GNG1103 Section #B02 Team #B05

Project Deliverable G: Prototype III and Customer Feedback

GNG 1103 – Engineering Design

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Comments on the last prototype:

After developing prototype II, the team discovered that it wasn't as efficient for the hospital. Our main change was to ensure that the patient felt relaxed and comfortable while viewing their treatment and the healthcare provider completely control the setup. The menu interface on our initial prototypes was hard to navigate and utilize, hence our adjustments. In prototype II we successfully implemented the stereoscopic video, prototype III was used to enhance the overall interface and incorporate the visual assets from the unity store.

Introduction: Why are we doing this test?

In this prototype, the group is working towards the final steps of connecting the unity program with the physical VR headsets, and ensuring that it works efficiently and effectively. Also, the goal is to ensure that the application is adjustable, and convenient for the hospital and patient collectively.

Test Objective Description.

What are the specific test objectives?

The main goal for prototype III is to make an immersive, efficient and functional software, test our prototype on the actual VR sets and make sure everything runs smoothly both for the patient and healthcare provider.

What exactly is being learned or communicated with the prototype?

The team is showing the client the full capabilities of the application, and how it can physically be used by the user. Specifically outlining how the unity software was able to create a program to then convert to VR images which can then be used in a headset by the customers to fulfill their needs.

What are the possible types of results?

The possible type of results when referring to the healthcare provider operating the VR program, is they find the application very efficient. When referring to the patients a successful result includes, the patient feeling calm, educated, and satisfied with the service the VR application provided to them.

How will these results be used to make decisions or select concepts?

Based on these results it can be clear what the group knows they have done right, and what could be worked on for future variations of the program. For instance, if the lighting was too bright for some of the patients, we can include a feature which allows the patient or healthcare provider adjust the brightness themselves.

What are the criteria for test success or failure?

A successful test will meet the following criteria:

- The video will not play if the user is not lying down
- The program runs smoothly
- The user can start/stop the video at will (working pause button)
- The user feels immersed (working stereoscopic video)

If any of these criteria are not met, the test will be considered a failure

What is going on and how it is being done?

Describe the prototype type and the reason for the selection of this type of prototype.

For our third prototype we decided to shift our focus and design. Instead of making a menu available on the headsets for the patient to select, we created a desktop menu selection for the health care provider to do all the set up. As the healthcare provider is inputting the sequence of videos using our system, the patient will experience the VR hospital room purchased from the asset store. Once the video files are inputted, the patients view will transition into the sequence. We chose this way of menu selection to cater towards the clients request, the patient will view the videos chosen by the healthcare team. This allows for comfort of the patient and more efficient set up time.

Describe the testing process in enough detail to allow someone else to build and test the Prototype.

During the testing process one must set up the unity application to the VR headsets. We will then test the inputting of videos on the computer and the visuals on the headsets. We will go through this numerous times testing different features of our applications and making improvements as required.

What information is being measured?
The information we are most focused on with respect to testing is the overall functionality of the software, ease of use, stereoscopic video and efficiency. We will only be measuring qualitative characteristics.

What is being observed and how is it being recorded?
Similarly to prototype II, we will be using the following chart to analyze our tests. We will be observing certain criteria that will determine whether a test is considered a success or a failure. We will note the results in a table to keep track of our progress and to see if we encounter a certain problem several times.

Criteria	**Test run #1**	**Test run #2**	**Test run #3**	**Test run #4**	**Test run #5**
Functional menu					
Program runs smoothly					
Video plays stereoscopically					
Play/pause button works					
Feels immersive					

What materials are required and what is the approximate estimated cost?
No materials other than the VR headsets are required since the prototype is a software program. However, purchasing the downloadable unity asset *Clinic - Hospital Room* by MIXAILL costed approximately $39.84 CAD.

What work (Test software or construction or modelling work or research) needs to be done?
The only remaining part before our application is complete to undergo our last round of testing to ensure all aspects are running smoothly and correctly. As mentioned we have shifted from our original design of prototype I and II to further enhance the efficiency of the program.

When is it happening?

How long will the test take and what are the dependencies (i.e. what needs to happen before the testing can occur)?

Testing will take a few days as it is necessary to assess and record all criteria. As mentioned previously, we have completed the menu selection for the healthcare provider, successfully implemented the hospital room asset and are able to run stereoscopic video. Our program is efficient and allows the patient to completely relax and visualize their future treatments. The only remaining step is testing.

When are the results required (i.e. what depends on the results of this test in the project plan)?

Our test results are required before the final submission of our application on Design Day November 29. We have enhanced our application from previous prototypes to optimize the experience for the patient and increase efficiency for the hospital. Our tests will allow us to make any final adjustments to our design and address all the needs of the client.

Conclusion:

Every step of our process we refined our designs more and more. From our initial criteria assessment and client meetings, to prototype I and II. We have made great adjustments along the way catering to the needs and feedback of our client. Following testing of each prototype the quality of our application continued to improve until we have reached our final prototype III. This prototype provides the most efficient interface for the healthcare provider, while allowing the user to indulge in the VR experience.