

## No-Solder Battery Interrupter

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## Intro: No-Solder Battery Interrupter

A battery interrupter is a tool that adds a switch jack to (aka "switch adapts") an electrical device.

This is usually done for the purpose of allowing a person with disabilities to use that device, by using an "ability switch," which can be anything from a plastic button to a muscle twitch sensor. These switches are almost always wired to a 3.5mm (1/8") mono plug, and can be connected to anything with a matching jack. They are used with power wheelchairs, computers, speech devices, toys, remote controls, and so on.

A battery interrupter allows us to add a switch jack to a device that:

- 1) Is powered by AA, AAA, C, or D batteries.
- 2) Simply turns on or off with a single switch (like the infamous cymbal-crashing monkey).

A battery interrupter is simply a 3.5mm jack, with each of the two wires connected to small metal plates, which are separated by an insulator (like tape or thick paper).

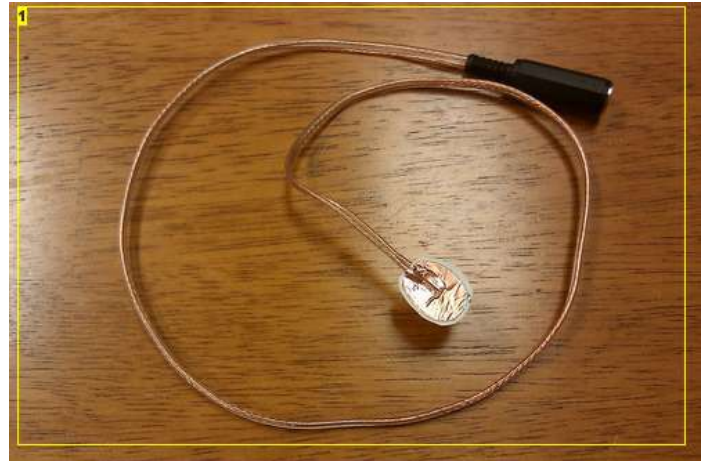
These plates are placed between the batteries of a device, effectively redirecting the electrical circuit through the 3.5mm jack, so that it can be opened and closed with a switch.

AbleNet sells battery interrupters for \$13 (USD) each [here](#) (and the manual is [here](#)). You can also make your own battery interrupters by soldering a pair of wires (or a speaker wire) to a 3.5mm jack and to two small metal plates separated by double-sided tape or some other thin insulator. However, if you are not comfortable soldering, this guide will teach you how to make a battery interrupter with only a few dollars worth of parts (or the scraps left from making a CD Switch).



### Image Notes

1. Commercially available battery interrupters from AbleNet.



### Image Notes

1. No-Solder Battery Interrupter

## step 1: Materials

### Materials needed:

- Adhesive backed copper foil sheet . Two 1"x1" pieces.  
(Possibly the scraps from making a CD Switch. The kind with a black backing makes this easier.)
- Business card or small piece of poster board. One 1"x1" piece.
- 3.5mm mono cable with female jack.  
(Buy a 3.5mm mono extension cable , cut it in half, and use the female end for this, and the male end to make a CD Switch.)

### Tools:

- Scissors

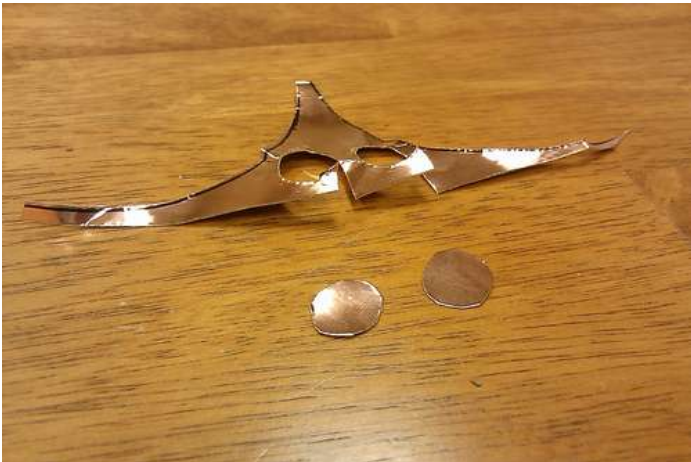


#### Image Notes

1. 3.5mm mono cable with female jack
2. Business card
3. Scissors
4. Adhesive backed copper foil sheet

### step 2: Cut Foil Circles

Use the scissors to cut two circles of foil, approximately 1" in diameter, or the size of a quarter. (This can be trimmed down later to fit smaller batteries.)



