

The Page Flipper Carrie Brandis



Figure 1: The Page Flipper

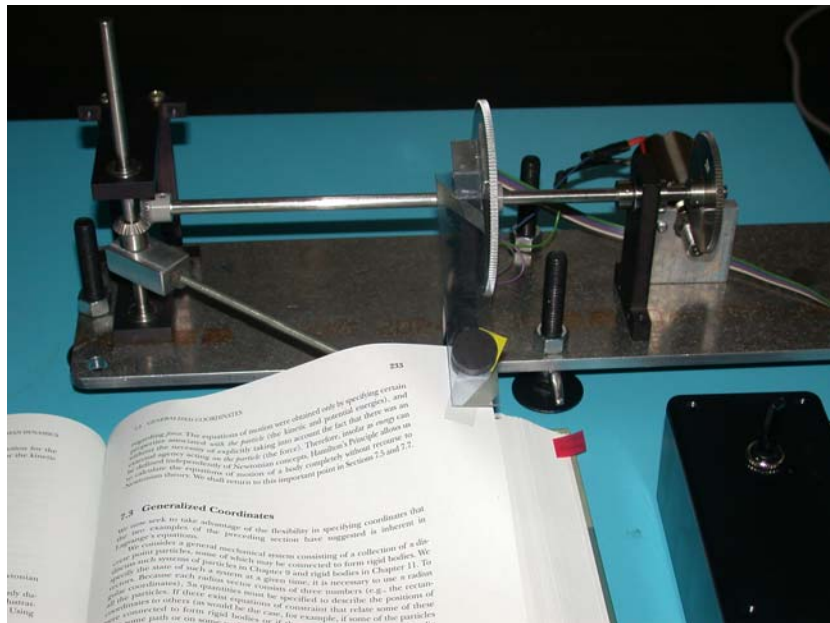


Figure 2: The Page Flipper lifting a page

Summary

The simple task of reading a book becomes challenging when dealing with a fine motor skill disability. Alzheimer's disease, Cerebral palsy, and Parkinson's disease, are just some of the

illnesses that affect fine motor control. The goal of this project was to create an automated page turner that would allow users to turn a page with a simple button. Some human control is required, but the problem of separating and lifting one page from the rest is eliminated. This device should not obstruct the view of the reading material, while being compatible with books of different sizes. Only one page should be turned at a time, and most importantly, besides a little help with setup, the user should be able to independently read a book. The device also needs to be considerably cheaper than the \$3,000 devices currently out on the market.

Concepts considered during the design process focused on the objective of lifting only a single page. Static electricity was considered, but due to the necessity that humidity be low it would have made the device unreliable. A roller was also considered to spin along the margin and lift the page. Due to the fact that a precise amount of pressure and rotation was required to lift only a single page, this option didn't seem to be the most feasible. Adjustments can't frequently be made to the device if it is to meet the requirement of being independent of any outside help. This is difficult since the thickness of the book is constantly changing as pages are turned. The flipping stage was comparatively simple, and involves using a rotating arm that would carry it over to the other side.

The final design used adhesives to lift the page. This was the most inexpensive option that seemed the most reliable. This design required a reversible motor to lower the adhesive onto the page and then lift it back up. The swinging arm was able to be connected to the same motor using gears and a shaft. It was timed so that when the adhesive started to lift the page, the arm would slide under the lifted page, flipping it over. The device would then go in reverse, preparing for the next page to be turned. The height of the device can be adjusted by using nuts and bolts for supports. This is important for reading thicker books. The height adjustment would need to be done during setup by an assistant, and wouldn't need to be adjusted again for couple hundred pages. The adhesive will also need to be replaced as well. A two directional toggle switch is used to control the device forward and backward. The device is battery powered, allowing for portability. This device should make reading a little easier for those with fine motor skill impairment.