

## Taken from the web...

There's a small tradition for people like me with my (mental) faculties to go about building their own slick iPod accessories. **Other people** have designed battery-powered chargers for their iPods, from Altoid tins, and I wanted in on the action.



But the problem with these designs is that they use Firewire ports to power their iPods, which renders them pretty much *only* for charging their iPods, whereas USB can power iPods, cell phones, air conditioners, little robot guys, rubber duckie lights, personal cooling fans, air purifiers, Christmas trees, and essentially anything that requires 5 volts or less. So I figured I'd make a battery-powered USB charger that I could use to power my cell phone or my iPod in a grind. I hate not having a full charge on my devices, when my cell phone's battery is anywhere under 90% my heart starts racing and I get on my hands and knees and look for power outlets.

So if I had a small, compact USB charger that I could throw in my backpack or slide in my pocket that could be powered by inexpensive little 9v batteries, I'd be a happy camper. Problem was, I had no idea where to start. There were no decent tutorials out there, and Radio Shack's prices were insanity (and they didn't have USB sockets). So I had to do my own research, and I had to make contact with electronic parts manufacturers in order to actually get resistors, USB sockets, and voltage regulators for decent prices (or at all).



My final design is pretty sweet, I think. I used an Altoids Gum tin.. it's a perfect fit for a 9v battery and it slides right into the little key pocket on a pair of jeans. Since I wanted to maximize the battery's life as much as I could, I added a toggle on-off switch so I could physically cut power from the socket; and to accompany that I added a small red LED light that would turn on to show that it was turned on (and that there was still a charge to the battery).

Good news is, it works perfectly. One cheapo battery put out a steady 5 volts through the socket for over 5 hours, and then kept going over 12 hours with a steadily decreasing voltage output.

I've got a usb charging cable for my cell phone, iPod, and PSP. A fresh 9v provides about 5 hours of playback time on my iPod, 60 minutes of talk time or 4 hours of standby, and I don't have any idea how it would fare for the PSP, but 9v batteries are like a buck so who cares?

[Click here for more pictures](#)

Since I went through all the effort to learn how to do all this crap and to get the parts, I thought I might save some other people the effort and start putting out kits and instructions so the people who see these things and say "cool.... now how do I make one?" will have an answer.

That's right, I'm [selling the things](#). That is, after PayPal fees I'm pretty much selling them at cost, but I sure wish someone were selling these things a week ago.

So [click here for my electronics kit storefront](#). If you want to learn how to design circuits and get started with the underappreciated world of electronics, check the kits out. I'll be adding some more kits (flashlights, bigger chargers) sometime later.

**Edit:** Ok, I'm getting a lot of hits, a lot of buys (thanks, guys), and a lot of complaints from people who just want to know how to build it and don't want to buy one..

What I'm primarily selling is the parts to build one of these. If I put up the how-to instructions, you'd just have to go out somewhere and buy the parts yourself at around double the cost (my first prototype with RadioShack parts cost around \$22.70 not counting the usb socket which was impossible to find). If you buy a kit, you're buying it for the parts as well as the instructions to get you started in electronics making.

**Anything that can power via USB can power via this.** I'm getting too many emails asking if it can power your sony/samsung/motorola/gatorade whatever. This thing emulates a usb port, so it will power anything that charges over usb. The end

## **\*Battery Pack USB charger\***

### **Powers any USB device w/ AA Batteries**

PDA's, iPods, PSP's, etc, they all can be recharged through their USB cable. If you look closely, the USB port charges devices at 5vdc. Well, that's a piece of cake! Just take 4 AA batteries (1.5v each \* 4=5v) and solder the wires of the battery case to a USB female plug. A little hot glue to keep everything in place, and DONE!

I bought all my parts from Radio Shack, but you could do just as well if you make your own battery holder from some bit of plastic box or whatever, and cut a female USB plug off of a bit of dead hardware. I had neither around, so I resorted to buying the stuff: it ran about \$8.00

This is the "USB plug extender" You are going to cut it in half and use the female end.





This is the USB plug cut open. You just need a sharp pocket knife. Separate the two ends, carve out the block of hot glue that's in the middle (be careful not to damage the two outer wires of the plug. Save the black plastic covering. It makes things look a lot more professional when you are finished.

This is the female end of the plug you are going to use. Snip off the two wires/connections in the middle, leaving connections 1 and 4. You will solder the red and black wires from the battery holder to these.



**WOW**, what a cruddy soldering job! You can tell I haven't done this since high school. It works though. **BE CAREFUL** to get the wires lined up correctly. Red goes to the left wire, black goes to the right one (as you are looking at the back of the plug). If you get these wrong, you could fry your device!!!!



That was the hard part! Now you just have to slip the black plastic cover over the top, fill the cavity with hot glue, and hot glue the plug onto the side of the battery pack. DONE!



I have had trouble getting this device to work properly with rechargeable batteries. The Nm-Hi AA's I was using are 1.4v so look for ones that are 1.5v each.

*By: SlimJim*

Also from the web...

Not long ago, I upgraded the hard drive in my laptop from an 80GB 4200RPM to a 120GB 5200RPM. Not wanting to let my old 2.5" drive go to waste, I bought a rather nice USB enclosure for it.

Ah, but there was a catch. USB ports can only supply a maximum of 500 milliamps. The hard drive will need 550mA, meaning that the use of an AC adapter (or special USB cable) would be necessary under high load conditions.

I HATE those clunky AC wall adapters. I don't see why we should have to deal with them. Why can't we just have a centralized 12 volt power system in our buildings? We have it in all of our cars! That would be much more efficient.

The way this HD enclosure "solves" the power problem is to include a special USB Y-cable that can draw power from two ports. So one port handles power+data while the other just supplies power. This means that sometimes I'd have to give up two ports for one HD (or use an after-market AC adapter.) Not cool.

But I'm not here to complain. I'm here to awesome this problem out of existence. And we do that with some bits from Radio Shack, and, of course, a tin of Altoids.



*I have seen this done with an Altoids tin box and it looks really slick. Just find a 4 battery caddy that will fit in one – again Radio Shack, a little metal work and you have a stealth USB charger. Also, Altoids tins are magic! I know a guy who uses one for his wallet and another guy who used one to make an 80GB flash Drive*

*~Matt*