Color and Object Detection for the Blind

Figueroa, Danaya (School: Grand Terrace High School)
Munoz, Priscilla (School: Grand Terrace High School)

This project aims to help visually impaired people recognize color easily. Over 300 million people are color blind. The inspiration for this project came from a makeup influencer who lost her ability to see color after an accident. The goal of the Color Detection Glove is to help people like this influencer quickly identify colors independently. The Color Detection Glove helps identify color with voice activation by Alexa. First, the students coded a program on an Arduino UNO board to serve as the project's brain. Second, with a color sensor (powered by four LEDs) sewed on the palm section on the glove, the sensor detects light frequencies. After the sensor determines the color, the Liquid Crystal Display (LCD) prints the name of the color. Third, the students attached a Re-speaker Pi HAT to a Raspberry Pi 3. The Re-speaker speaks out the color of the object the user wants to be identified through the Raspberry Pi 3,you can ask Alexa to help you identify the color that sensor is picking up; along with every other feature an Alexa has. The glove will identify color by touch, with voice activation by Alexa. All this is programmed by Arduino, adding the Alexa coding into the color sensor code with adjustments as well. This device will help the user identify the colors of the objects they are using. Future improvements include creating a sensor that detects not just color but objects as well.

Awards Won: