

1. Design Criteria

Needs from last week:

- Need 1: The client expressed the need for the video to be short and succinct.
- Need 2: The client expressed the need for autonomous weapons to be banned preemptively.
- Need 3: The client said the video/simulation must be “interesting, unique and memorable”.
- Need 4: The video must evoke concern and inspire those who see it to campaign for positive change.
- Need 5: The video must be realistic and tangible.

NEW NEEDS:

- The video must be inexpensive to produce
- The video must be impactful for the general public, as well as world leaders and decision makers (UN)

So, to make the design criteria:

#	Need	Design Criteria
1	Video must be short	Time (s)
2	Autonomous weapons must be banned	Leaders reach some agreement on regulations
3	Simulation must be “interesting, unique and memorable”	Creativity on our end
4	Video must evoke concern and inspire viewers to campaign for positive change	Clarity of message
5	Video must be realistic and tangible	Quality of assets chosen
6	Video must be inexpensive	Cost (\$)
7	Impactful for world governmental audiences	Setting cannot be too specific

(Priority is from top to bottom)

Functional Requirements	Non-functional Requirements	Constraints
Clarity/unifying message	Ability to be used and understood by many different types of people	Time (1 min)
Non-specific setting	Creativity	Cost (\$50)
Quality of assets	Optimization in VR (how well simulation runs)	For the cell above, \$50 seems a reasonable amount to spend, and was the suggested amount in the proposal overview page.

2. Teams will perform technical benchmarking (i.e. researching existing products that already satisfy one or many of the interpreted needs) and update user benchmarking information (user perceptions of similar products).

Technical Benchmarking

User perception of similar products	Existing Products	Updated information
Features/advancement/tools/ environments/efficiency/ patient models/ medical devices	Sim X Air Force Medical VR Training	Rapid cases Clinic visits Patient encounters Realistic environments
Escalation scenarios/ accuracy of daily basis/ relevant principles/ situational awareness/ skills/ tactics/practice	Emergency Services Fort Myers Police Department Police VR-simulation	Sights Sounds Simplicity Boost safety Quick understanding
Informative images & videos/guides from astronauts/visuals/hints/zero gravity conditions/accurate surroundings	Mission: ISS Physics Space VR	Bringing across the goals Interactive tools for senses Effects Recreates details Handling actual concepts
Impressionable accuracy of objects/functionality/communication/instructions/sound	Bluefire VR Weapons Simulators for Military	Dynamic experience Realistic instruction Functionality

3. Teams will determine target specifications (numerical values or a range of values which represent reasonable product attributes) such as minimum or maximum weight, dimensions, amount of time needed for a user to become familiar with the product (ease of use), number of items of an interface, etc. This will aid in evaluating potential solution ideas and provide measurable design goals which can be fulfilled by the final solution.

1. Remember: Target specifications are just design specifications with ideal or marginal values and metrics are measurable design criteria, as explained in the lectures. The same list of metrics must be used in each step of this deliverable (prioritized list, benchmarking and target specifications).

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Product Attributes:

Numerical values/range:

Ease of use	10
Movement	10
Viewing System	8
Number of items in interface	7
Objects	4
Environment	10
3-D Images	5
Frames Per Second	7
Bug Free	9
Responsive	7
Fast	3
Smooth	9

References:

<https://www.smlase.com/entries/technology/what-is-virtual-reality/>

<https://eventtechnology.org/virtual-reality/>

<https://www.engati.com/glossary/virtual-reality#:~:text=%E2%80%8D-,What%20are%20the%204%20elements%20of%20Virtual%20Reality%3F.%2C%20sensory%20feedback%2C%20and%20interactivity.>

<https://www.inveristraining.com/vr-training/bluefire-weapon-simulators-military/#:~:text=The%20innovative%20BlueFire%20weapons%20replicate,%2C%20S%26W%2C%20Taser%20%26%20Beretta.>

https://futuclass.com/blog/educational_vr_games/

<https://www.vrowl.io/the-22-best-examples-of-how-companies-use-virtual-reality-for-training/>

4. Reflection

The client impacted our design criteria and their order because we learned what is most important to them to see in our product. Instead of using our own preconceived ideas or biases in making the requirements, it is important to listen to the client, and especially any differences in opinion they may have. This makes the requirements of the video being able to be understood/related to by many different types of people, and the non-specific setting extremely important, as the client told us we are trying to convince world leaders and those in power to make the decision to ban these autonomous weapons. Originally we thought it would be good to design the simulation for an Ottawa resident, as that is who will be seeing it in class/on design day. But broadening the scope of the project is pertinent to its success.

Our needs weren't changed from last week, though two more were added. We thought it was important to introduce the cost aspect of the project, as it is important that we as a group don't spend unreasonable amounts of money on the project. It should be cheap and efficient. We also wanted to make it clear that this video isn't just for the general public, but also for world leaders and those in positions of power. That distinction could be very important when it comes time to make a decision on banning the robots or not.

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08/10/2023

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