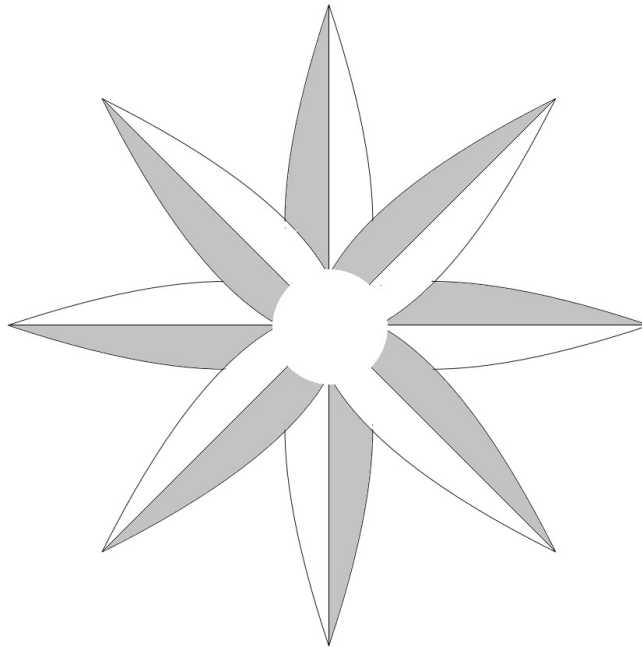


**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
THE UNIVERSITY OF TEXAS AT ARLINGTON**

**SYSTEM REQUIREMENTS SPECIFICATION
CSE 4316: SENIOR DESIGN I
SUMMER 2023**



**PASTAFARIAN CODERS
VR NURSING PALLIATIVE CARE**

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REVISION HISTORY

Revision	Date	Author(s)	Description
0.1	07.10.2023	AHB , AM , CP , MH , YC	document creation
1.1	08.07.2023	YC	Official SD1 version created

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1 PRODUCT CONCEPT

This section describes the purpose, use and intended user audience for the VR Palliative Care system. The VR Palliative Care system is intended to be an immersive nursing simulator that runs on the Unity using virtual reality technology. Users of the VR Palliative Care system will be able to engage with simulated patients based on four case studies provided by the University of Texas at Arlington Nursing department.

1.1 PURPOSE AND USE

The VR Palliative Care system is designed to offer nursing students an opportunity to learn about palliative care via four real world scenarios that are not typically included in their standard curriculum. These scenarios involve delivering a terminal diagnosis to a patient and their family, gaining access to a patient's home for hospice release, educating patients and caregivers on proper equipment sterilization and hygiene maintenance, and managing a patient's body after they pass away. The VR Palliative Care system allows users to interact with their surroundings and optimize the learning process beyond what traditional computer applications can offer. The XR SDK will ensure that this system is compatible with various headsets, but it will be exclusively tested on the Meta Quest 2. The ultimate goal of this system is to better equip nursing professionals with the knowledge and skills necessary to provide exceptional care to patients in palliative care settings.

1.2 INTENDED AUDIENCE

The intended audience for the VR Palliative Care system is nursing students at the University of Texas at Arlington. The VR Palliative Care system has potential at the discretion of the UTA College of Nursing to reach far beyond UTA nursing students, as it has value for nursing programs everywhere. The VR Palliative Care system will serve as a supplementary instructional tool for nursing students, in order to increase their knowledge and understanding of palliative care.

2 PRODUCT DESCRIPTION

This section provides the reader with an overview of an educational virtual reality simulator for students within the Nursing department to assess them in operational and post-mortem care. The primary operational aspects of the product, from the perspective of end users, maintainers, and administrators, are defined here. The key features and functions found in the product, as well as critical user interactions and user interfaces, are described in detail.

2.1 FEATURES & FUNCTIONS

The application will be single-player and run on the Unity Engine. The application will not be compatible with devices incompatible with Unity, will not require the Internet to run, and will not have multiplayer functionality. The application is a virtual reality educational simulator that will utilize an Oculus headset and two controllers to control and simulate a hospice clinical and home environment situation. Figure 5, outlines a conceptual diagram of the product and describes the key components: the Quest 2 headset, controllers, text dialogue (Key Inputs), and the scoring and application view (Key Functions). For the scoring functionality, the player will see a list of tasks that needs to be completed in each scenario. These scenarios will have an ending pass or failing system that grades the player's performance.

2.2 EXTERNAL INPUTS & OUTPUTS

As described in the table below (Table 2), the headset, controllers, and text dialogue are the expected inputs by the user. The expected outputs are the application display, player movement, and scenario simulation, respectively.

Name	Description	Use
Headset	Oculus headset to run the application	View application through headset
Controls	Oculus controller	Control movement within the application
Dialogue	Text dialogue provided by non-playable character	Simulate dialogue to complete scenarios

Table 2: External Inputs and Outputs

2.3 PRODUCT INTERFACES

The simulation will provide multiple interfaces: a main menu interface to allow the user to select a starting scenario (Figure 2), a pause menu to permit the user to resume or return the main menu (Figure 3), and a dialogue interface, which is present in all interfaces, that displays a score and report upon completion of a scenario (Figure 4). The controllers, headset, and dialogue are required to load and interact with each interface for viewing and controlling the application.

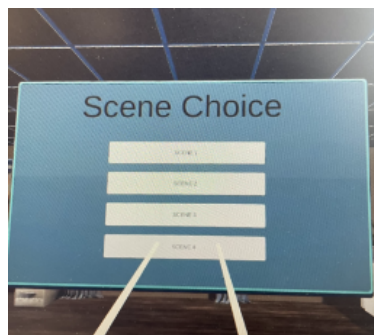


Figure 1: Main Menu Interface



Figure 2: Pause Menu Interface

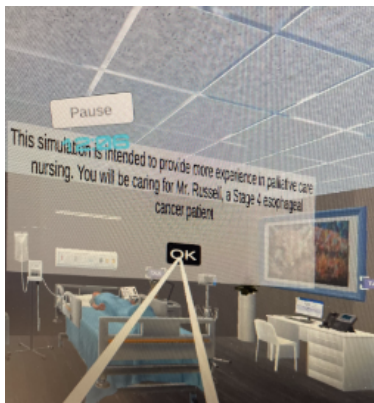


Figure 3: Dialogue Menu Interface

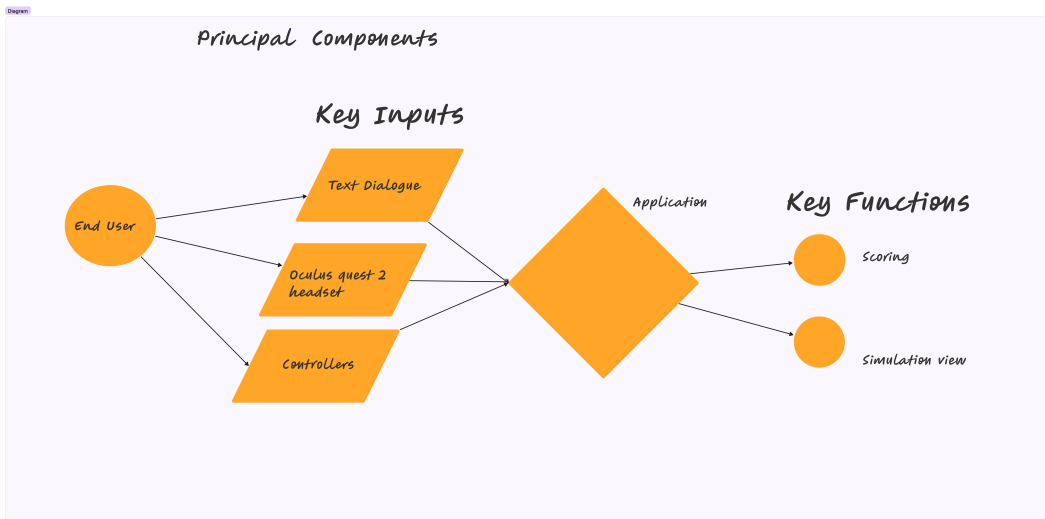


Figure 4: Principal Components Diagram

3 CUSTOMER REQUIREMENTS

The Palliative Care VR project is an immersive VR simulation for hospice care developed to run on the Meta Quest 2 headset. The main objective of the simulation is to allow nursing students to gain an immersive experience in hospice care. The user should expect an immersive and educational experience while playing through the simulation. The VR Nursing team, together with the sponsors, Jennifer Roye and Shawn Gieser, have drafted the following requirements to achieve success on this project.

3.1 MAIN MENU

3.1.1 DESCRIPTION

The simulation will start at the main menu and contain several scenarios the user wishes to play through in the form of option tabs. The main menu will also have an options tab for a tutorial so the user can gain familiarity with the controls. In total, the main menu will contain five buttons: Tutorial, Scenario 1, Scenario 2, Scenario 3, and Scenario 4.

3.1.2 SOURCE

This requirement was given to the team by the sponsor.

3.1.3 CONSTRAINTS

None.

3.1.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regents Rules and Regulations of the University of Texas at Arlington.

3.1.5 PRIORITY

Critical

3.2 TUTORIAL

3.2.1 DESCRIPTION

The simulation will provide a tutorial that allows the user to practice using the Oculus Quest 2 VR controllers. The tutorial should teach the user to pick up objects, interact with NPCs, move around in the environment and teach the user to use the pause menu. It should also teach the user how certain objects work for example: using the grab button on the computer monitor in scenario 1 changes what is displayed on the monitor.

3.2.2 SOURCE

This requirement was given to the team by the sponsor.

3.2.3 CONSTRAINTS

To save time the tutorial should be concise yet filled with enough knowledge to allow the user to complete the scenarios.

3.2.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regents Rules and Regulations of the University of Texas at Arlington.

3.2.5 PRIORITY

High.

3.3 VR SICKNESS WARNING

3.3.1 DESCRIPTION

When the simulation begins there will be a warning for all users that alerts the user to potential VR motion sickness due to the use of the VR headset. The user must use the controllers to click a button on the screen to close the message to continue to the main menu. This is so the user understands and accepts the risk of motion sickness.

3.3.2 SOURCE

This requirement was given to the team by the sponsor.

3.3.3 CONSTRAINTS

None

3.3.4 STANDARDS

The warnings will be created by the Meta Quest 2 Health and Safety Manual.

3.3.5 PRIORITY

High.

3.4 PAUSE MENU

3.4.1 DESCRIPTION

The simulation will have a pause menu that can be accessed at any time during any scenario or tutorial. The pause menu will include a clock that accurately displays the time in the real world. In the pause menu, there are also buttons to view controls and exit the scene. There will also be a button to view extra information that pertains to the specific scenario. For example: in scenario 1, the SBAR for the patient will be displayed in this extra information part of the pause menu.

3.4.2 SOURCE

This requirement was given to the team by the sponsor.

3.4.3 CONSTRAINTS

None

3.4.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regents Rules and Regulations of the University of Texas at Arlington.

3.4.5 PRIORITY

Moderate.

3.5 SCENARIO 1

3.5.1 DESCRIPTION

The user meets the patient, Benny Russell, for the first time. This scenario takes place in Benny's hospital room. The user should perform a verbal assessment with Benny including the pain scale and using the

pain level Benny gives the user, the user should be able to call the doctor and obtain directions on what medication to use. The user will also administer the medication to Benny via an IV and ensure his safety.

3.5.2 SOURCE

This requirement was given to the team by the sponsor.

3.5.3 CONSTRAINTS

None

3.5.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.5.5 PRIORITY

Critical

3.6 SCENARIO 2

3.6.1 DESCRIPTION

The user visits Benny's home while Benny is still in the hospital. The reason for this visit is to determine if the environment is safe for Benny to receive hospice care at his home. At the house, the user will meet Benny's wife and examine the house to determine how safe the environment is for Benny. After walking through the house, the user will speak to Benny's wife and give her the status of the environment. Once the user leaves, they will be shown a report with all possible safety hazards to show the user what they missed.

3.6.2 SOURCE

This requirement was given to the team by the sponsor.

3.6.3 CONSTRAINTS

None

3.6.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.6.5 PRIORITY

Critical

3.7 SCENARIO 3

3.7.1 DESCRIPTION

The user visits Benny at his home to do assessments. Benny is showing signs of impending death. The user is going to perform a pain assessment, take his temperature and blood pressure, and perform suction. The user will also perform a Glasgow-Coma Scale test and relay the results of the examination to his wife.

3.7.2 SOURCE

This requirement was given to the team by the sponsor.

3.7.3 CONSTRAINTS

None

3.7.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.7.5 PRIORITY

Critical

3.8 SCENARIO 4

3.8.1 DESCRIPTION

The user goes to Benny's house after he has passed away. The user will perform post-mortem care and move the body away from the house. The user will also comfort Benny's wife.

3.8.2 SOURCE

This requirement was given to the team by the sponsor.

3.8.3 CONSTRAINTS

Currently, the team does not have too much information on this scenario. The team will be following up with the sponsor to learn more. Due to time constraints, the team may not be able to get to this scenario but will try to complete the scenario if possible.

3.8.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.8.5 PRIORITY

Critical

3.9 RESULTS SCREEN

3.9.1 DESCRIPTION

After each scenario, the results will be displayed before going back to the main menu or the next scenario. On the display, the number of wrong interactions will be displayed and tallied to give the user an in-depth report on how the user performed during the scenario.

3.9.2 SOURCE

This requirement was given to the team by the sponsor.

3.9.3 CONSTRAINTS

None

3.9.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.9.5 PRIORITY

Low

3.10 DIALOGUE OPTIONS

3.10.1 DESCRIPTION

The user will speak to the patient, a doctor, and the patient's wife using text based choices. In order to advance in the scenarios, the user must choose the correct choice out of various possible dialogue options. When the user chooses an incorrect option, there will be an audible cue so the user understands they chose the wrong option.

3.10.2 SOURCE

This requirement was given to the team by the sponsor.

3.10.3 CONSTRAINTS

None

3.10.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.10.5 PRIORITY

Moderate

3.11 HYGEINE

3.11.1 DESCRIPTION

The simulation will have hygiene mechanics added to each scenario. To include this, each scenario will have a working sink, soap dispenser, and paper towel dispenser. The user will be able to wash their hands and dry off with paper towels. Hygiene will be included in the report after the scenario is completed.

3.11.2 SOURCE

This requirement was given to the team by the sponsor.

3.11.3 CONSTRAINTS

None

3.11.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.11.5 PRIORITY

Low

3.12 IV ADMINISTRATION

3.12.1 DESCRIPTION

The simulation will have an IV on the patient that can be interacted with. The user will be able to administer medication via the IV by injecting the medication into the IV. This will be done in scenario 1.

3.12.2 SOURCE

This requirement was given to the team by the sponsor.

3.12.3 CONSTRAINTS

None

3.12.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.12.5 PRIORITY

Moderate

3.13 THE GLASGOW-COMA SCALE

3.13.1 DESCRIPTION

The user will be able to perform the Glasgow Coma Scale. The user will assess the patient's state of consciousness. The procedure is divided into three parts: eye-opening, motor response, and verbal response. The Glasgow-Coma Scale ratings are as follows: Eye Opening:

- 4: Spontaneous - open with blinking at baseline
- 3: To verbal stimuli, command and speech
- 2: To pain only (not to face)
- 1: No response

Verbal Response:

- 5: Oriented response
- 4: Confused conversation, but able to answer questions
- 3: Inappropriate words
- 2: Incomprehensible speech
- 1: No response

Motor Response:

- 6: Obeys commands for movement
- 5: Purposeful movement to painful stimuli
- 4: Withdraws to pain
- 3: Flexion in response to pain
- 2: Extension response in response to pain
- 1: No response

3.13.2 SOURCE

This requirement was given to the team by the sponsor.

3.13.3 CONSTRAINTS

The Glasgow-Coma Scale will be done by speaking with the patient through text

3.13.4 STANDARDS

- The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.
- The Glasgow-Coma Scale is done in compliance with the Glasgow-Coma Scale guidelines from the Centers for Disease Control and Prevention (CDC).

3.13.5 PRIORITY

Moderate

3.14 PATIENT DIVERSITY

3.14.1 DESCRIPTION

The simulation allows for the user to change the patient in the main menu. The simulation should support a change in race, gender, and financial status(i.e. Lower class, middle class, or higher class). When changing the financial status, the tools and house should change to reflect the patient's financial status.

3.14.2 SOURCE

This requirement was given to the team by the sponsor.

3.14.3 CONSTRAINTS

The team may not be able to start development of this requirement due to time constraints. Since most of the team's budget has already been allotted for other items, there may not be enough money left to buy additional assets for this requirement.

3.14.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

3.14.5 PRIORITY

Future

4 PACKAGING REQUIREMENTS

The Palliative Care VR system, designed as an educational software tool, is solely intended for use within the University of Texas at Arlington. Therefore, rendering physical packaging requirements nonessential. To facilitate easy access, the necessary software for its operation will be seamlessly integrated onto the University's servers, available for download whenever required. The system is tailored to serve the exclusive needs of nursing students enrolled in the University of Texas at Arlington College of Nursing. Given that there are no hardware components related to this software tool, there's no necessity for physical packaging or external distribution beyond the University's system.

4.1 PRODUCT SIZE

4.1.1 DESCRIPTION

Considering the majority of Meta Quest 2 headsets have a storage capacity of 128GB, the size of the final software product cannot exceed this 128GB limit. [?]

4.1.2 SOURCE

Meta

4.1.3 CONSTRAINTS

Final project size cannot exceed 128GB.

4.1.4 STANDARDS

None

4.1.5 PRIORITY

High

5 PERFORMANCE REQUIREMENTS

In order to maintain a high quality learning experience, the VR Palliative Care system must meet minimum performance standards for frame rate and headset thermal stability.

5.1 FRAME RATE

5.1.1 DESCRIPTION

The application must remain consistently around 60 frames per second during play time to avoid motion sickness.

5.1.2 SOURCE

<https://developer.oculus.com/resources/publish-quest-req/>

5.1.3 CONSTRAINTS

The application should not experience extended periods of frame rate below the requested refresh rate of the display. Exceptions include when there's a black screen or loading scenes, or when system menu overlays are present.

5.1.4 STANDARDS

Meta VR Store Guidelines

5.1.5 PRIORITY

Medium

5.2 THERMAL

5.2.1 DESCRIPTION

The application should be able to run consecutively for 45 minutes without entering thermal throttling mode.

5.2.2 SOURCE

<https://developer.oculus.com/resources/publish-quest-req/>

5.2.3 CONSTRAINTS

This requirement will depend on the visual optimization of the in-game graphics. This will be complete if the user does not get a prompt from the app that says performance will be degraded or your experience will close because of thermal issues.

5.2.4 STANDARDS

Meta VR Store Guidelines

5.2.5 PRIORITY

Medium

6 SAFETY REQUIREMENTS

Safety requirements general to all senior design projects are included at the top of the list, and the last 2 requirements are specific to this virtual reality system.

6.1 LABORATORY EQUIPMENT LOCKOUT/TAGOUT (LOTO) PROCEDURES

6.1.1 DESCRIPTION

Any fabrication equipment provided used in the development of the project shall be used in accordance with OSHA standard LOTO procedures. Locks and tags are installed on all equipment items that present use hazards, and ONLY the course instructor or designated teaching assistants may remove a lock. All locks will be immediately replaced once the equipment is no longer in use.

6.1.2 SOURCE

CSE Senior Design laboratory policy

6.1.3 CONSTRAINTS

Equipment usage, due to lock removal policies, will be limited to availability of the course instructor and designed teaching assistants.

6.1.4 STANDARDS

Occupational Safety and Health Standards 1910.147 - The control of hazardous energy (lockout/tagout).

6.1.5 PRIORITY

Critical

6.2 NATIONAL ELECTRIC CODE (NEC) WIRING COMPLIANCE

6.2.1 DESCRIPTION

Any electrical wiring must be completed in compliance with all requirements specified in the National Electric Code. This includes wire runs, insulation, grounding, enclosures, over-current protection, and all other specifications.

6.2.2 SOURCE

CSE Senior Design laboratory policy

6.2.3 CONSTRAINTS

High voltage power sources, as defined in NFPA 70, will be avoided as much as possible in order to minimize potential hazards.

6.2.4 STANDARDS

NFPA 70

6.2.5 PRIORITY

Critical

6.3 RIA ROBOTIC MANIPULATOR SAFETY STANDARDS

6.3.1 DESCRIPTION

Robotic manipulators, if used, will either housed in a compliant lockout cell with all required safety interlocks, or certified as a "collaborative" unit from the manufacturer.

6.3.2 SOURCE

CSE Senior Design laboratory policy

6.3.3 CONSTRAINTS

Collaborative robotic manipulators will be preferred over non-collaborative units in order to minimize potential hazards. Sourcing and use of any required safety interlock mechanisms will be the responsibility of the engineering team.

6.3.4 STANDARDS

ANSI/RIA R15.06-2012 American National Standard for Industrial Robots and Robot Systems, RIA TR15.606-2016 Collaborative Robots

6.3.5 PRIORITY

Critical

6.4 MOTION SICKNESS MITIGATION

6.4.1 DESCRIPTION

A frequently encountered problem with VR applications is motion sickness, especially in the event of long sessions in a virtual reality application that offers smooth motion while the user's body stays in one place. Efforts are underway to convert the application's default movement scheme from a control-stick-based smooth movement to a teleportation-based movement scheme. Completion of this transition will greatly reduce the risk of motion sickness, and will as a result improve both the safety and accessibility of this application.

6.4.2 SOURCE

Previous team

6.4.3 CONSTRAINTS

None

6.4.4 STANDARDS

The previous team based their standards on a member with a tendency to get motion sickness. Our team's standard will be at least 90% of all testers (percentages rounded down to the nearest whole percentage point) inside and outside of the team can use the application for at least 30 minutes without experiencing any motion sickness, and all testers are able to use the application for at least 30 minutes without experiencing moderate or severe motion sickness.

6.4.5 PRIORITY

High

6.5 WARNING TO USER TO CLEAR NEARBY OBSTACLES

6.5.1 DESCRIPTION

When using a VR headset, especially if being used standing, it is very easy to unknowingly move away from the center position. This can cause a hazard if the user has objects that can be knocked or tripped over just outside the bounding box. The user shall be informed to remove all hazards from around themselves to avoid this situation.

6.5.2 SOURCE

This requirement was given to the team by the sponsors.

6.5.3 CONSTRAINTS

None

6.5.4 STANDARDS

None

6.5.5 PRIORITY

Moderate

6.6 WARNING TO USER TO PROPERLY SECURE CONTROL STICK

6.6.1 DESCRIPTION

The user may let go of the control stick while in use. The result is the control stick becoming a projectile and then a tripping hazard. The user should be advised to use wrist straps if applicable and encouraged to seek a different control stick if it lacks wrist straps.

6.6.2 SOURCE

This requirement was given to the team by the sponsors.

6.6.3 CONSTRAINTS

None

6.6.4 STANDARDS

None

6.6.5 PRIORITY

Moderate

7 SECURITY REQUIREMENTS

This section describes the security requirements for the VR Palliative Care system. There are very few security concerns with the system as currently designed. The system as currently designed does not store information about the users, does not require authentication, and does not require network access.

7.1 INTEGRITY AND AVAILABILITY

7.1.1 DESCRIPTION

Inappropriate modifications to or deletions of the code could corrupt the VR system, causing unexpected or incorrect behavior of the simulation, or failure of the system to operate at all. To prevent these outcomes, there shall be a backup of the working system.

7.1.2 SOURCE

Team Pastafarian Coders

7.1.3 CONSTRAINTS

Backup should not be on the production machine.

7.1.4 STANDARDS

N/A

7.1.5 PRIORITY

High

8 MAINTENANCE & SUPPORT REQUIREMENTS

It seems like we are the 11th team to work on this project. The previous team made considerable progress in redesigning the project to reduce project size and fix bugs. There are still numerous bugs to fix, and the core requirements are still not fully met. This team wants to continue in the previous team's tracks and keep code documentation clear and concise. We will also be working on bug fixes and polishing as well as finishing up Scenario 4.

8.1 CODE DOCUMENTATION

8.1.1 DESCRIPTION

We will strive to analyze the code and add comments to the code where clarity may be lacking. We will further use a documentation-generating tool in conjunction with the code comments. This is crucial for future teams to be able to seamlessly start working on the project.

8.1.2 SOURCE

Team Pastafarian Coders

8.1.3 CONSTRAINTS

None

8.1.4 STANDARDS

Doxygen

8.1.5 PRIORITY

Medium

8.2 TESTING AND DEBUGGING

8.2.1 DESCRIPTION

In order to achieve a high-quality system for the nursing department to use, the system must be tested adequately and any bugs found must be fixed. We will attempt to achieve at least 67% of each: statement coverage, branch coverage, and function coverage. The previous team has created a bug list that we will be using to help us through this process.

8.2.2 SOURCE

Team Pastafarian Coders

8.2.3 CONSTRAINTS

None

8.2.4 STANDARDS

None

8.2.5 PRIORITY

High

8.3 VERSION CONTROL

8.3.1 DESCRIPTION

This project will be utilizing a Plastic SCM repository for version control. This is because Plastic works exceptionally well with Unity projects that involve large digital art assets. This repository will store the entire project and will not be made publicly available.

8.3.2 SOURCE

This requirement was given to the team by the sponsor.

8.3.3 CONSTRAINTS

Plastic SCM will be used for version control on this project.

8.3.4 STANDARDS

None

8.3.5 PRIORITY

Critical

9 OTHER REQUIREMENTS

There are some other requirements that the team believes will make the project more convenient to develop and use, from the programming language that will be used to portability capabilities.

9.1 C# PROGRAMMING LANGUAGE

9.1.1 DESCRIPTION

The project is based on Unity, which is based on C#. As a result, using C# will be necessary for the completion of this system.

9.1.2 SOURCE

This requirement was given to the team by the sponsor.

9.1.3 CONSTRAINTS

C# will be used to code for this project.

9.1.4 STANDARDS

None

9.1.5 PRIORITY

Critical

9.2 VR HEADSET INDEPENDENCE

9.2.1 DESCRIPTION

The VR care system should be portable to a wide variety of VR headsets to allow upgrades to the headsets as needed or desired. To accomplish this goal, the OpenXR standard will be used.

9.2.2 SOURCE

Team Pastafarian Coders

9.2.3 CONSTRAINTS

None

9.2.4 STANDARDS

OpenXR

9.2.5 PRIORITY

High

9.3 OPERATING SYSTEM COMPATIBILITY

9.3.1 DESCRIPTION

This simulation will be developed for Windows 10.

9.3.2 SOURCE

Team Pastafarian Coders

9.3.3 CONSTRAINTS

None

9.3.4 STANDARDS

Windows 10

9.3.5 PRIORITY

High

9.4 HEADSET PORTABILITY

9.4.1 DESCRIPTION

The simulation must be able to run untethered to the computer and run solely by the headset itself.

9.4.2 SOURCE

Team Pastafarian Coders

9.4.3 CONSTRAINTS

None

9.4.4 STANDARDS

None

9.4.5 PRIORITY

Low

10 FUTURE ITEMS

10.1 PATIENT DIVERSITY

10.1.1 DESCRIPTION

The simulation allows for the user to change the patient in the main menu. The simulation should support a change in race, gender, and financial status(i.e. Lower class, middle class, or higher class). When changing the financial status, the tools and house should change to reflect the patient's financial status.

10.1.2 SOURCE

This requirement was given to the team by the sponsor.

10.1.3 CONSTRAINTS

The team may not be able to start development of this requirement due to time constraints. Since most of the team's budget has already been allotted for other items, there may not be enough money left to buy additional assets for this requirement.

10.1.4 STANDARDS

The Palliative Care VR simulation needs to comply with Texas Administrative Code(TAC) Title 22, Part 11, Chapter 215. [2] The simulation will also comply with The Regent's Rules and Regulations of the University of Texas at Arlington.

10.1.5 PRIORITY

Future