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Ethics of Autonomous Weapons

Autonomous weapons are not a new idea within the military. Since 1918, the military started the experimentation with guided missiles; in the last years of the First World War. Although they were not automated this could be said to be the start of the development of autonomous weapons. Autonomous weapons are defined by three different systems. The first is "human-in-the-loop" system, with this system a human operator is required to perform the autonomous weapons' functions. In this system is it more guided than autonomous. The second system is "human-on-the-loop", which means that the autonomous weapon is independently able to acquire and engage targets, but a human operator can override at any given time. This second system is more autonomous that the first system. Finally, fully autonomous, is the "human-out-of-the-loop" system which is when the weapon has the ability to detect a target and destroy it if the weapon concludes that it is an enemy target ("Robots with Guns…"). This is done without any human supervision. There is a huge debate around autonomous weapon systems mainly fully autonomous weapons which are also known as lethal autonomous weapons (LAWS), and killer robots.

For this paper I will be focusing on a specific definition of autonomous weapons because it is difficult to address them when it is not clear what autonomous means. I will be defining an autonomous weapon as which have capability of functioning at some level without human input or supervision. To be more clear there is a difference between automated and autonomous

systems. Automated systems are systems that are pre-programmed, meaning that each task the system does is already specified with certain inputs and outputs and cannot do anything besides what it was told to do. On the other hand, and autonomous system is “one that independently and dynamically determines if, when, and how to execute a task” (Cummings). An example of an autonomous weapon is the Patriot missile.

The Patriot missile uses a ground-based radar to find, identify and track the targets. When a Patriot missiles finds a target, another scan is made to find specific details about the target. The goal of the second scan is “to determine the speed and heading of the target and also to identify it as a friend or a foe” (Brain). If the computer decides that it is an enemy target it communicates with the Engagement Control Station(ECS) to calculate the initial heading for the missile. Once the missile is launched, as it is still communicating with the ECS, the missile uses it’s own built-in guidance computer to calculate where the hit to take down the target will be. The Patriot missile is able to protect soldiers and civilians from a missile attack because it is able to shoot the enemy missiles down, for this reason it has been used in many situations.

The Patriot missile is just one autonomous weapon, there are others that can are being developed or being planned. Many questions and concerns arise from the use of autonomous weapons. There are obvious stakeholders in this situation such as the United States military and the Department of Defense. The United States Department of Defense’s mission is “to provide the military forces needed to deter war and to protect the security of our country.” The main concern for the Department of Defense is to keep U.S. citizens safe. The military, which reports to the Department of Defense therefore has the same overall mission, is using these systems as a defense against enemy targets. The military is able to use these systems because of policies

currently set in place. Policies that are set in place by the U.S. government, or intergovernmental organizations such as the United Nations.

There are also the companies who make these autonomous weapons. As an example, Lockheed Martin is the developer of the Patriot missile. Lockheed Martin states that their values are to do what's right, respect others, and perform with excellence. Each patriot missile currently costs $2 to $3 million, so it may be Lockheed Martin's revenue is high from producing these missiles. One thing to keep in mind is that Lockheed Martin does not just provide warfare to the United States but other countries. They recently received a $25.4 million contract for foreign military sales to Qatar. "The award goes toward the Phased Array Tracking Radar on Target, or Patriot, surface-to-air missile system" (Carlson).

Apart from just the government and companies or corporations, U.S. citizens are also stakeholders in this issue. There are some U.S. citizens who believe that autonomous weapons should be banned, they believe machines should not be able to make life or death decisions. Not only are U.S. citizens stakeholders, but also the citizens of other countries. Autonomous weapons could be used in other countries so their citizens must be taken into consideration.

Generally people always have concerns about emerging technologies. However, there are so many concerns people have about autonomous weapons it is hard to address them all. Some of the main concerns involved how autonomous weapons would be programmed to make ethical decisions. If autonomous weapons continue to be developed whose morality or what morality would we base the decisions on? Also, do we want computers to be making these ethical decisions? All of these concerns are valid and as the technology continues to be used, then these questions must be answered, if not clearly, then they must at least be addressed. It is definitely

difficult to answer these questions, but answering these questions also helps deal with some of the challenges being faced by autonomous weapons.

For one, there is an unclear responsibility of who should be the one to point the finger at when something goes wrong with an autonomous weapon. For example, if an autonomous weapon shoots down a friendly aircraft who is responsible for that mistake? Would it be the developer of the weapon? The commanding officer? The government? In the military, the commanding officer would be the one responsible, but there is not something set of who should take responsibility. Another challenge is that people believe that with autonomous weapons being used, it will create lower barriers for war. If we have weapons that fight when we tell them to, why wouldn't we use them? It would become easier for us to go into war. This argument that autonomous weapons lowers barriers for war seems to hide " a logical implication that we should not do anything that makes armed conflict more palatable: we should not attempt to reduce friendly casualties, or improve battlefield medicine, or conduct any more research that would make victory more likely and quicker" (Linn). So in other words do people want is to raise barriers to war, make war are brutal as possible so that it is seen as a last resort?

There are also technical challenges involved with developing autonomous weapons. Due to the fact that the United States must follow the International Humanitarian Law, target discrimination must be very important. "The International Humanitarian Law is a set of rules which seek, for humanitarian reasons, to limit the effects of armed conflict" ("What is the International…"). Under this law it is legal to kill, but there are three requirements that need to be met. The first is to be able to discriminate between combatant and non-combatants. This protects the persons who are not participating in warfare. The second is to be able to assess

military necessity of an attack. Under this requirement, if a person surrenders then an attack isn't needed; hold fire. The third requirement is to be able to judge proportionality of collateral damage. For example, if a the target is one terrorist in a huge town it is not proportionally correct to bomb the whole city when the target is one person. Meeting these requirements seems like a difficult task, but we must consider that discriminating targets is difficult for human soldiers, so should we hold machines at a higher standard?

Logically autonomous weapons would put the United States at a competitive advantage. Advantages of autonomous weapons include accuracy, speed, safety, and efficiency. Some of the reasons behind these advantages are that computers are more precises and can process information a lot faster than humans. Disadvantages of autonomous weapons include complexity and moral questions. The main concern that causes a disadvantage is that power to kill is being places in machines; dehumanizing war. Due to these concerns, challenges, advantages, and disadvantages actions must be taken. One action that can be taken, is to keep the development of autonomous weapons, however autonomous weapons cannot use the "human-out-of-the-loop" system. This would mean that autonomous weapons can be developed and deployed as long there is a human supervision. This action would minimize the amount of risk put on U.S. soldiers' lives as well as decrease the number of soldiers needed in the battlefield. Decreasing the number of soldiers on the battlefield would therefore decrease the number of friendly casualties. Another action that can be taken is to just ban all forms of autonomous weapons from being used. The main reason being that humans should be the only ones making life or death decisions.

If we look at these actions through an ethical viewpoint there are reasons to take and not take each action. Using the utilitarian approach, the action that produces the least pain and

distress is the best action to take. The first action, which is to use supervised autonomous weapons would potentially minimize the amount of civilian and soldier casualties. It also has a greater protection that could not otherwise be offered to civilians. The first action could also potentially decrease the amount of casualties due to human-error. If the second action is taken, banning all autonomous weapons, soldiers would still be needed to be sent to the battlefield. The number of casualties would not decrease. Therefore causing distress on the soldiers' families.

The action to be taken can also be considered through the fairness or justice approach. The fairness or justice approach states that those who are equal must be treated equal and those who are unequal must be treated unequal. This could be applied to both actions. The first action follows this approach such that it helps follow the International Humanitarian Law. The law makes war fair to all, by using a human to supervise the autonomous weapons the technical difficulties of target discrimination as well as assessing military necessity would be solved. Using this approach, helps strengthen the argument for taking the second action being to ban all autonomous weapons. If we use autonomous weapons we are not being treated those who are equal equal. A human soldier fighting a machine on the battlefields is not fair since machines can be rebuilt and the only value they have is monetary. Banning autonomous weapons would make warfare fair, and would make the battlefield equal between enemies.

After assessing both actions, the best action to take would be to keep the development and deployment of autonomous weapons as long as they are supervised. Using autonomous weapons would cause less distress, and would still be slightly following the fairness or justice approach. Currently, the U.S. has a policy in place that states that only "human-supervised autonomous weapon systems may be used to select and engage targets, with the exception of

selecting humans as targets, for local defense …". By not using humans as targets that is making the arguments against this action weaker. Autonomous weapons would not be directly killing humans, or enemies in the battlefield. The development of autonomous weapons is not close creating a Terminator, the development will most likely be for autonomous missiles as well as telerobots. With proper regulation autonomous weapons can help the United States instead of causing more distress.

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