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Project Technology Impact Report

RCET 3374

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Ethical implications must be considered when creating any new product, the Laser Arcade project is no different. While the Laser Arcade will be safe with low power lasers, there are still concerns of potential waste and general safety of the project. The primary concerns for the Laser Arcade would include environmental waste and gun handling safety.

The Laser Arcade project consists of several things that are wasted, or may have a negative impact on the environment if disposed of incorrectly. Electronic waste (e-waste) is a growing concern in the world, with the annual waste estimated to be, “more than 6 kg per person, totaling 44.7 million metric tons in 2016” (Awasthi, et al., 2019). The Laser Arcade PCBs and components, as well as the modified chassis’ should last a long time and are not disposable, the main concern comes from the batteries. Batteries, if disposed of improperly can leak harmful chemicals or even cause fires. Using rechargeable 3.7V batteries in the blasters will reduce the need to dispose of batteries. However, taking the proper steps to recycle these batteries when needing replaced is necessary to reduce the amount of e-waste of the project.

The safety concern of the Laser Game project comes not from the project itself but rather the potential gun safety implications of toy guns. High school students who would handle these blasters at recruiting events in a fun way may cause them to believe that all guns are toys, and handle real guns as such. A study conducted in the 1990s found that half of the kids were unable to tell the difference between a real gun and a toy one (Doh, et al., 2021, p. 6). Meaning that the teenagers handling these blasters may not have adequate firearm handling education. However, the Laser Arcade could be used somewhat as a training aid to teach teens about proper gun handling. Green Line Arms states that games offer dynamic ways to grasp important concepts, making training engaging and effective, making it easier to remember the details and making safety second nature (2024). So the Laser Arcade may be used to actually help educate teens on gun handling safety, as long as players are supervised and instructed on how to handle the blasters.

Although there are potential negative impacts on both the environment and safety of gun handling, both concerns can be minimized. Throughout the life of the project the primary potential harmful waste, the batteries, can be reduced by using rechargeable batteries for the blasters, and ensuring the proper handling and recycling of them in the future. Additionally, the concern of gun handling safety of high school students who play the game can be reduced as long as proper, safe handling is required by supervisors of the game, using it somewhat as a safety teaching aid. As long as these steps are taken in the future, there are little to no ethical concerns within the Laser Arcade project.

Works Cited

Awasthi, Abhishek Kumar, et al. "Circular economy and electronic waste." *Nature Electronics* 2.3 (2019): 86-89.

Doh, Kiesha Fraser, et al. "The relationship between parents’ reported storage of firearms and their children’s perceived access to firearms: a safety disconnect." *Clinical pediatrics* 60.1 (2021): 42-49.

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