

Deliverable D: Conceptual Design

Group 1

October 15, 2023

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Introduction

Before prototyping begins, the Group needs concepts, and subsystems to go with an overall global idea. This section brings together the criteria, functional, and non-functional requirements to form concepts that have the potential for prototyping.

Referenced Problem Statement

Mine's Action Canada needs a VR experience that demonstrates the dangers of using killer robots in warfare, and the potential consequences that come with it. The experience needs to provide an emotional connection that displays fear, concern, and hope.

Subsystems Required

- User Interface
 - What does the user interfere with?
 - What potential objects/NPCs are to be interacted with.
- Environment
 - What location are we emulating?
 - City generation
- Sensor and Data collection
 - Any sensors involved and Data to be collected.
 - User sensors
- Modeling/NPCs
 - What do characters look like.
 - Object designs.
 - How do they move.

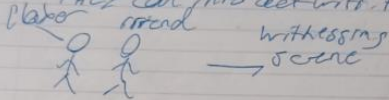
Concepts Designs

Designs will be used interchangeably; the name labels are mostly to organize a place for each group member to add their concepts

Holden

NPC interactions

2-3 NPC's simple design
we can't interact with them but
they can interact with the environment

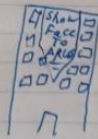


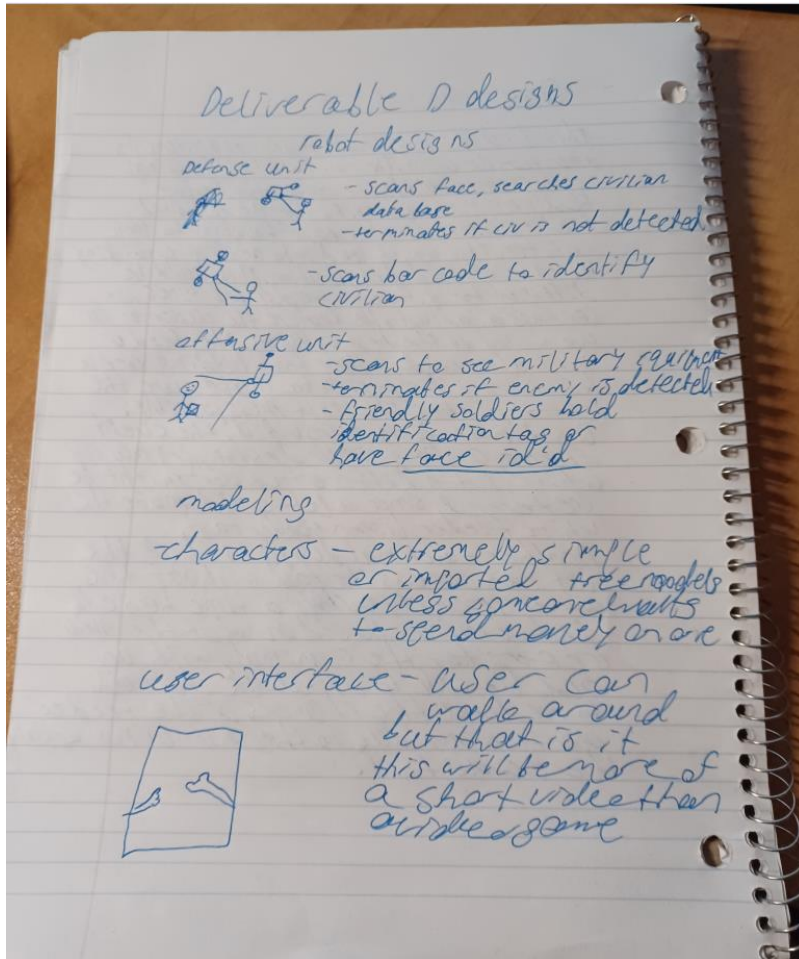
NPC's will set the societal mood

- reacting to robots
- being nonchalant around death
- overall mood and culture

environment

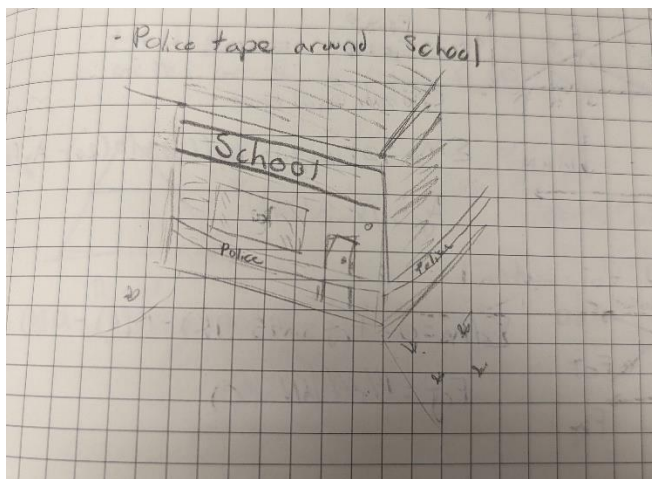
- urban has few NPCs
- has propaganda around how to act around robots
- sirens about rogue offensive robots





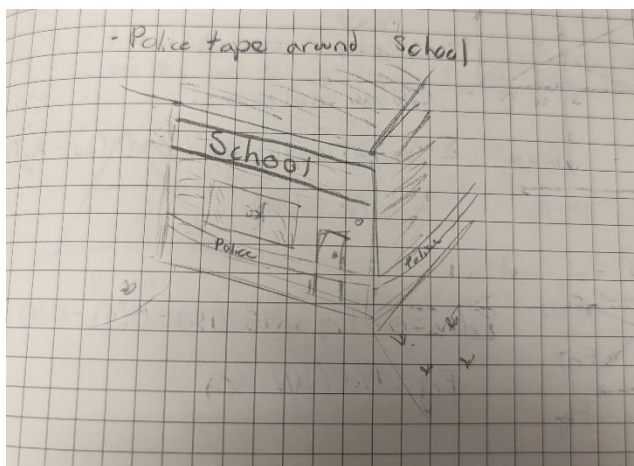
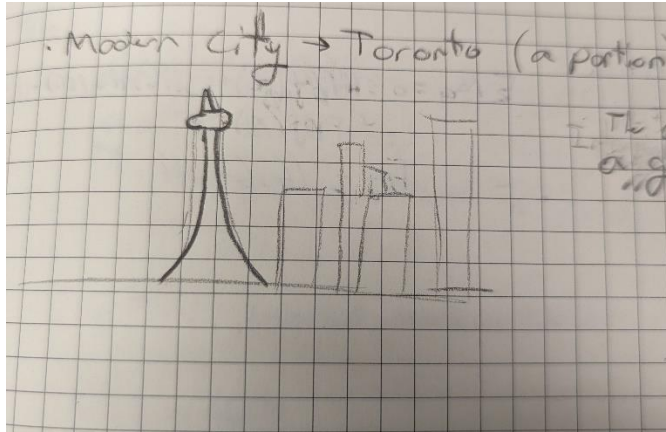
Luke

Environment



The school setting is a valuable idea being that the school is a place for students to learn and should not be subject to any potential violence caused by some person who happens to be able to

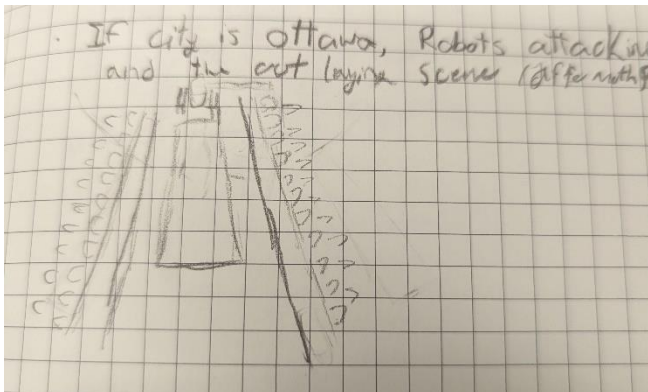
control killer Ai, in this case drones used to break through the glass and infiltrate the school, but any other type of robot could be just as effective. The school setting an environment was used quite effectively in the PSA video "Slaughterbots". This setting can be emotional to parents who want to protect their children and the children themselves for being potentially scared to go to school because of it. Therefore, poses fear, while also presenting a desire to make a change enforced by parents who don't want their children to be scared at school.



The school setting is a valuable the idea being that the school is a place for students to learn and should not be subject to any potential violence caused by some person who happens to be able to control killer Ai, in this case drones used to break through the glass and infiltrate the school, but any other type of robot could be just as effective. The school setting an environment was used quite effectively in the PSA video "Slaughterbots". This setting can be emotional to parents who want to protect their children and the children themselves for being potentially scared to go to school because of it. Therefore, poses fear, while also presenting a desire to make a change enforced by parents who don't want their children to be scared at school.

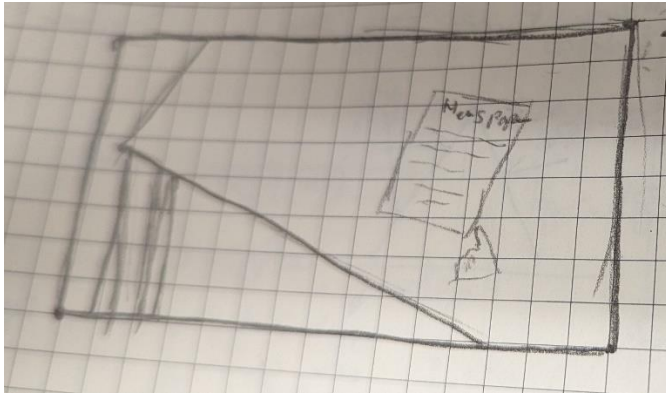


Cities have a large population and in Canada the biggest two cities are Toronto and Montréal, although these cities are massive and the project can only accommodate so much space, in which case the most memorable location in the city could be optimized, for Toronto the area surrounding the Rogers Centre and the CN tower. This city works best for Canadians and even more for Torontonians. Since Canada's largest city could be under such influence of killer AI and death levels rising you can see protests and the media raging on about the robot problem and who is responsible.



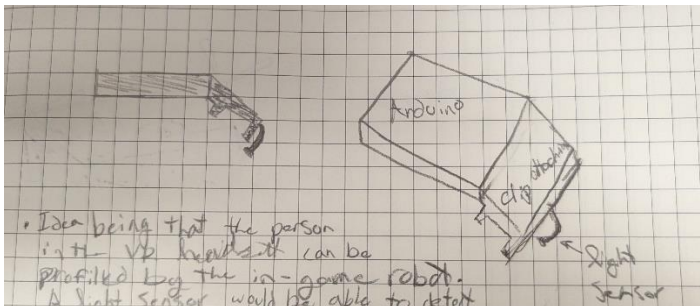
Ottawa city would also be an important city to show the environment of, considering that parliament is here and the people who run the country live here as well, could be in massive danger if robots attacked parliament it would not end well for the MPs and in theory a person who gains control of the targets of these robots could unleash a Government takedown of Canada, leaving little chance to recover. The picture is just a representation of the House of Commons, the place where decisions are made.

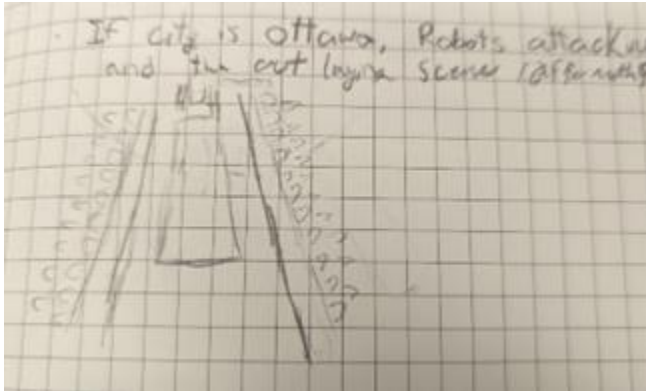
User Interface



The picture dictates the ability to pick up certain objects to read, like newspapers, or propaganda posters, using simple user controls. The importance of ease of use is important for this application, since the users don't want to spend long learning how to use the controls, but maybe should be able to understand the controls quickly or immediately. Being able to read things like propaganda is valuable for the impact bring up important issues that the user may have never thought of.

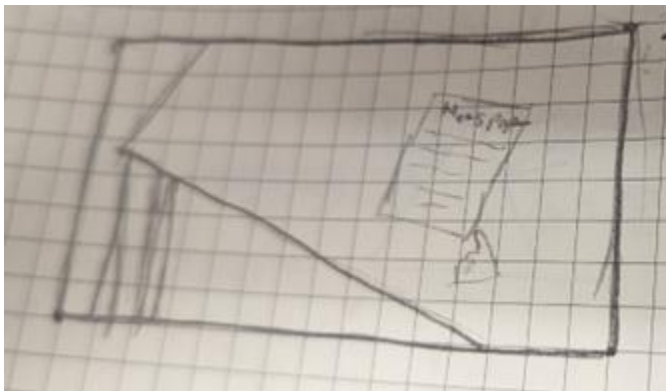
Sensor and Data Collection





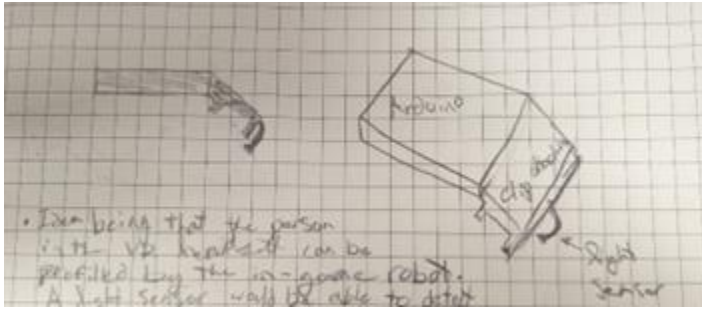
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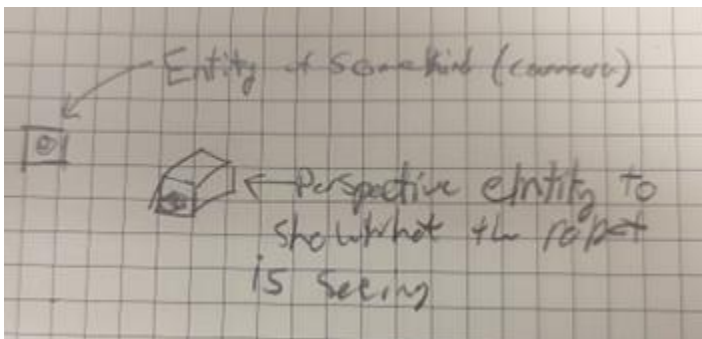
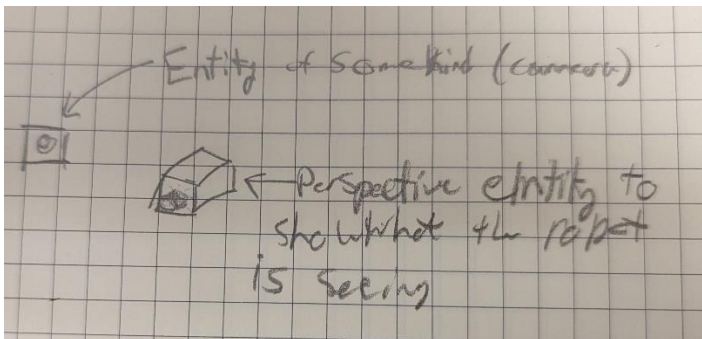


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Sensor and Data Collection

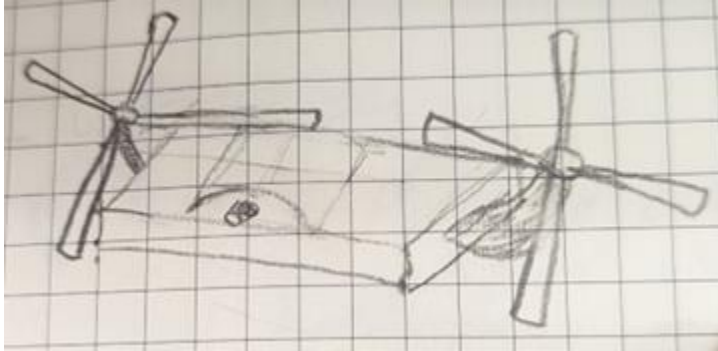


The sketch here is a concept where we could send active lighting data to the simulation using an Arduino, based on the amount of light reflected off of the skin of the user, the idea being that we could create a scenario where the killer robots are searching for someone based on random qualities, and the user can play with the idea of environmental changes that would make them vulnerable to the robots (what does facial recognition determine about a person in bright lights, or with no lights, or in the shade).

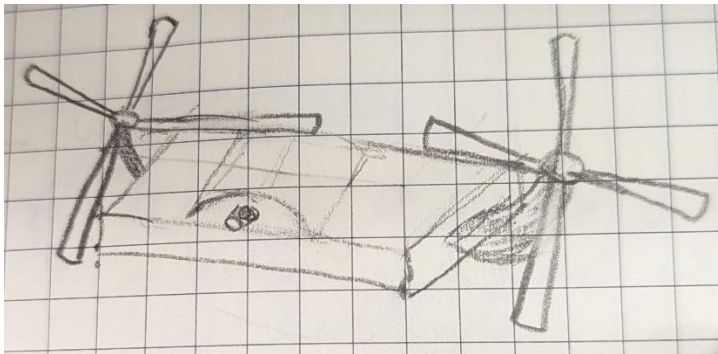


Same idea as the as the Arduino concept above, but this is an entity that uses the height of the user to determine another quality that the robots can see.

Modeling/NPCs



Drones are a very scary killer AI idea, since some drones are very small and making them hard to shoot amongst other things. Being able to detect and charge to explode is a crazy idea that absolutely feasible in today's world (idea from the PSA video "Slaughterbots"). It is a scary idea that was super effective at scaring an audience.;



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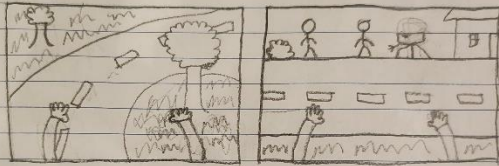
Brayden

Deliverable D

Brayden Latimer

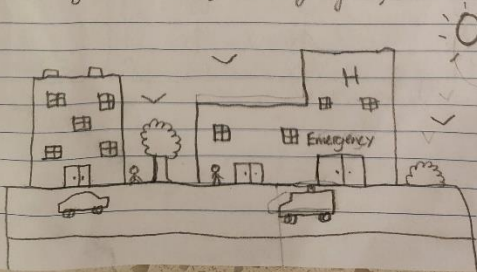
User interface:

This user interface is based on a 3d map of the city, with the user's avatar providing the point-of-view character. The avatar allows the user to explore the map which includes various NPC's and robots. The experience will focus primarily on the consequences of using killer robots.



Environment:

A realistic urban environment will be created with realistic buildings, streets, trees and vegetation, as well as sounds like traffic, birds chirping, and people talking. We will also create a sense of tension and fear by using loud noises, flashing lights, and fear.



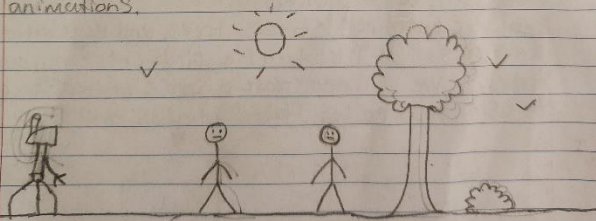
Sensor and data Collection:

A user's emotional response must be captured for the experience to last. To do this, they can interact with the environment. Data collection can be used to measure the user's emotional response through sensors such as a camera or microphone.

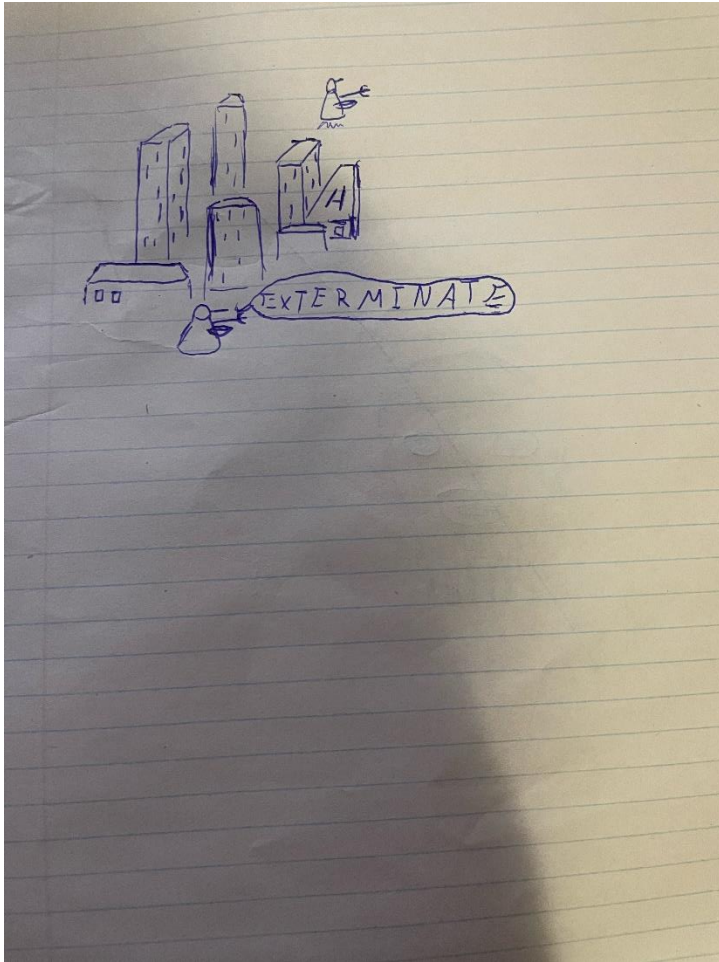


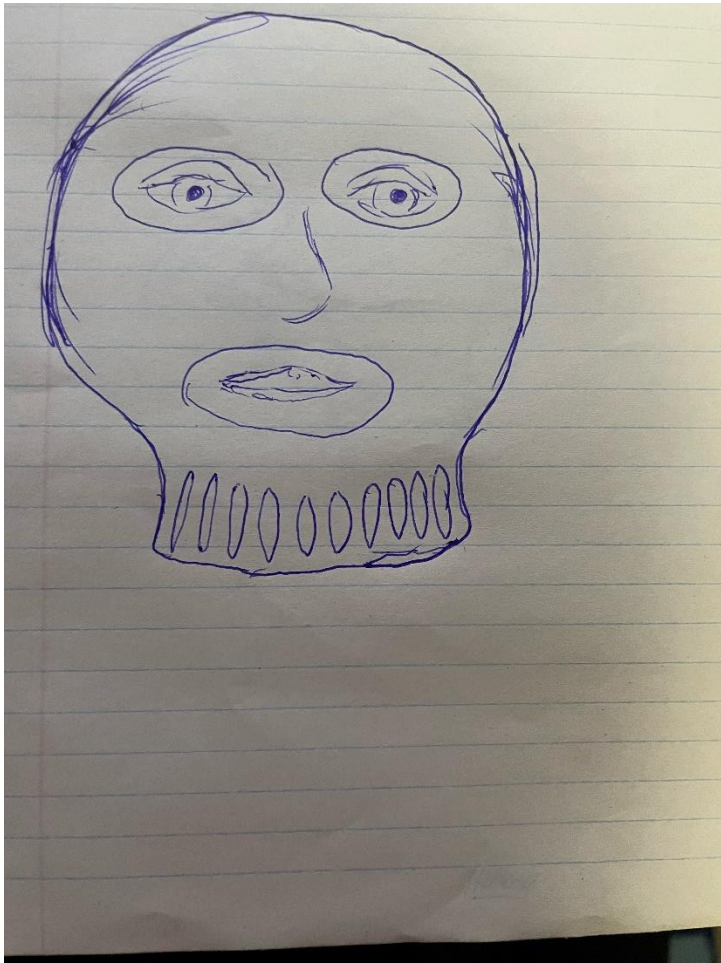
Modeling:

The NPC's should be realistic, with facial features that evoke emotion. The object designs should be simple and minimalist, with colours and shapes that evoke a sense of fear and danger. The environment should be immersive and realistic, with realistic sounds, visuals, and animations.

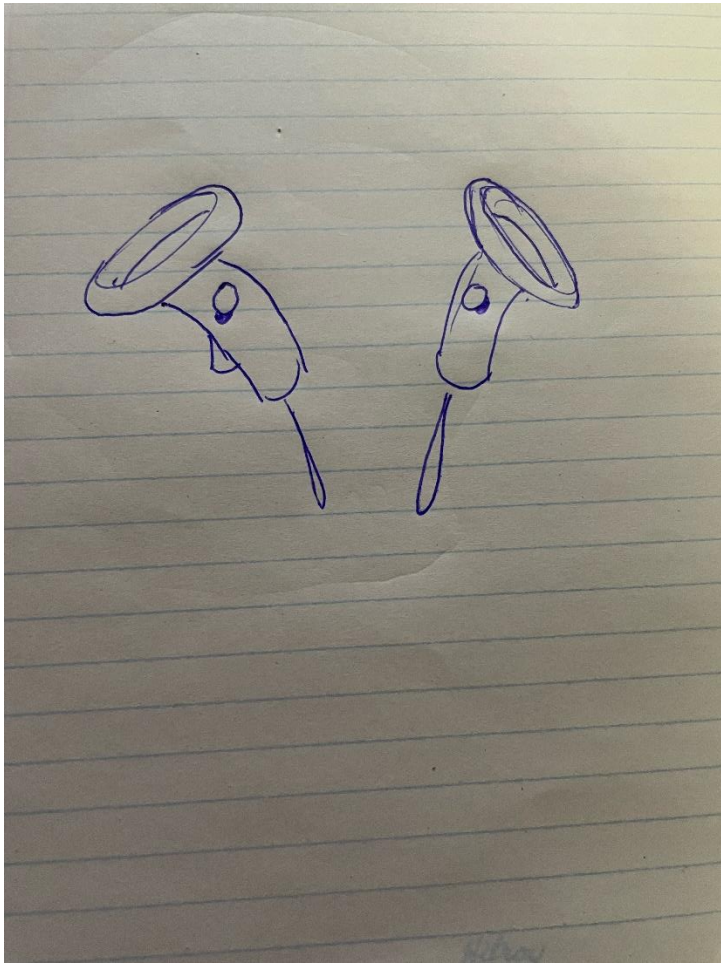


The simulation should take place in a city but be vague as to which city, that way it is something most people will be able to relate too which makes the danger seem more real



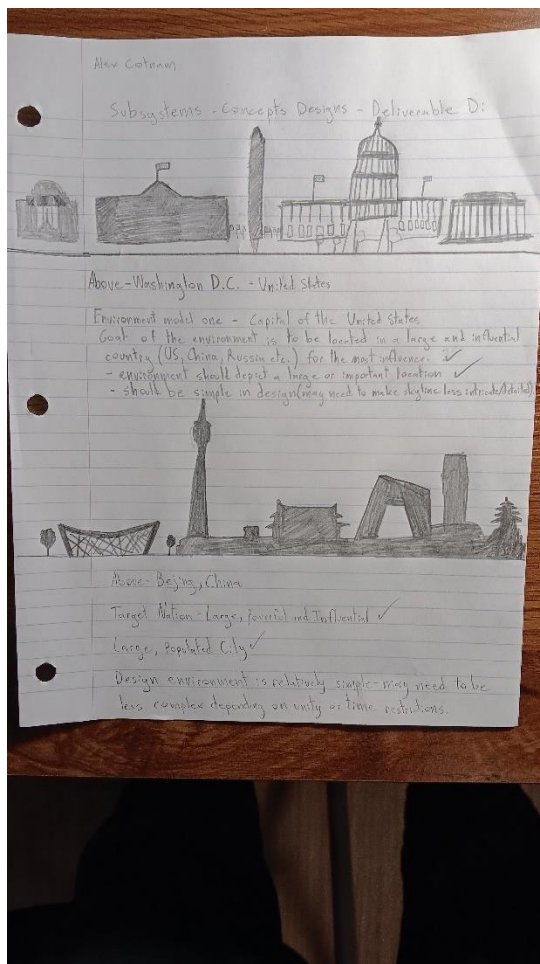


NPC's can wear balaclava's or other face coverings to blend in better with everyone, this can show one way people might adapt to the killer robots

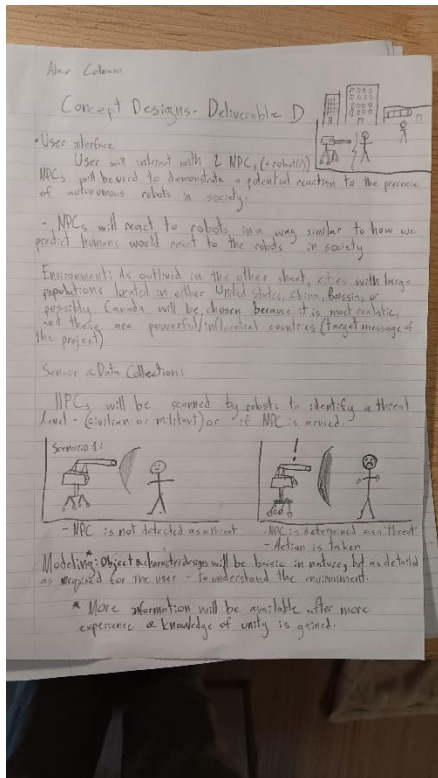


The user will use controllers such as this to control the simulation

Alex



Above are two design concepts for two separate environments: Washington D.C. USA (top), and [BeijingBeijing](#), China (bottom). These concepts satisfy the requirements for a basic design in a powerful and influential country. Not that the designs are drafts, and if either environment were to be used in a unity project, it would need to be simplified for timing purposes.



Global Concepts

As part of the VR experience, humans should emphasize how robots are being used in war all over the world. The report should emphasize the risks that can result from the use of killer robots, including the loss of human life, the destruction of ecosystems, and the displacement of individuals.

Conclusion

In conclusion, this section provides the necessary criteria for the Group to begin prototyping, as it outlines the concepts, subsystems, and requirements necessary to create an emotional connection, and an overall global idea.