Project Deliverable C: Design Criteria and Target Specifications
Group B17

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Introduction:

We have identified the problem, which is to create a program for medical patients that is informative, bilingual, easy to use and has subtitles, and now we have developed a set of design criteria. The design criteria describe what the product aims to be based on the client's interpreted needs. In addition, design criteria include the functional and non-functional requirements, as well as the constraints of the product. Metrics were used in order to measure solution performance of the requirements and constraints. Benchmarking allowed us to compare what other methods one can use to create simulations of the medical procedures for patients. After product benchmarking, we set target specifications with values that are ideal and acceptable.

Design Criteria:

#	**Interpreted Needs**	**Design Criteria**
1	Bilingual Program (English/French)	Language option
2	Easy to use	Head movement and one hand control
3	Includes textbox / subtitles	Reading text
4	Patient and Doctor can control the experience	User and host control
5	Disclaimers	Safety warning
6	Patient can exit if uncomfortable	Exit button
7	Different scene for different ages	Diversified
8	Low cost product	Market research

Functional Requirement:

- The VR program should be able to alleviate radiation patients' stress.
- The VR program should be controllable to both patients and doctors, including moving in the scene, choosing the wanted video clip and freely controlling the video playing progress.
- The VR program is easy to use.
- The VR program should be bilingual (English and French).
- Subtitles in the VR program are needed for patients who are hearing impaired.

Non-Functional Requirement:

- Should contain disclaimers and text box, such as hints and warnings.

- For patients of different ages, contents in the VR program could vary.
- If patients feel any discomfort, they could quickly exit the program.
- The menu scene in the program should be designed like a hospital waiting room.
- VR controller should not be visible during the video play.

Constraints:

- The budget for developing this VR program is limited at 100 dollars.
- Program should be compatible with the provided hardware: Oculus Quest.

Benchmarking

Green=3, yellow=2, red =1

	Importance 5= most important 1=least important	**VR treatment**	**Pamphlet of medical procedure**	**Verbal presentation by MD.**
Cost	2	600$ per unit	0.1$ per pamphlet	250$
Time	4	Length of medical procedure	5-10 mins	>5mins
Effectiveness	5	High	Low	low
Risk	5	Medium	low	low
Value	5	High	low	low
Treatable ages	3	All	12+	all
Final score		14	12	12

Design Specification:

Design Specification	**Relation (=,< or >)**	**Value**	**Units**	**Verification Method**
Functional Requirements				
The VR program should be able to alleviate radiation patients' stress	=	Yes	N/A	Test and analysis
The VR program should be controllable to both patients and doctors.	=	Yes	N/A	Test
The VR program is easy to use.	=	Yes	N/A	Test and analysis
The VR program should be bilingual (English and French).	=	Yes	N/A	Test
Subtitles in the VR program are needed for patients who are hearing impaired.	=	Yes	N/A	Test
Non-functional Requirements				
Should contain disclaimers and text box, such as hints and warnings	=	Yes	N/A	Test
For patients of different ages, contents in the VR program could vary	=	Yes	N/A	Test and analysis
If patients feel any discomfort, they could quickly exit the program.	=	Yes	N/A	Test and analysis

The menu scene in the program should be designed like a hospital waiting room.	=	Yes	N/A	Test and final check
VR controller should not be visible during the video play.	=	Yes	N/A	Test and final check
Constraints				
The budget for developing this VR program	<	100	Dollars	Estimate and final check
Program should be compatible with the provided hardware: Oculus Quest.	=	Yes	N/A	Test and final check

Client Meeting Reflection:

We know that there are a large number of people (about 4000 patients per year) who are nervous, anxious, and perhaps confused about the actual medical treatment and procedures they must go through. Hence, we will build an interface of a virtual reality program that will be easy to upload the videos for the hospital, and the patients can use the VR goggles to have a better experience with their actual medical procedures and treatments. Therefore, the application should be modular that allows it to be adapted to other fields easily and easy to control for both the hospital and the patients. It should be modular because the patients are of different ages, speak different languages, and have different conditions such as hearing troubles. Furthermore, we will build the interface of a virtual reality program that is bilingual. Overall, as demonstrated above, the client meeting helped us establish our product development. Our mission is for the patient to be informed and comfortable during the actual medical procedure or treatment.

Conclusion:

The client, the hospital, specified and explained their needs and problems that are associated with the interface of a virtual reality program, which in return helped our team with establishing design criteria and specification. The client also provided some professional knowledge and insight which will help in the future when working on the application itself. We have a clear general idea and a framework to guide our work with.