

GNG2101 Report

Project Deliverable D – Detailed Design, Prototype 1, BOM, Peer Feedback and Team Dynamics

Submitted by

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Table of Contents

- List of Tables 2
- List of Acronyms..... 3
- 1 Introduction..... 3
- 2 Main Subject Body of the Report 4
 - Client Feedback Summary 4
 - Updated and Detailed Design of Our Concept 5
 - Preliminary Bill of Materials 5
 - Most Critical Product Assumptions 6
 - First Product Prototype 6
 - Sketches, Diagrams, Pictures of Prototype..... 7
 - Prototype Testing 8
 - Next Client Meeting..... 9
- 3 Conclusions and Recommendations for Future Work 10

List of Figures

- Figure 1: Flow Chart of our Project Concept 5
- Figure 2: Image of our current project in Unity 7
- Figure 3: Image of the sidewalk for both our simulations (Perspective 1) 7
- Figure 4: Image of the sidewalk for both our simulations (Perspective 2) 8

List of Tables

- Table 1: Prototype Testing 9

List of Acronyms

Acronym	Definition
VR	Virtual Reality

1 Introduction

Within this deliverable, we provide a physical prototype, a detailed flowchart for the storylines of our concepts, a bill of materials, and other foundational details. The physical prototype is the virtual environment that one of our concepts will be set in. Along with a physical prototype, we also layout flowcharts containing visual imagery and short descriptions of scenes to describe and detail the storyline each of our concepts will follow. Also provided alongside this deliverable is the bill of materials needed to complete our final prototype.

2 Main Subject Body of the Report

Client Feedback Summary

- The client finds that our idea to create 2 simulations between 3-5 minutes to be ambitious but possible.
- The client suggests that we talk to someone who has schizophrenia or has dealt with people with schizophrenia so we can get feedback on our ideas.
- Get real-world communication with someone who has knowledge of schizophrenia.
- Make sure that our product develops empathy. We don't want to make people feel sorry for people with schizophrenia.
- In our second skit, we have the opportunity to let the player see things from the point of view of the stranger and person with schizophrenia. This would allow the user to see things from different perspectives. We could also maybe include something from the point of view of a bystander.
- The more interactive the better, so it's good that we are trying to include choices for the user.
- The client wants us to do VR since the goal of the project was for us to learn more about VR.
- In past projects the students acted as the voices in their VR experiences.

Updated and Detailed Design of Our Concept

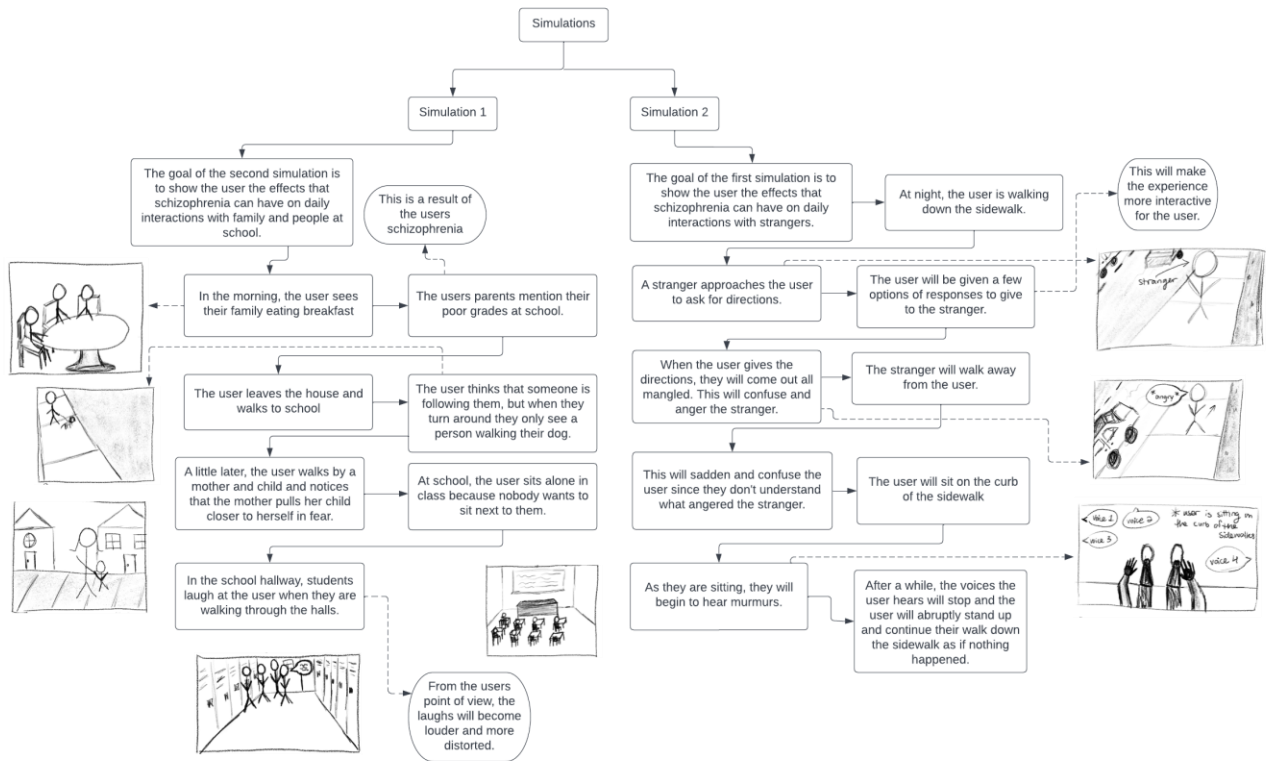


Figure 1: Flow Chart of our Project Concept

Preliminary Bill of Materials

Follow this link to view our Bill of Materials: [Bill of Materials.xlsx](#)

Most Critical Product Assumptions

The most critical product assumptions specification-wise depend on the VR headset that our simulation will run on. If our application is running on an HTC Vive, the minimum specs for the connected PC are an RX480 Graphics Card, Intel Core i5 7th Generation, and 12 GB of installed RAM. On the other hand, if our application is running on an Oculus Quest, a charged battery is all that's necessary.

