CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
Jacob S. Kisow

Project Number
S0308

Project Title
Versatility of 3D Printed Exoskeleton Hand

Abstract

Objectives/Goals
The purpose of my project is to prove the usefulness and versatility of 3D printing in the world of prosthetics and overall medical usefulness of 3D printing. This project in particular is designed to help patients with various neuromuscular diseases gain extra strength to help perform everyday tasks that may be difficult for them.

Methods/Materials
PROCEDURES:
Model exoskeleton prototype in CAD software
Print prototype using 3D printing
Assemble and test prototype
Redesign any components necessary.
MATERIALS:
CAD Software & computer
3D Printer & filament
Solenoid
Battery Box
Wiring
Microswitch
Velcro

Results
My experiment was somewhat successful in that it proved 3D printing can be a budget-minded option for quick, personalized medical needs.

Conclusions/Discussion
Overall, my project was a great proof-of-concept. The project was easily affordable coming in at under $30, however, the motors did not reach the necessary power to have a significant effect on one's hand strength. In the future, I would worry less about a budget and more about a strong assistant.

Summary Statement
My project is about showing the versitility of 3D printing in the medical field, my project specifically is designed to give strength to patients with neuromuscular diseases.

Help Received
None. All prototypes were designed, printed, assembled, and tested in my bedroom and garage.