



DIY Rechargeable LED Makeup Compact

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<https://learn.adafruit.com/diy-rechargeable-led-makeup-compact>

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Overview



Light up your makeup mirror! This easy project guides you through adding warm white LED sequins to a makeup compact, powered by an Adafruit lipoly battery charger and click on/off switch.

Before you begin, check out the following prerequisite guides:

- [Adafruit guide to excellent soldering \(https://adafru.it/drl\)](https://adafru.it/drl)
- [Adafruit LED Sequins \(https://adafru.it/iSf\)](https://adafru.it/iSf)
- [Adafruit MicroLipo and MiniLipo Battery Chargers \(https://adafru.it/tfO\)](https://adafru.it/tfO)
- [Luminous LED Flowers \(https://adafru.it/tia\)](https://adafru.it/tia)



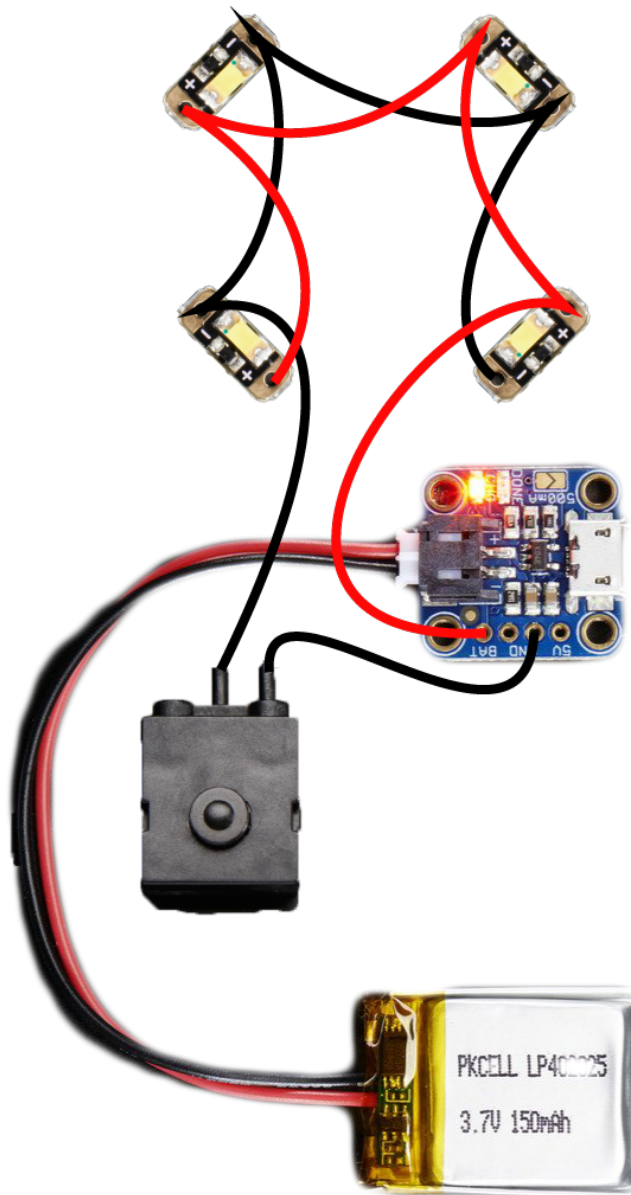
You'll need the following tools and supplies:

- [Double decker makeup compact \(https://adafru.it/fNB\)](https://adafru.it/fNB)
- [4-5 warm white LED sequins \(http://adafru.it/1758\)](http://adafru.it/1758)
- [Micro Lipo charger \(http://adafru.it/1904\)](http://adafru.it/1904)
- [Tactile on/off switch \(http://adafru.it/1092\)](http://adafru.it/1092)

- [30 gauge silicone coated stranded wire](http://adafru.it/2002) (<http://adafru.it/2002>)
- [E6000 adhesive](https://adafru.it/fNF) (<https://adafru.it/fNF>)
- Double-stick foam tape
- Scissors
- [Tweezers](http://adafru.it/421) (<http://adafru.it/421>)
- Toothpicks
- [Micro USB cable](http://adafru.it/2008) (<http://adafru.it/2008>)
- [Soldering tools and supplies](https://adafru.it/drl) (<https://adafru.it/drl>)



Circuit Diagram



4 (or 5) LED sequins wired in parallel to lipoly charger:

