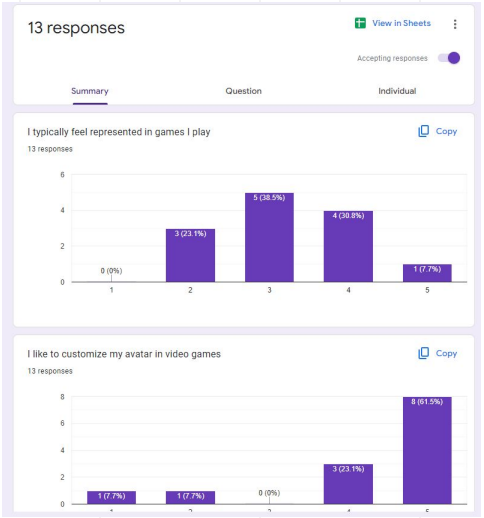


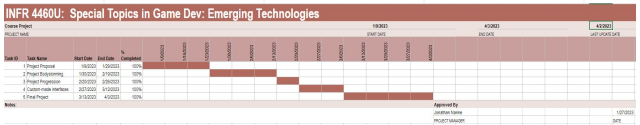
Methods

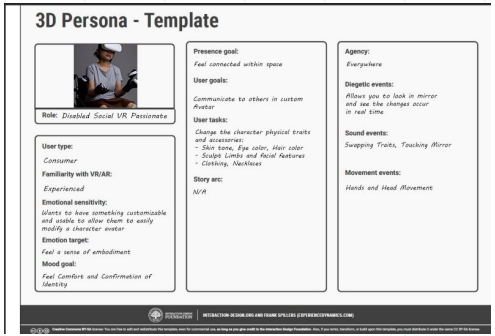
Ideation:

- Design Thinking
  - Survey
  - Figma
  - Paper Prototype
  - Gantt Chart
  - Persona







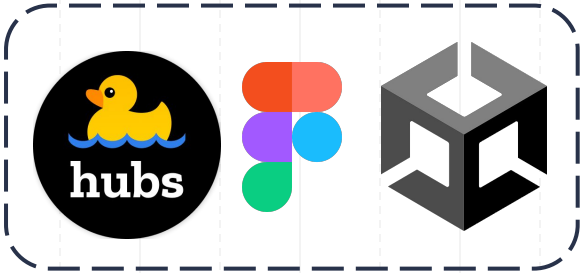


Methods

Playtesting

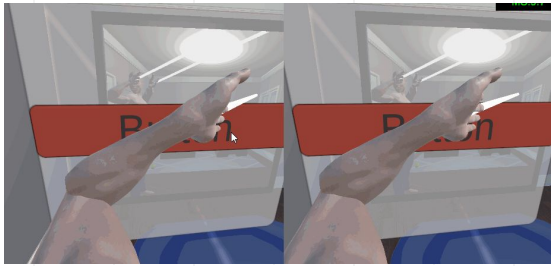
- SUS, TLX, PQ
- User feedback

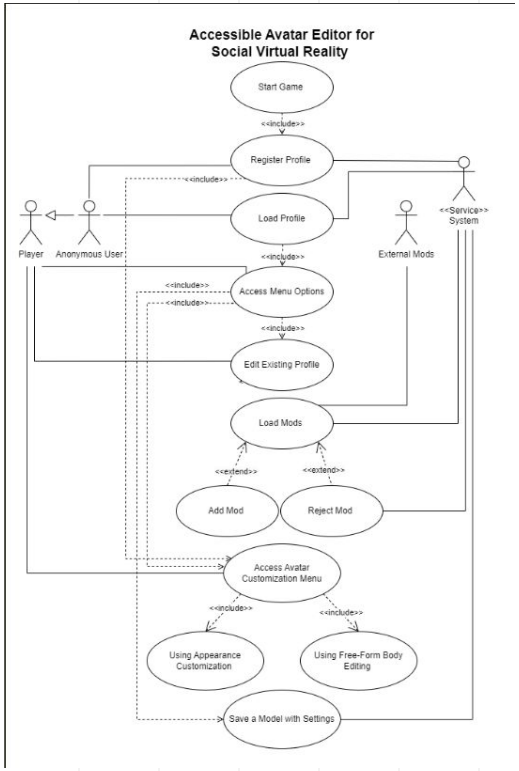
Our Prototype:



