Project Deliverable C:

Design Criteria and Target Specifications

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Group 19

Introduction:

The following document should provide the reader with explicit information about the customer's needs in the form of prioritized design criteria, functional, and non-functional constraints. Additionally, this document will also include a benchmarking table that determines the target specifications. The information in this document will aid in the development of our final solution.

Customer Needs and Design Criteria 1

Priority (5 > 1)	Customer Needs	Design Criteria	
5	Bilingual	Videos will have a language selection process.	
4	Subtitles, for those impaired.	Optional subtitles menu	
	Menu should be adjustable based on the environment.	Different menu for different ages. Options for clinician to select age before handing to user.	
3	The VR. program contains a menu for different video content: X-Rays, Radiation, Etc.	Video menu included.	
4	Video control	Clinician will control specifications (such as age selection, environment), user will have the ability to control playback.	
5	In video audio and text prompts option	Visual and auditory prompts to remove headset near end of video	
5	VR. experience should be as real as possible, but not stressful. - Messages to encourage looking around but warns that patients will not be able to move around during the treatment.	The VR. should have indicators regarding how the patient can move around during the VR. experience, but will have to stay still during the real treatment.	

Relevant Metrics 2

The following table outlines the various metrics that concern our project, as well as the target specifications we will be aiming for.

Name	Unit	Target Specs	Needs Addressed
Price	Dollars (\$)	<100	Affordability
Resolution	Horizontal pixels × vertical pixels	3840 × 2160	Realism
Headset	N/A	N/A	Dependent on age
Size of file	GB	< 5GB	Space on Unity
Volume	dB	10dB-20dB	Realism
Languages	Languages	>=2 (English and French)	Ease of use
Experience time	min	<20 or <(time of video + 5)	N/A

Benchmarking 3

The study: Virtual Reality pre-treatment experience of clinical environment.

Specifications	Importance (1<5)	Study		
Study		The effect of a VR simulation of treatment before entering treatment environment.	The ability to control the VR video and adjust audio or include subtitles.	
Diversity (ages)	5	Age 10+.	50%	
Cost	5	N/A	N/A	
Movement	5	Restricted (the patient shall undergo treatment laying down)	<mark>25%</mark>	
Playback	4	75%	<mark>25%</mark>	
Controls	5	<mark>25%</mark>	75%	
Aesthetics	1	N/A	N/A	

Functional Requirements:

- 1. The VR is used to relieve stress and anxiety around radiation therapy and other such therapies.
- 2. Video menu should be included.
- 3. User can control playback.
- 4. Different menu for different ages.
- 5. Bilingual subtitles and audio prompts.

Non-functional Requirements:

- 1. Indicators/instructions how the user must stay still during the therapy.
- 2. Aesthetically pleasing
- 3. Sound effects (when selecting options, etc.)

Constraints:

- 1. Limited to a budget of \$100.00
- 2. Patient cannot move during treatment (though encouraged when using the VR to see surroundings.

Engineering Design Specifications

Design Specifications	Relation (=,>,<)	Value (1<5)	Units	Verification Method	
Functional Requirements					
VR is to be used to achieve a level of awareness for patients that are about to enter the treatment	=	Yes	N/A	Test	
Operating Conditions: movement during treatment	=	Yes	N/A	Test	
Visual and auditory control	=	Yes	N/A	Test	
VR should seem as real as possible	=	Yes	N/A	Test	
VR should vary depending on age of patient. Different type of menu, etc.	=	Yes	N/A	Test	

VR will be controllable by the user and client	ш	Yes	N/A	Test	
Non-Functional Requirements					
Aesthetically pleasing	=	Yes	N/A	Test & Analysis	
Sounds and visuals	=	Yes	N/A	Test & Analysis	
Indicators & Instructions	=	Yes	N/A	Final Testing	

Client meeting reflection / Conclusion:

The information provided by the client helped us get a better idea about the nature of our project, along with the various aspects included. The information cited by the client included the project's technicalities. For instance, the orientation of the patient during treatment, the video quality of the simulation, the addition of subtitles in case the patient is experiencing hearing difficulties, the hard drives used, etc.

Not only did the information cited by the client help us understand the technical side of our project, but this information has also helped us better understand the extra features or non-technical features that would improve our project. For example, information concerning: adding instructions to guide the patients throughout the simulation, the video duration, the treatment duration and the patients' ages. All of these factors will help us create the best version of our project.