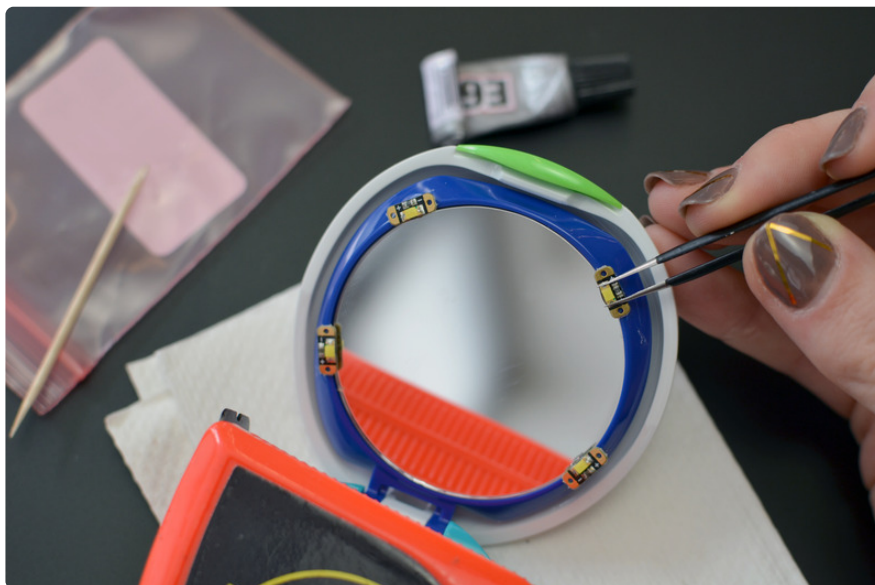
- sequins (-) to on/off switch to lipoly board GND
- sequins (+) to lipoly board BAT
- 150mAh lipoly battery plugged into lipoly board JST port

Glue LED Sequins



If your compact is wobbly on the table like ours, stabilize it on a towel and with a weight of some kind, for us a tape measure and paper towels worked great.

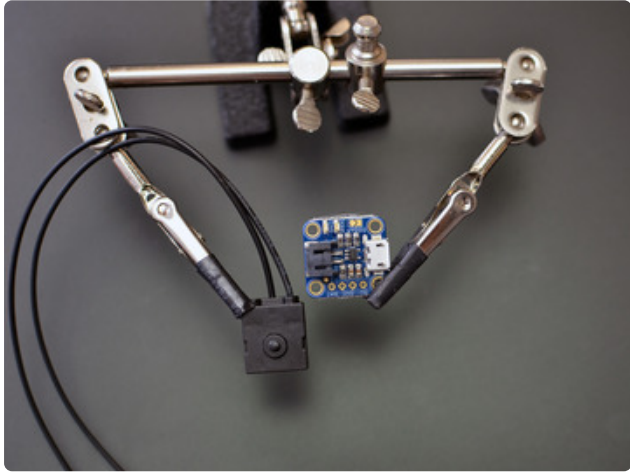
Assess your makeup compact to find the optimal positioning for your LEDs. This Shisiedo compact has a little extra space right at the edge of the mirror, but not too much outside that. The wires will have to be just the right length to travel between each sequin without getting in the way and preventing the compact from closing. Your compact may require a bit of experimentation to find the optimal placement!



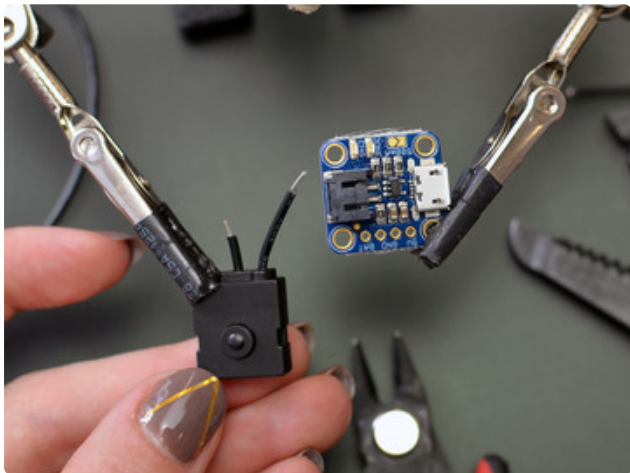
Squeeze a glob of E6000 adhesive onto a plastic bag or other protected surface, and use a toothpick to pick up and spread some onto the back of a sequin, or onto the edge of the makeup mirror, and use tweezers to position and press down the sequin.

Repeat for the remaining three or four sequins. Allow to dry for at least 12 hours before proceeding (24 is better).