### step 3: Scrape Adhesive

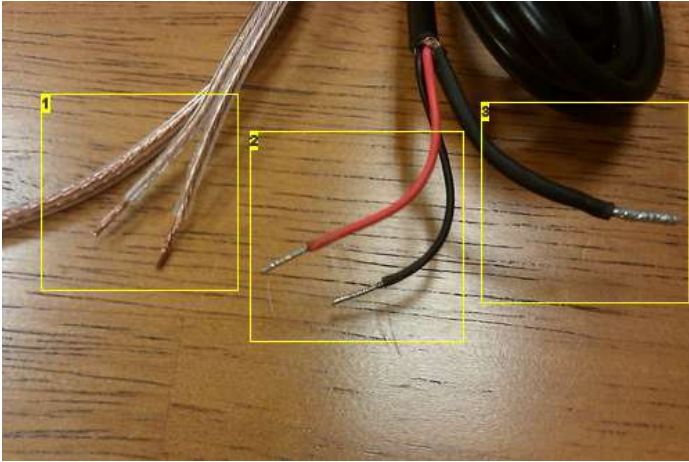
Peel the backing from one of the foil circles, and use the edge of the scissors to scrape away a small patch of adhesive in the center. Using a foil sheet with a black backing allows you to more easily what has been scraped clear.

(It helps to use the backing as a tool for handling the sticky circle of foil.)



#### step 4: Find Two Main Wires

Find the two main wires in the center of your cable. Some will only have two wires, while some will have a third wire, comprised of the strands that run through the outer insulator of the wire. If you cut and stripped the cable yourself, the outer insulator strands may be splayed out. If these are in the way, twist them together, fold them back, and tape them to the cable with electrical tape.

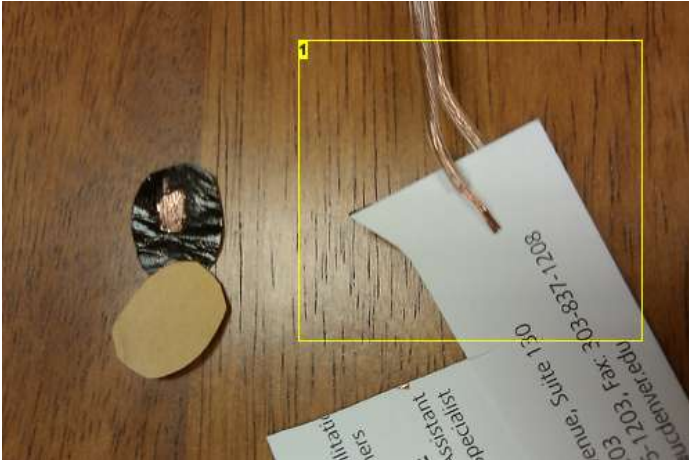


##### Image Notes

1. Speaker wire with only two individual wires that can be peeled apart
2. Two main wires of cut and stripped cable
3. Bundled insulator wires of cut cable, which are not used for this project

#### step 5: Place Wires On Each Side Of Card

Place one of the two main wires on each side of the business card (or poster board). Be sure to leave a small amount of the plastic insulation of the wire overlapping the card.



##### Image Notes

1. Wire split around card, with some plastic insulator overlapping

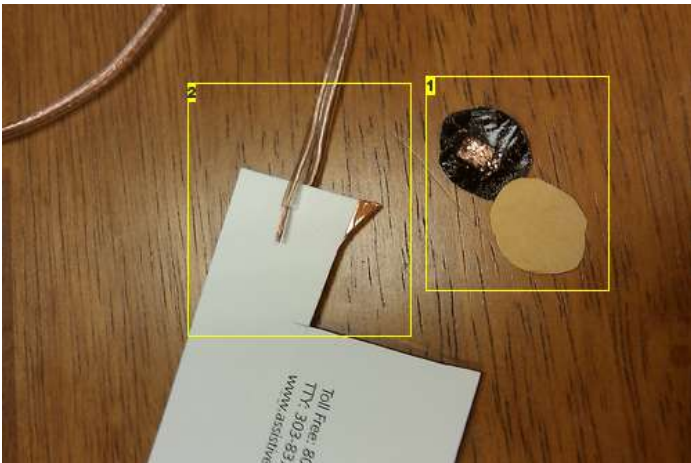
#### step 6: Attach Wire To Card With Foil

Press the circle of foil down on top of the wire, sticking it firmly to the card. Make sure that the bare, scraped patch touches the bare wire, and that some of the wire's plastic insulation is stuck between as well.



### step 7: Repeat For Other Side

Flip the card over and repeat steps 3-6 for the other side. Peel the backing from the other circle of foil, scrape off a small patch of adhesive, and use the circle to attach the second main wire to the opposite side of the card. Again, make sure that the bare patch of foil touches the bare wire, and that some of the wire's plastic insulation overlaps.

