

# Infrared LED Light Pen

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For use with the Wiimote Whiteboard and other Wiimote hacking projects.

## Shopping List (for 2 light pens)

Item	Where	Part #	Cost
<a href="#">Expo Markers</a>	Staples	071641809277	\$5.99
<a href="#">IR-LED x 2</a>	Radio Shack	276-143	\$4.38
<a href="#">LED holders</a>	Radio Shack	276-080	\$1.69
<a href="#">SPST momentary switches</a>	Radio Shack	275-1571	\$3.19
<a href="#">N-size battery holder x 3*</a>	Radio Shack	270-405	\$3.27
<a href="#">N-size batteries</a>	Batteries +	DURMN9100B2	\$2.49
<a href="#">Soldering kit**</a>	Radio Shack	64-2802	\$8.00
<b>Total</b>			<b>\$29.01 (\$21.01)</b>

*\*The original demonstration only requires 2. I purchased a 3<sup>rd</sup> & cut the red and black wires off in order to have extra.*

*\*\*If possible, use your own or borrow one.*

## Directions:

1. Over a trash-can remove the marker tip and core with a pair of pliers (be careful as the ink can spray a bit).
2. Wipe out the inside of the marker to remove any remaining ink.
3. Drill a quarter-inch hole for the pushbutton switch at the spot where your thumb naturally rests on the grip. The pushbutton is a hair larger than 1/4" diameter so you'll need to grind at the edges a bit to widen the hole until the pushbutton fits in snugly.
4. With a fine piece of sandpaper, scuff up the surface of the LED - this helps diffuse the light to improve tracking.
5. Remove and discard the nut and washer from the LED holder.
6. Put the LED stems **through** the LED holder and slide the rubber plug onto the stems until it's tight – having the LED on the outside of the LED holder helps more light shine out to improve tracking.
7. Solder an 8 inch length of red wire to the positive lead, which is the longer one (you can also tell by looking inside the bulb - the positive electrode is the smaller of the two).
8. Solder an 8-inch length of black wire to the negative lead.
9. Thread the wires through the body of the pen and use a set of pliers to screw the LED holder into the tip of the pen. This takes some force, but the end result is nice and snug.
10. Fish the black wire through the hole for the pushbutton.
11. Snip the wire about an inch from the hole, then solder that to one terminal of your pushbutton.
12. Slip the remaining black wire back into the pen body and solder it to the other pushbutton terminal.
13. Gently press your pushbutton into place.
14. To leave more room for the battery, trim the excess wire leaving about an inch extending from the bottom of the pen body. Also trim the battery holder wires to about 1.5 inches each.
15. Solder the battery holder wires to those of the pen (red-to-red!)
16. Slide the battery and wire into the back of the pen and push the end cap back on as far as it'll go comfortably.

**VIDEO DIRECTIONS:** <http://youtu.be/czs2oJZY7hU>