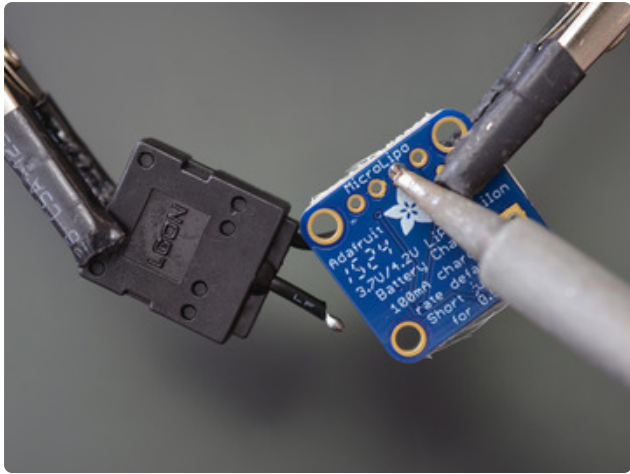
Solder Circuit



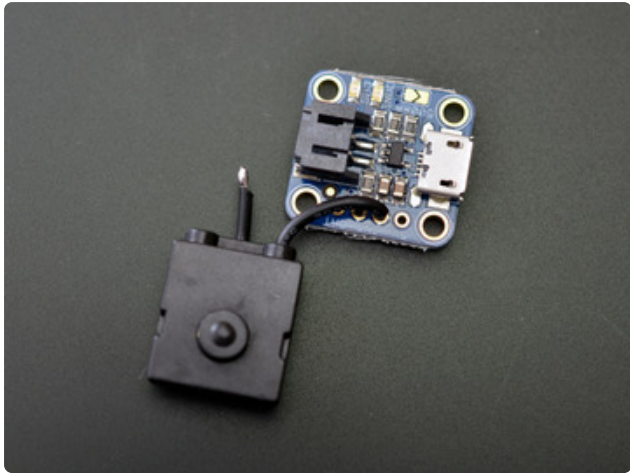
The fit and positioning of components is very important in this project. Leave a wire too long, and your compact may not close! Dry-fit parts to see where they'll fit best. Be sure the USB port on the lipoly charger can be plugged in!



Trim and strip the leads on the switch to fit near the lipoly charger.

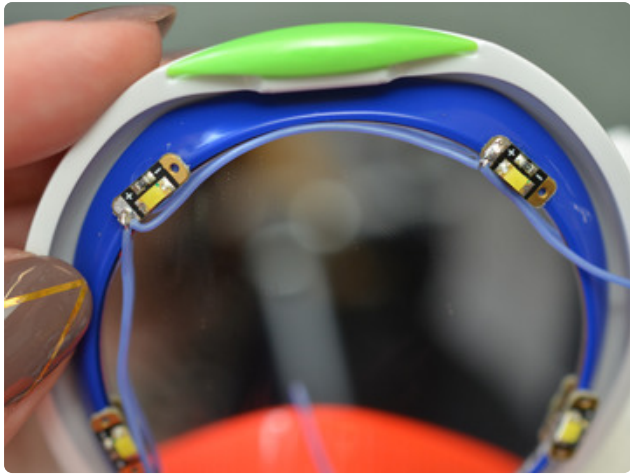


Trim and strip the leads on the switch to fit near the lipoly charger.



Tin both leads, and solder one wire to the circuit board GND hole (either one).

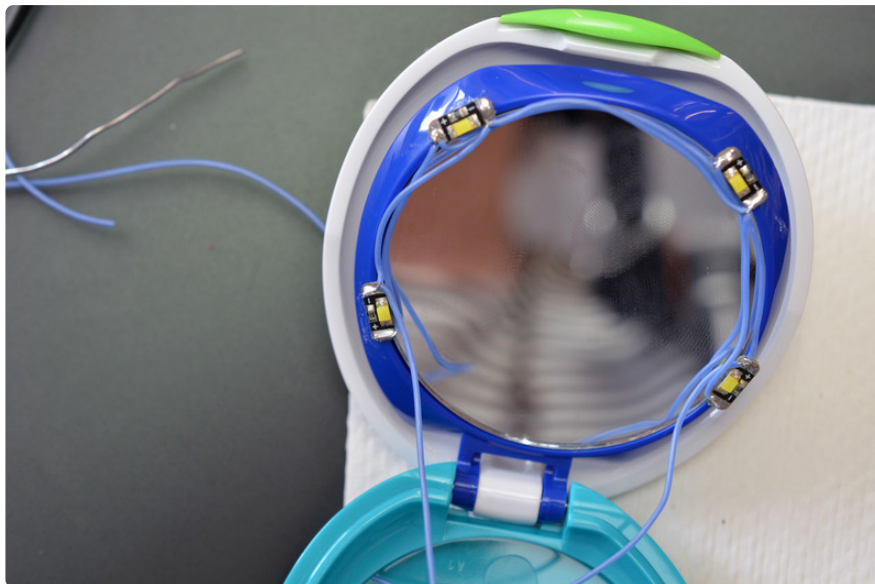
Set aside this assembly for later!



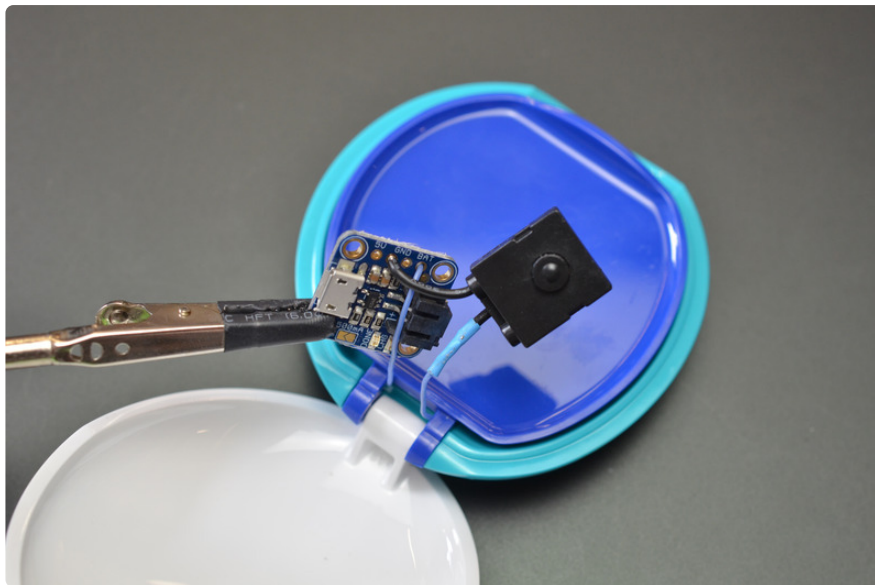
Back to the LED sequins! Be very careful while soldering, or you could melt your makeup compact. Use stranded 30 gauge silicone coated wire to solder all positive (+) LED connections together in parallel. To achieve a tidy solder connection, twist two stripped wire ends together and tin the twist AND the sequin before reheating them to flow together. Use tweezers if it makes it easier for you.



Leave a long wire coming from one of the lowest sequin's positive terminal (+).



Repeat this process to connect all the negative terminals (-) together. Thread the single power and single ground wire through the opening in the compact's hinge to come around to the other side of the mirror.

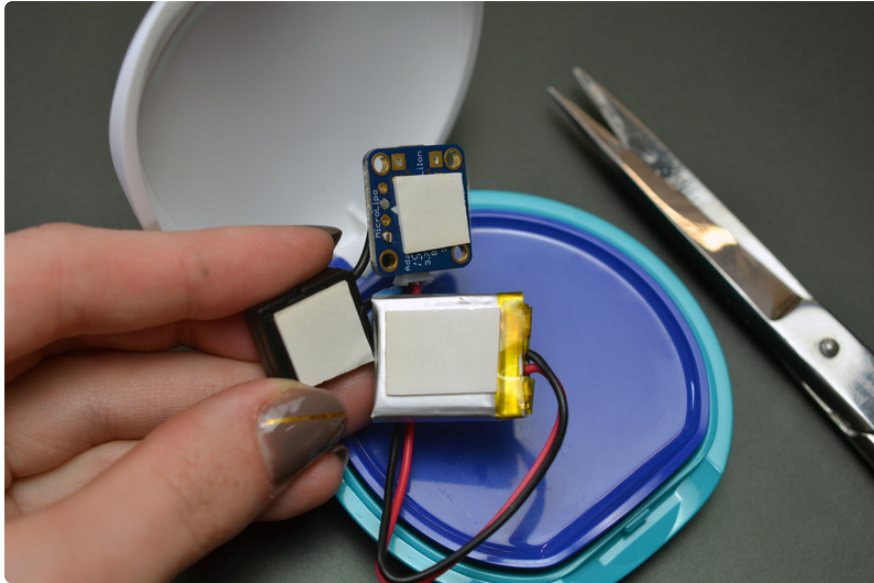


Solder the positive (+) wire to the BAT hole on the lipoly charger board. Slide a piece of heat shrink tubing over the negative (-) wire before soldering it to the tinned switch wire, then slide and shrink the heat shrink with the side of your soldering iron or the delicate application of a heat gun or lighter. Use diagonal flush snips to trim the soldered leads short on the back of the circuit board.



Plug in your battery and click the switch to test your LEDs! If they don't light up, check to see they're not wired backwards!

Use it!



Once everything is confirmed to work properly, apply foam tape to the backs of the switch, lipoly charger board, and battery and stick in place, routing the battery wire so that it does not impede the compact's closure.



Plug in via USB to charge up the battery, and use the clicky on/of switch to toggle power! In this particular compact, there's even still room for the makeup! This also makes a great portable photography/videography light!



What mods would you make to this project? A knob to control LED brightness? A microcontroller to make animated patterns among the sequins? Show off your electronics projects on the [Adafruit Show & Tell \(\)](#)!