Bridging the Gap Between Robot and Human Interaction

Medlock, Landon (School: Alma High School)
McKinley, Ethan (School: Alma High School)

Our research problem is creating a fully automated hand. This research applies to surgical robotics and the advancement of surgical techniques, but it also has applications in industrial production and production on a large scale. Our goal is to design and create a fully automated Robotic hand that moves in accordance to the movement of our hands through a glove. First, using open source printing software, Thingiverse, 3D print a hand using PLA plastic. Next, 3D print the finger joints using flexible filament. Assemble the hand using fishing line to connect the servo motors which will be used to move the fingers. Connect the motors to the glove containing flex sensors. Programming will be completed using an Arduino to control the movements of the hand. Data was analyzed through trials of motion movements of the hand. In our trials, we were able to have the hand close to make a fist, as well as individual finger motion was recorded.

Awards Won:
Arizona State University: Arizona State University Intel ISEF Scholarship