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INFO 4320 Design Exercise 2

Video: https://www.youtube.com/watch?v=Rezz9YrnrYM

Box:

I designed my box with simple interlocking notches and two rounded notches on the top to act as hinges.

There are four holes in the back of the box to allow for wiring and movement of the pieces which will be described next.

Pieces:

The Jack is a crescent shaped piece with a tab and hole at one end which protrudes from the box and, at the other end, a notch to allow for the attachment of various laser cut piece, in my case Mario.

There is a mountain shaped quadrilateral piece which acts as an extended track with a 1/8 inch notch to allow for the crescent to slide along.

Hole utilities:

One hole in the bottom right of the back of the box allows for wiring to the stepper motor which is equipped with a spool piece and a string tied to it.

Another long oval hole in the center of the back of the box acts as the first part of a track for our Jack piece.

There are two circular holes equidistant from the track hole on either side slightly below to allow for the string that is attached to our motor to run out of the box, through the back of our Jack piece which has a hole, and back into a fixed base point on the inside of the box.

Essentially, when the potentiometer is turned all the way counter-clockwise, the stepper motor is triggered and spools the string exactly 5 rotations which pulls the back side of the crescent along the hole and track piece towards the box. The head end of the Jack piece slides upwards and pushes open the hinged lid. At the same time, the Mario theme plays once through on the Piezo buzzer (this is not functional in my video, my buzzer may be fried or something, but the Photon blinks red and I smell burning whenever I try to run the buzzer).

Sorry for the messy fritizing diagram/schematic: