# Need Identification and Problem Statement

Team F31:

Mohammad Al-Mousa Al-Elian,

Saif Alshawabkeh,

Avery Deschamps,

Joumana El Hajj Hassan,

Grace Fitzgerald

GNG 1103 – Engineering Design

## Introduction

Mines Action Canada is a humanitarian disarmament organization with advocacy, research, capacity building, youth engagement and gender as its pillars. They are fighting a digital dehumanization battle as autonomous weapons turn people into simple numbers used to decide who lives and who dies, violating international humanitarian law.

## The Problem

Autonomous weapons raise several ethical issues that decision makers need to be made aware of. Politicians and diplomats still see this issue as theoretical, and their perspective is that a revolution in warfare would have a major impact on many individuals. The following paragraph will explain what form the solution should have.

## Our Goal

Design a VR experience that illustrates the ethical concerns that autonomous weapons raise, and the dangerous impact it manifests in the battlefield, to take the issue from the abstract to reality for decision makers. Our client wants us to bring a reality aspect to our design to deliver the true impact in an appropriate manner without making it drastically violent.

## The Client

Mines Action Canada is a small humanitarian disarmament group based in Canada with experience working with humanitarian disarmament campaigns, as well as various international and Nobel Peace Laureate organizations. They take a feminist and anti-racist stance as it is one of their pillars.

## Clients Concerns about Autonomous Weapons

There are many concerns about Autonomous Weapons that our client highlighted. We will be focusing on these concerns during the development of our design to raise these issues to the targeted audience.

The client's concerns are mainly ethical and humanitarian. The client is worried about the consequences of taking human intervention out of the combat loop, reducing human lives into simple numbers and targets. They also voiced concern about ambiguous accountability in case of system failures and the morality of masking target selection behind a hidden, non-discriminating algorithm.

Most international laws and treaties were written with the assumption that humans are involved in both sides and are not entirely prepared to handle cases where humans are not the decision-makers on the battlefield. This will pose the issue of how robots could be held accountable in case of mistakes.

## Target Audience

The client's target audience are mainly parliamentarians, diplomats, and government officials, who's limited knowledge of the topic is often from a policy or security perspective, rather than from actual field experience. The general public could also be considered a target,

as government officials generally follow public opinion. It is also important for them to understand what decisions are being made on their behalf.

## The Restrictions

The client was very clear in the presentation about certain things to emphasize or steer clear from. These aspects are presented below:

- No real-life nations, corporations, or entities should be referenced or blamed. Any characters or scenarios referenced must be entirely fictional.
- The program must have a bilingual option as it will be presented in Canada.
- Graphic and violent content should be kept to a minimum. If the game can't go on the front cover of a newspaper, then it is not appropriate.
- Under 5 minutes with little to no unnecessary or awkward movements
- The capacity of the experience should be individualized.
- Take in mind any health conditions that might be triggered using VR headsets.
- The setting can be land, sea, or air – but avoid space-based or futuristic weapons and scenarios.
- Attempt to have a call to action at the end; and make the message clear that autonomous weapons must be prohibited.
- Focus only on offensive weapons – defensive systems are fine.

## Previous Works

The United Nations Environment Programme has already experimented with showcasing the scale and impact of climate change via VR experiences, through their 'Meet your carbon footprint'. It tells a story and shows the link between daily activities and individual carbon footprint.

Bear 71 VR is an interactive virtual reality documentary created by the National Film Board of Canada. It aims to show the impact of human interaction on a bear tracked by wildlife conservation organisations. The data collected from the bear is serialized and, despite being shown as a story using abstract symbols, still makes it possible to sympathize and sometimes relate to the subject.

These works used non-conventional technology to better deliver a more memorable message with a more practical approach. However, the developers - Sony and Google respectively - involved in these works prioritized showcasing their technical innovation above the actual message, and so the messages were greatly simplified. We instead aim to better integrate such technology and put the message first while still being clear and concise.

## Conclusion

In summary, we aim to change decision makers' perspective on autonomous weapons by designing an immersive virtual reality experience that demonstrates the humanitarian damages and consequences these weapons bring.