

# Design Criteria and Target Specifications

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**Group 10**

**October 8, 2023**

## Prioritized Design Criteria

Needs	Design Criteria	Priority (1-5, 5 being highest)
Simplicity	- No elaborate storylines - No showing actual robots	5
30 to 60 second video	- Duration of VR experience	4
Not graphic	- No blood, gore, explosions	2
Simulation shows altered reality	- Show how people would protect themselves - Consider sensor data weapons would use - Show how buildings or communities would adapt	5
Recognizable and realistic	- Time is present or near future	3
Emotional Simulation	- Show fear, concern, hope, and motivation	3

## Benchmarking

Value	Colors	#
High	Green	3
Medium	Yellow	2
Low	Red	1

Specifications	Importance	Product 1	Product 2	Product 3
Product Name	-	"Clouds Over Sidra" by Gabo Arora and Chris Milk	"Slaughterbots" by the Future of Life Institute	"Hunger in Los Angeles" by Nonny de la Peña
Description	-	VR film follows refugee to show viewers the different spaces of the camp	Short-film that covers the uses of autonomous self guiding killer drones and the potential uses	VR experience showing a man go into diabetic shock at a Los Angeles food bank
Duration	3	8 minutes	7 minutes	3.5 minutes

Graphic	2	<ul style="list-style-type: none"> <li>- No violence, blood, gore</li> </ul>	<ul style="list-style-type: none"> <li>- Showed killing and people dying</li> <li>- Some blood and violence</li> </ul>	<ul style="list-style-type: none"> <li>- No gore but does include person undergoing seizure</li> </ul>
Realistic	3	<ul style="list-style-type: none"> <li>- Realistic and Immersive</li> <li>- Focuses on spatial experiences and presence</li> </ul>	<ul style="list-style-type: none"> <li>- Focuses on storytelling and portraying a message rather than immersion</li> <li>- Story flows like a movie rather than an interactive experience</li> </ul>	<ul style="list-style-type: none"> <li>- Audio is realistic due to using live audio of food bank and seizing up</li> <li>- Graphics take away from immersion</li> <li>- Realistic concept as it follows real life events that would happen in day to day Los Angeles</li> </ul>
Emotional	3	<ul style="list-style-type: none"> <li>- High impact</li> <li>- Evokes empathy and understanding for refugees</li> <li>- One out of six people donated to relief efforts after seeing film</li> </ul>	<ul style="list-style-type: none"> <li>- Medium emotion</li> <li>- Slight exaggeration on the potential uses of robots and the future of autonomous weapons (artistic liberties) however does portray clearly the danger of autonomous weapons</li> <li>- More educational than emotional</li> </ul>	<ul style="list-style-type: none"> <li>- Provokes a reaction</li> <li>- When person faints in experience, viewers kneel down to help</li> <li>- Graphics take away from emotion, especially since very old</li> </ul>
Simplicity	3	<ul style="list-style-type: none"> <li>- Complex in production 360-degree video, CGI, immersive audio, real life actors and performers, storytelling and narrative craft.</li> <li>- Simple to use, with an emphasis on storytelling.</li> </ul>	<ul style="list-style-type: none"> <li>- Complex to create</li> <li>- Included actors, and cgi,</li> <li>- Complex storyline</li> <li>- Easy for users to view</li> </ul>	<ul style="list-style-type: none"> <li>- Graphically extremely simple</li> <li>- Audio was already source, no new audio necessary</li> </ul>

## Numerical Evaluation

Specifications	Importance	Product 1	Product 2	Product 3
Product Name	-	"Clouds Over Sidra"	"Slaughterbots"	"Hunger in Los Angeles"
Duration	3	1	2	2
Graphic	2	3	1	2
Realistic	3	3	2	2
Emotional	3	3	1	1
Simplicity	3	2	2	3
<b>TOTAL</b>		<b>33</b>	<b>20</b>	<b>28</b>

