Building a Prosthetic Hand With Microcomputers and Sensors

Osguthorpe, Jeron (School: SUCCESS Academy - SUU)

In my 2022 SUCCESS Science Fair Project, I am building a Prosthetic Hand using Microcomputers and Sensors. The goal of building this prosthetic hand is to make a prosthetic hand that can complete many functions that a normal hand would be able to perform, and functions that other, more expensive, prosthetic hands can perform. For this project, we will be combining engineering of the hand itself using CAD/3D Printing with programming (python code) so that we can create a hand that can complete many of the same functions and tasks that a normal hand/expensive prosthetic hand can complete. This includes the following tasks. Pick up an item. Hold a pencil. Shake someone's hand. Make a fist. Tap or Push Buttons. Point. Show numbers using the fingers. Show hand gestures. The point and the goal of this hand are to make a prosthetic hand that in theory would be much cheaper compared to a normal prosthetic hand of the same ability. This would allow people that need a prosthetic to have one in a much more affordable manner, this project is simply to help a problem that needs more addressing, and that is the point of this project, to address and attempt to fix those problems. In the end, this project has seemed in that it has completed the goal of being a relatively cheap prosthetic hand that can complete many of the same functions as a normal or expensive prosthetic hand. The project has been able to do this by using cheap, but strong parts and using code to achieve only 0.429% of the cost relative to other hands and has been able to be quite functional relative to normal hands and expensive prosthetic hands.

Awards Won: