



Grumpy Ghost

Truly a ghost with the most, this spooky circuitry project has LED eyes and a simple fold-out frown! Make your own this Halloween.

Written By: Joshua



INTRODUCTION

Truly a ghost with the most, this spooky circuitry project has LED eyes and a simple fold-out frown! Make your own this Halloween.

You can make this project (and many more!) with our **Paper Circuits Kit**.

TOOLS:

- [Scissors](#) (1)
- [Clear Tape](#) (1)
- [X-ACTO Knife](#) (1)

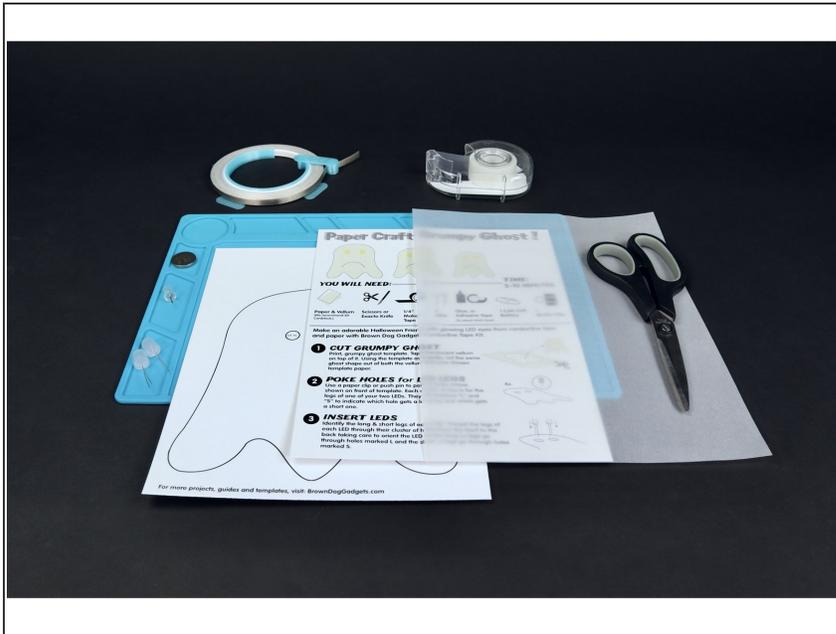
**optional*

- [Push Pin](#) (1)

PARTS:

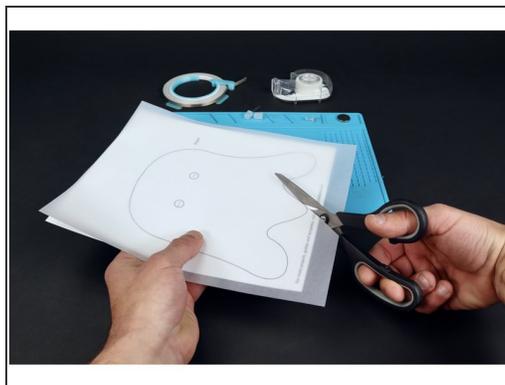
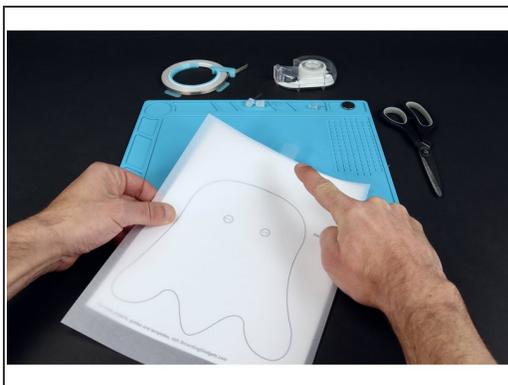
- [Paper Circuits Kit](#) (1)
- [Tracing Paper](#) (1)
- [Clear Tape](#) (1)
- [Black Magic Marker](#) (1)
- [Printable Template](#) (1)

Step 1 — Grumpy Ghost



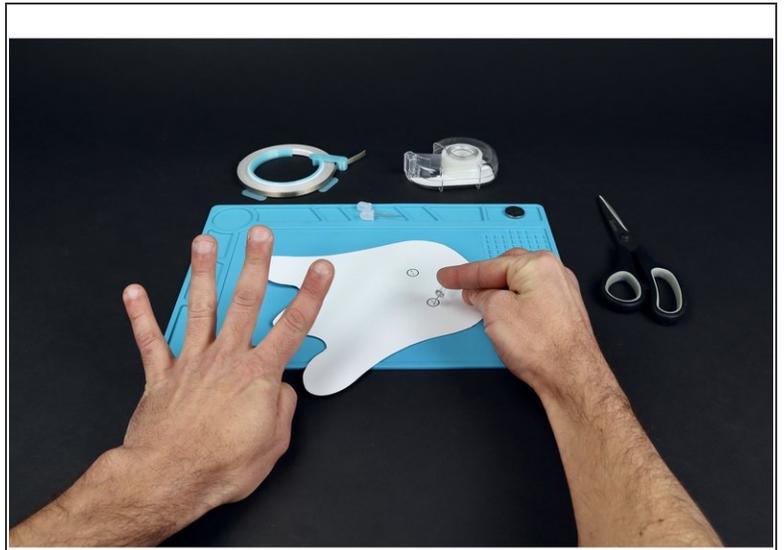
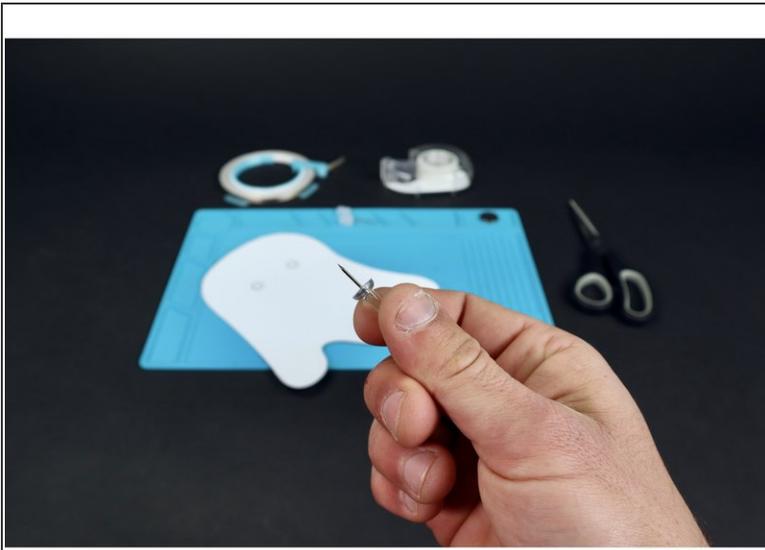
- **Gather the materials listed in this guide and print out the template found at the bottom of the guide.**

Step 2



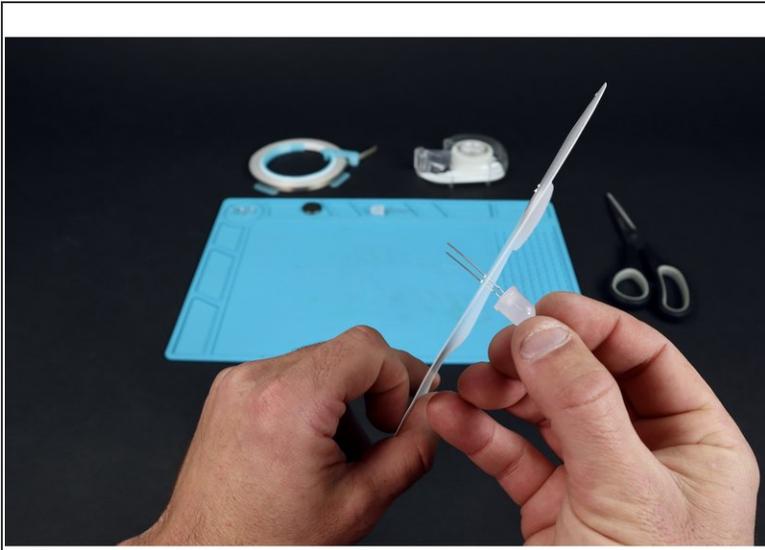
- **Tape the piece of transparent vellum to the template and carefully cut both out using the template lines viewable through the vellum as your guide.**

Step 3



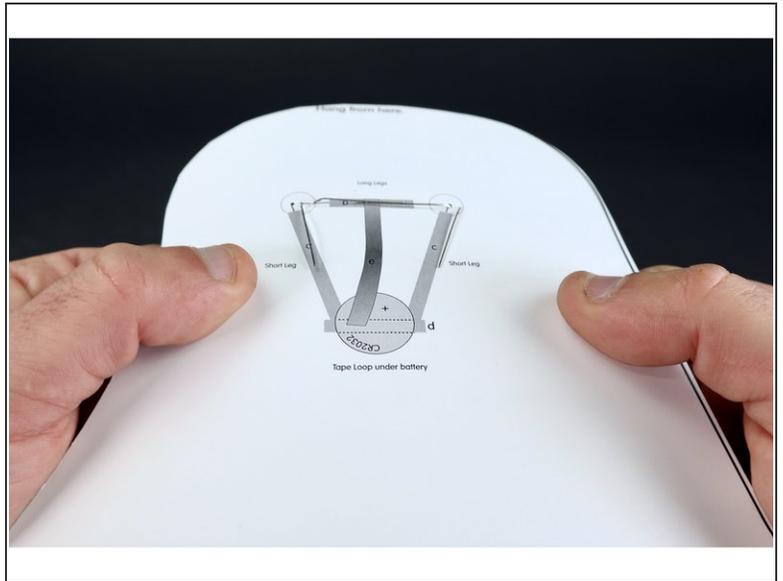
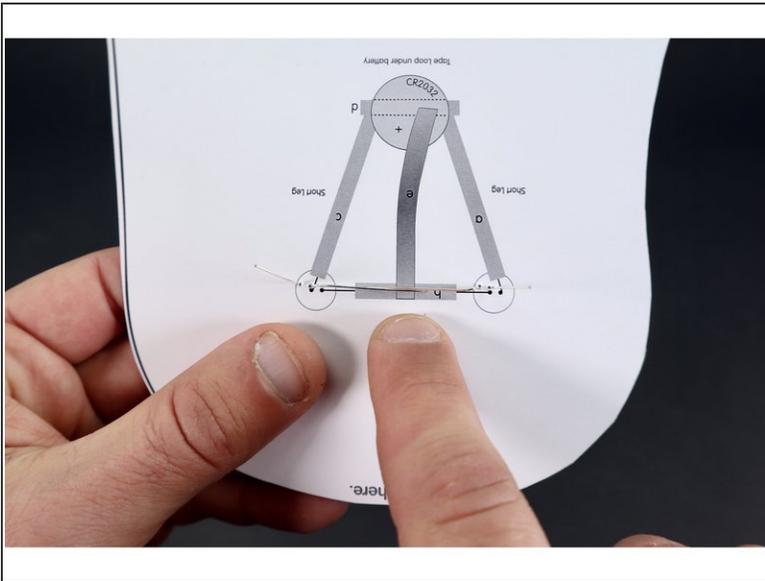
- **Use a pushpin to poke 4 holes** where shown within the two circles that indicate where LEDs will be placed.

Step 4



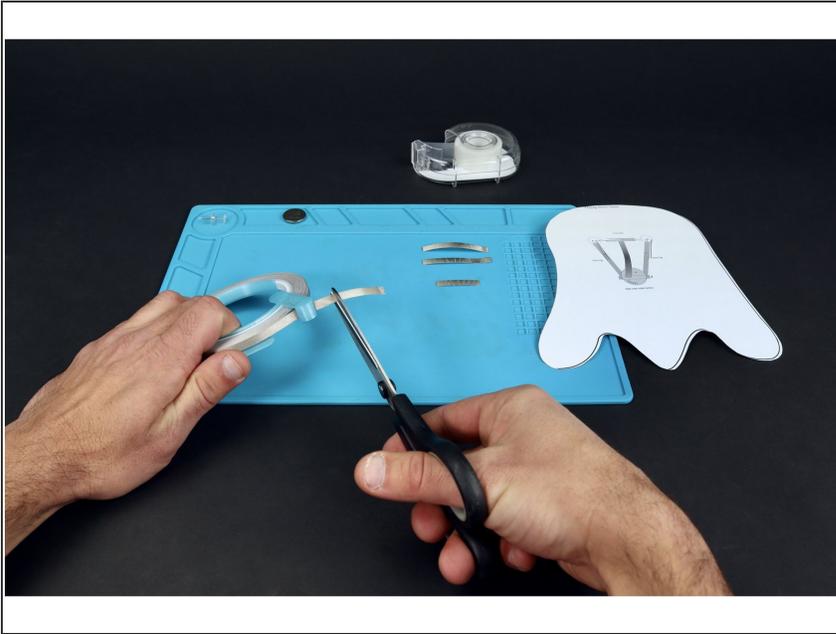
- **Thread each of your two LEDs through these two sets of two holes.** Orient the LEDs so that the long legs go through the holes marked "L" and the short LED legs go through the holes marked "S".

Step 5



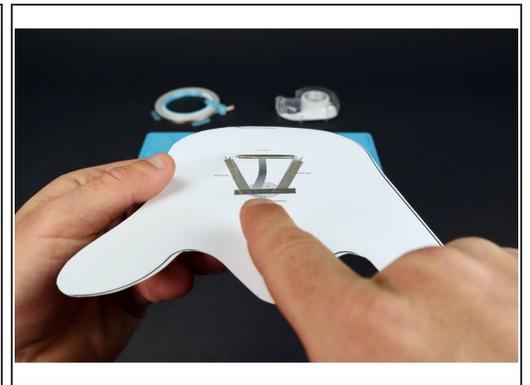
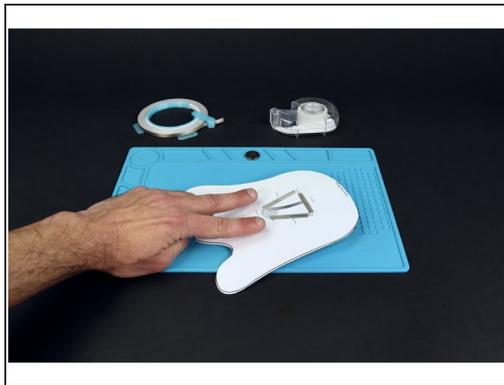
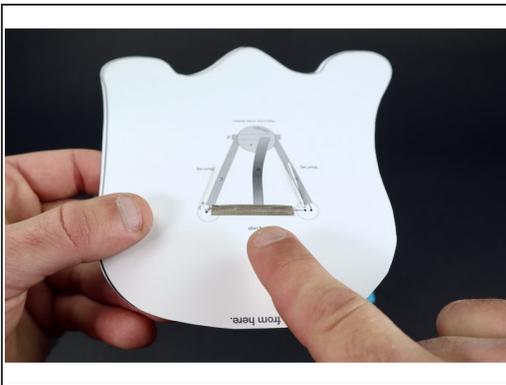
- **Flip your project over.**
- **Bend the two long LED legs inward** from their positions so that they lay flat against the project atop the Maker Tape path on the diagram marked "B".
- **Bend the two short LED legs over the paths marked "A,C" on the diagram** in the same way you did for the first two legs.

Step 6



- Use the paths printed on the diagram to help you measure and cut Maker Tape pieces for the circuit paths labeled "A,B,C,D".

Step 7



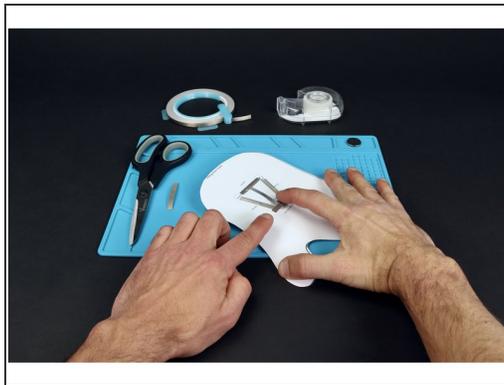
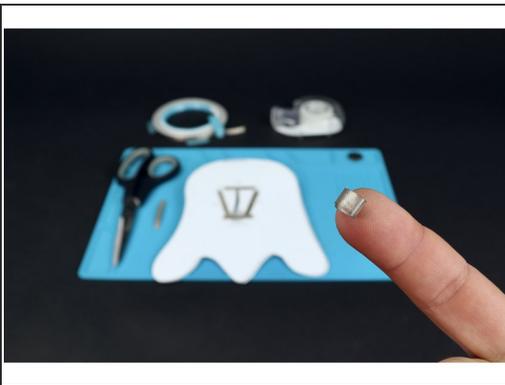
- Peel and stick these Maker Tape segments for paths "A,B,C,D". NOTE: "A,B and C" go OVER the LED legs while D simply goes atop paper.

Step 8



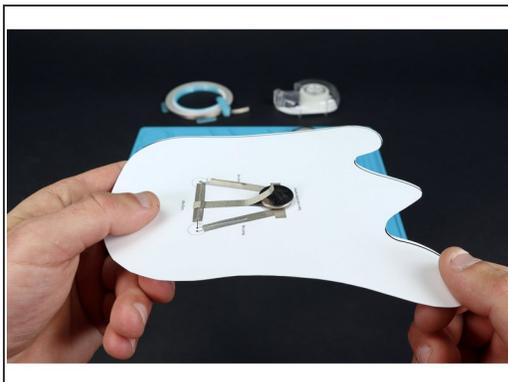
- Use the diagram again to measure and cut a piece of Maker Tape for the path labeled "E" as well as a smaller one of no particular length.

Step 9



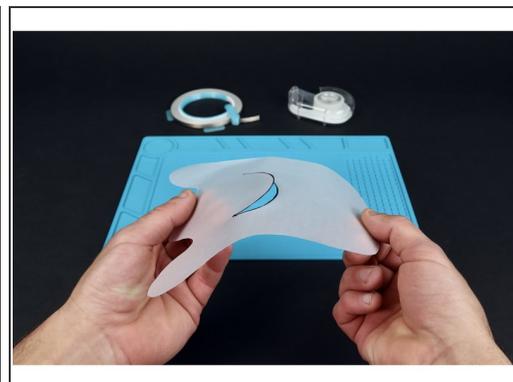
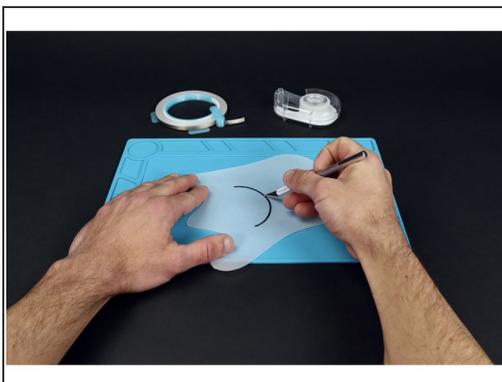
- Make a tape loop with the smaller piece of Maker Tape you just cut and place it where shown on the circuit diagram atop path segment "D" .
- Stick battery atop the tape loop so that the positive (+) side faces UP.

Step 10



- **Peel and stick the longer piece of Maker Tape so that it contacts path "B" on one end and the top of the battery on the other end.** This will turn your LEDs on! Simply peel back to turn them off.

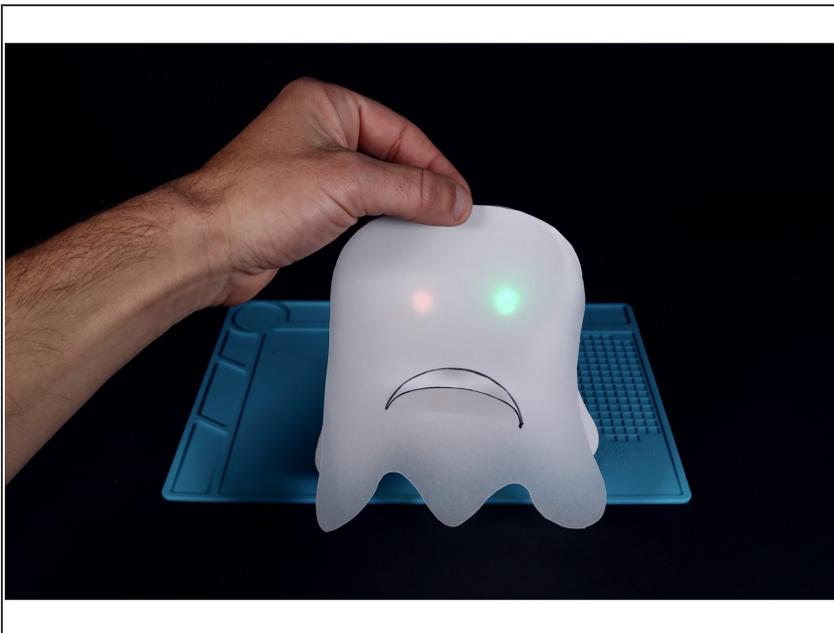
Step 11



- **Use a marker to draw an expressive mouth on the vellum and then a craft knife to cut it from end to end.** This should allow you to pull the mouth away from the rest of the shape a bit as pictured in photo 3.

Step 12

- Lay the vellum ghost atop the circuit ghost and use a piece of transparent tape to connect the two layers at the top.

Step 13

- Boo-Ray! You just connected two LEDs in parallel to make this fun, spooky circuit!