

Project Deliverable D: Conceptual Design

University of Ottawa

GNG 1103: Engineering Design

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Introduction

In this document the preliminary design concepts are outlined for the virtual reality experience that we are developing. The design concepts are broken down into subsystems that act with one another to give the user the full experience which is wished for by the user. These subsystems will be developed independently of one another and then integrated with one another to create a full virtual reality experience for the user.

Sub-systemes

Storyline

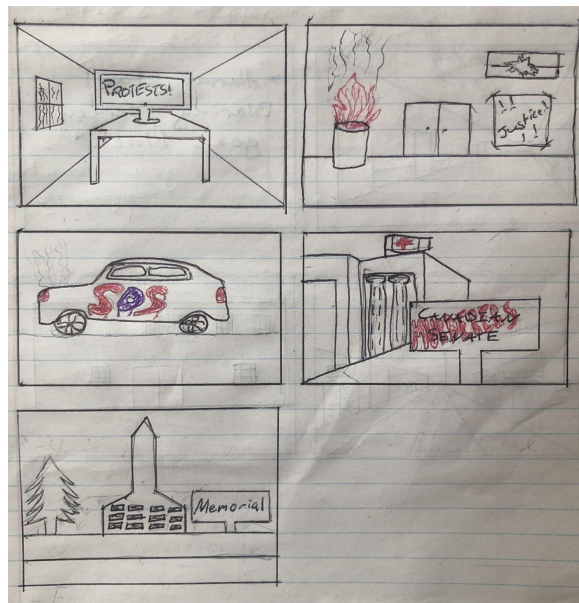
Andrew

The experience will follow the story of a person who wakes up in an unfamiliar environment for them with no memory of what happened to them. They wake up in an alley with graffiti against killer robots everywhere. As the person gets up they begin walking to the exit of the alley and they hear the sounds of autonomous killer robots moving all around them invoking fear for them, even though they don't know what it is that they are hearing. The experience ends when the person gets to the end of the alley and then they are confronted by an autonomous killer robot and then the experience ends there.

Ava

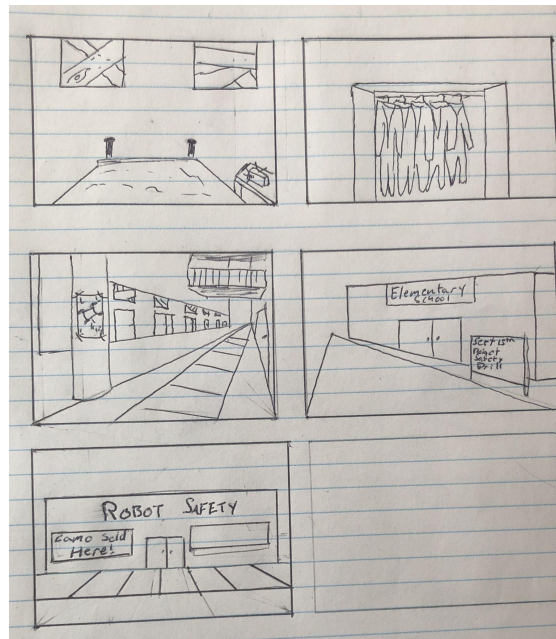
The story will be of a normal person exiting a shelter to protect from the robots, the clip will start with the person inside the shelter, you can see canned food, water, and other supplies in the shelter (think tornado shelter but robots). After exiting the shelter the person will walk out onto the streets of an urban neighbourhood. Houses line the sides of the street, the residents have windows and doors boarded up out of fear of the robots. Posters and signs can be seen on lampposts, fences, and lawns with both graffitied propaganda posters from the government and also anti-robot posters by the residents. Bikes, toys, and other personal objects can be seen throughout the streets and yards of the people.

Daniel



Storyline 1 :

The player will start off in their home, where they are watching the news on the TV. The news will state that there have been riots and protests occurring due to the passing of a recent bill that allows the deployment of autonomous weapons in battlefields. They will then explain that there have been many malfunctions within these robots that have caused innocent people to lose their lives. The player will then walk outside to the environment that shows how the riots have affected the city, and more importantly how these riots were caused by the bill being passed. The player will explore the city more until they reach a senate building, which has the word “MURDERER” written over the words on the sign. This should demonstrate how people are not only outraged by the fact that these robots are malfunctioning, but are also furious that the laws were passed by these decision makers. This will be crucial to showcase how the decision makers may be held accountable if they decide to go through with the approval of killer robots. Finally, the player will make their way over to a memorial which shows many names on a monument of innocent people who have been wrongly targeted and killed by a killer robot. This should demonstrate how in this scenario, the lives are not hypothetical and are real, and should also show how many people have been killed by the autonomous weapons.



Storyline 2:

This concept will show how people may adjust and accept killer robots, and how this would affect their day to day lives. The boarded windows in the beginning of the experience instantly shows that something is wrong. While the user is taking this environment in, they will once again have some exposition from a radio, letting the player know what kind of world they are in. This is extended when the player goes into the closet and realises that the character they are playing has adapted to the killer robots by having a closet full of “robot proof” clothes. When the player leaves they will see the environment and the adaptations that have been made. The player will then walk past an elementary school which has a sign reading “September 15th: Robot Safety Drill”. This will give the user an idea of how the people in

this experience have somewhat accepted the fact that they are living with these killer robots, and how they are handling it by educating children on how to keep themselves safe, instead of realising that the killer robots should not exist in the first place. This will give the user a feeling of sadness due to the fact that the children have to worry about such a thing, as well as fear for children’s safety if this were reality. They will then see a “Robot Safety” store, which sells things that reduce the chances of being targeted or harmed by killer robots. This will further show what the world may come to if these robots are allowed to be produced.

Gracie

In this story line the user will start in their house to give the viewer an idea of how homes in this world will look like. The user will then walk out of their house and toward one of the main streets in their neighbourhood. During their walk they will be able to see other houses, families and people walking by and living their lives. When the user gets to the main street they can walk down the street and look around at the buildings, stores, restaurants etc. During this storyline the user has free motion through the use of keyboard arrows or a controller.



Some problems with this story line are that interactions with a lot of different people and/or objects would be difficult to program as you would not know what the user is going to choose. In addition this storyline could come across as boring or not very exciting although it would get the message about the dangers and killer robots through.

Ranking

	Length (short and simple)	Interactions with other objects and or people	Able to move around (is not stuck in one place)	Invokes a feeling of fear and concern.	Total
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Andrew	3	1	3	3	9
Ava	3	1	2	2	8
Daniel 1	2	1	2	3	8
Daniel 2	2	1	3	2	8
Gracie	3	1	3	2	9

Music/Audio

Andrew

Music and effects are a key part to immerse the user and get them to feel emotion which is wanted by the client. Since the client wants interaction to be low, there will be very little to no speaking dialogue between characters. Instead the use of ambient noises and noises from the killer robots will be used to make it known that they are out there and around to give more of a sense of fear for the user from the robots. Music plays a very important factor in getting the user immersed into the experience. In order to give the user a fear of the killer robots the background music will be suspenseful in order to make the user more engaged in what is happening in the story.

Ava

Simple everyday sounds such as cars, emergency vehicle sirens and other mundane sounds in order create a familiar feel to the environment. Potentially music that evokes an eerie or uncertain feeling. Other than that some sounds that mimic robot movements such as whirring, metallic sounds, electrical sounds ect...

Daniel

Audio will play a crucial role in the beginning of the experience. The exposition of the situation that the player is in comes almost entirely from the news anchor speaking. This will most likely be one of the group members doing a voice over, which may draw from the immersion a little bit, as none of us are professional voice actors, which will show in the experience. A solution to this would be to go to a site live fiverr.com, and hire a voice actor, however this will add to the budget of the project. When the player leaves the starting environment, they will hear the sounds of shouting, sirens, potentially even fire. We could also have the same news station playing on screens throughout the environment, if we feel that it fits. As the player strays away from the initial chaos, the audio will get more and more calm until it is essentially just ambient noise/ footsteps. When the player reaches the monument, the audio should get quieter, to allow the player to fully take in the severity of the situation.

Gracie

As there will be very little interactions during the simulation, speaking audios will be very minimal therefore making music and background sounds the main source of audio. Sounds such as cars

driving by on the street, drones flying in the air and people's conversations as they walk past the user will have a huge impact making the simulation as realistic as possible. Additionally, eerie/suspense background music sound be included as it will be the main factor that gives the simulation an unsettling atmosphere which is one of the main goals for this project.

In addition to sounds caused by other objects, the sounds the user will make will also have to be included in the simulation. Sounds such as their feet on the pavement when walking, a door opening if they go in a store and any other noise the user might make.

Some problems with including too much background noises are if they become too loud or too much are included, it could take away from the visual experience as the user might become overwhelmed with all the sounding sounds. Another problem with including a lot of sound effects would be the extra effort that would have to be put in to be able to sync the sound effects to the objects. For example, if a car drives by, the sound of the car will have to be programmed to play as it is driving past the user. This could take longer than expected to code and might take time away from other tasks that are more urgent to complete.

Ranking

	Immersive	Subtle	Total
Andrew	2	3	5
Ava	2	2	4
Daniel	3	2	5
Gracie	2	3	5

Environment

Andrew

The experience will take place in a sort of dystopian future environment in a general city. For the mostpart the game will be in an alley of the city, with tons of graffiti on the walls going against the use of autonomous weapons, and some propaganda supporting the use of autonomous killer robots. It will be kind of a post apocalyptic version of a current city to show what the use of autonomous weapons can do if they are used. At the end of the alley where the user sees the killer robot they are in a street which has been ravaged by the killer robots which shows the type of destruction that they are capable of.

Ava

The environment will be a regular urban neighbourhood to create once again the feeling of familiarity. Regular houses and streets. Posted over the neighbourhood will be posters depicting anti-autonomous weapons, dangers of robots, and other messages. Windows and doors to houses will be boarded up to keep residents safe and show that the people are scared/nervous. Somewhere along the street there will be a shelter, almost like a tornado shelter but one used to hide in if you cannot find shelter when a robot is present in the neighbourhood. Toys and other remnants of life before the robots are scattered throughout lawns and the streets.

Daniel

Environment 1:

The player will be exposed to 3 different types of environment in this concept. These include the initial building that the player starts with, which will feel almost identical to what the average home looks like today. This will make the home feel very familiar to the player, leaving the strong emotions to be felt when the player leaves. The second environment will be the city, which is filled with the aftermath of riots and protests, as well as the impact on the government itself. This will show how people may react to killer robots being introduced, even if they aren't specifically attacking their city. The environment should feel like a very uneasy, dangerous place to be in, to invoke the feelings of fear in the user which the client needs. There is the possibility of pushing the violence a little too far, however, which may shift the focus from the main message of the experience, which is something that we must be aware of. The final aspect of the environment is the memorial. This should feel slightly more peaceful and emphasise how many people have been wrongly killed by killer robots.

Environment 2:

The beginning of the experience will show how the extended exposure to the autonomous weapons has slowly deteriorated the living conditions of the citizens. Home that the player starts in will show boarded up windows and poorly maintained walls/buildings in general. The player will then see the character's closet, which will show that essentially the only clothes that they have are special clothing that reduces the risk of them being targeted by autonomous weapons. The outdoor environment is also very important to this concept. When the player leaves their home, they will walk out to see that almost every building has boarded up windows (presumably so people cannot be targeted from inside their homes). There will also be posters all around giving advice on how to stay safe from killer robots. The environment should give off a feeling of isolation, as if people are scared to leave their homes.

Gracie

The environment of this storyline will start in a home and eventually lead to the user being ending up in a bigger part of the city to show the viewer more diversity of the potential environments. The user will start in their home to show how homes in this world are laid out differently. The neighbourhood and city will take place in a real area such as Ottawa to make the simulation as realistic as possible. Things such as extra locks on doors, bolted and bulletproof windows and curtains always being shut. This will give the viewer an idea of how the robots do not just affect the streets of the city but people's homes as well. As mentioned in the story line, there will be posters up on poles and building windows warning and

alerting people of the robots. This environment will also not have a lot of colour showing the gloominess of the atmosphere.



The problems that might occur in this environment are obtaining the preferred colour to show the atmosphere of the city but still bright enough the viewer is able to see their surroundings. Putting up multiple posters and editing the interior of a home will also take some time programming which could affect any future deadlines.

Ranking

	Realistic	Shows dehumanisation caused by robots.	Feeling of concern but also a sense of hope	Shows the environment without people or robots	Total
Andrew	1	3	2	3	9
Ava	3	1	1	3	8
Daniel 1	3	2	2	2	10
Daniel 2	2	3	2	3	10
Gracie	3	2	2	3	10

Conclusion

To conclude, the storyline of our experience will start with the user inside their house showing what the inside of a home would look like in this world. The user will then exit their house and walk down the street of their neighbourhood and eventually end up at a school. When they get to the school, they will arrive during one of their “Robot Safety Drills” which will show the user what schools have become after the invention of these robots.

The music for the video/simulation will be eerie/unsettling background music to enhance the feeling of uneasiness in the world. There will be an audio of a speaker calling out the Robot Safety Drill at the school when the user gets to the school and there will also be a few sound effects such as cars driving by. The extra time it will take to program little details like background sound effects this will have to be kept in mind because of time constraints.

The environment of our design will include safety precautions for the inside of the user’s house and on the outside of the homes in the neighbourhood such as extra locks on doors, shut and boarded up windows on all the houses. The colours for the environment will be dull to continue the effect of uneasiness throughout the world.

Wrike links:

- https://www.wrike.com/shared/calendars/?token=eyJ0IjoiY3R2cCIsmFsZyI6IkhTNTEyIn0.eyJhIjo0OTc1ODQyLCJyIjoiVVMiLCJpZCI6MTEwMDM0MCwiZXhwIjozMjUwMzcxODgwMCwiaWF0IjoxNjk2ODAwMzkzfkQ.M6gowXXgicQsDVI3gL0rDx1yYmQL24rcLHXJEWFEUKfWhbFUvhdLmgumetYitMV5izBKKr0lp9I8bD9C_RHzOA
- <https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=eA02Lrfu1yWST2wxkgZzxvMIjeIII8U%7CIE2DSNZVHA2DELSTGIYA>