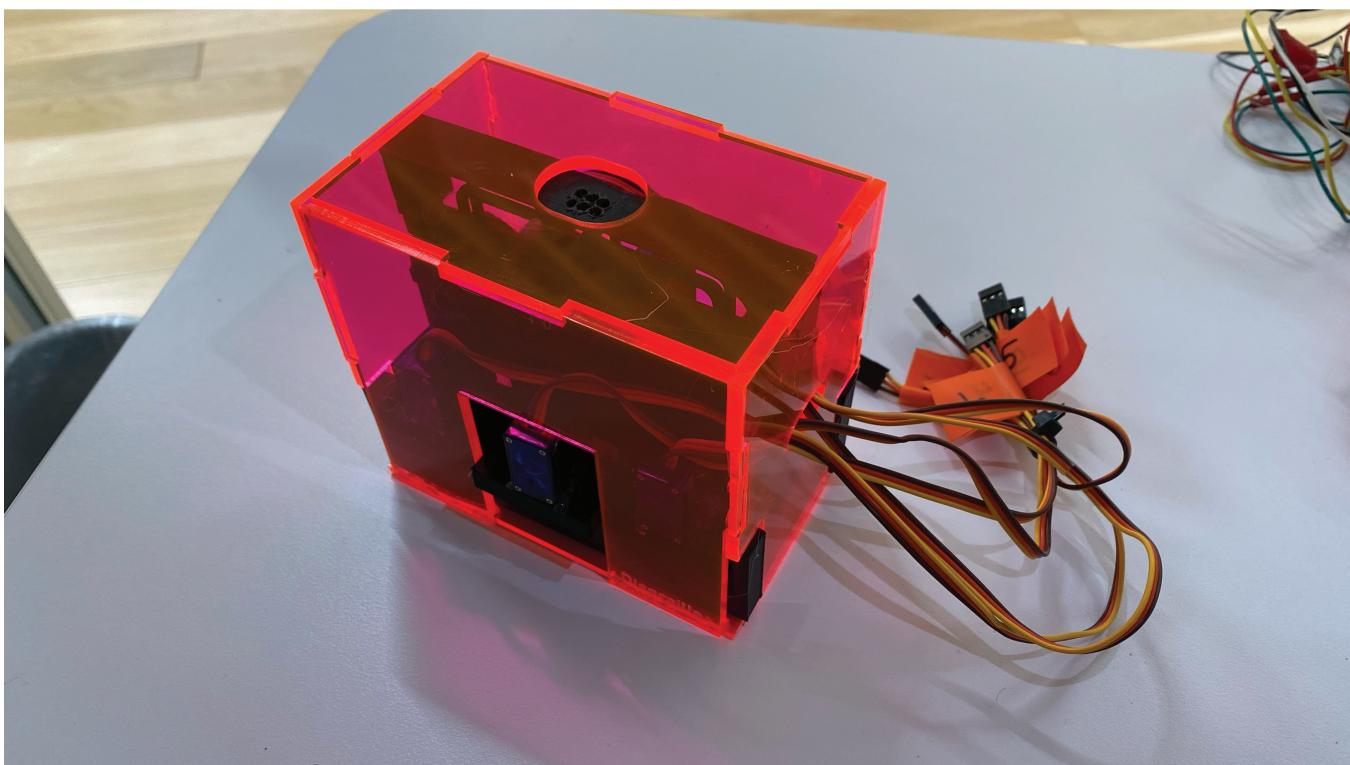


DISPRAILLE

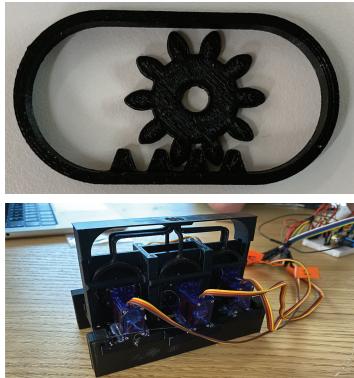
The Portable Braille Display

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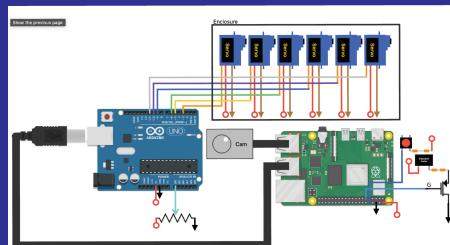
For deafblind people, braille is a crucial way to interact with the world. Dispraille hopes to make this easier. Using optical character recognition (OCR) software, Dispraille detects text around its user and convert it to braille using a 6-pin tactile interface. By placing their finger on the 3x2 matrix on the top of Dispraille, users can choose to read the text around them through a quick letter-by-letter runthrough. For this prototype, we only used the materials provided by MakeHarvard, hoping to enter it into the MakeHarvard original category.

Mechanical



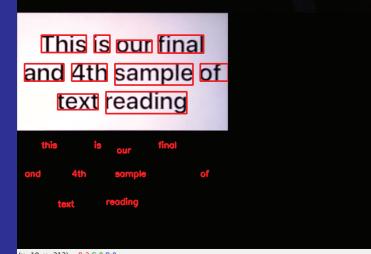
Our mechanical system used a rack and pinion system to lift the pins out of the display. Since braille is very size-specific, we added bent pins in order to bypass the limitation of the motor size and make the display standard braille size with six micro-servos. We then mounted these into a custom 3D printed case and added a cover

Electrical and Software



Our electrical subsystem is made up of an Arduino module which is connected to a Raspberry Pi through USB and our set of six motors through its six digital pins. Each pin is mapped to a different position on the braille display, and each letter is mapped to a different combination of pins according to Braille 1. Our electrical subsystem also includes a vibrating motor and a button. The vibrating motor is to alert the user that the webcam is recognizing text, while the button confirms that the user would like the text to be translated to braille.

Software



Our software system uses the OpenCV and Tesseract Python libraries in order to create a real-time Optical Character Recognition system. This reads text from a webcam live feed and sends serial information to an Arduino sketch, which converts the text into servo commands and lifts the corresponding pins. [GitHub Link](#)

