Project Deliverable D:

By Carter Yue, John Riccio, Sam Meyer, and Ryan Athauda

October 12, 2023

Abstract

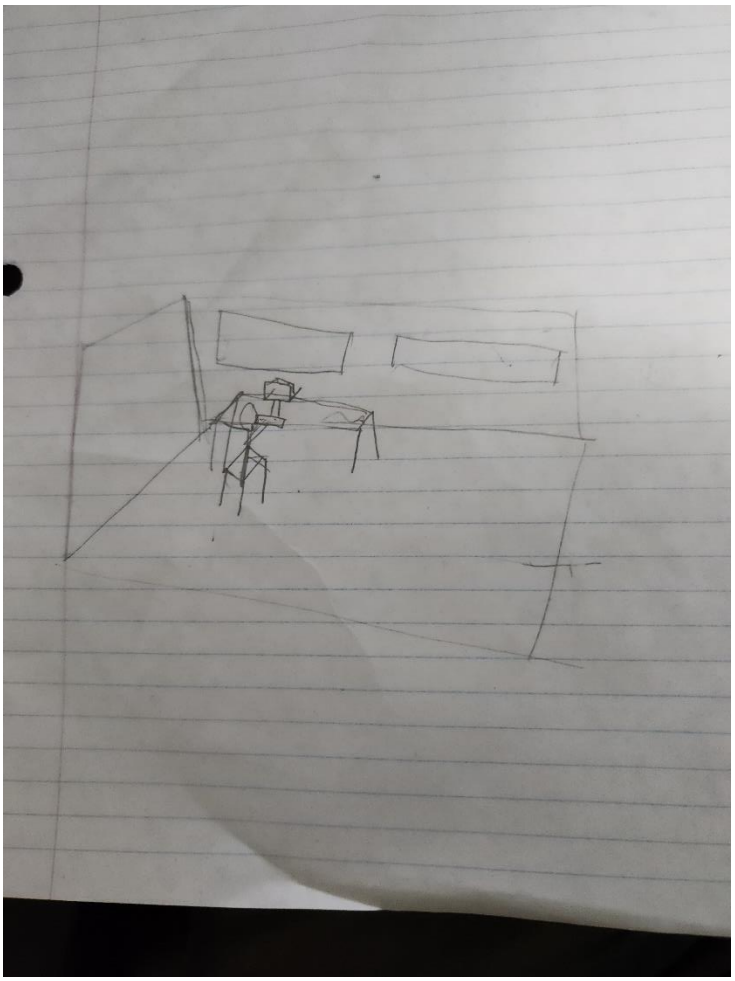
This report aims to put the ideas of each member of our team for our minute-long video in Virtual Reality into words and drawings, using the criteria we came up with in deliverable B and the benchmarking and restrictions we came up with in deliverable C. The main idea for the video will come from assembling individual idea's that each member comes up with for each subsystem

Introduction

Using all the notes that we got from our first client meeting, we assembled a list of needs for the client and came up with the following problem statement: **Our client wants a short and simple video that can convince UN representatives that ai driven war robots are bad, and it must be suitable for all ages and easy to understand.** From this problem statement, we then formulated a set of requirements and restraints that applied to our video, and using those we then each came up with an idea for the following subsystems: an environment for the video, how the robots are going to look and what is going to happen in the video.

Subsystems:

Subsystem 1: The Environment



Carter's Idea: Computer room/open sky

Pros:

- Easily identifiable by people
- Makes sense for weapons system using AI to have a control room

Cons:

- Limits possible storylines
- Would require a couple people present in the room

Ryan's idea: Residential neighbourhood

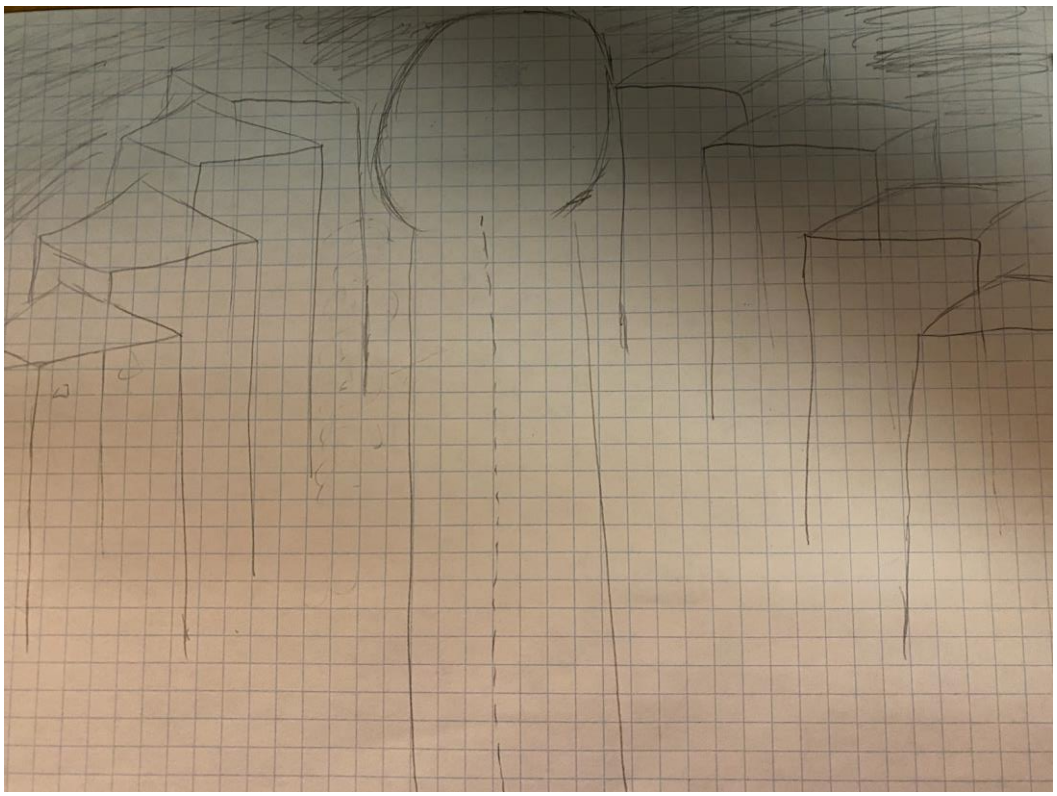
Pros:

- Showcases adverse effects of living near the robots (fear)
- Demonstrates how mere civilians are affected
- Simple

Cons:

- May be unusual to take place in a residential setting with no people
- Potential destruction to civilian homes may be disturbing for viewers

Sam's Idea: City landscape:



Pros

- Could display how killer robots would have major effects
- Will show how people would need to adapt and change their lifestyle
- Displays how building would now be used for different purposes

Cons

- Likely difficult to create in unity
- Could appear too futuristic

John's idea: The setting is going to be a small Canadian town. Buildings involved in the war coding would emulate the terror of Autonomous Robots even more. The camera perspective is going to be first person. The design is going to implement some fire in the buildings.

Pros:

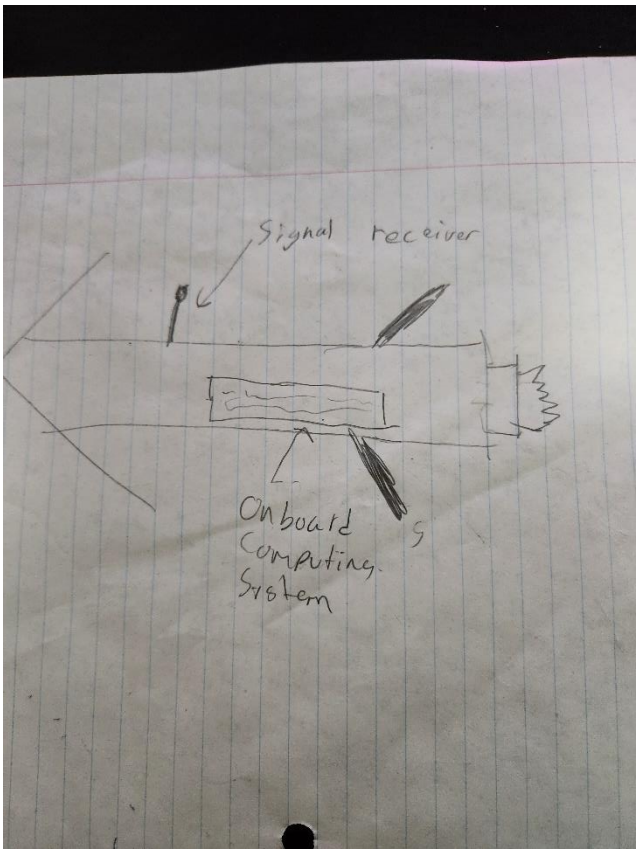
- The setting emulates possible real-world events

Cons:

- The details such as the fire and destruction will be difficult to demonstrate properly

Subsystem 2: Design of the robot

Carter's Idea: AI guided missile



Pros:

- Easy to make
- Easy to understand
- Recognizable to an audience
- Any country has the potential to make them

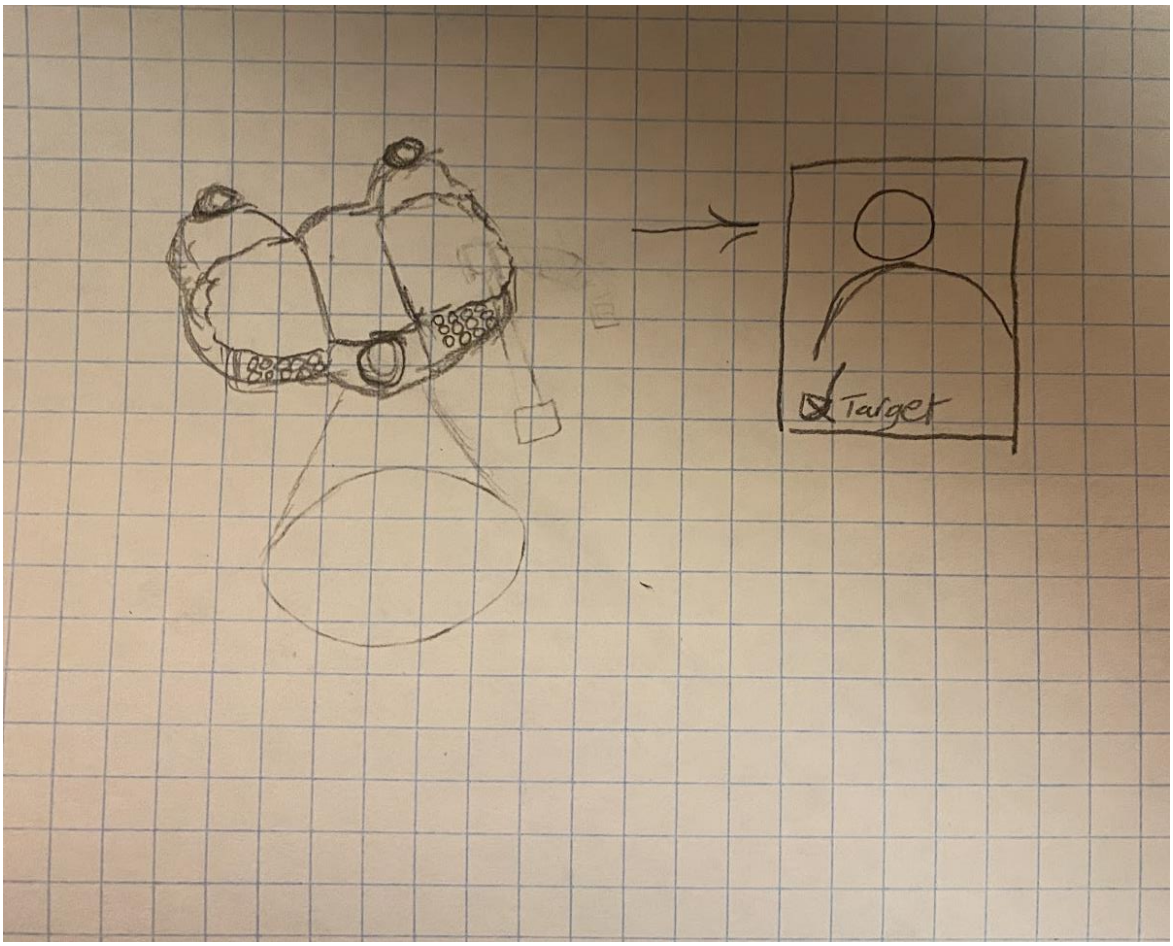
Cons:

- Not really a robot
- May be too simple

Ryan's idea: AI driven military patrol vehicle

- Will patrol streets, observe with cameras
- Has mounted weapons
- Has ability to identify "Threats" (ie. Will determine a kite to be an "Aerial threat" and shoot it down)

Sam's Idea: AI operated drone



Pros:

- Display how the autonomous weaponry would select targets
- Good representation of autonomous weaponry
- Currently used by militaries without autonomous aspect, therefore, likely to become autonomous if Killer Robots movement is not successful

Cons

- May be difficult to create
- May be difficult to show flying aspects of drone in Unity
- Possibly violent

Subsystem 3: The storyline

Carter's idea:

The rocket above will be shown launching off, and the onboard computer will decide the best military target for the missile to land. After running some calculations, the onboard Ai will decide that the loss of life due to retaliation for the enemy will be to great if it hits any major targets, it will decide that minimal loss of life will come from no further missile launches and will turn around and land back on the base it was launched from.

Pros:

- Shows the cold logic of computer algorithms

Cons:

- May be confusing or convoluted
- Might not be friendly to all ages (could cut to black before explosion goes off)
-

Sam's Idea:

The setting will be a larger city, which was one of the first to be "taken over" over by autonomous robots. The experience will display the daily life of a civilian in the city. If possible, show the civilian hiding when drones are visible to them, this will display the fear being caused in society. The civilian will walk through the streets accessing different areas that now appear different, for example buildings being used for shelter. Signs will be visible pleading for no more war and to discontinue the use of autonomous robots. The scene will end with the civilian seeing the drone choose the wrong target. The viewer will not actually see this but rather the civilian's reaction.

John’s idea:

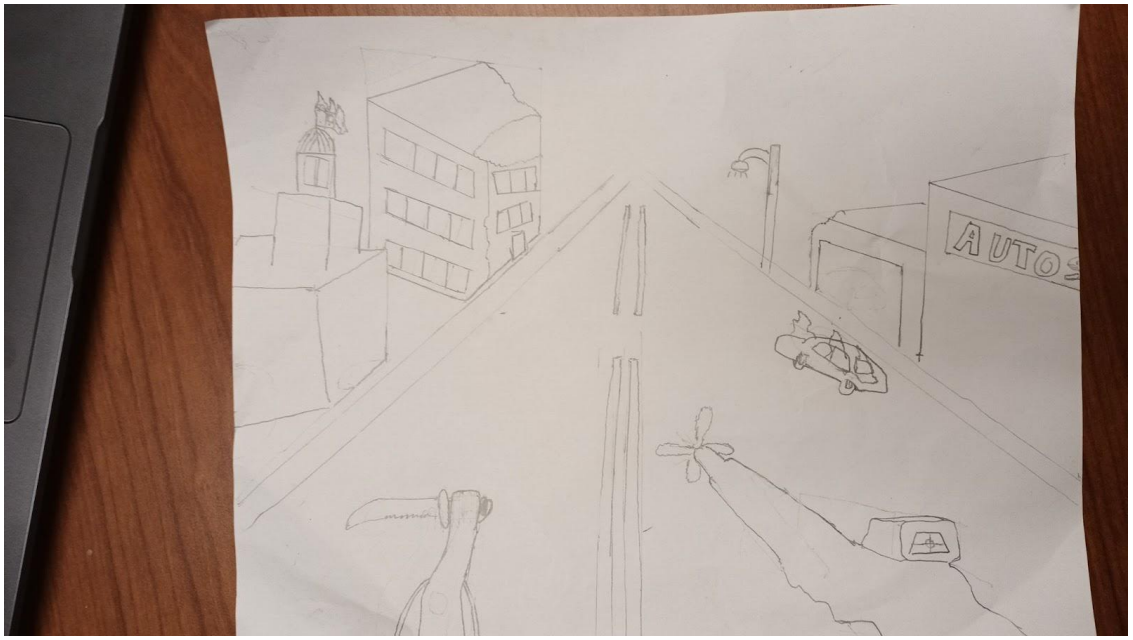
The storyline is assumed to be sometime in the future. There are protests in the streets and the government has sent in autonomous robots to handle the situation. However, the situation goes bad when the robot starts attacking the peaceful protesters. The AI after causing significant terror and damage to the residents will self-destruct.

Pros:

- It would be great for showing the terror the AI cause
- The storyline will gravitate the audience towards the scene and be easy to understand

Cons:

- Rather ambitious to code and produce the simulation and elements



Ryan's idea:

A patrol car will drive around a residential neighbourhood. The crude nature of the AI will be demonstrated when the AI identifies "Threats" from various neighbourhood occurrences.

Examples:

- Garbage blown by the wind hits the vehicle. The AI determines it an "Attack" and destroys the garbage (Environmentally friendly destruction??)
- The AI determines a bird pooping on the vehicle to be an attack, and attempts to take down the bird (fails though, because no violence)
- The vehicle runs over a pothole, which it deems to be a trap threat. The vehicle drops a marker to mark the "Trap". Moments later, a rocket hits the spot.

Subsystem Boundaries

Subsystems 1 and 2 are a little dependant on each other, since there are some robots that wouldn't make sense for certain settings. Subsystem 3 is very much dependant on the other two, since the story will be affected by where it takes place and who is in it.

Subsystem Categorization:

1. Bad	2. Ok	3. Good

Subsystem 1: The environment

Design Criteria	Carter's Idea	Ryan's Idea	John's Idea	Sam's Idea
Ease of construction	3	3	3	1
Use of familiar locations	2	2.	3	3
Provocation of Emotion	1	2.	1	2
Relevance	2	3	2	2
Total	8	10	9	8

Subsystem 2: The Robot's

Design Criteria	Carter's Idea	Ryan's Idea	John's Idea	Sam's Idea
Emotional response	2	2.		2
Ease of creation	3	2.		2
Ease of understanding	3	3.		3
Realism	2	3.		2
Total	10	10		9

Subsystem 3: The storyline

Design Criteria	Carter's Idea	Ryan's Idea	John's Idea	Sam's Idea
Suitability for public display	2	2.	1	3
How well it conveys our message	3	3.	3	2
Familiarity	2	2.	3	2
Ease of building	2	2.	1	2
Total	9	8	8	9

Conclusion:

We have decided to do a combination of Sam and Carter's Storyline, following behind the drone as it goes through a city, with Sam's robot design of a aerial drone, and a combination of Ryan and John's environment of a smaller Canadian residential area.