Creating an Affordable and Open Source Braille Printer

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Only 10% of blind children in school are taught to read Braille; one of the major barriers is the comparative expense and scarcity of Braille materials. A small volume printer will cost anywhere between $1,800 and $5000, meaning many people cannot afford one for their homes. This project’s objective was to design an open source and inexpensive Braille printer the blind could use to print small amounts of Braille materials like notes, labels, documents, and articles for their personal use. The major goals were to reduce costs and increase accessibility. In order to accomplish this, most of the parts were 3D printed and require no technical knowledge to assemble. The printer uses a rotating head with pins to punch the correct combination of holes for each letter. It is capable of printing a full sheet in a short amount of time and has a small footprint for portable use. The software runs on an Arduino microcontroller which keeps cost and complexity down. Text can be inputted to the controller's serial monitor and then it will be translated into Braille. With this setup the printer is completely open-source, allowing anybody to download the software and objects for themselves. The vast majority of the characters conform to the Library of Congress’s Braille standards and are easily readable. The whole assembly comes in at around $100 depending on where the parts are sourced. Affordable and easy to use, this printer has the ability to dramatically change the blind’s relationship to Braille.

Awards Won: