Testing

Phase 1

ID: Zoe Irwin

Subsystem: User Interface

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| **Testing on:** | basic navigation through the main menu screen.  Display and instruct the user on how to navigate around the scenes. |
| **Description:** | The basic of the navigation: the play, settings and exit navigation buttons must work fluidly without any errors on the main menu screen.  Proper Instruction to help the user on the navigation |
| **Performance Testing:** | It is the very first version, but the performance is there, yet it requires more effort on quality. |
| **Stress Testing:** | Stress testing on this level cannot be efficient as the software is on the first steps. The system responds as it should be at this point. |
| **User Acceptance Testing:** | It is not what we are looking for as a developers team and is not acceptable as there is much room for improvement. |
| **Integration Potentials:** | It will fit comfortably with other subsystems and can work effortlessly with other parts at that point. |
| **Results:** | Basic navigation on the main menu works with few dummies button as the exit, that will develop later the process, clear and definite instructions for the user are also there. |
| **Comments/Suggestions:** | Very satisfying results, there is a great effort for the first phase, some major improvements are needed, and the addition of the rest requirements. |

ID: Luke Rose

Subsystem: Environment - 3D Scene

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| **Testing on:** | Utilise 3D assets.  Scale the room to the field of view of the Oculus Rift.  Include light sources in specific areas. |
| **Description:** | The room must be created and based on the oculus scale, 3D assets should be there at least the basics and lighting are one of the main parts as the enclosed room require light to be visible. |
| **Performance Testing:** | Performance is there on basic level except the room scaling as inside the VR googles there is an unusual appearing and disappearing in one corner of the room. |
| **Stress Testing:** | Stress testing on this level cannot be efficient as the software is on the first steps. The system responds as it should be at this point. |
| **User Acceptance Testing:** | All three subcomponents are not in a position to support a professional, and they are not acceptable from the user’s view. |
| **Integration Potentials:** | Lighting can combine straightforwardly with the rest of the system especially when they will be improved, 3d assets are in the same position which more room for improvement. The room can be very tricky as the scale and dimensions can be confused especially when the time comes for user interaction. |
| **Results:** | The room has been created including the 3D assets and the necessary level of lighting and shadows. Every part looks good except one corner of the room that appear and disappear, that should be fixed as soon as possible. |
| **Comments/Suggestions:** | Very satisfying results, there is a great effort for the first phase, some major improvements are needed, and the addition of the rest requirements. 3D assets and lighting are there, but bot requires effort on details, the room is following the dimensions of the physical room that we already saw. |

ID: Hassan Mohammad

Subsystem: User Interaction

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| **Testing on:** | Integrate the Oculus Rift hardware controls with the VR application for the user’s control |
| **Description:** | The user can move around the scene using any combination of head motion and controllers. |
| **Performance Testing:** | The interaction in the scene works very well with a few minor issues that might be good to look after. |
| **Stress Testing:** | Unexpectedly performs well under pressure. The user interaction can be very tricky as the combination around the virtual scene is very sensitive. |
| **User Acceptance Testing:** | Not at this point at the moment but have high potentials |
| **Integration Potentials:** | On the first phase is acceptable as there are no significant problems with the environment. It should be passable. |
| **Results:** | Moving around the virtual scene works as expected. With high intensity on speed and head rotation |
| **Comments/Suggestions:** | An acceptable effort in the first phase, fortunately, works okay around the virtual scene. The movement and head rotation speed are a bit faster than it should. Moreover, maybe a simple readjustment on scaling to look more aesthetic with the environment. |

Phase 2

ID: Zoe Irwin

Subsystem: User Interface

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| **Testing on:** | Progress on:  Navigation through the main menu screen.  Display and instruct the user on how to navigate around the scenes.  Preliminary on:  Make user interfaces more interactive with the use of sound & graphics.  Sub-menu interfaces for the user to interact within the scene |
| **Description:** | Navigation around the main menu and interactive instructions should be at the final stage at this point. Graphics must be added to the overall interface and a soundtrack. Also, a sub-menu inside the program must be at the starting phase. |
| **Performance Testing:** | Notice the difference in the improvement on the main menu and the instruction sections. Graphics, sound and sub-menu have been added to the scene, and the performance looks more reliable than before. |
| **Stress Testing:** | Under pressure, the overall user interface has no errors and works flawlessly. The exit button is still not working, but it does not cause any unexpected results, it just not responding. |
| **User Acceptance Testing:** | It is far better and looks complete, but few important features missing and there is a doubt on user acceptance. |
| **Integration potentials:** | Working correctly, the user interaction on the main menu and sub-menu can work appropriately with the rest of the product as far as we can test it on this stage. |
| **Results:** | Everything goes as it should. Sound volume must be added, and graphics can improve but is satisfying. |
| **Comments/suggestions:** | Main menu and interaction instructions are looking great and should consider finalising the two subcomponents with few minor changes. Graphics are acceptable, but there is room for improvement, sound needs a volume control so that the user can choose the volume or mute the soundtrack. Sub-menu is great and works at the same level as the main menu. |

ID: Luke Rose

Subsystem: Environment - 3D Scene

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| **Testing on:** | Progress on:  Utilise 3D assets.  Scale the room to the field of view of the Oculus Rift.  Include light sources in specific areas.  Preliminary on:  Create story driven objects within the scene.  Create a fully enclosed room.  Use high-resolution textures. |
| **Description:** | Looking for a detailed room creation with a lot of 3D assets and high-resolution textures the lighting and shadows must fulfil the demands at this point, and the scene should be driven by the story as it should. |
| **Performance Testing:** | Responding to the basic level and it can stand as high on performance with some more work. Problem with the room but it should be okay by the next session. |
| **Stress Testing:** | Acceptable under pressure on few points, but still it can render poorly in few cases, especially when it breaks the room at one point while just watching around the scene. |
| **User Acceptance Testing:** | The improved parts can stand on and satisfy the user. The new additions require some more effort. |
| **Integration Potentials:** | To add it into a combined system is sensitive as at this point user interaction have a critical relationship with some of the environmental objectives, such as the scale and the interactable object on the scene. |
| **Results:** | Acceptable results of what we expected to test, an improvement on minor things must be done. One of the room corners are not responding as it expected and especially under pressure. |
| **Comments/Suggestions:** | On the previous objectives, there is a visible improvement, details on room using more 3D assets and the lights have improved at a satisfying level. The problem with the one corner remains, and it should be fixed. Textures are starting strong, and the overall environment is following the story, and the room is enclosed. |

ID: Hassan Mohammad

Subsystem: User Interaction

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| **Testing on:** | Allow 3D objects to be manipulated within the VR application by allowing tasks such as rotation and a close-up inspection. |
| **Description:** | The user must be able to interact with some objects on the virtual scene. Looking for interaction with 2 or more objects, at this point is a book and a mug. |
| **Performance Testing:** | The interaction with the objects perform flawlessly, but the sense of gravity missing from the scene |
| **Stress Testing:** | The only issue on stress testing is when the object drops on the floor is hard to reach it, but is an issue that comes from the sensors positioning and not the developers part. |
| **User Acceptance Testing:** | It is meeting the requirements, but there is room for improvement to reach the acceptance from a demanding customer. |
| **Integration Potentials:** | That is one of the main things the user will work with. The combination of interaction and environment is satisfying, and yet we are looking forward to the final phase of integration. |
| **Results:** | Objects interaction in the virtual scene performs as expected. The two objects are acceptable at the moment and looking forward to more. |
| **Comments/Suggestions:** | Gravity is not something that should be considered as a major performance issue, although it can provide a realistic feel.  More details on objects that are related to the storyline if it is possible. An addition of a different kind of interaction probably will provide better results. |

Phase 3

ID: Zoe Irwin

Subsystem: User Interface

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| **Testing on:** | Progress on:  Make user interfaces more interactive with the use of sound & graphics.  Sub-menu interfaces for the user to interact within the scene  Preliminary on:  Make user interfaces as user-friendly.  Make user face consistently.  Make user face efficient, quick response times.  Make a high-quality interface. |
| **Description:** | Expecting to have all the main features of the subsystem to an acceptable stage and look forward to adding and work with the “optional” features. |
| **Performance Testing:** | All the main aspects perform and responding well and a great effort on the starting “optional” parts. The exit button has no action now but is only a matter of integration, and it should perform when the subsystems are combined. |
| **Stress Testing:** | User Interface responding great under any pressure and during a stress testing there is no suspicion of any error. |
| **User Acceptance Testing:** | All the main components are satisfying from the user point of view, although the optional parts are right to be pushed a bit more for better performance to pass the user acceptance testing. |
| **Integration Potentials:** | Pass the integration test to the overall system and can work with other subsystems with the minimum errors. |
| **Results:** | Results on the improved features are working excellent, and the system is user-friendly, response time is on the point, and it can describe as a high-quality interface. |
| **Comments/suggestions:** | The overall results are satisfying and more than acceptable, and everything work at high performance without errors. My suggestions are to push the quality on the details and especially on a user-friendly section to get a solid approval from user acceptance and continuous to the integration and beta version. |

ID: Luke Rose

Subsystem: Environment - 3D Scene

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| **Testing on:** | Progress on:  Create story driven objects within the scene.  Create a fully enclosed room.  Use high-resolution textures.  Preliminary on:  Create objects that the user can look under and around.  Re-create the living room for Manor House in Coach Lane Campus.  Create a realistic feel for the environment.  Elicit an immersive feel. |
| **Description:** | Expecting to have all the main features of the subsystem to an acceptable stage and look forward to adding and work with the “optional” features. The creation of interactable objects is starting now but is sensible as there is no much to do without the interaction subsystem at the same level. The room at this phase must work correctly without any errors. |
| **Performance Testing:** | The room at this point is working perfect and as expected. All the improved parts from previous phases are on the excessive performance stage. |
| **Stress Testing:** | Stress testing 3D scene depends on interaction in most parts. It seems to work flawless, and there are no obvious errors. Main and optional components are responding well. |
| **User Acceptance Testing:** | It is acceptable from the user’s point of view, and there is a room of improvement especially on the parts that collaborate with the user interaction subsystem. It will be more apparent later beta version testing. |
| **Integration potentials:** | A critical point on integration because the 3D scene and user Interaction have a close relationship and depend on each other. The potentials are high for the later combination. |
| **Results:** | Everything works as it should be, high quality on textures, details on 3D assets and scene, lighting is excellent and the optional subcomponents in progress. |
| **Comments/Suggestions:** | A satisfying overall result without obvious errors but we are waiting to see the results after integration. My suggestions are to push the quality on the details and especially on a user-friendly section to get a solid approval from user acceptance and continuous to the integration and beta version. |

