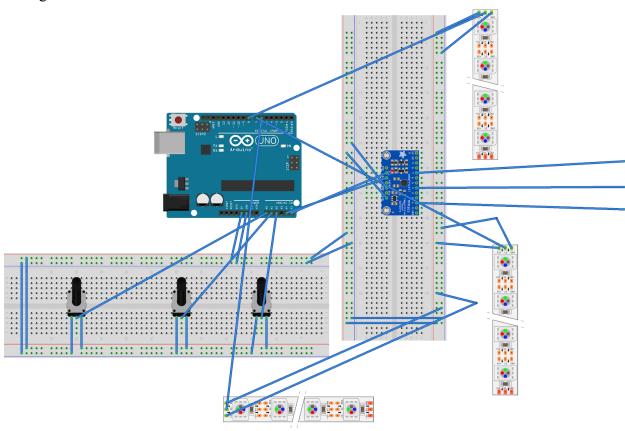The Nature of Light

Materials:
- 2x4x¼ MDF (homedepot)
- Arduino Uno
- 6 neopixels (on a strip)
- 2 breadboards
- 1 Adafruit MPR121 12-Key Capacitive Touch Sensor
- 3 potentiometers (that actually work…)
- Conductive Fabric

Wiring:

fritzing

*There should only be TWO leds per strip. Do not use all 60 leds.
**There are 3 loose wires coming from the 12Touch. Solder these to the conductive fabric and cut in circles ~2 inches wide
***Wires that connect to pins should be long; loose wires, neopixels, and pins for potentiometers. Anything that stays connected within the breadboard should be as short as possible to lay flat against the breadboard.
****Tape down everything to keep it in place.
*****I've included the fritzing file to github in case you can't tell where things are connected.

******Wait to connect neopixels and potentiometers to pins until they are taped to the boxes.
Box Setup: Laser Cut
- Big Box- 11x2x15 (makercase dimensions. fingerslots)
  - On the top, cut a rectangle <1in in width and a <6in about 11 inches from one end of the box (should leave ~4inches from the other end)
  - Right behind that with some space, cut another rectangle. ~5-6 inches in length and .5 inches in width.
  - With a little space from the edge behind the two rectangles, cut 3 (~1 inch) circles equidistant from each other. Preferably in line with the rectangles.
  - Cut a 1x1 square on the side of the box where the arduino power port will face. This is where the USB cord will go through.
  - Glue the bottom, the ends, and the side *without* the cut square together. Keep the top unglued until everything is in place.
  - Tape the potentiometer breadboard to the inside of the lid so that the potentiometers stick out through the 6x.5 rectangle.
  - Tape conductive fabric circles to inside, right over the three individual holes.
- Little Box- 6x2x1 (makercase dimensions, fingerslots)
  - No lid
  - Box will be placed upside down. (open side down)
  - Cut 3 (1x.5 inch) rectangles equidistant from each other in the center of the face of the box.
  - Glue the face and the sides together. Do not finish the box.
  - Glue onto the lid of the big box as close to the (6x1) rectangle as you can. The rectangles should be facing the large empty space of the lid.
  - Tape the neopixels into the slots, and carefully bend the wires and pull them through the (6x1) rectangle.
  - Do not close the box yet.
- Final touches: Good Luck!!!
  - Place the lid of the box on the box as if you were to close it.
  - Put all the pins in place. This gets tricky so you might have to redo it a few times.
  - Close the little box by sliding the back piece into place.
  - Once satisfied, put the lid in place.
  - Slide the power cord through the 1x1 square on the side and plug it into the arduino
  - Close the side of the box by sliding the piece into place.