CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
Enrique B. Gamboa

Project Number
S0304

Project Title
Assistive Robotic Mechanism 2

Abstract

Objectives/Goals
The reason why I chose to construct a wearable robotic arm that allows people to lift heavy objects they can't normally pick up.

Methods/Materials
4 feet long aluminum stick to make the frame of the arm, drill to drill holes in the aluminum sticks, Velcro to attach the arm to the user, servo motor to provide movement for the arm, a ball bearing to make the arm move, switch to control the arms movement, and screws to build the arm.

Results
I was able to achieve my first goal which was to make the robotic arm under a budget of 35 dollars and In total I invested around 15 dollars in aluminum sticks bolts and screws. This takes me to my second goal which was to make my arm have a wight under 6.2 pounds. I achieved this goal because the arm weight a total of about 2 pounds. I was not able to achieve my third goal which was to try the robotic arm on someone with muscular disabilities. I did not achieve this goal because I was still not satisfied with the end result so that the next time I visit him it works 100% of the time. In addition I was not able to achieve my last goal witch was to be able to lift objects 10 pounds and above. I did not achieved this goal because it was only able to lift up about 4 pound at about 90 degree difference from the arms original state.

Conclusions/Discussion
In conclusion my problem was correct because I was able to construct a robotic arm capable of lifting heavy objects people they can't normally lift and achieved this by completing 4 goals in mind. I was able to achieve my first goal which was to make the robotic arm under a budget of 35 dollars and In total I invested around 28 dollars in aluminum sticks, pipes and air values. This takes me to my second goal which was to make my arm have a wight under 6.2 pounds. I achieved this goal because the arm weight a total of 3 pounds. I was also able to achieve my third goal which was to try the robotic arm on someone with muscular disabilities. I achieved this goal by trying out the arm and a nice and friendly man that has muscular disabilities.

Summary Statement
I built a robotic arm that helps people with muscular disabilities.

Help Received
I would like to thank Eva and Enrique for buying the aluminum sticks and driving me to Homedepot and Mr.Orantes for helping me check my writing.