ID: Hassan Mohammad

Subsystem: User Interaction

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| --- | --- |
| **Testing on:** | Progress on:  Integrate the Oculus Rift hardware controls with the VR application for the user’s control  Allow 3D objects to be manipulated within the VR application by allowing tasks such as rotation and a close-up inspection.  Preliminary on:  Improve immersion by using real-life interactions as the basic model for how the user should be expected to interact with the 3D environment and the objects within it. |
| **Description:** | The two previous components of user interaction must be completed and working faultlessly with some further additions. An addition of a more realistic feel on the overall interaction section if it is possible. |
| **Performance Testing:** | The system performance is on the point with improved parts and a few essential fixes and additions. |
| **Stress Testing:** | It is responding well under pressure, although the sensors are not fully adjusted to being able to detect an interaction object on the floor. |
| **User Acceptance Testing:** | The subsystem meets the requirements, and it is acceptable from the user view. |
| **Integration Potentials:** | On the next phase when we will test the system combined the user interaction will play a critical role. At this point performs with high potentials. |
| **Results:** | Interaction on the virtual scene now perform better as the speed of movement, and head rotation is fixed. An addition interactive object, a door can be opened and closed. |
| **Comments/Suggestions:** | It looks more solid and has a real feel roaming around the scene compare to the first attempts. The gravity issue has been improved although it is not performing as the real life which is not bad at all as a lot of practical applications perform the same way. |

Phase 4

System Integration Testing

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| **Testing on:** | A first combined version of all subsystems |
| **Description:** | All of the subsystems are combined to finalise the system. It should follow up the storyline. |
| **Performance Testing:** | The basic combination of subsystems performs well with a few minor issues on the room scaling with the user moving around. |
| **Stress Testing:** | There are no errors or any other problems, and it is passing the stress testing. |
| **User Acceptance Testing:** | It can be described as user-friendly, and it can be accepted, although it does not meet the essential parts of the story and it should get some changes in the environment. |
| **Results:** | Added a small room when it works as a lobby inside the main virtual scene. The interactable door is also an addition between the main room and the lobby room that the experience starts. |
| **Comments/Suggestions:** | The overall image of the combined system is acceptable. It should be modified in a few parts to fit with the storyline. Minor changes in scaling should happen to create a more realistic feel, that should be looked after from user interaction and Environment subsystem. The user Interface works as it should be and the Exit button now works without any error |

Phase 5

Beta Version Testing

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| **Testing on:** | Second and last version of the system should see improvements from the previous phase. |
| **Description:** | Additions on the environment to make it work with the storyline. The rescaling is giving a smoother feel on the scene and the overall experience. |
| **Performance Testing:** | System performance is excellent without any obvious errors, and it meets all the requirements. The quality is on the point. |
| **Stress Testing:** | The system passes the stress testing without any gaps or dark spots apart from the touchable objects that are slightly shaking during a movement while the user holds it. |
| **User Acceptance Testing:** | The system passed the user acceptance system. |
| **Results:** | An addition of a virtual dead body as the story describes in the correct position, a carpet is added as well. The overall system corresponds very nicely. |
| **Comments/Suggestions:** | Ended up with a reliable system that has potentials to be a part of a professional forensic lab after some extensive work. |

## A general scope on system requirements

**Subsystem:**

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| **Requirements** | **Accomplished (%)** | **Adjusted (%)** |
| 1 User Interface | 100% | 100% |
| 2 Environment - 3D Scene | 100% | 100% |
| 3 User Interaction | 100% | 100% |

## Milestone - Test Schedule

|  |  |  |  |
| --- | --- | --- | --- |
| **Task Name** | **Start** | **Finish** | **Effort** |
| Test Planning | 01/03 | 04/03 | 8h |
| Review Requirements documents | 01/03 | 01/03 | 2h |
| Research on testing plan/role/responsibilities | 01/03 | 12/03 | 5h |
| Create initial test estimates | 10/03 | 12/03 | 2h |
| Phase 1 individuals testing and discussion | 26/3 | 26/3 | 1h |
| Phase 2 individuals testing and discussion | 2/4 | 2/4 | 1h |
| Phase 3 individuals testing and discussion | 11/4 | 11/4 | 1h |
| Phase 4 build testing and discussion | 15/4 | 15/4 | 2h |
| Results of final defects and final build testing | 18/4 | 18/4 | 2h |
| System testing | 21/4 | 21/4 | 1h |
| Beta testing | 23/4 | 23/4 | 2h |
| Report- Testing document | 10/4 | 23/4 | 26h |