Project Deliverable E - Project Plan and Cost Estimate

GNG1103

Group F1.1

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Introduction

In the previous deliverable, the project team divided the project into four subsystems: sound design, art design, gameplay, and experience structure. Concepts for each of these subsystems were then generated individually before being condensed, categorized, and refined as a team to create the best possible virtual reality (VR) experience. The team decided that the best solution was to create a task completion experience that will focus on ADHD and Anxiety, with the goal of educating users of the challenges faced by people with these invisible disabilities. In this deliverable, detailed design drawings of this idea will be included to summarize this chosen concept.

The focus of this deliverable is to develop a clear project plan, prototyping test plan, bill of materials (BOM), and equipment list based on our chosen solution to ensure that the project team can successfully complete all three prototypes for the project. A list of significant project risks and their associated contingency plans will also be provided.

Design Drawings

To detail the design of the VR experience, the project team has developed the following flow chart outlining the control loop of the software. Higher fidelity versions of some of the menus have been developed and can be viewed in the appendix. Detailed versions of the assets and environments can be found by following the links provided for the assets in the BOM.

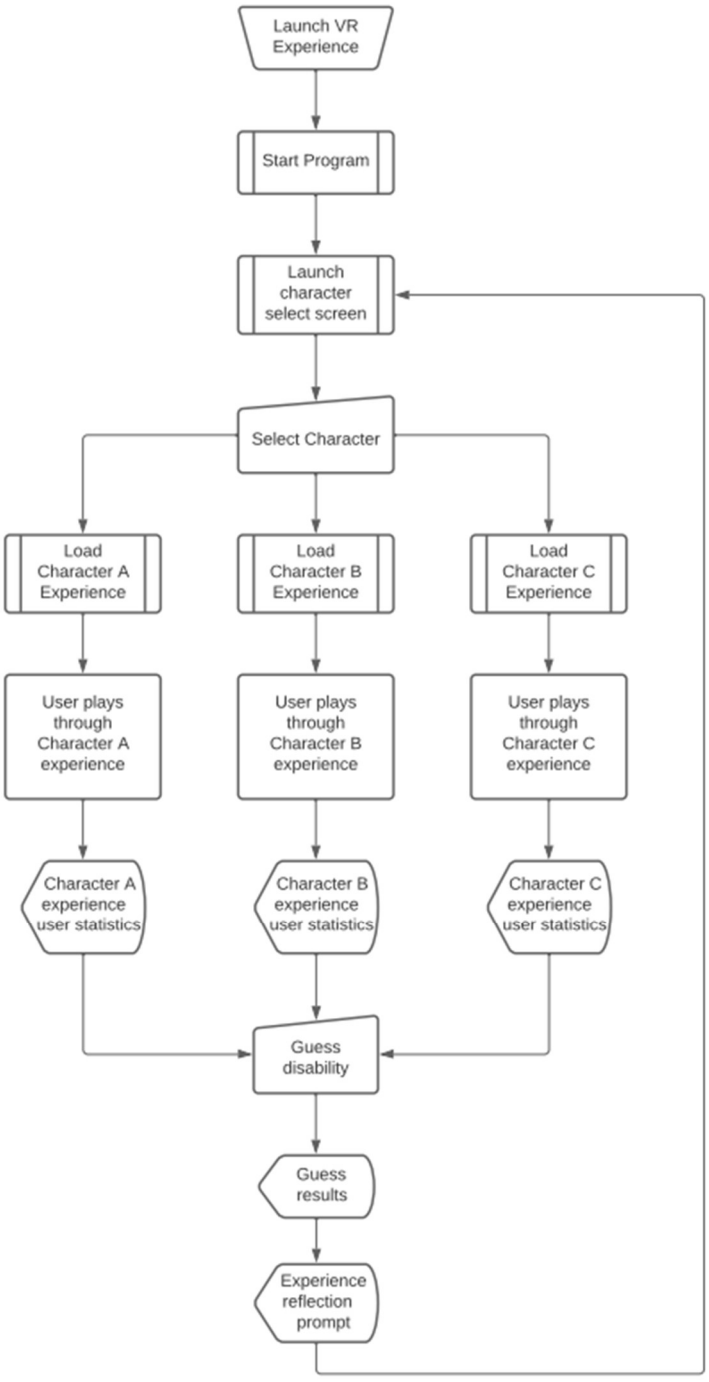


Figure 1 - VR Experience Software Loop

Bill of Materials

Just like video games, VR experiences are made up of *assets* that are placed within the virtual world to fill it out. These can be (among other things) 3D models, sound effects, or whole environments. In order to create the VR experience within the timeline proposed, the project team will need to purchase most of the 3D model and audio assets required to develop the experience. Below are two tables that summarize the asset purchases that the team is proposing. The purchase of these assets would greatly speed up the development of the VR experience, allowing the team to focus on the emotional education aspects of the product, and allowing for great deal more prototyping and feedback generation. The total cost of the proposed assets is $63.46 before taxes.

