

CD Switch

by [gavin.philips](#) on October 4, 2010

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Intro: CD Switch

In the realm of assistive technology, a switch (aka "ability switch") can be anything from a plastic button to a muscle twitch sensor. [This album](#) is a great look at the variety of switches that are available. 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.

The problem is that switches are expensive. A basic Jellybean Switch or Buddy Button costs around \$50-60 (USD), for just a plastic button. While these are worth their weight in gold, the price is still a bit steep, especially in the low-budget/non-profit world of assistive technology.

Sometimes, it's handy to make your own.

Fortunately, a switch is a very simple thing. It's just a circuit closing, just two wires touching. We will use less than \$10 (USD) worth of parts to let a person press a surface (in this case a CD), and touch two wires together. R. J. Cooper also sells [CD Switch Kits](#) for about \$10 (USD) each, in packs of five or ten.

Save the left over scraps from this project, as you can use them to build a [No-Solder Battery Interrupter](#), which you can use to let this switch control toys and other devices.



step 1: Materials

Materials Needed:

- Adhesive backed copper foil sheet . 5"x10".
- Adhesive backed Velcro strip . 6" of each side.
(I used 3/4", but nearly any width should work. Foam mounting squares will also work.)
- 3.5mm mono cable with male jack.
(Buy a 3.5mm mono extension cable, cut it in half, and use the male end for this, and the female end to make a No-Solder Battery Interrupter.)
- CDs. 2.
(Old software, AOL trials, blanks, whatever you have laying around.)

Tools:

- Scissors
- Ruler
- Sharpie (or other fine point marker)



Image Notes

1. Discarded CDs
2. Adhesive backed Velcro strip
3. 3.5mm mono cable with male jack
4. Scissors
5. Sharpie
6. Ruler
7. Adhesive backed copper foil sheet

step 2: Trace CDs Onto Foil Sheet

Use the Sharpie to trace two CDs onto the foil sheet. Flipping the sheet over and tracing onto the backing will help to avoid smearing ink on the copper itself.

(Place the CDs close to the edge, to preserve left over foil for use in more CD Switches or No-Solder Battery Interrupters .)



step 3: Cut Out Foil Pieces

Use the scissors to cut out two CD-shaped pieces of foil. Cut slightly inside the lines, so that the pieces are slightly smaller than the CDs, and will not overlap their edges.

(Cutting out the center circles is optional, and will not affect the function of the switch.)



step 4: Apply Foil To CDs

Peel the backing from one CD-shaped foil piece and attach it to one of the CDs. Repeat for the second piece of foil, attaching it to the second CD. Attach the foil to the bottom, label free side of the CDs, or the labels may peel off and destroy the switch.

The result will be two foil lined CDs.

(It helps to peel only a small portion of the backing, stick it to a CD, and then slowly peel off the rest of the backing as you affix the foil. This will also help to avoid causing bubbles under the foil.)



Image Notes

1. Foil lined CDs

step 5: Measure And Cut Velcro

Using the ruler and scissors, measure and cut the Velcro into pieces of 1.5", 1.5", and 3".



step 6: 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.

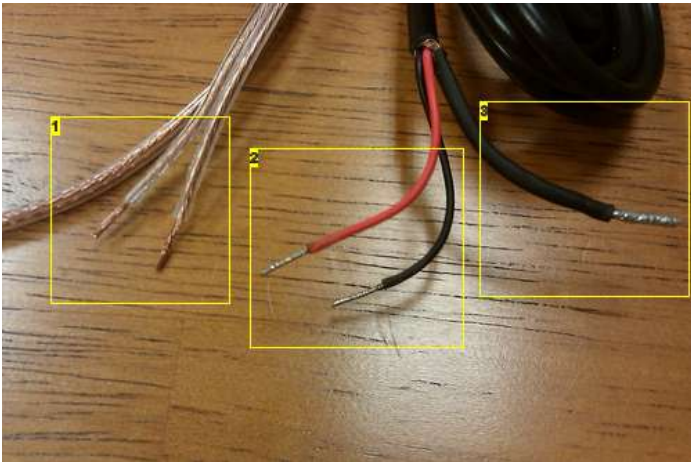


Image Notes

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 7: Attach First Wire To CD

Using one of the 1.5" pieces of Velcro (hook or loop doesn't matter), attach the tip of one of the main wires to the outer edge of the copper side of the first CD. Make sure that the bare wire makes solid contact with the copper, and that the Velcro overlaps some of the wire's plastic insulation. Press hard and make a firm connection.

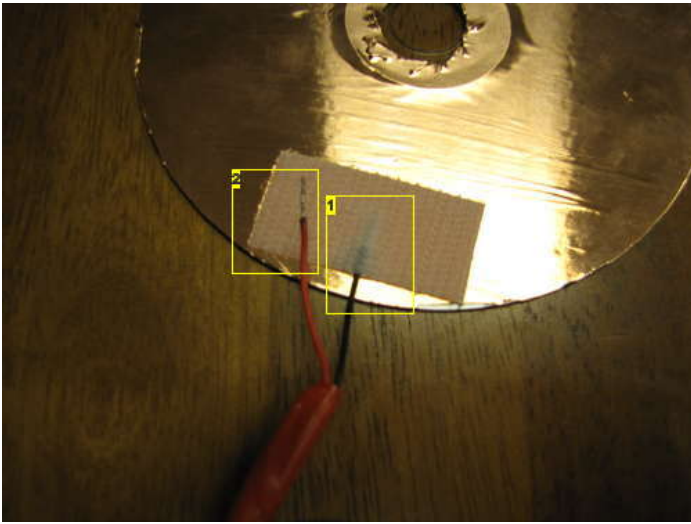


Image Notes

1. Bare wire firmly connected to copper, plastic insulation overlapped by velcro, at the outer edge of one CD
2. Second wire still hanging free

step 8: Repeat With Second Wire And CD

Repeat the previous step, attaching the second main wire to the copper side of the second CD. Use the opposite side (hooks or loops) of the same 1.5" piece of Velcro. Again, make sure that the bare wire makes solid contact with the copper, and that the Velcro overlaps some of the wire's plastic insulation.

