**Project Deliverable G: Prototype II and Customer Feedback**

GNG 1103C – Engineering Design

Faculty of Engineering – University of Ottawa

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**Introduction**

This deliverable is to expand on our ideas and outcomes from our second prototype. This report will outline the changes and adjustments we’ve made while creating our second prototype. A plan for the third prototype will also be outlined for the next two weeks.

# **Customer Feedback**

At the time of submitting this deliverable, we have not yet received personal feedback regarding the presentation of our first prototype. We hope to receive it early this week to consider it for the development of prototype III.

We had our third client meeting, where we had to present the ongoing development of our first prototype. We received generally good feedback from the clients, which is helping us in finalizing the prototypes. As we presented our work, the clients appreciated the touch of humor we are bringing in with the ID pins concept. They did suggest for us to confirm that the use of ID pins is a clear method to protect civilians of the killer robot presence in cities. We will take into consideration if our simulation effectively conveys the failure rate of ID pins in our simulation, a great link between the poster elements and our message in the sensibilization campaign. Our clients did raise concerns regarding the time necessary to complete the project, and we acknowledge that we will be able to finish the VR project to a satisfactory level.

# **Prototype II**

## Environment

In prototype two, the goal was to edit the environment to appear more realistic so that the alleyway within an urban city could be complete. This was achieved through blender by importing a small google maps area. Through unity, we still need to manually add all the extracted materials from blender so that the imported object looks like figure 1 below. Furthermore, we added a poster in the landscape using a billboard script, which will restrain the rotation on the x and z axis and will only move following the camera movements of the user. That way, the posters displayed will always be facing our users as they walk through the scene. Finally, we added the remaining characters to perform their animations around the user triggered by time stamps, so that we can maintain a sense of order during the simulation.

An aerial view of a city

Description automatically generated

Figure 1: Landscape area on Blender

A 3d model of a city

Description automatically generated

*Figure 2: View of the landscape on Unity*

A close up of a sign

Description automatically generated

*Figure 3: View of a poster on the alleyway*

# **Prototyping Test Plan**

## Testing results **and** Improvements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test ID** | **Test Objective**  **(Why)** | **Description of Prototype Used & 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)** | **State** |
| 1 | To show the risks of killer robots | Prototype one and two will be used. The test will be to see if our project met the client’s needs. | We will record the results by seeing whether it was achieved or not. The results will be used by reviewing the user meeting notes. | The test will span over both prototypes. This will grant us the opportunity to make sure that we stay on the path and follow the client's needs. | **Verified / Will be done on final prototype** |
| 2 | To allow the users the chance to experience this environment | The second prototype will be used. The test will be that the user is able to see everything in the environment clearly. | We will record the results by seeing if this was achieved or not. The results will be used to see if any changes must be made to the coding. | This will be done during the second prototype because prototype one will allow us to work on specific details. So that in prototype two we can make sure everything is working smoothly. | **Verified / Completed in prototype 2** |
| 3 | To demonstrate the clarity of ID pins | The first prototype will be used and will feature the landscape with at least 2 NPC characters implemented with ID pins on. The test will be that the ID pins are clearly visible and distinct on the character as the user walks around | We will record the results by noting if this was achieved or not. We will also join a snapshot of the ID pins along with the results, as it is a visual test. | We will start this in the first phase of our prototype, as it is the main element used to demonstrate our message. It will be done repeatedly throughout the development of the first and second prototype and should last 15 seconds because it would simulate the duration our user would spend looking at the ID pin. | **Verified / Completed in prototype 1** |
| 4 | To verify that the NPC characters move accordingly | The second prototype will be used and will feature the landscape and all NPC characters. The test that we run will highlight any troubleshooting issues or bugs in the code. | The results will be flagged in the Visual Studio code and will be copy pasted in a separate document. These results will be used to understand where our issues are so that they can be fixed. | This will be done during the second phase of our prototype to make sure all additional characters run smoothly in the simulation. We will run this test for the duration of our simulation, which is 1min and we will perform it multiple times during the development period of the second prototype. | **Verified / Completed in prototype 2** |

During the second prototyping phase, we’ve encountered some issues while adapting the landscape into Unity, as well as with the scripting of the billboards. Blender possesses some unique features when it comes to materials and textures, which don’t transfer easily into unity as they can’t be read. Because of that, a direct upload of our landscape will not carry the materials over, and we tried multiple times. To fix this error, we uploaded the blender materials as separate files, and we will add them manually into our landscape. We also ran into some troubleshooting issues with the script regarding the billboards. They did not recognize some of the already placed elements, like the MoveCamera. This was easily fixed by debugging the code and fixing the compiled error. Finally, we tested the user experience in the VR environment, which was successful and ran smoothly. NPCs do not interact or get into the way of the user experience and have definite and sequential time stamps for them to perform the animations programmed.

# **Preparation for Prototype III**

We will need to add NPCs with their ID pins + audio so we can coordinate the characters to the message and the flow of the simulation. In addition to this, posters and signs need to be added, with English and French text, to the walls around the alleyway. A vending machine must also be placed at the end of the alleyway because the user is going to be walking towards it as it explores the environment. Our final preparation for the next prototype is to make sure that our user can walk in our environment when using the VR simulation.

# **Conclusion**

As we finish up on our second prototype, our bigger projects are being finalized. So that was we continue with our last prototype we can add in the smaller details and perfect the VR simulation/video. Prototype two has our finalized environment and NPCs programmed to walk around efficiently. Our chosen scene has been customized so that the users get a feel of unease and eeriness to help our call-to-action against killer robots.

# **Wrike Snapshot**

<https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=FABVx1ZeJVy7lCkWVYu4pM2NKpe373iY%7CIE2DSNZVHA2DELSTGIYA>