Visual Assets

Name	Environment Type	Description	Cost	Link
Low Poly Cartoon House Interiors	House	Low poly home scene pre-assembled with furniture; number of house assets; 26 interactive assets.	$ 9.99	https://assetstore.unity.com/packages/3d/props/interior/low-poly-cartoon-house-interiors-167425
Simplepoly School Interiors Low Poly Assets	School	Pre-fabbed low poly school interiors, and school themed assets. Also contains character assets.	$ 14.99	https://assetstore.unity.com/packages/3d/environments/simplepoly-school-interiors-low-poly-assets-97751
Low Poly Modular Office Pack	Office	Pre-fabbed low poly office scene, and office/work themed assets (146).	$ 8.99	https://assetstore.unity.com/packages/3d/environments/urban/low-poly-modular-office-pack-183564
Cartoon Low Poly City Pack	Town	126 low-poly assets for creating a town.	$ 9.99	https://assetstore.unity.com/packages/3d/environments/urban/cartoon-low-poly-city-pack-165358
Low Poly Business People	N/A	A pack containing Randomizable business people in different suits and various races (Around 150 possible combinations per character). Compatible with Humanoid animations but also comes with stock poses and animations, please watch the video.	$ 12.50	https://assetstore.unity.com/packages/3d/characters/humanoids/low-poly-business-people-130313
Total Cost			**$ 56.46**	

Table 1 - BOM - Visual Assets

Audio Assets

Name	Environment Type	Description	Cost	Link
Universal Sound Effects	All	2305 general purpose sound effects and ambient environment noises	$ 7.00	https://assetstore.unity.com/packages/audio/sound-fx/universal-sound-effects-206856
Total cost			**$ 7.00**	

Table 2 - BOM - Audio Assets

Prototyping Equipment List

Below is a table containing all the equipment that will be required to develop the prototypes of this product. No items will need to be purchased.

Equipment	Category	Cost	Prototype
Unity	Software	$ 0	1, 2, 3
Blender	Software	$ 0	1, 2, 3
Oculus/HTC Vive VR Headset	Hardware	$ 0	2, 3

Table 3 - Prototype Equipment List

Project Risks and Contingency Plans

Along with the prototyping test plan and the Wrike task plan update, the project team has created a list of project risks and their associated likelihoods and contingency plans. These potential risks are outlined in table _ below. Although this is not an exhaustive list, it outlines the most likely risks the project team may face and will allow for us to mitigate these risks if they occur.

Risk	**Likelihood**	**Contingency Plan(s)**
Not being able to implement all desired features	Moderate	- Complete the features in order of importance. Leave the things that are nice to have, but not completely necessary to the end. - Ask the TA/PM for help if there is a specific issue with a feature or consult online resources (ex. YouTube videos)
The final experience is not functional	Unlikely	- Ask the TA/PM for help as soon as challenges arise. - Consult online resources.
Not all project members being able to understand parts of the code	Moderate	- Comment (using "//") the code as much as possible. - Ask the team member who is responsible for the code to explain further if needed.
Experience difficulties learning or using Unity	Moderate	- Ask other team members for help, or other people in the class who may be in a similar situation. - Consult online resources. - Ask the TA/PM for help.
Tasks not being completed on time	Unlikely	- Each team member will follow the task schedule in Wrike and update the statuses of their tasks appropriately. If any team member is confused and needs further confirmation, they can bring it up during the meetings or our team chat. - If a team member is having difficulty, ask for help completing the task before it is due. - If a task has not been completed without a valid excuse, have a conversation about it as a group, let them know that it shouldn't happen again. - If tasks not being completed becomes a recurring occurrence, ask the TA/PM for help handling the situation.
Team members not communicating effectively	Unlikely	- Team members should give and request feedback regularly to make this issue less likely. - If a conflict occurs, have a meeting about it as a team and discuss ways we could be coordinating our efforts better. - If this doesn't help, talk to the TA/PM.

Table 4 - Project Risks, Likelihoods, and Contingency Plans

Prototyping Test Plan

Test ID	*Test Objective (Why)*	*Description of Prototype used and of Basic Test Method (What)*	*Description of Results to be Recorded and how these results will be used (How)*	*Estimated Test duration and planned start date (When)*
1	**Interactivity** Can the User move around the world? This test is to make sure that the basic function of our VR (Virtual Reality) code works. If the user cannot move around the world, there is no way for them to complete activities and gain the knowledge and education that is the point of the entire project.	Low fidelity physical and focused prototype required for basic environment testing	We will record the extents to which the user is able to move around the world smoothly. Since this is the base of the VR experience, if the movement is not smooth, it will need to be a primary focus for other prototypes.	This test can start as soon as the base environment has been created and should not take more than 10 minutes to complete. It would be done as the environment is created
2	**Interactivity** Can different choices be made? One of the concepts for our main design is having the user make decisions to complete tasks. The tasks would then affect the results in the statistics at the end. The purpose of this test would be to see if the user can do different things and interact with objects.	Low fidelity physical and focused prototype required to test the basic function of the environment	We will record the different choices That were able to be made and how they affected the following actions. We will make use of the ending statistics page to help us track the decision and to see how they affect the rest of the experience.	This test requires some of the elements to be added to the base VR environment. We would also need to have at least one simple task added in our VR space that we can test and see the results for. This test will need to be completed earlier on in the process as it is required to create the rest of the experience
3	**Reflection of the invisible disability:** Is the invisible disability depicted in a way that represents the proper symptoms of the invisible disability?	Focused analytical prototype to follow the storyline and tasks that the user would face.	We would ask people with the invisible disabilities (ADHD and anxiety) if they feel that the suggested task accurately reflect how it feels to have	This can be done independently from the VR environment and will rely solely on our task list. The time it would take to complete this

	If our experience does not accurately represent the symptoms of the invisible disability, we will not be able to educate or generate empathy from other about what it is like to live with the invisible disabilities.		the respective invisible disability	test would rely on the amount of people we are able to talk to about their experiences with the disabilities. Would take a few days to be able to get feedback
4	**Empathy** How does it make the user (without the disability) feel. Do those feelings match the feelings of people with ADHD and anxiety. Does it generate empathy from the user? One of the main client's needs was to generate empathy from the user in this training tool, to accomplish this, we need to assure that the user feels the same way people with the disability do.	Focused analytical prototype to follow the storyline and tasks that the user would face.	With help from the task list/ storyline we will depict an image of what our experience would feel like to possible users (people without the disability who are trying to learn about it)	This can be done independently from the VR environment and will rely solely on our task list. Similarly, to the task above, this test should require a few days of talking to people and asking for their feedback, and comments about the experience.
5	**Generalization of the invisible disability**. Does the experience cover all distinct aspects of ADHD and anxiety? We want to make sure, as per the client's feedback, that our experience covers all aspects and symptoms of the invisible disabilities to effectively educate users.	Focused analytical test about the different symptoms reflected in the tasks that will be incorporated in our experience	Research to find the different symptoms of Anxiety and ADHD, especially the common ones. We will ask other people who have anxiety and ADHD what they think the most prevalent symptoms are that others should learn about or experience with this training tool.	Testing will be done as we create the task list and as soon as it is completed before we begin coding tasks into the VR space. This test might take a couple of days to complete.

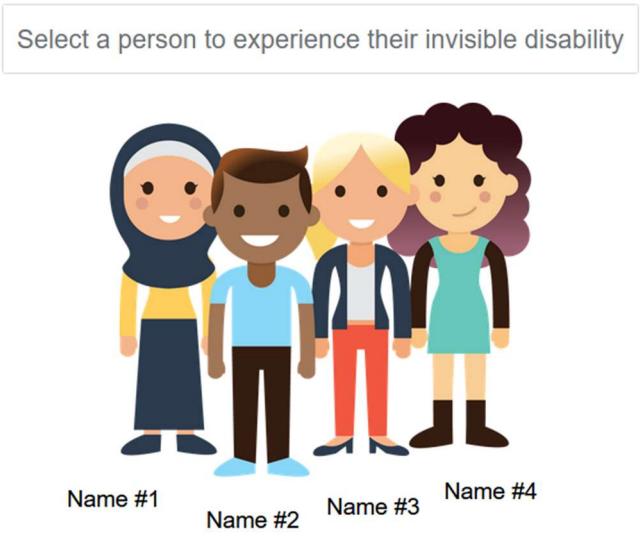
Table 5 - Prototyping Test Plan

Conclusion

Using the chosen solution from the previous deliverable, the project team combined and refined concepts to develop a clear and detailed design drawing. Using this drawing as a guide, an equipment list and bill of materials was devised, while also keeping the $50-$100 budget in mind. Moreover, prototyping test plans and contingency plans were created. These plans will allow the team to work effectively and efficiently as we move to the prototyping stage of the design thinking process.

Appendix

Character Select Screen



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