(Note that the two pieces of Velcro line up, so that they will stick to each other when the CDs are pressed together.)

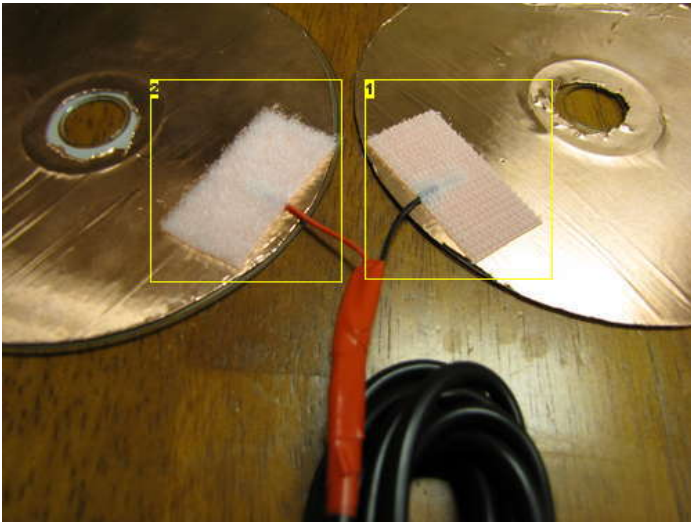


Image Notes

1. First wire attached with hooks side of 1.5" piece of Velcro
2. Second wire attached with loops side of 1.5" piece of Velcro

step 9: Apply Velcro To Other End Of CDs

Apply the other pair of 1.5" pieces of Velcro (one hooks, one loops) to the opposite edges of the CDs, as shown in the image.

(Once again, note that these pieces of Velcro line up so that they will stick together when the CDs are pressed together.)

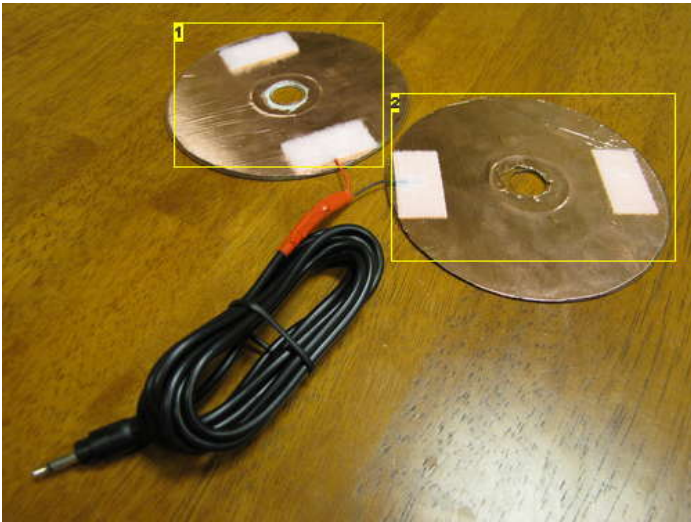


Image Notes

1. Loops lined up on one CD
2. Hooks lined up on second CD

step 10: Press Two CDs Together

Press the two CDs together, so that the Velcro lines up and sticks together, and the two wires line up at the edge of the CDs.



step 11: Apply Velcro To One Side Of Switch For Mounting

Stick the pair of 3" pieces of Velcro (hooks and loops) together, and attach them to one side of the CD switch, as shown in the image.

This Velcro will be used for mounting the switch. Peel the backing from the outer piece of Velcro and press it onto a solid surface to mount it. Simply peel apart the Velcro to remove the switch.

(Use more Velcro to create mounting points on multiple surfaces, and move the switch between them freely.)



step 12: Test Your CD Switch

Test your new CD switch by plugging it into a switch adapted toy or device (anything controlled by a 3.5mm switch jack) and pressing the two CDs together. When the two pieces of copper foil touch, the circuit is completed, allowing current to flow from one wire to the other.

(If you don't have a switch adapted device, use the scraps from this project to build a No-Solder Battery Interrupter , and use it to adapt a battery-powered toy or device yourself.)

Now experiment! A switch is just a way of connecting two wires. Find other ways to touch two wires together and complete a circuit. Use some of the scrap pieces of foil from this project, along with tape, hot glue, super glue, solder, or whatever you have on hand. You don't even have to use foil if you can find a way for the tips of the wires to touch directly.

- The fingertips of a glove?
- The end of a clothespin?
- Something spring loaded that holds the wire apart or together?
- Be creative!



Related Instructables



No-Solder Battery Interrupter by gavin.philips



Switch adapted walking and Barking Dog. by daveat



Simple Security by bluerover



Faux Car Alarm with Flashing LED by artcfartc



Arduino Photocell Theremin Synth (glitchamin) by gatesphere



Super-Duper Voice Box by balloondoggle