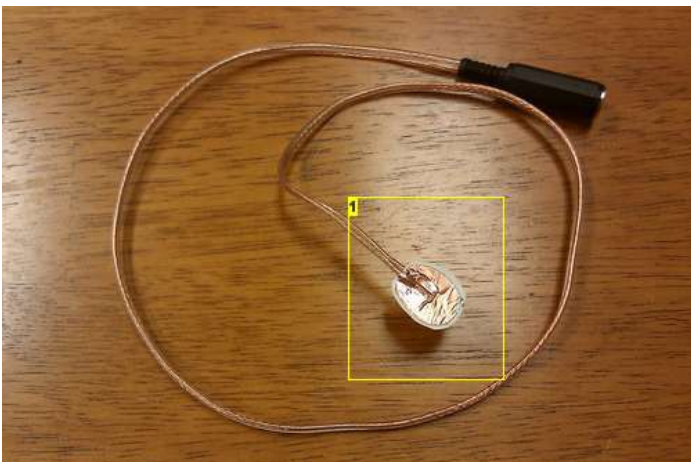


#### Image Notes

1. Second foil circle, peeled and scraped like the first
2. Second main wire, on the opposite side of the card from the first

### step 8: Cut Around Foil

Use the scissors to cut around the outside of the foil, leaving a small amount of the card exposed around the edge. This will help to avoid short circuits as the battery interrupter is installed and used.



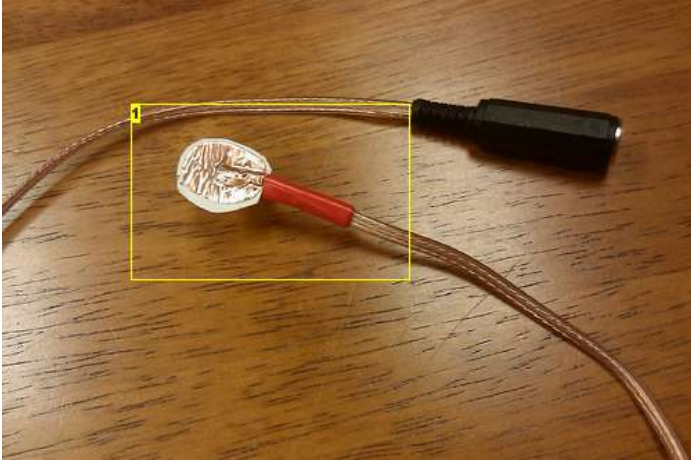
#### Image Notes

<http://www.instructables.com/id/No-Solder-Battery-Interrupter/>

1. Small edge of card remaining around the outside of the foil circles

### step 9: Optional: Add Tape For Durability

If you like, you can wrap electrical tape around the wires at the edge of the card, to hold them together and make the battery interrupter slightly more durable.



#### Image Notes

1. Electrical tape wrapped around the wires at the edge of the card, to improve durability

### step 10: Place Between The Batteries Of Device/Toy

Now that you have a completed no-solder battery interrupter, test it with a toy or device. Slide the foil lined card between the batteries of the toy, separating them entirely. It may be necessary to pull the batteries apart, or remove them and press them back into place with the card between them.

It may be necessary to file a small notch into the battery compartment of the toy, so that the wire can hang outside of the toy. You can also add more tape to hold the interrupter securely in place.



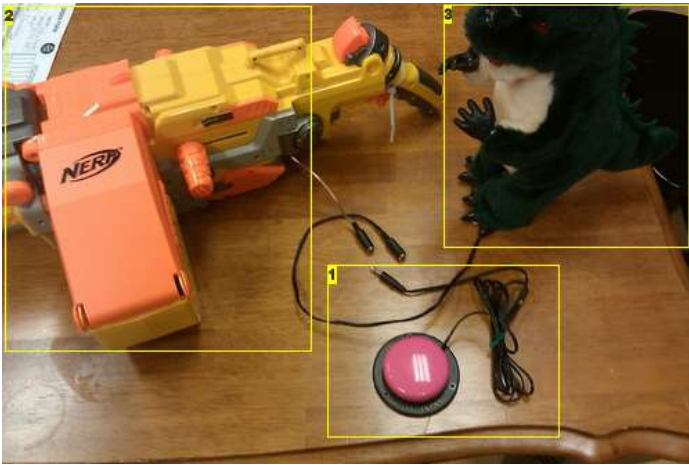
#### Image Notes

1. Card placed between batteries, with electrical tape to hold it securely in place

### step 11: Test Your New Battery Interrupter

Plug any basic switch into the 3.5mm jack, turn on the toy's main control switch, and strap down the trigger if using a toy like this Nerf gun . There is an impressive variety of ability switches available, and you can make your own, like a CD Switch.

Activate the switch and enjoy!



**Image Notes**

1. A standard "Jelly Bean Switch"
2. Nerf gun with battery interrupter installed
3. Dinosaur toy with battery interrupter installed

**Related Instructables**



**Simple Security**  
by bluerover

**Switch adapted walking and Barking Dog.** by daveat



**Converting VGA Monitor Splitter into computer-controlled Monitor Switcher** by mringwal



**Installing 3G + 802.11n on Aspire One P531h** by inaxeon



**Faux Car Alarm with Flashing LED** by artcfartc



**Easy PIC micro state transition Interrupt code** by leevonk