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Project Pre-proposal

Preproposal - Page Turner

For our final project, we would like to work on a page-turner designed for sheet music. When performing, musicians have both of their hands occupied, making it difficult to quickly move their sheet music. Our goal is to design a music stand or stand attachment that could easily flip between sheets of music without distracting the musician. The musician would play an active role in when the page should be flipped. In particular, one option is to have the page turn when he/she looks at a designated spot on the device.

Page-turning system

The page turning device will need to be capable of moving one page at a time without displacing the other pages. One existing technology that could shed some light on how to do this is a basic printer. Printers use small rollers to pull a single piece of paper out of the paper tray. Another issue we will need to deal with is flipping a small stack of sheet music vs flipping the pages in a book of sheet music. For our MVP, it seems most practical to focus on flipping a stack of sheet music.

How Printers Work: http://computer.howstuffworks.com/inkjet-printer2.htm

Eye-tracking system

Another major component of this project is the eye-tracking system. We will need to track the musician's eye movement with enough accuracy such that the pages will not accidentally flip when the person did not mean for them to. Time providing, we may want to include a "backwards" option to flip back to a previous page.

Eye-tracking product video:
https://www.youtube.com/watch?v=2q9DarPET0o

Example code for eye-tracking:
https://s3.eu-central-1.amazonaws.com/theeyetribe.com/theeyetribe.com/dev/general/index.html

Scanning system

A potential addition to his project would be a scanning system. Beforehand, the musician would scan their sheet music, which would then allow the system to figure out what notes would correspond to the end of the page. Upon hearing the frequency of notes corresponding to the end of the page, the device would turn the page.

https://en.wikipedia.org/wiki/Optical_music_recognition

Research in analyzing sheet music
https://pdfs.semanticscholar.org/4710/13f715743773a59dac768974678aa37f0bae.pdf