**Project Deliverable B: Needs Identification and Problem Statement**

**University of Ottawa**

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## Introduction

Since the dawn of mankind conflict between and within groups of people has been unavoidable. However, when a problem involves the fate of a large group of people and attempts at negotiating a resolution degenerate far enough, physical conflict is the result. War has been fought using the most cutting edge technology of its time and the weapon of choice has varied, but the final decision on whether or not to kill has always fallen into the hands of a human being. In the presence of helplessness and surrender; warriors have shown mercy, when ordered to do the inhuman; soldiers have chosen insubordination and when mistakes were made between friend and foe, a conscience held every man liable. But there is a form of warfare that removes humanity from mankind's greatest struggle with itself. They are autonomous with free will, killers without humanity; robots without life.

## Background Info

Our group has been tasked by our client Mines Action Canada with designing a virtual experience to demonstrate how people would navigate a world with autonomous killer robots. Mines Action Canada is a humanitarian disarmament group focused on ratifying international treaties and demilitarizing former war zones. Accompanied by a strong presence in suggesting legal laws and political outreach, our client aims to “eliminate the serious humanitarian, environmental and development consequences of indiscriminate weapons” (Mines Action Canada, <https://www.minesactioncanada.org/about_us>). Our client wants to demonstrate the magnitude of autonomous robots’ presence through a short demonstration video created in a VR atmosphere.

## Project Overview

Mines Action Canada has specified to create a 30 to 60 second VR demonstration that immerses the user in an inhabited area controlled by automated robots. The main focus of the simulation is to highlight the alterations the weaponry has caused to infrastructure and adaptations civilians have made to avoid being targeted by the weapons.

### Client Needs

Our client emphasized that the product must be **simple**, which means limiting moving elements and sticking to simple assets as long as the environment is in the spotlight. In terms of determining the impact that automated robots will have, the client mentioned conventions, such as Hague Law, establishing **proportionality** (the ability to maximize enemy combatant casualties while minimizing civilian casualties) at the forefront of the robot’s mechanics to kill. It may be useful to explore the unintended consequences of this logic and how this could be exploited by different groups of people. The simulation should be **accessible** (definition of accessibility needs to be explored further in subsequent research) and easy to use by the general audience, requiring no additional skills or prior experience with VR. It is also intended to invoke “an **immediate and visceral reaction** to…what would have to happen in the built environment to protect people from those types of systems” (Jason, Mines Action Canada). However, we want to invoke a sense of optimism in a way that “(balances) fear and concern, and also hope and motivation” (Erin, Mines Action Canada).

### Constraints to Consider

There are constraints that must be considered while undertaking this project. As this is oriented to visualize the environment people will live in, we should avoid showing and animating physical robots, copyrighted material as well as sensitive themes which introduces another degree of complexity along with limiting our target audience. To increase simplicity, the client outlined that the user will be presented a walkthrough through video format of the environment. This limits what the user can interact with and means that all key details must be short enough that it can be presented in the video.

## Benchmarking

Game developers strive to push the boundaries of technology and creativity to deliver experiences that captivate players and draw them into rich virtual worlds. Our research is going to be focused on the content/execution of existing games and evaluating users' perceptions of these products. We decided to benchmark to have a complete and impactful project within the given period while taking the client's needs into consideration.

We took an interest in these 2 particular video games that were made from 1992 to 2007.

Among the countless immersive video games in the market, we are going to take an interest in the following games: Liberty Prime and Hk-47. These games have a killer robot as their main character and are crafted within a convincingly realistic urban environment. Our selection of games within this specific 10-year timeframe serves a dual purpose: it underscores the evolution of a concept once relegated to the realm of fiction — the killer robot — but it also suggests that this very concept may transition into the realm of reality as soon as the forthcoming future.

## Conclusion

In conclusion, Mines Action Canada intends to create a VR experience that highlights the harmful consequences of AI military robots that kill without any human intervention. The most important features of the VR environment are simplicity, realism, the ability to evoke emotions (specifically fear, concern, hope, optimism) and accessibility. Some constraints the client mentioned included avoiding copyrighted material (the product should be cost-effective), avoiding stereotypical portrayals, and not including robots or death/gore. Features that the client did not mention but may be important, based on user benchmarking of similar products, include an intuitive user interface and linearity to orient users and manage their attention. Overall, the problem statement for this project is as follows; Mines Action Canada requires a VR experience to show decision makers the negative impact of militarized autonomous robots on civilian life, while being realistic and visceral, but also simple and accessible. A VR experience that meets the aforementioned criteria will help Mines Action Canada inspire the world to preemptively ban AI military robots that lack human intervention, and inspire a more humane future.