## Target Specifications

Design Specifications	Relation =, < or >	Value	Units	Verification Method
<b>Functional Requirements</b>				
Ease of use	=	Yes	N/A	Test/Feedback
Language	=	English, French	N/A	Consult bilingual group members
# of items on screen	<	5	Sensory objects (subtitles, dialogue, etc.)	Ensure/ Test
<b>Non-Functional Requirements</b>				
Health and Safety (flashing light)	=	No	N/A	Ensure/Test/ Feedback
Realistic	=	Yes	N/A	Test/Feedback
Emotionality	=	Yes	N/A	Test/Feedback
Simplicity	=	Yes	N/A	Test/Feedback
Aesthetic appeal	=	Yes	N/A	Feedback

Constraints				
Violence	=	No	N/A	Ensure
Video duration	> <	30 - 60	Seconds	Ensure
References to Real World Events/Entities	=	No	N/A	Ensure/ Feedback
Cost	=	0	Dollars	Estimate
Non-offensive	=	Yes	N/A	Ensure

**Introduction**

Entering the “Define” phase of our engineering design process, we were influenced by our first client meeting. We explored key aspects, including simplicity, safety, immersion, and emotional resonance, as well as outlined the functional/non-functional requirements and constraints that will guide the creation of our VR experience video.

**Reflection**

The client meeting developed our understanding of the nature of the problem and the particular design direction we want to take for our product. The client made their desires for the product fairly clear yet we still had a chance to ask questions for more clarification. The clients unexpectedly emphasized simplicity as a key factor for our project's success, so we are prioritizing this by maintaining a meaningful yet straightforward approach. Additionally, the client's insistence on immersion and realism has become a central focus as they mentioned the importance of this quite a few times, along with the need for an impactful VR simulation depicting altered realities related to autonomous weapons. Furthermore, the client has highlighted the need for particular feelings of concern and hope, which has shifted our criteria towards a more emotionally engaging experience. Through benchmarking other VR experiences related to activism, and looking at reviews from YouTube comments and news articles, we were able to determine what worked well in terms of how simple, realistic, emotional, and graphic they were. We also benchmarked by looking at reviews on a short film on autonomous weapons as this was directly related to our topic.

**Functional Requirements**

The product design should be straightforward, concise, and captivating, in line with the client's emphasis on creating an immersive, simple, and emotional alternate reality. It should demonstrate how the environment changes due to autonomous weapons within a 60-second duration while making it as realistic as possible. The product must be

accessible and work seamlessly with the university's VR equipment while aligning with all of Mines Action Canada's objectives mentioned above.

### **Constraints**

During the meeting, the client made it clear that certain limits should be observed in the final product. These limits include avoiding graphic content like blood and gore, refraining from extreme violence towards civilians or exploding humans, steering clear of any political bias targeting specific countries or delegations, and ensuring the entire experience lasts less than 60 seconds.

### **Non-Functional requirements**

Our design needs to be able to engage the audience through impactful graphic imagery that evokes emotional experiences. Additionally, the product should exhibit reliability, realism, and immersion. Finally, it must also be designed with safety in mind. For example, it should not include too many flashing lights that might overstimulate viewers or show anything too graphic, in order to ensure it is suitable for viewing by a broad and diverse audience.

### **Conclusion**

Overall the “Define” stage serves as our project's cornerstone, as it’s built on insights from our client meeting. It emphasizes the need for simplicity, safety, immersion, and emotional engagement. The functional requirements align with the client's vision, while constraints and non-functional requirements ensure a captivating and secure experience. As we progress, the application of this step will guide us toward creating a product that fully embodies the client's vision and promotes empathy for the ethical concerns surrounding the development and use of killer robots.

### **Wrike Link**

<https://www.wrike.com/workspace.htm?acc=6270829&wr=20#/folder/1207807027/timeline3?viewId=200653859>

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