Methods

- Prototype Creation
  - Oculus Quest
  - UMA 2
  - VR Room



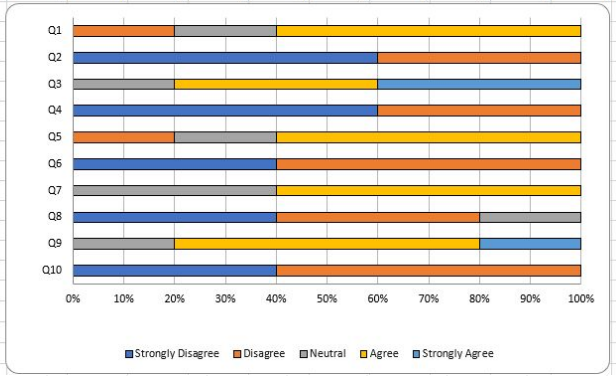


Results - SUS

System Usability Scale (SUS)

- Average score was 77%
- Odd number question
  - High general score indicating that the system was easy to use and navigate
- Even number questions
  - Low general score indicating that it wasn't cumbersome or overwhelming

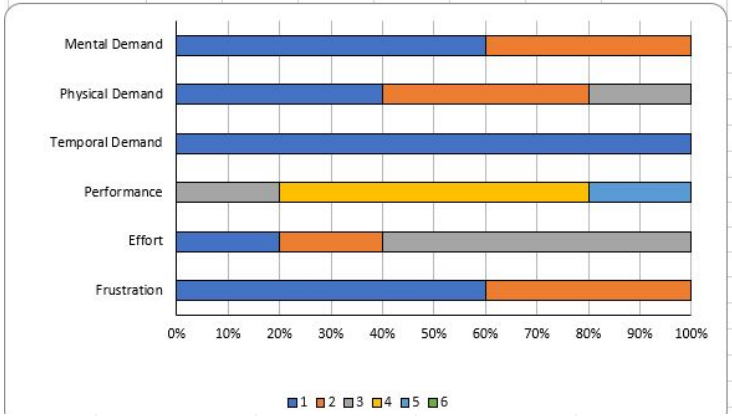
Paticipant	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
	I think tha	I found the	I thought t	I think tha	I found the	I thought t	I would im	I found the	I felt very c	I needed t	Score	Average
1	4	1	4	1	4	1	4	1	4	1	87.5	77
2	4	2	5	1	4	2	4	2	5	1	85	
3	2	2	3	2	2	2	3	2	4	2	60	
4	4	1	5	1	4	1	4	1	4	2	87.5	
5	3	1	4	2	3	2	3	3	3	2	65	



Results TLX

- Most participants produced an low average score
- Average score from our 5 participants: 2
- Average score for performance showing that participants aren't as satisfied as we would have liked

Participant	Q1	Q2	Q3	Q4	Q5	Q6	Individual Mean	Total Mean
1	1	1	1	4	2	1	1.666666667	2
2	2	3	1	3	3	2	2.333333333	
3	1	1	1	5	3	1	2	
4	1	2	1	4	1	1	1.666666667	
5	2	2	1	4	3	2	2.333333333	
Average Score	1.4	1.8	1	4	2.4	1.4		



Results- Presence Questionnaire

- Above average score for all categories
- Low standard deviation which means most participants felt this way
- Total Average Score: 103.8

Realism	Average	Possibility to act	Average	Quality of interface		Possibility to examine	Average	Self-evaluation of performance	Average
Q3	5.4	Q1	5.8	Q14	1.2	Q11	6.2	Q15	5
Q4	5.4	Q2	6.2	Q17	2	Q12	6.2	Q16	5
Q5	4.6	Q8	6.4	Q18	1.6	Q19	5.8		
Q6	4.8	Q9	6.4	Total	4.8			Total	10
Q7	5.2			Inverse	16.2	Total	18.2	Standard Deviation	0
Q10	3.8	Total	24.8	Standard Deviation	0.4	Standard Deviation	0.230940108		
Q13	5.4	Standard Deviation	0.282842712						
Total	34.6								
Standard Deviation	0.596816954								

Discussion/Conclusion

- Managing Scope
- Prioritizing user’s needs
- Ideation and Iteration
- Filtering and focusing on the most important and relevant feedback

References

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Thanks for watching