CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

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Project Number

35418

Project Title

The Claw Cane; A Cane with a Claw Mechanism for Picking up Dropped Items

Abstract

Objectives/Goals

The objective of this experiment is to compare a cylindrical grasp claw and a lateral prehension grasp claw in how well they can pick up objects, and how well each one can be walked on when attached to a cane. The ultimate goal of this experiment is to find out which will function better for the construction of my invention, the cane claw.

Methods/Materials

I attached a bicycle brake mechanism to each cane. One cane had two brakes, and the other had one brake attached to it. The brakes had aluminum flat bars, which were attached to cane tips, attached to them. Brake handles were attached onto each of the cane handles and had bicycle wire attaching the brake handles to the brakes.

Results

The lateral prehension grip (2 prong cane) ended up being able to pick up a wider variety of items and overall more items than the cylindrical grasp (4 prong cane). Also, it was sturdier, according to test subjects, than the 4 prong cane when walked on. The 4 prong picked up a total of 47/66 of the items throughout the trials. The 2 prong picked up a total of 58/66 of the items throughout the trials.

Conclusions/Discussion

The reason why the 2 prong cane was able to pick up more objects is because the 4 prong cane's prongs would interfere with each other's paths when trying to grasp something small, while the 2 prong cane's prongs would provide each other support when grasping something. The reason why the 2 prong was sturdier than the 4 prong cane is because the 4 prong's brakes would wobble more. This would happen because they were not as tightly attached to the cane as the 2 prong's brakes. Also, the 4 prong was not as stable as the 2 prong because it is cane tips and flat bars on one of the brakes had to be attached at an angle.

Summary Statement

To invent a cane with a claw mechanism attached to it that can be walked on, and when necessary, can pick up dropped items.

Help Received

Preliminary