The most critical product assumptions story-wise are that our simulations need to include a visually pleasing environment for the story concept to take place in. In order to accomplish this, we plan to use Assets on Unity. Additionally, the simulation needs to include some interaction between the user and the VR experience. The user should be provided with choices of dialogue and/or actions during the simulations.

First Product Prototype

We have created our first prototype by implementing a virtual environment asset from the Unity Asset Store. This prototype is a [shared Unity project hosted on GitHub](#), so that all team members can access the same version of the project. This prototype already fulfills the most basic technical requirements: a virtual environment (in this prototype's case, it's a cityscape) and it has the facilities to be fully interactive.

Sketches, Diagrams, Pictures of Prototype

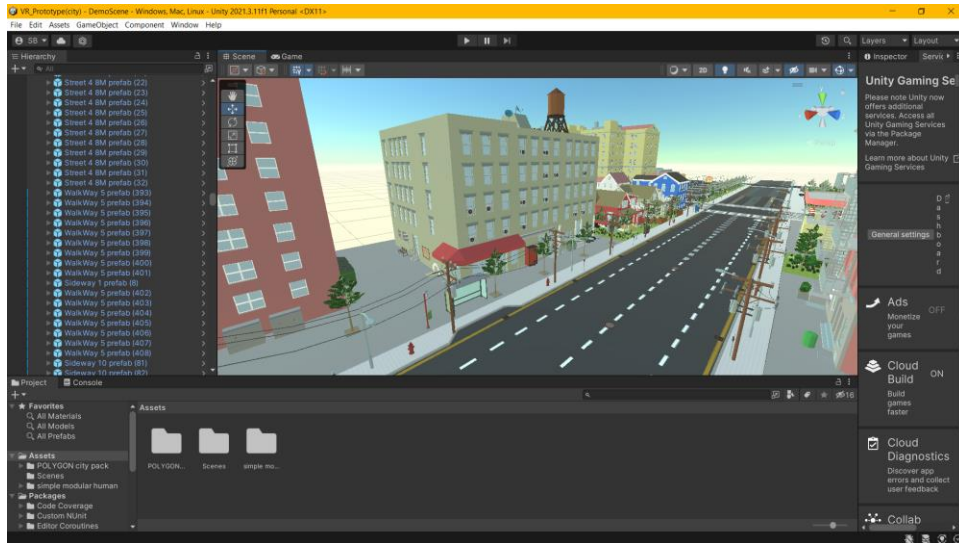


Figure 2: Image of our current project in Unity



Figure 3: Image of the sidewalk for both our simulations (Perspective 1)



Figure 4: Image of the sidewalk for both our simulations (Perspective 2)

The purpose of this prototype was to find and test a Unity Asset that we could use for the parts of the project where the user is walking down the sidewalk. We wanted to ensure that we would be able to find affordable assets that met our target specifications. We also wanted to confirm that everyone in our team was able to pull the project from our Git repository, and open, edit and view it in Unity.

Prototype Testing

Target Spec	Expected value	Actual value
Budget (CAD)	50-100	0
Storage Size (GB)	5-10	0.534
Combined running length (min)	5-10	N/A (yet)
Instills empathy (results from the form that will be completed by those who test the product)	85% - 100% positive response	N/A (yet)
Number of Headsets (#)	1-2	1
Type of Headset (Compatibility)	Oculus Quest and HTC Vive	HTC Vive
Version Control Software	Unity Version Control System or Plastic SCM	Git
Version Control Hosting Platform	Unity Version Control System	GitHub

Table 1: Prototype Testing

Since our product is hosted on GitHub, our group ensured that every team member has access to the project and can pull and edit the project in Unity. In addition, our team tested the HTC Vive headset in the uOttawa MakerSpace to verify its functionality and ensure that our product requires one headset. Our team created a Unity project and installed an environment asset through the Unity Asset Store and navigated and customized the virtual environment.

Next Client Meeting

For our next client meeting, we'd like to ask and present the following to our client:

1. Present the virtual environment:
 - a. Ask opinions about style.
 - b. Ask opinions about lighting (should it be day, evening, night).
2. Ask client about how much should be going outside of the current scope (cars driving on the road, other pedestrians, etc.). Would having that distract from the main story or add more immersion to the experience?

3. Ask client if user should move the character or if the character should move all by itself (more like a video).
4. Ask client for opinion on approaching psychology professor with our concepts for opinions.

3 Conclusions and Recommendations for Future Work

This deliverable aimed to provide a foundation on which our final prototype will be built upon. The physical prototype, detailed flowchart, bill of materials, and other details included within this deliverable have all laid out a clear, linear path we can follow to complete our project and fulfill its main goal – to create an immersive experience that develops empathy within the user. The prototype we created in this deliverable was built with the intention of allowing us to better understand how the assets in Unity worked as well as setting up a Git repository for our project. All in all, the prototype was a success since we were able to create our prototype in VR form and view it through a first-person 3D video that can be easily side loaded onto any VR headset. In our future work, we plan to continue adding on to our current project in order to continue developing our VR experience with Unity.

Wrike Snapshot Link:

<https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=pC5ruiIsx7LoZWXFkgeefWK9ArMC9rcm%7CIE2DSNZVHA2DELSTGIYA>

