Cost-Effective and Educational Refreshable Braille Display With Cognitive Learning Features

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Current commercial braille displays often cost upwards of a thousand dollars, creating a socioeconomic barrier that is untraversable to many. Research has shown that having braille education in childhood is highly beneficial to their later life in the United States and across the world. The high price of refreshable braille displays makes it difficult for visually impaired children to access braille education. This project aims to make a low-cost refreshable braille display that can be used in elementary education with minimal training to make learning braille accessible to all. The device interfaces with a computer to display text in the standard 6-dot braille pattern using mechanical and chemical actuators, along with features to give real-time feedback to the user. The device was prototyped through many iterations of mechanical and chemical actuators and later thoroughly tested showing good durability as well as reliability. The device was also demoed to teachers of the visually impaired with positive feedback.

Awards Won:
Third Award of $1,000