The ZERO:
The Zip-tiE RevOlver

Project Management

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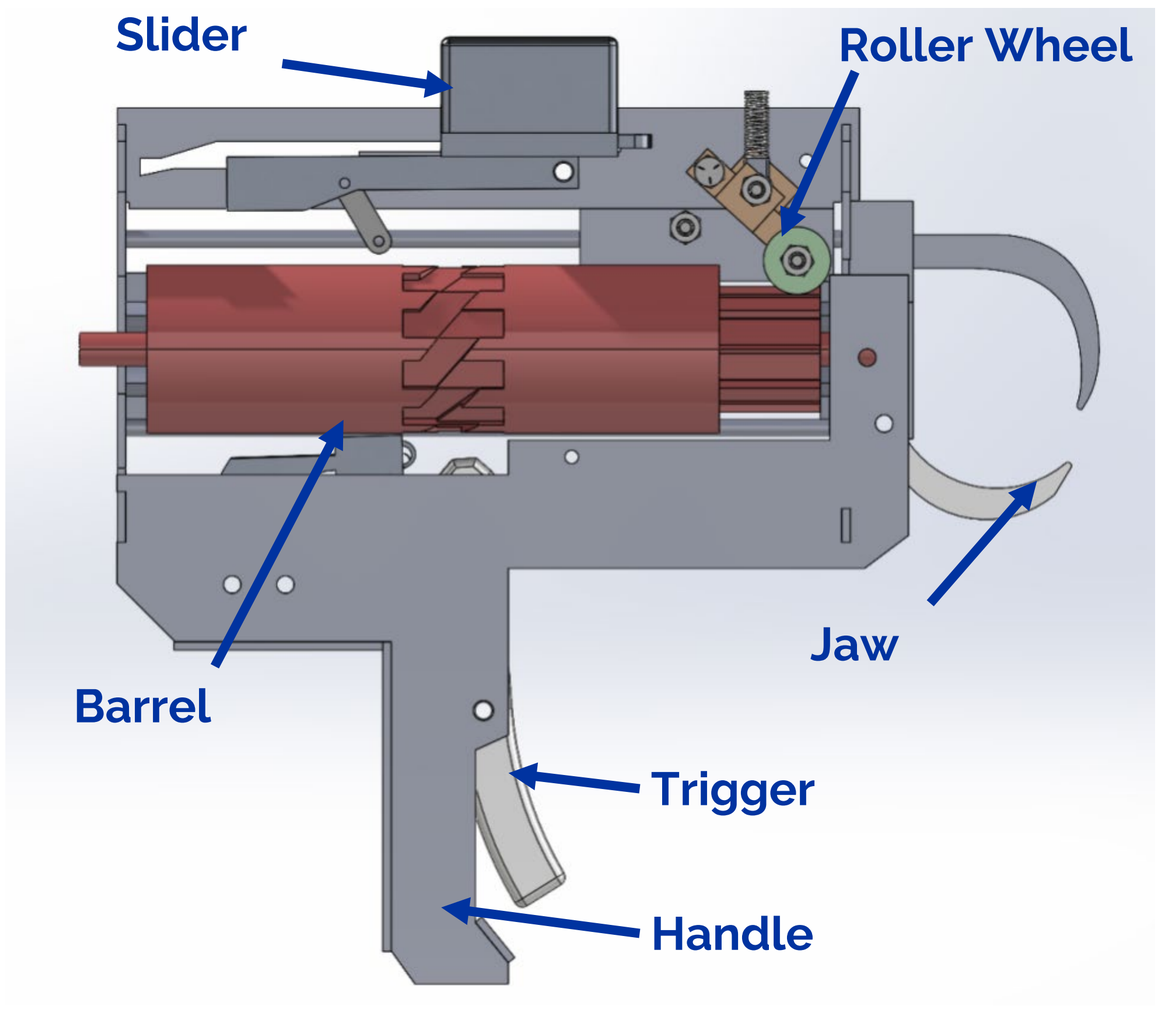
Project Overview

The Boise State University Microgravity Team has been challenged with designing a mechanical Zip-tie tool to be used during EVA missions on the ISS. NASA is looking for a new tool that will allow astronauts to fasten zip-ties to secure wire and hoses. This tool would need to have a number of zip-ties stored internally, be quickly reusable, and would need to be easily and safely operated by an astronaut in a single handed operation.



Objectives

The main objective of the Microgravity Team is to design and build the ZERO as a prototype that will help astronauts quickly and safely install zip ties during space walks on the ISS.

- Capable of installing and tightening a zip-tie around objects ranging from 0.5” to 2” in diameter/width
- Capacity to store 10 zip-ties
- Operate using only manual power
- Designed with geometry that will allow air and water to move freely through the device

Educational Outreach

The team’s research is shared with K-12 students and the local community in the hopes of inspiring the next generation of scientists and engineers. Below is a list of some of the outreach events the BSU Micro-g team participated in.

- Discovery Center of Idaho
- Idaho Science and Aerospace Scholars
- Teen Science Cafe
- Idaho Science Olympiad
- BSU VIP Showcase
- BSU Undergraduate Research Showcase