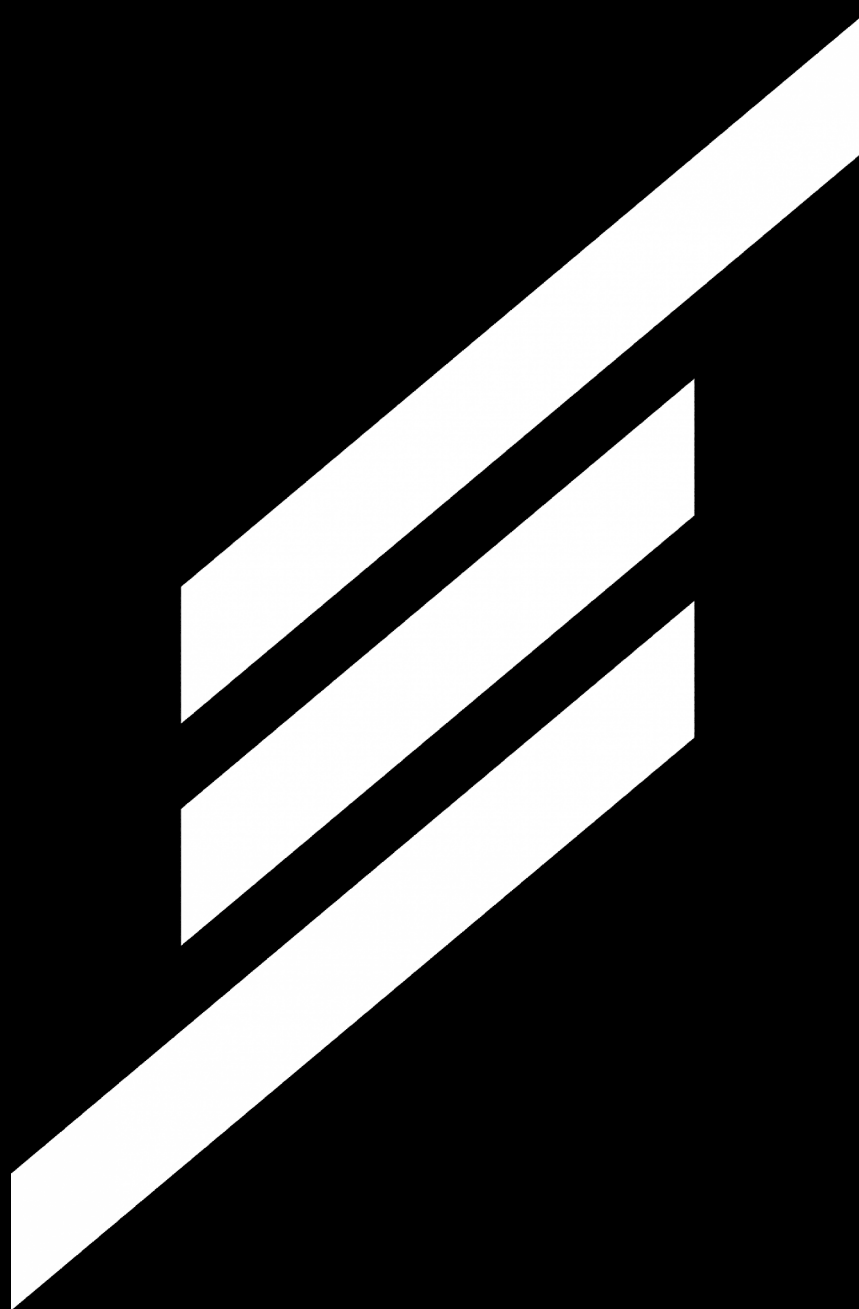


Surround Strap

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ABSTRACT

SET Products is a group of like-minded, hard working individuals committed to making video games accessible to a wider audience. As a team, we understand the importance of gaming, especially during times of social distancing, and we hope to make its fun and competitive aspects more available to people around the world- particularly the deaf and low-hearing community.

THE NEED

SET Products has identified a large gap in the market when it comes to gaming. Worldwide, there are over 400 million gamers who are deaf or low-hearing, with no significant product or service to accommodate their impairment. Though there are currently products that exist to help impaired people play video games, such as the Microsoft Adaptive Controller and the Quadstick, they are intended to help gamers who struggle with muscle and appendage disabilities. Unfortunately, the deaf and low-hearing community of gamers has been relatively ignored to this day. As such, we have designed a wearable strap device capable of providing haptic feedback from in-game sounds, thus giving these people a more complete gaming experience.

THE PRODUCT

The Surround Strap is a wearable strap device that goes around a person's waist or torso. It is equipped with six ROB-8449 vibration motors placed at 60° intervals around it, which generate vibrations at different frequencies according to crucial in-game sounds detected by our machine learning algorithm. These motors are located in plastic enclosures designed to be adjustable around the strap. This ensures people of different body sizes and types can still wear the strap. In addition, the strap is removable, so that it can be washed and stored easily. The machine learning algorithm accesses audio files from the game that a user is playing, and is trained to recognize and reproduce these sounds. Then, using pulse width modulation and an ESP32 microcontroller, those sounds are converted into vibrational and directional feedback that corresponds to the location on the strap.





COMPETITIVE ADVANTAGE

Our device is designed to be strategically competitive within the market. We have taken steps throughout the manufacturing process to ensure the product can be mass produced, since most of the process is relatively inexpensive and efficient. This means our team can sell our product at a rate lower than many of the competitors and other existing products on the market, and still turn a profit. Additionally, since there aren't many other products available that address this particular problem, our product demonstrates innovation and potential to solve other problems that are similar. For example, our product has the potential to be utilized by deaf or low-hearing cyclists or pedestrians that cannot hear important real life sounds, such as a car approaching from behind.

THE TEAM

SET Products is, at its core, a team made up of gamers. As such, we have knowledge and expertise in the importance of a complete and whole gaming experience. Our team has a diverse educational background, covering everything from business strategies to circuitry and coding to testing procedures. On top of that, we have several years of startup experience, and at least ten years of paid engineering experience. Thus, we are the most qualified team to bring this device to the market, and help address low-hearing impairments within the gaming community. Our team has personally been impacted by the challenges of deafness and low-hearing- whether it is through friends or family that struggle with hearing loss or impairments. As such, we aim to create an even playing field that not only allows deaf and low-hearing gamers to enjoy games as they were originally designed to, but to also give them a chance to play competitively- without any directionality or communication barriers.

Team 44 - SET Products - Surround Strap



-Project Manager-
Alejandro Cancio



-Logistics Manager-
Jordan Hinds



-Financial Manager-
Mohammad Alqahtani



-CAD/Mfg Engineer-
Joshua Greenburg



-Systems Engineer-
Andrew Brown



-Test Engineer-
Jacob Galan

FUNDING NEEDED

In order to get our business off the ground, SET Products requires additional funding of between \$40,000 and \$70,000. This money will be utilized for materials and manufacturing equipment, as well as advertising towards our targeted audience. We will also ensure that our company hires any software and electrical engineers needed to help maintain and update our machine learning algorithm. Once our device has established itself within the market, we will begin looking into other applications for it, and making any necessary adjustments to expand the device's capacity and effectiveness.