

DELIVERABLE C: DESIGN CRITERIA AND TARGET SPECIFICATIONS

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1. List of Prioritized Design Criteria

Interpreted Needs	Design Criteria	Functional / Non-Functional / Constraint
- Client wants a short video (1 min) - Video depicts what a future with killer robots could look like	- Video length	Constraint
- Video doesn't include blood, gore or intense violence	- Violence/gore	Constraint
- Video explores the manners in which humans will adapt to the presence of killer robots (past examples were bunkers, things that obstruct vision, and construction to protect civilians)	-Environment -Human adaptation related to robots	Functional
-Video shows the concerns that are involved in using sensor data to find the difference between combatants and civilians.	- Risk Depiction	Functional
- Video evokes strong emotions from the viewer (Client mentioned wanting the driving emotion to be concern for the future)	- Emotional impact	Non-Functional
- VR experience is simple - VR experience is short, includes simple assets and avoids complex, branching storylines	-Story complexity	Constraint
- All assets included in the project are copyright free, or used with permission from their respective owners	- Copyright - Budget	Constraint
- Video locale is somewhat unfamiliar, or somewhat unrecognizable (essentially a normal landscape turned unrecognizable)	- Realism - Relatability - Understandability	Non-Functional

2. Criteria Quantification

2.1 Constraints

Criteria	Relation	Value	Units	Verification
Video Length	<=	1	Minutes	yes/no
Budget	<=	50	\$	yes/no

Copyright	=	0	Infringements	yes/no
Violence/Gore	=	0	N/A	Audience Test
Story complexity	=	0	Branching storylines	yes/no

2.2 Functional

Human adaptation	>=	3	Concrete examples of how humans adapt to killer robots	Audience Test
Environment	=	<2	Concrete examples of how the environment changes based on killer robots	Audience Test
Risk depiction	>=	2	Concrete examples of machines harming humans due to electrical failure.	Audience Test

2.3 Non-functional:

Emotional impact	N/A	N/A	Compare it to last year's example, see if it's within the same quality.	Audience test
Realism	N/A	N/A	Concrete examples of elements from human warzones	Audience test
Relatability	N/A	N/A	Viewers can identify with elements of the video (environment, etc.)	Audience test
Understandability	N/A	N/A	Viewer can explain video plot	Yes/No

3. Design Criteria Priority List

Design Criteria	Priority	Justification
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Video Length	MEDIUM	Based on benchmarking of previous products, video length should be short in order to ensure project quality, but some fluctuation is permissible.
Budget	MEDIUM	Budget constraints should be respected.
Copyright	HIGH	Video cannot be shown (and therefore fulfill its intended purpose), if copyright infringement is present.
Violence/Gore	MEDIUM	If violence and gore is shown, the audience to which the video can be shown is narrowed.
Story Complexity	HIGH	Based on benchmarking of previous products, story complexity should be low in order to ensure project quality.
Human Adaptation	HIGH	One of the main purposes of the VR experience was to show the negative impact from killer robots, the way humans adapt will reflect this impact.
Environment	HIGH	Environmental impact of the presence of autonomous weaponry must be present in order to effectively persuade decision makers
Risk Depiction	LOW	Doesn't seem relevant, or as useful compared to other options.
Emotional Impact	HIGH	The audience must understand that killer robots are not a good idea, within their own lives, this is the ideal outcome of the clients.
Realism	LOW	Realism is not a great idea, this could add unrealistic requirements to the VR experience, which could cause issues with our schedule.
Relatability	LOW	Having a relatable locale, might render the video more relatable/understandable for decision makers, but it isn't essential
Understandability	MEDIUM	It's important for the users to

		understand what's happening, however some sections can be vague (Getting emotions across is most important - not specific "plot" details).
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4. Benchmarking

- Technical Benchmarking: based on technical performance of projects on MakerRepo
- Researching existing products that already satisfy the interpreted needs
- User Benchmarking: based on user perceptions of similar products

Importance	Colors	Number Value (1-3)
Good	Green	3
Medium	Yellow	2
Bad	Red	1

5. Research

Project Name	User Perceptions	Technical Benchmarking
GNG1103-F21-Stop Killer Robots VR Experience	<ul style="list-style-type: none"> - Starts with no description (like a cut scene) - High Realism (dialogue, vocabulary, audio) - Heavy Emotional Response - Lots of buffer periods 	<ul style="list-style-type: none"> - Budget: \$50 - \$150 - Video Length: 2.52min
GNG1103-F13-Stop Killer Robots	<ul style="list-style-type: none"> - Storyline is fairly complex - Concise and to the point - Robot voice features - Camera angles are a bit shaky 	<ul style="list-style-type: none"> - Budget: \$50 - Video Length: 1.21min
GNG1103-F12-We The Best Inc	<ul style="list-style-type: none"> - Good transition from normal to future life - More text and less audio - Storyline is really unclear - Camera angle is not stable 	<ul style="list-style-type: none"> - Budget: \$100 - Video Length: 1.24min

6. Benchmarking Comparison of Projects:

Specification / Project Name	F21	F13	F12
Budget (\$)	50-150	50	100
Video Length (min)	2.52	1.21	1.24
Copyright	No	No	No
Violence/Gore	Low	Low	Low
Story Complexity	Medium	High	Low
Human Adaptation	Medium	Medium	Medium
Environment	Medium	High	Low
Risk Depiction	Medium	Medium	Medium
Emotional Impact	High	Medium	Low
Realism	High	High	Low
Relatability	Low	High	Low
Understandability	Medium	High	Low
TOTAL:	25	31	23

Based on our design criteria above, the F13 project was the best one.

7. Reflection

Prior to the client meeting, there was a general idea for the client needs and what is expected for the project. The initial client meeting allowed us to further determine their needs and their overall ideal project. We determined that simplicity and the usability of the product were what was considered as most important. The client emphasized reaching the emotions of the viewers through our project. We depicted the need for the display of emotions through our design criteria. Needs that were changed in this deliverable would mostly be those that we noticed provided us with the same design criteria.

We were able to benchmark 3 past projects to compare the VR videos to this project to allow the criteria to become more apparent. We were previously tasked to come up with a VR experience that would demonstrate how autonomous weapons would negatively impact war. However, after the client meeting, it became clear that what they expect is more of an interactive environment that stimulates the emotions and conscience of our viewers.

We found that project F13 was the best of the four projects we analyzed. We found that it was simple yet engaging. It depicted a series of scenes with different scenarios and stimulated our emotions to gain a better understanding of the dangers of autonomous weapons.

Meeting the client allows us to better determine their work culture, environment, and non-verbal cues. We were able to determine their non-verbal cues by mostly reactions to certain questions. During the question and answer portion of the meeting, we were able to see their reaction to certain questions and determine whether or not they found certain topics more interesting than others.

Wrike Snapshot:

<https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=O8nuGns60jvcZspTq57RVQxdAr9OrouQ%7CE2DSNZVHA2DELSTGIYA>