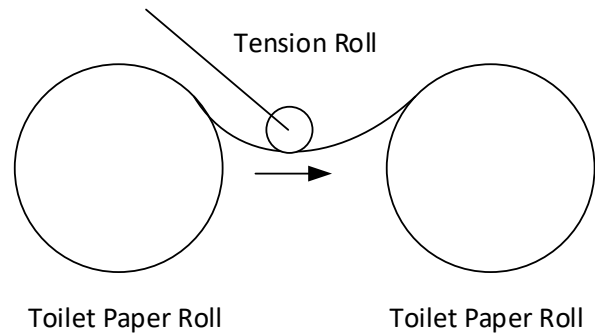
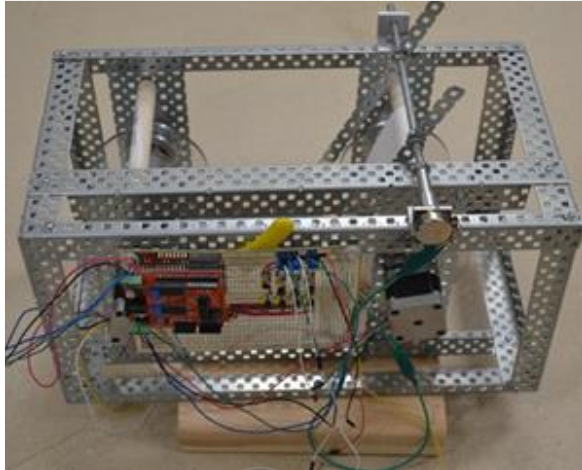


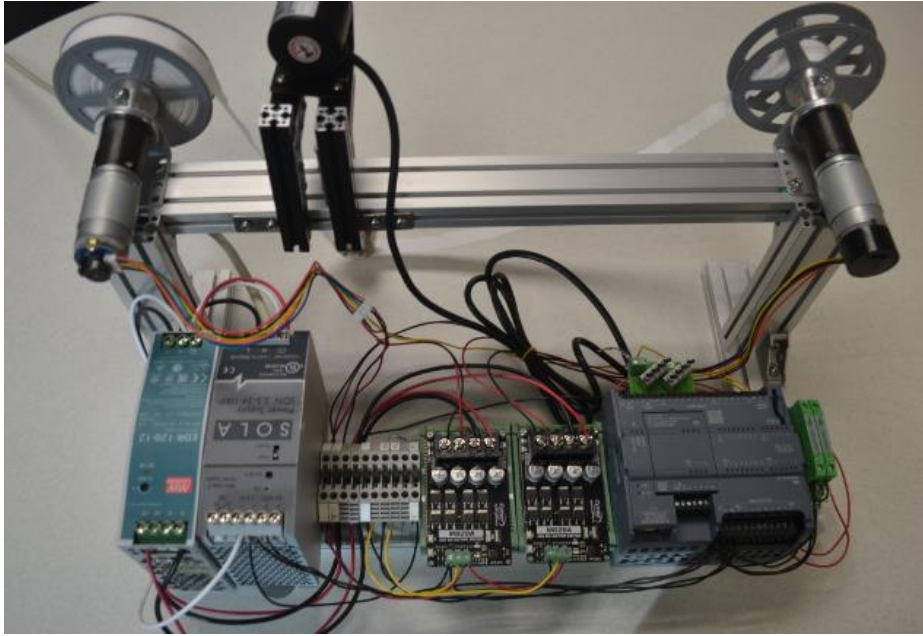
Chapter 23 Tape Rewind – PID

Toilet Paper Rewind Lab



The design of a two-axis motion system with feedback control between the two has been an objective of a lab experience for some time. The present design is nearing completion and may be ready for PLC control this semester. The lab involves two stepper motors and a PID loop feedback between the two. Tension control is to be maintained. It is anticipated that many rolls of toilet paper will find the bottom of a waste can because of this lab.

While the stepper lab was successful to the point that a MS student received his degree from programming it, the design was not satisfactory. The numerous problems keeping this system operational was enough to cause the construction of the winder shown below. This design uses two dc gear motors to transfer a cloth tape from one reel to another with a dancer roll in the middle. The design is nearing completion at a reasonable cost of about \$400/each. This design has the advantage of position and speed control of two motors and the PID control of the tension with the dancer roll.



Later Motor Speed
and Position
Control Design

