TouchBraille: A Tablet for the Blind

Esparza, Abril (School: Great Mills High School)
Hou, Angela (School: Great Mills High School)

Globally, an estimated 40-45 million people are blind, and an estimated 160 million are affected by deafness and blindness. Those who can hear can rely on speech to learn and communicate, while those who are deaf-blind use Braille. Braille books are heavier and more expensive than regular books, and current Braille tablets cost between $2000-$17,000. To make learning and communication more accessible, this project aims to create an affordable, portable, and refreshable Braille tablet for the blind community. After receiving instructions from Arduino IDE programming that translates words into Braille code, the tablet will have Arduino hardware that raises dots for the Braille user. Results of testing the tablet show it has 100% accuracy, can fit on a classroom desk, and is under $150. In conclusion, the tablet met all the criteria. The main limitation is that the motor's whirring is loud for the user. Future improvements are to use electromagnetism instead of servos to raise and lower the dots. This will allow more cell space so the tablet can represent a word(s).

Awards Won: