

Solar DS "Light" Redone and Greatly Improved!

by [dark sponge](#) on February 22, 2009

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intro: Solar DS "Light" Redone and Greatly Improved!

The Nintendo DS Lite seems like it was made to have solar cells put on it. It has a large amount of surface area on the top and bottom that both face upward when the DS is opened. The top and bottom faces each have exactly the right amount of room for two 60x60mm solar cells side by side (four total). Each one has a maximum power output of 3 volts at 40 ma. The top two are connected in series and so are the bottom two. These two sets are wired in parallel to get a total of 6 volts at 80 ma, perfect for trickle-charging the battery.

My [original instructable](#) had a couple of flaws, some of them very important. I was originally going to post the updates on my first instructable, but there were so many changes that I had to make a whole new one.

Among these changes are:

- Overcharge protection (the main reason I wrote a new Instructable)
- Only one wire connecting the top to the bottom, not two little annoying ones
- No wires around the edges
- No annoying diodes where your hand goes
- You can get the stylus out now (I accidentally put a solar cell over it the first time, silly me)

Another thing I need to mention is why I didn't use a 5v regulator and hook it up to the charging jack of the DS. The reason I did not do that is because I would have to rewire the solar cells to produce a higher voltage for the voltage regulator. This would give me less than 40 ma. Running that through a voltage regulator reduces that even further. Also, the DS would have its charging LED on if I did this. That would suck about half of the remaining current, leaving next to nothing for the battery. If I did it that way, the battery would charge about 4 times slower.

This is my third Instructable, and if you have any questions, don't hesitate to post a comment! Don't forget to rate and vote either!

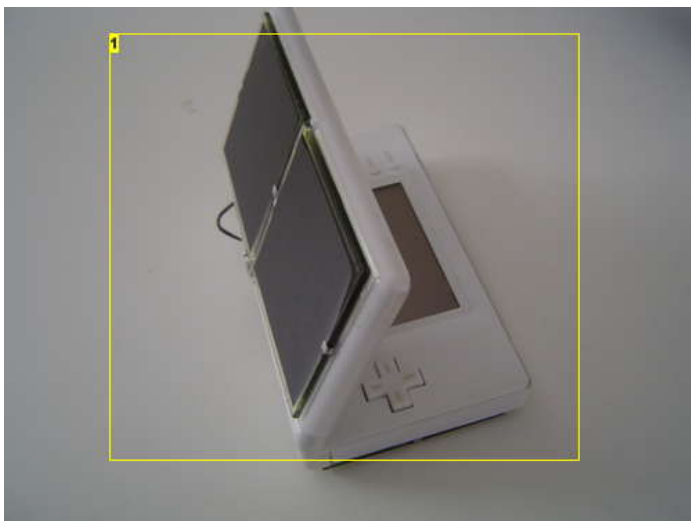
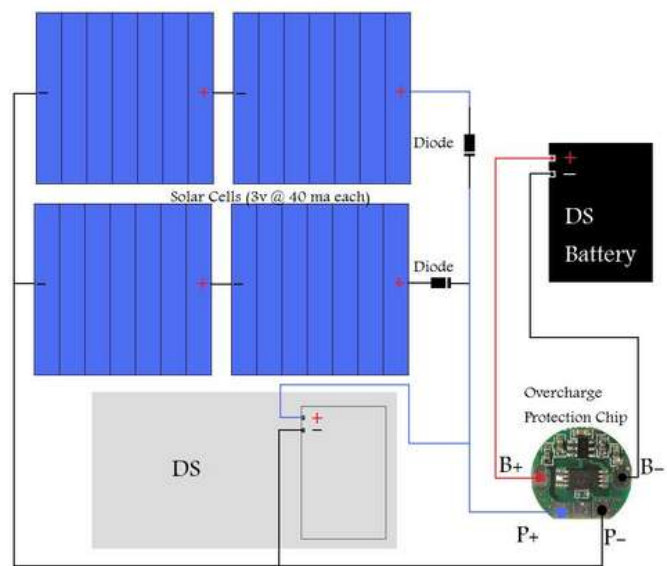
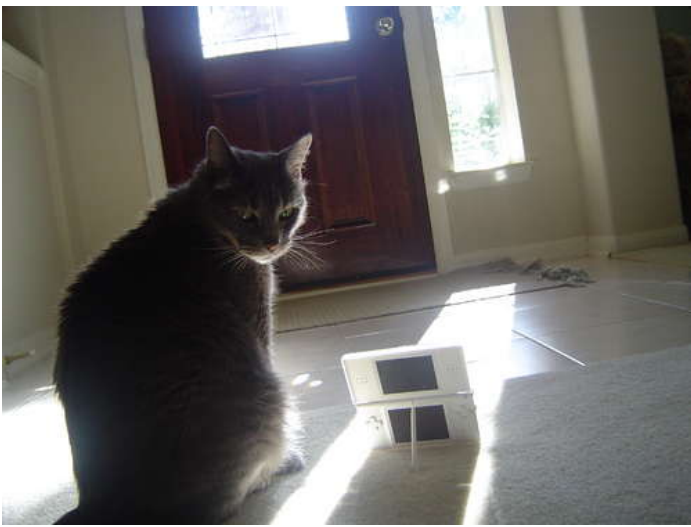


Image Notes

1. Sleek and green!



step 1: Materials

The materials required for this instructable are:

- Four (4) 60 x 60 mm solar cells <http://www.allelectronics.com/make-a-store/item/SPL-61/SOLAR-CELL-60MM-X-60MM-X2MM/-/1.html>
- Two (2) diodes, almost any kind should work <http://www.allelectronics.com/make-a-store/item/1N4001/RECT-DIODE-1AMP/50PIV/-/1.html>
- One (1) Overcharge protection chip <http://www.batteryjunction.com/prcimopfor3l.html>
- Some thin wire (preferably at least two colors)
- Scotch tape
- Electrical tape
- 4.2 cm long piece of thin heat-shrink tubing
- Some ribbon
- Nintendo DS lite (really?)

Tools:

- Hot glue gun with glue
- Soldering iron with solder
- Wire cutter/stripper
- Multimeter
- Helping hands tool (not required, but helpful)
- Solder Sucker (helpful if you mess up)
- Sandpaper
- Small phillips screwdriver

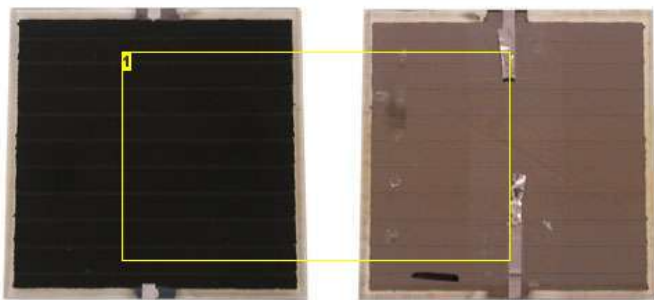


Image Notes

1. Manufacturer's photo. I started taking pictures after I soldered them together.

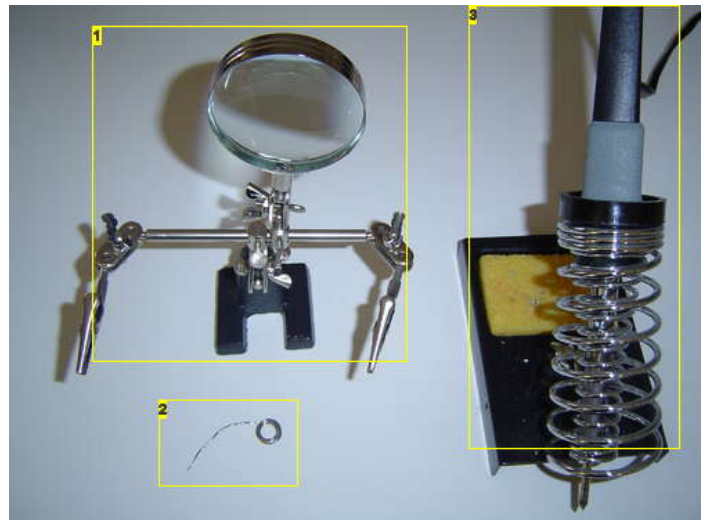


Image Notes

1. Helping hands.
2. Solder.
3. Soldering Iron.



Image Notes
1. Glue gun.

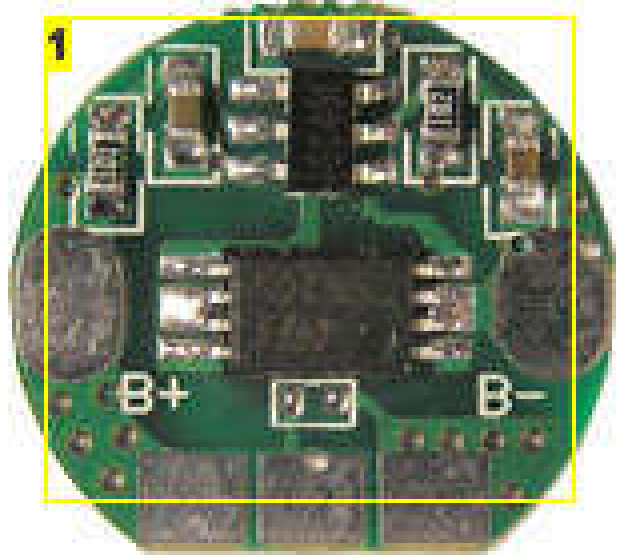


Image Notes
1. Overcharge protection!

Protection Circuit Module Specifications for 3.6V Li-ion Battery Pack

- MODEL: 1PHCT00036-02
- Apply for:
Single Cell Li-ion /Li-polymer Battery
Battery Protection
- Adopt Silan SC451 Protection IC
- Adopt ST 5N20V MOSFET

Port Design:

How to connect circuit with battery pack

Electric performance:

- Overcharge Protection voltage : $4.275V \pm 0.045V$
- Overdischarge Protection voltage : $2.40V \pm 0.20V$
- Overcurrent detection Protection : 2.0 ~ 4.0A
- Supply current: MAX 6uA
- Short circuit Protection
- Protection circuitry Resistance: $\leq 60m\Omega$

Port	Remark
B+	Battery (+)
B-	Battery (-)
P+	OUT (+) /charge (+)
P-	OUT (-) /charge (-)

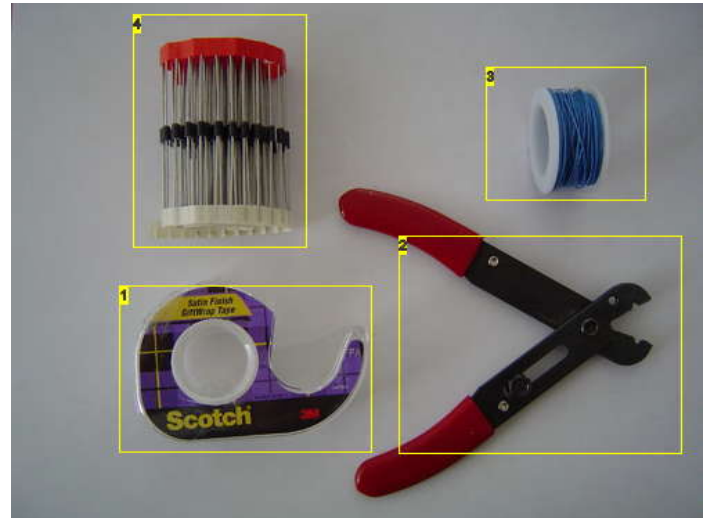


Image Notes
1. Tape.
2. Wire stripper / cutter.
3. Thin wire.
4. Diodes (you only need 2).



Image Notes
1. Heat-shrink tubing.



Image Notes
1. Multimeter.



Image Notes
1. Tiny!

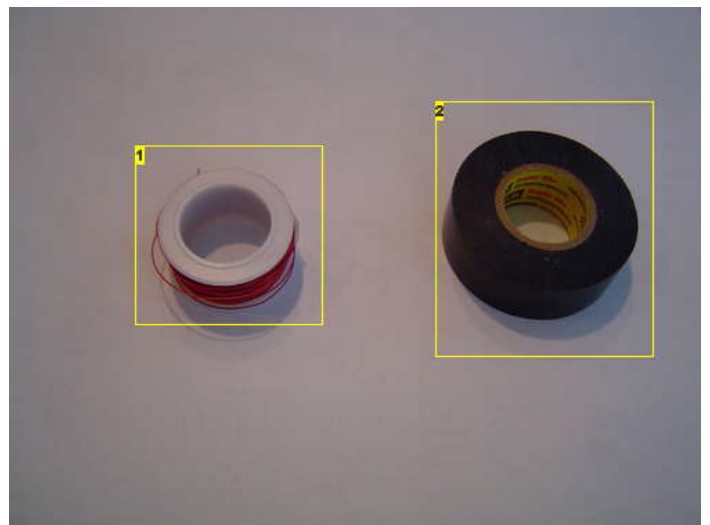


Image Notes
1. The other color of wire.
2. Electrical tape.



Image Notes
1. More solder.
2. Solder sucker, for those pesky little errors.

step 2: Make the Panels

This is probably the only step that is the same as the old instructable. Take two of the solar cells and solder the positive end of one to the negative end of the other. You can tell which is which because the negative end came with a little black mark by it.

After you made one panel, use the other two cells to make another.



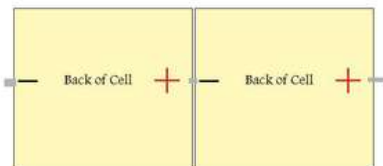
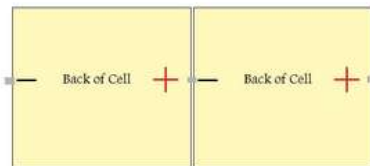
Image Notes

1. It doesn't take much solder.



Image Notes

1. Two panels.



step 3: Wiring Part 1

Pick one of the panels you just made, this will be the top panel. Cut a length of wire a little over 10 cm long and strip the ends. Solder one of the ends to the positive (no black line) end of the panel. Run it to the middle of the panel, tape it, and bend it straight down. Do the same thing to the negative end with a wire about 20 cm long.

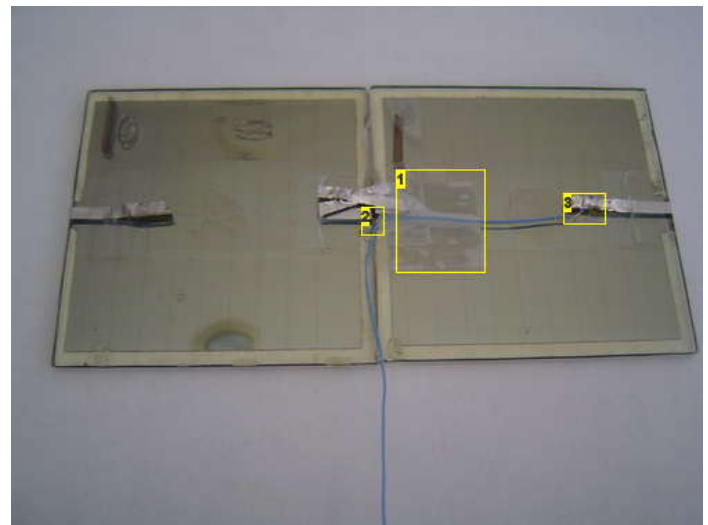
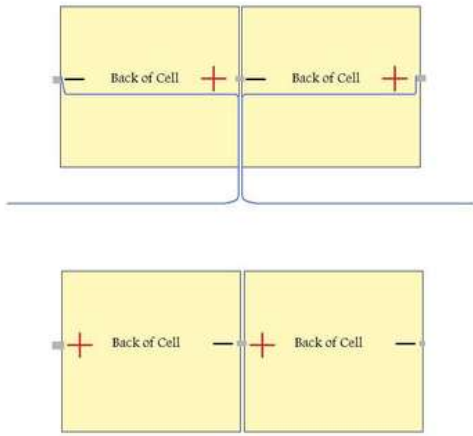


Image Notes

1. Tape.
2. Bend down at the middle.
3. Solder.

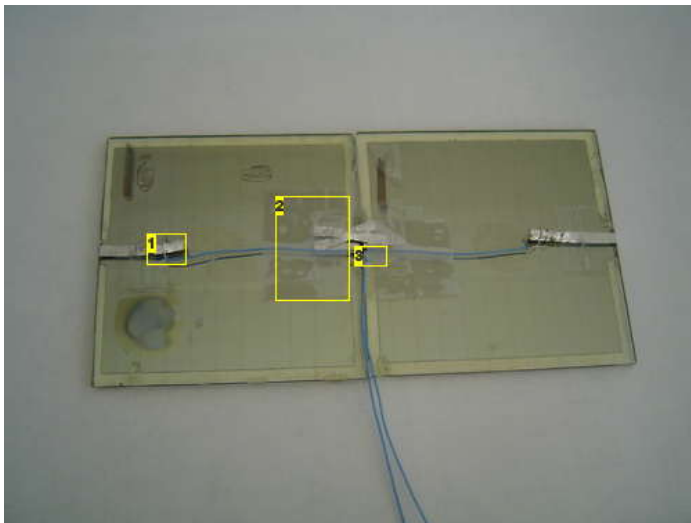


Image Notes

1. Solder.
2. Tape.
3. Bend down at the middle.

step 4: The Top Diode

Take one of the diodes and glue it at the bottom of the panel, right between the two cells. Solder the anode, or positive side of the diode (the one without the white line) to the wire coming off of the positive side of the panel (the short wire). You may need to cut off some wire if it is too long. Cut off any excess wire from the diode when you are done.

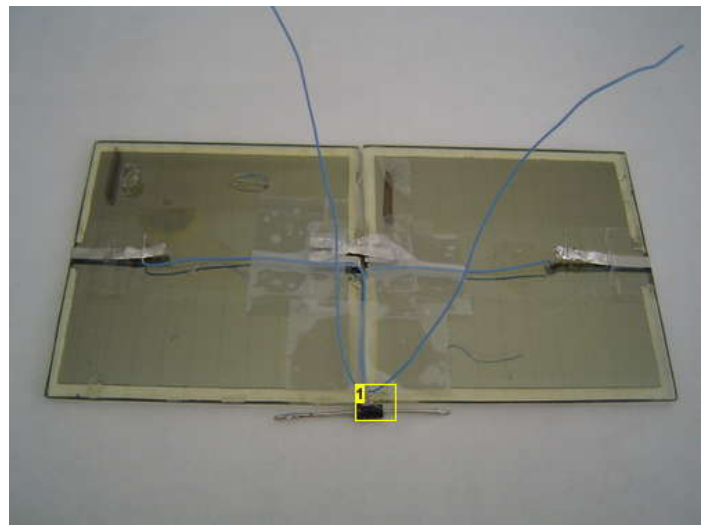
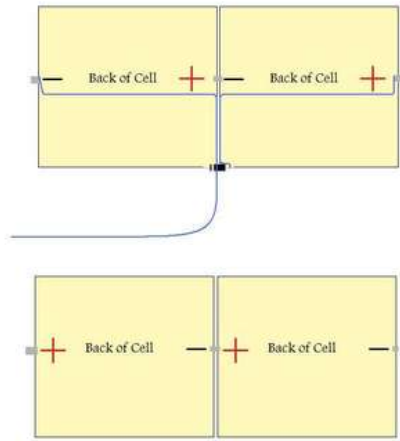


Image Notes
1. Glue.

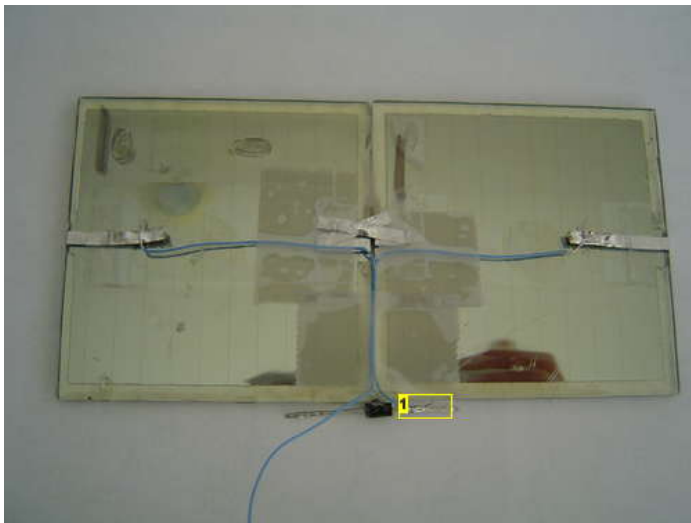


Image Notes
1. Solder.

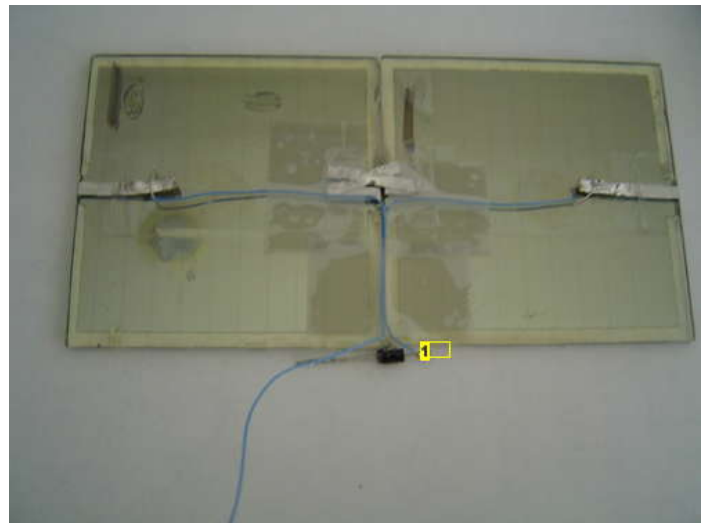
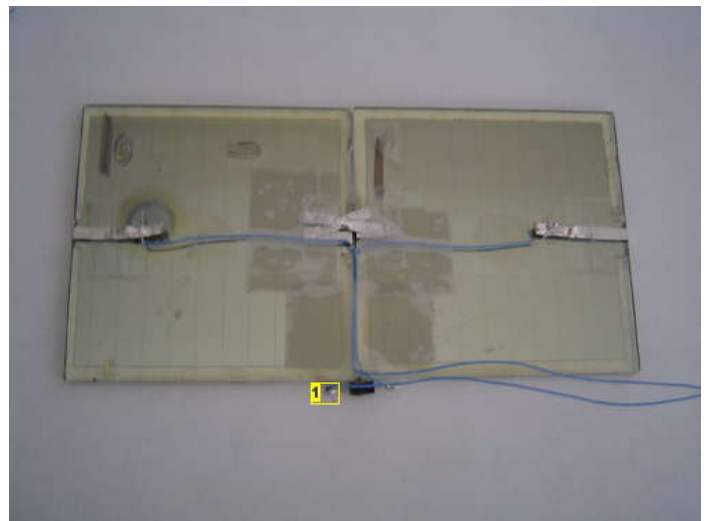


Image Notes
1. Cut off excess diode wire.

step 5: Wiring Part 2

Solder one end of a wire that is at least 10 cm long and solder one end to the negative end of the diode (the one with the white stripe). Bend it to the right, along with the other wire from the panel. Tape it in the middle of the right cell and bend them down. Put some tape over the diode, also. This helps hold it in place.



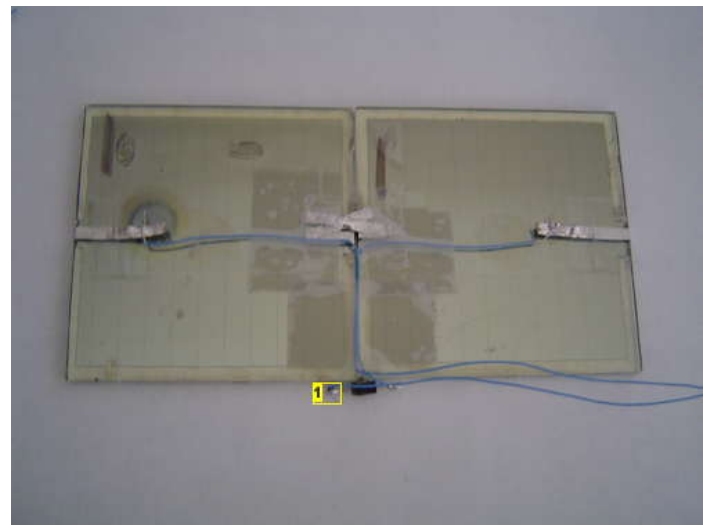
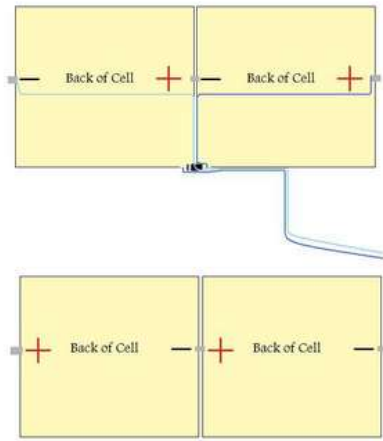


Image Notes
1. Solder.

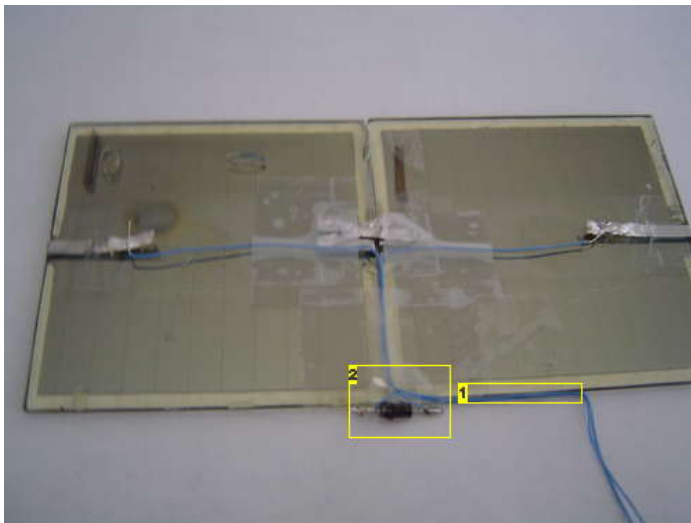
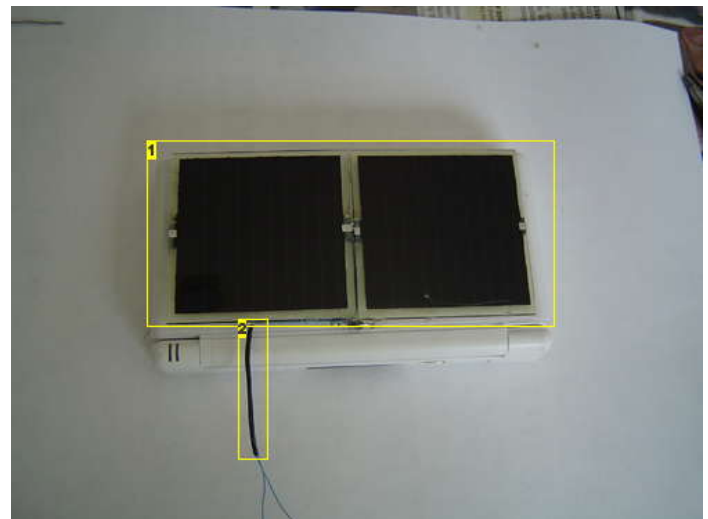


Image Notes
1. Tape.
2. Tape.

step 6: Heat-Shrink Tubing

Take your 4.2 cm long piece of heat-shrink tubing and slide it over the two wires. Rub it with your soldering iron to make it shrink to a tight fit around the wires.



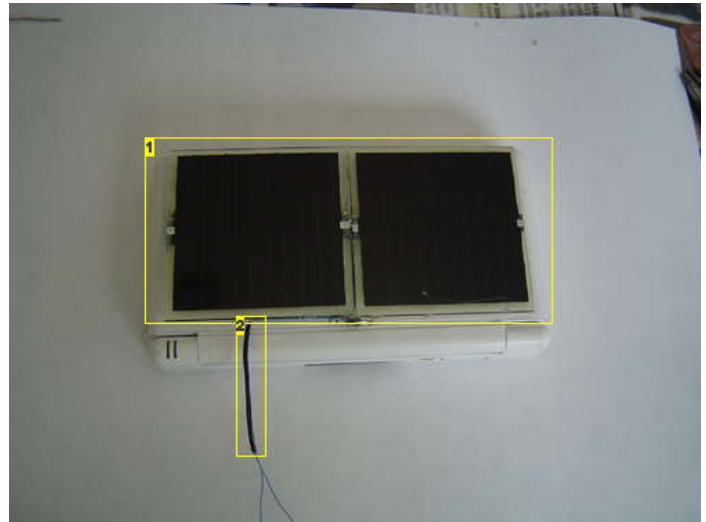
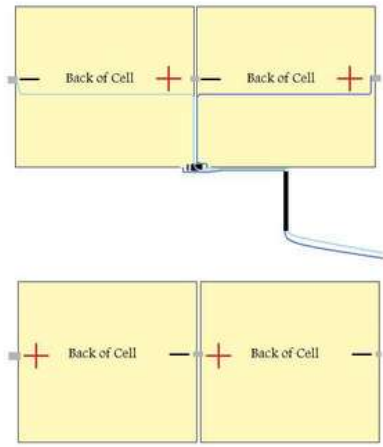


Image Notes

1. This isn't attached to the DS yet, just resting on top of it.
2. Heat-shrink tubing.

step 7: Join the Panels

Take the other panel and set it under the one you were just working on. Overlap the heat shrink tubing onto the bottom panel (just a couple of millimeters) and glue (or tape) it.

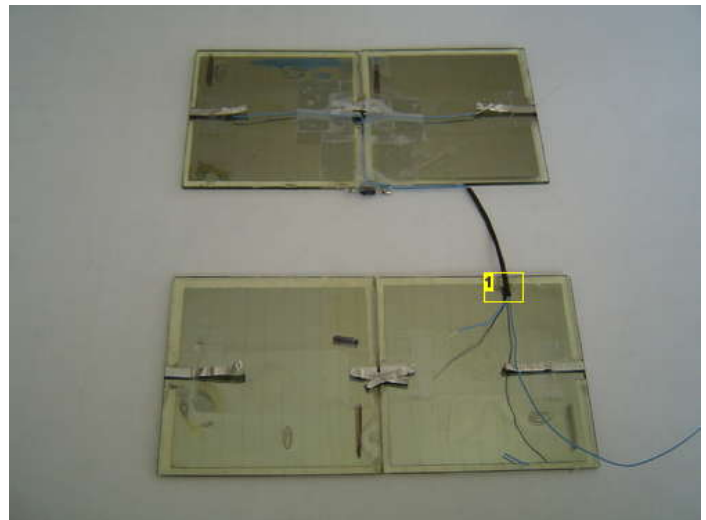
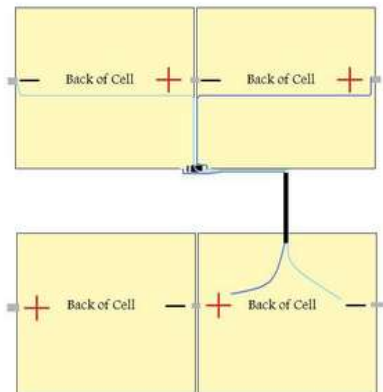


Image Notes

1. Glue or tape.

step 8: Add the Overcharge Protection

Take your overcharge protection chip and glue the bottom to the bottom panel as shown in the picture (it doesn't take much glue). Solder the positive wire from the top panel to the P+ terminal on the chip. Solder the negative wire from the top panel to the P- terminal on the chip. If you don't know which wire is which, use a multimeter. Tape the wires down to the panel.

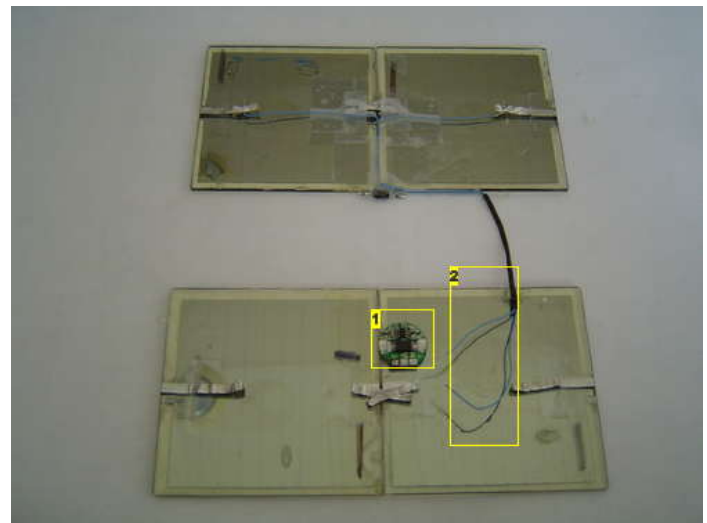
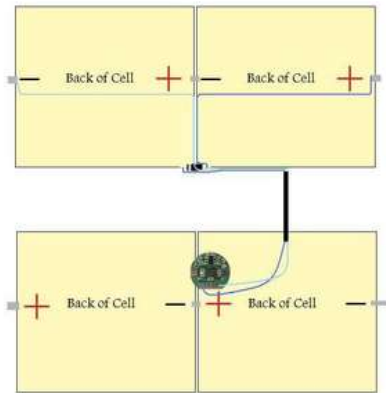


Image Notes

1. Tiny dab of glue underneath.
2. Wires ready to be soldered.

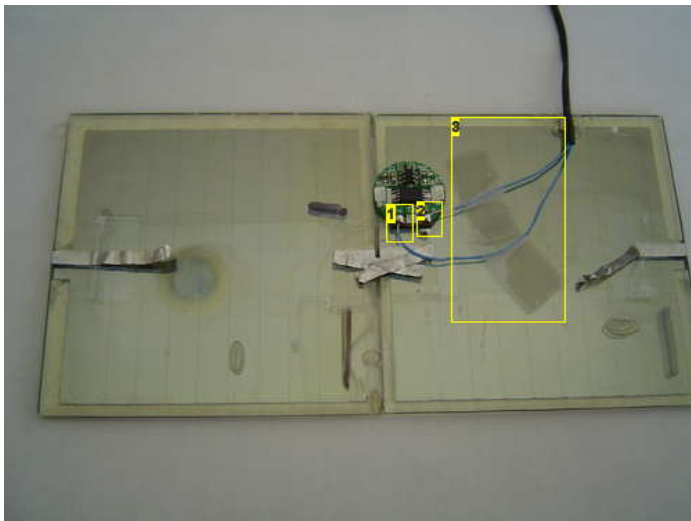


Image Notes

1. P+. Solder the positive wire here.
2. P-. Solder the negative wire here.
3. Tape the wires down.

step 9: Bottom Panel Negative

Cut a short wire and strip both ends of it. Solder one end of it to the negative end of the bottom panel. Solder the other end to P- on the chip. Tape down the middle of the wire.

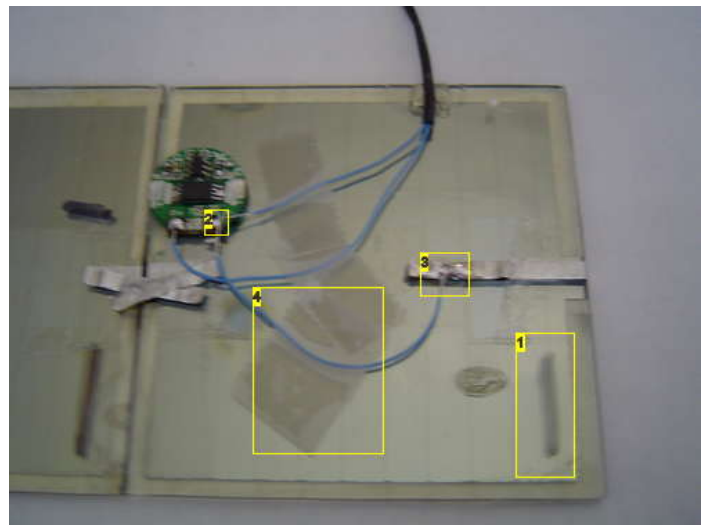
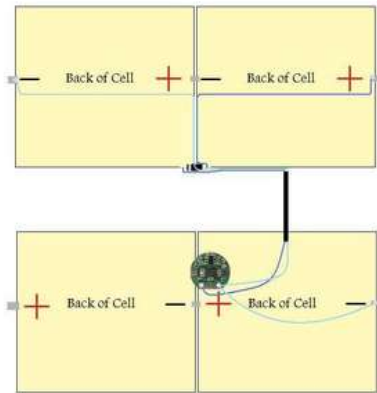


Image Notes

1. Make sure that you solder it to the negative side, if you don't the solar panels will cancel each other out and do nothing.
2. P-. Solder one end of the wire here.
3. Solder the other end to the negative terminal.
4. Tape.

step 10: Bottom Panel Positive

Cut another short wire and strip both ends. Solder one end to the positive end of the bottom panel. Solder the other end to the anode of a diode (the anode is the end without the white line). Glue the diode to the bottom panel in the place shown in the picture, then put some tape over it. Cut one more short wire and strip both ends. Solder one end to the cathode of the diode (the cathode is the end with the white line) and the other end to P+ on the chip.

Hooray! You completed the panel assembly!

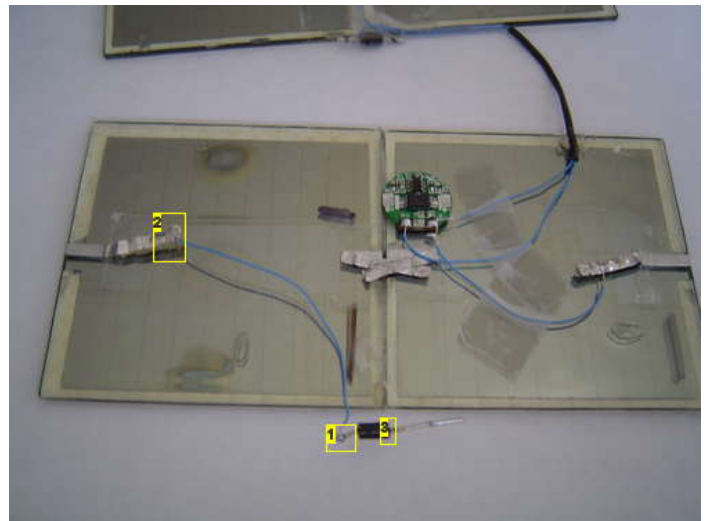
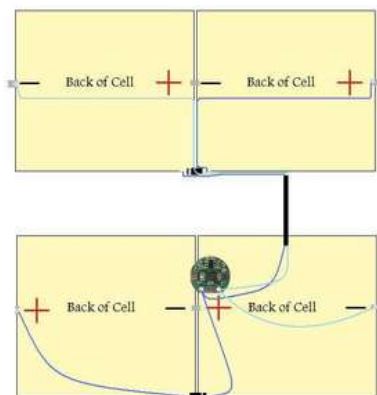


Image Notes

1. Solder here.
2. Positive side.
3. White line on diode.

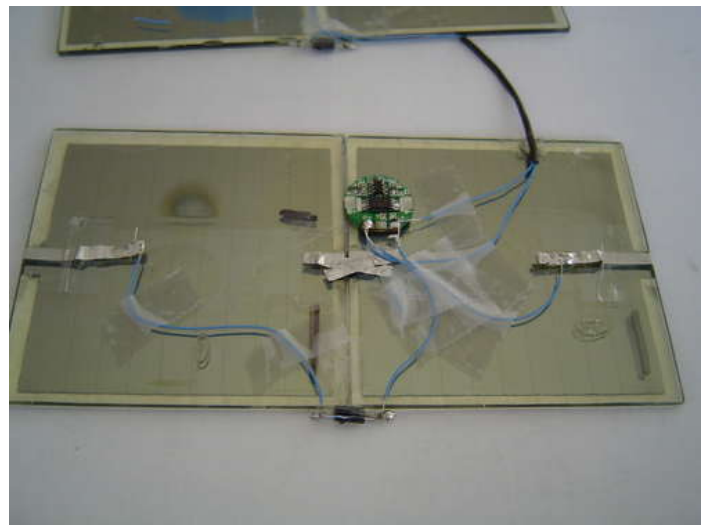
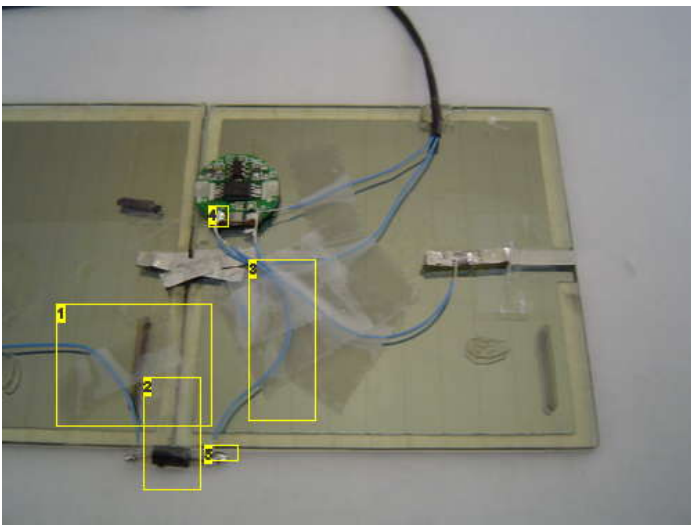


Image Notes

1. Tape here.
2. Glue and tape the diode down.
3. Tape this wire down, too.
4. P+. The other end of the wire gets soldered here.
5. One end gets soldered here.

step 11: Prepare the Battery

Take the battery out of the DS by taking off the battery cover and prying prying the battery out. Cut two medium pieces of wire (a little over 10cm) and strip both ends. Use one color for both of them, you will need the other color for something else. Clamp the battery into one arm of the helping hands tool and one of the wires into the other. Position the wire so that it touches one of the battery terminals. Solder (you heard me right, solder) the wire to the battery.

You guys are going to kill me in the comments for soldering directly to the battery, I just know it. But there was no other obvious way to do it, and it had to be done.

Repeat this with the other wire and the other battery terminal. Cover the terminals with a piece of electrical tape. Test your wiring with a multimeter by connecting it to the wires from the battery. **DO NOT LET SOLDER SHORT OUT THE TERMINALS OR ALLOW THE WIRE ENDS TO TOUCH, THE BATTERY COULD EXPLODE!!!!!!**

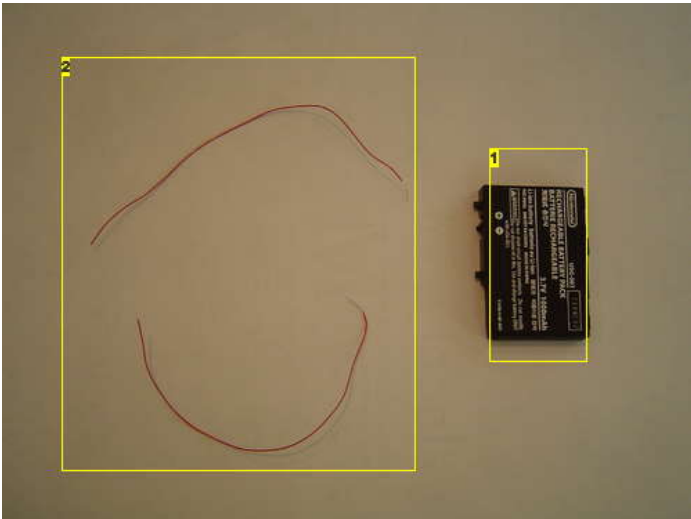


Image Notes

1. DS Battery.
2. Two wires.

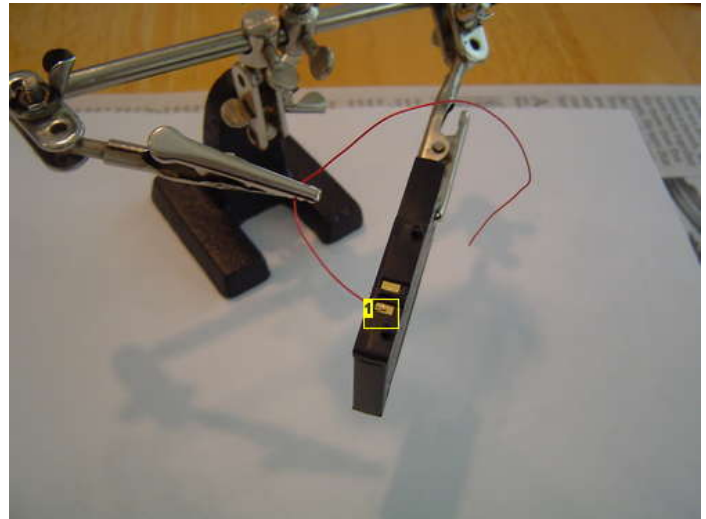


Image Notes

1. Solder here.

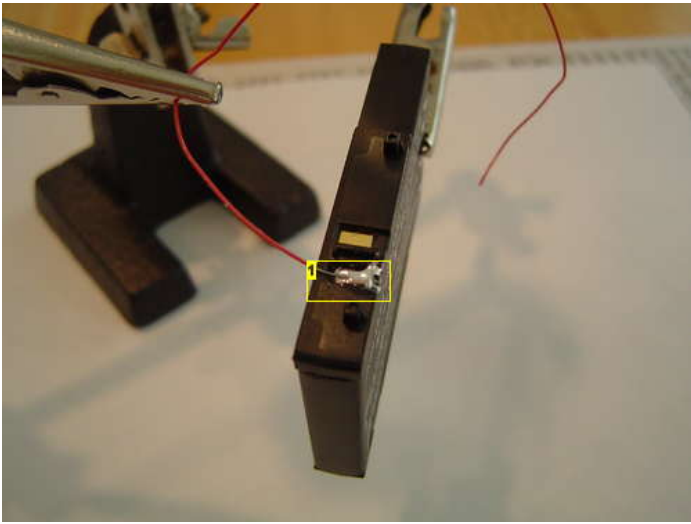


Image Notes

1. Try not to be as messy as I was.

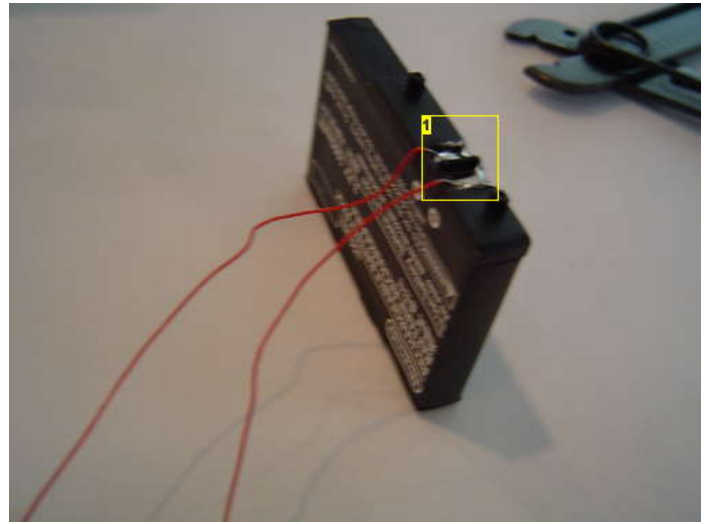


Image Notes

1. Two soldered wires. DON'T LET THEIR ENDS TOUCH!

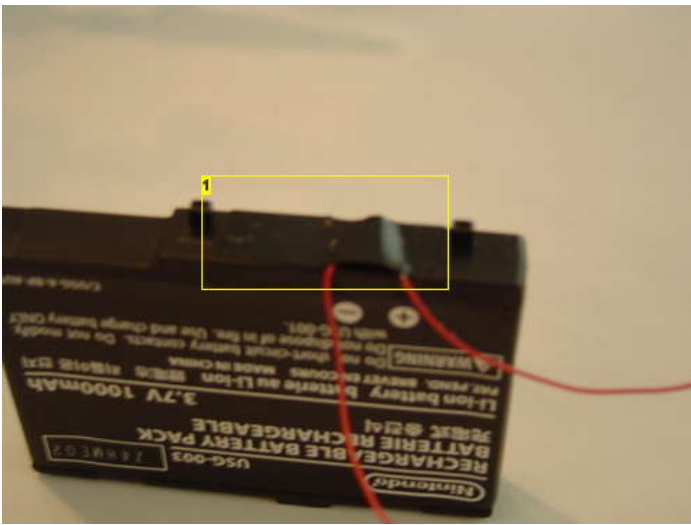


Image Notes

1. Cover them with electrical tape.



Image Notes

1. Test your wires to make sure they are connected properly. Mine were.

step 12: Prepare the DS

Cut and strip two medium lengths (a little over 10cm) of the other color wire. If you don't have another color, mark the ends of these two, you will need to tell them apart from the others.

In the slot where the battery was, you should see two terminals. Wedge one end of one of the wires into one of the terminals and use the helping hands tool to hold it in place. Solder the wire there using only a small amount of solder. Repeat this with the other wire and the other terminal.

Place a strip of ribbon into the battery cavity so that the ends come out of both sides. Because we added some stuff to the terminals of the battery and the DS, it is very cramped in there and the battery has to be forced in. **The ribbon is very important and it is near impossible to get the battery out without it.**

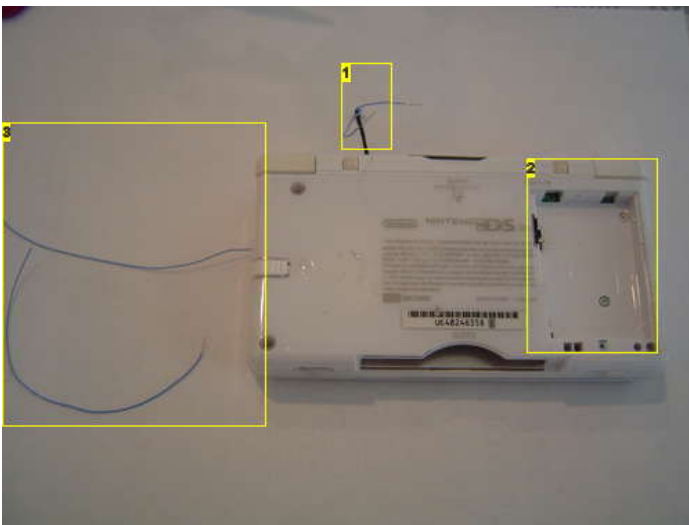


Image Notes

1. Pretend this isn't here.
2. Empty battery socket.
3. Two wires of a different color than the battery.



Image Notes

1. Wedge a wire in one terminal, then solder it.

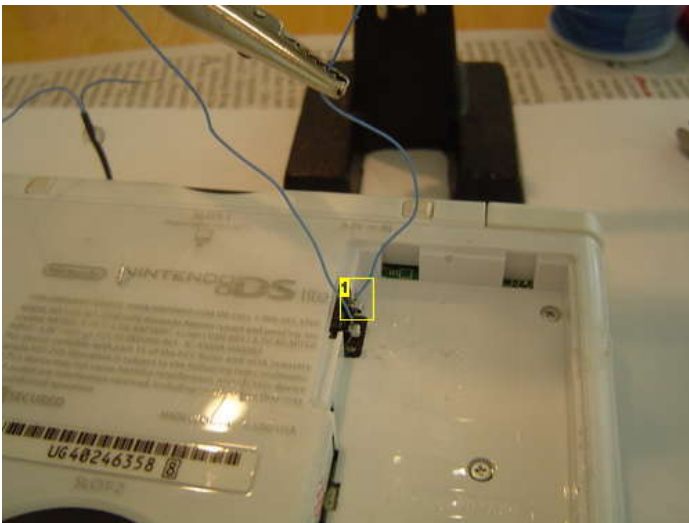


Image Notes

1. Repeat with the other wire and the other terminal.

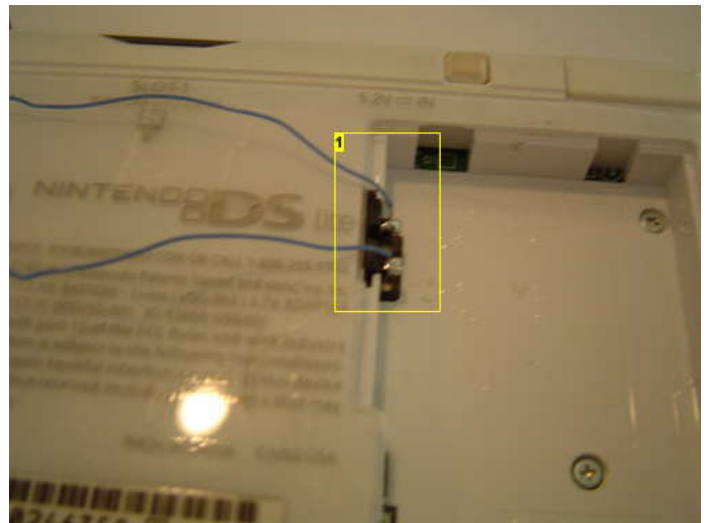


Image Notes

1. Completed.

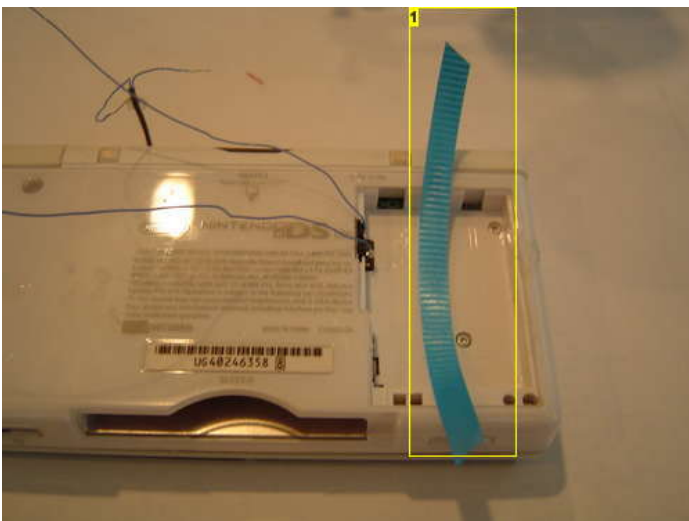


Image Notes

1. Put a ribbon in like this. THIS IS VERY IMPORTANT SO YOU CAN GET THE BATTERY OUT.

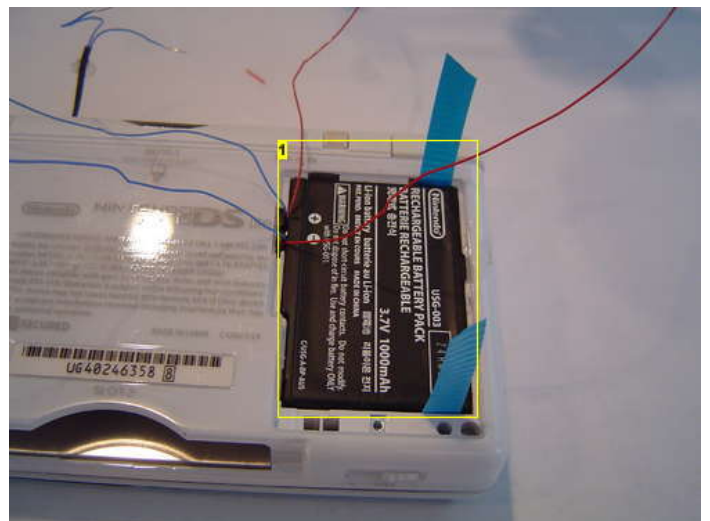


Image Notes

1. Wedge in the battery. It might take some effort because of the extra wires.

step 13: Prepare the Battery Cover

Because we are trying to squeeze four wires through the battery cover, it is very important to sand a nice space into the side of the cover. This is pretty much a required step. I already cracked my battery cover from trying to force two wires through it in my previous Instructable, so with four this is a necessity.

Do this outside because it creates lots of tiny plastic particles that float in the air and probably isn't the best thing for your lungs.

After that is over, screw the battery cover back on the DS. The four wires should fit nicely through the groove you created. Put a piece of electrical tape over it to hold the wires in place. Put a piece of tape over one of the wires from the battery to keep it from shorting.

It is also a good idea to turn on the DS at this point in time. If it **doesn't** turn on, you're doing good! If it **does** turn on, you probably forgot to cover the battery terminals. Do that now if you have'nt.

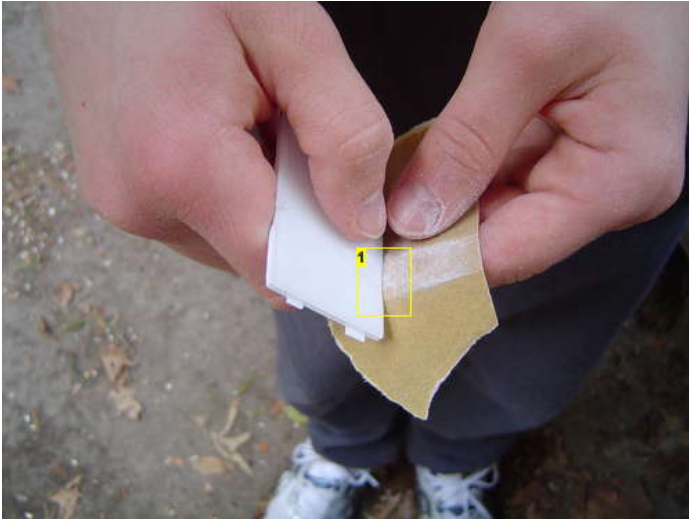


Image Notes

1. Sand a nice groove right here like this.

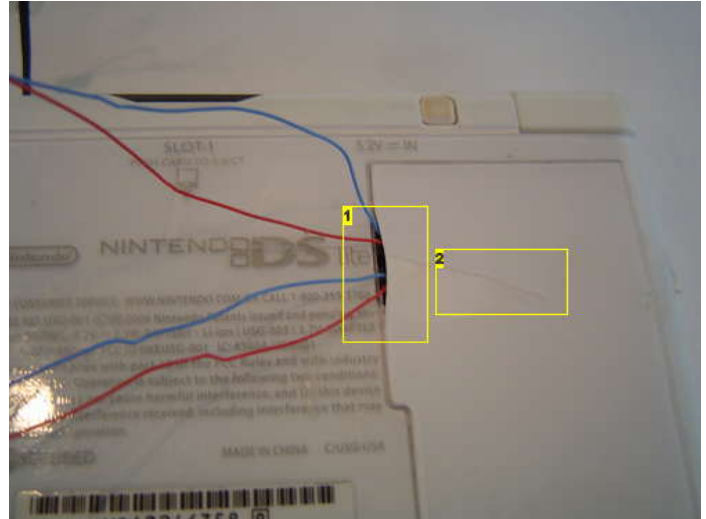


Image Notes

1. A perfect fit!
2. Ignore the crack. It was from trying to put the cover on without a groove in it.

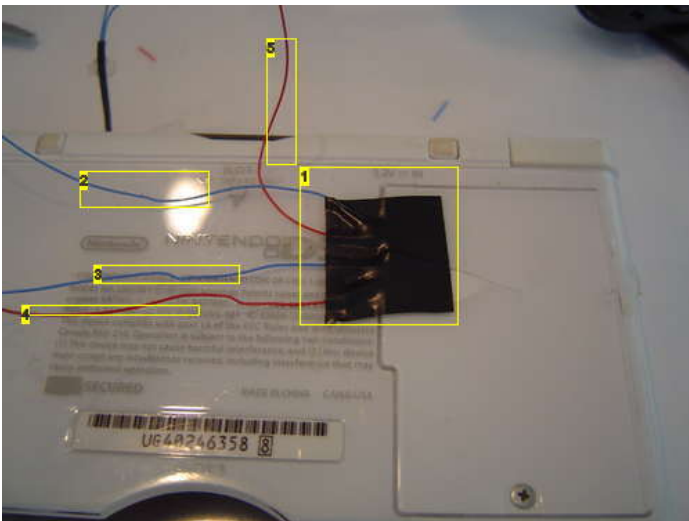


Image Notes

1. Put some tape here to prevent the wires from coming loose.
2. Positive DS wire.
3. Negative DS wire.
4. Negative battery wire.
5. Positive battery wire.

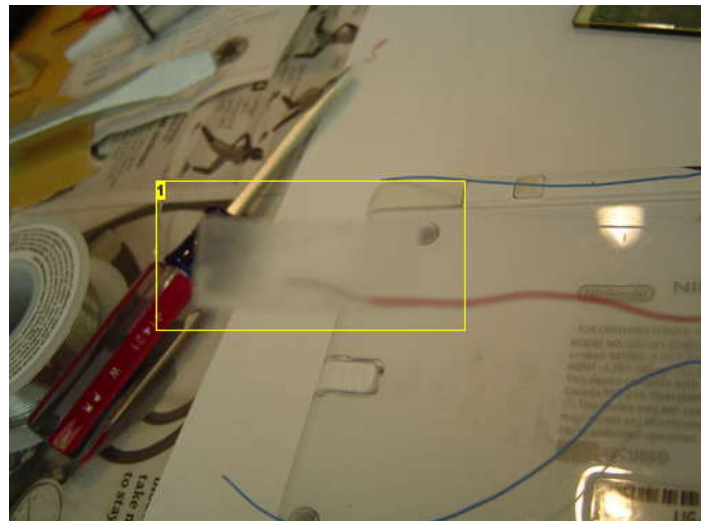


Image Notes

1. Cover one of the battery wires with tape. That way it can't short while you are working on it.

step 14: Unite the Panels and DS Together!

Set the DS and the bottom panel right next to each other, and make sure the wires from the DS can reach the chip. Solder the positive DS wire (the blue one near the top of the battery compartment) to P+ on the chip. It should be the third wire being soldered to that terminal. Then take the negative wire from the DS (the blue one near the bottom of the battery compartment) and solder it to P- on the chip. It should be the third wire to be soldered to that terminal. Tape the wires down.

Take the positive battery wire (the red one near the top of the battery compartment) and solder it to B+ on the chip. It should be the only wire on that terminal. Now, before you solder the negative battery wire, test it with a multimeter to make sure there are no shorts. Set the multimeter to measure current, touch the positive terminal to B- on the chip, and touch the negative terminal to the negative battery wire. I got about .01 ma, because the DS uses a small amount of power in standby. Now do the same thing with the voltage setting, and you should get about 3 volts. This means that power is ready to flow through the DS. If either of your readings are way off, check your wiring. If you got them, proceed.

Take the negative battery wire and solder it to B- on the chip. It should be the only wire soldered to that terminal.

You are now ready to test it!

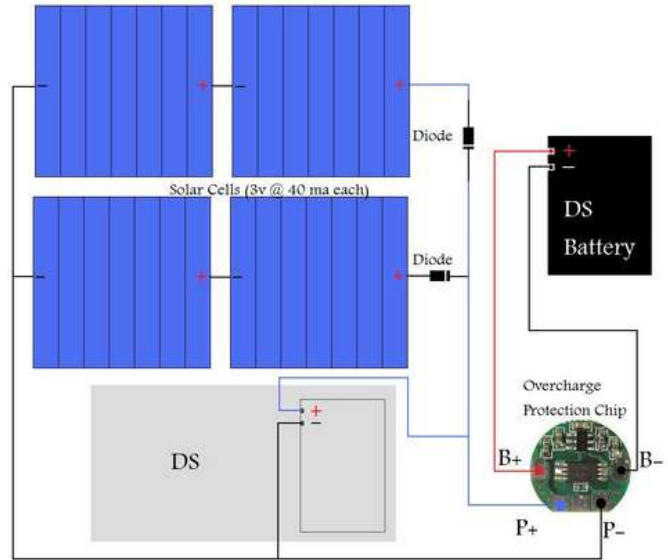
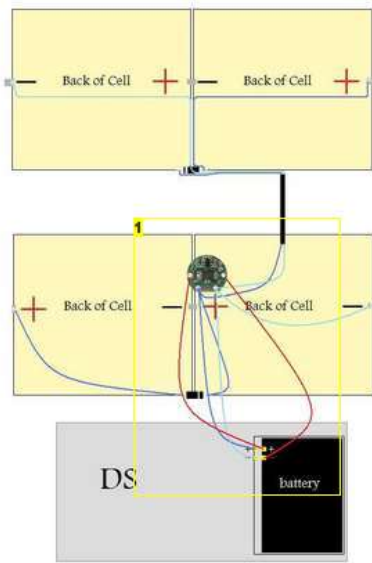


Image Notes

1. This part is kinda complicated, you might want to enlarge the image or look at the schematic (next image).

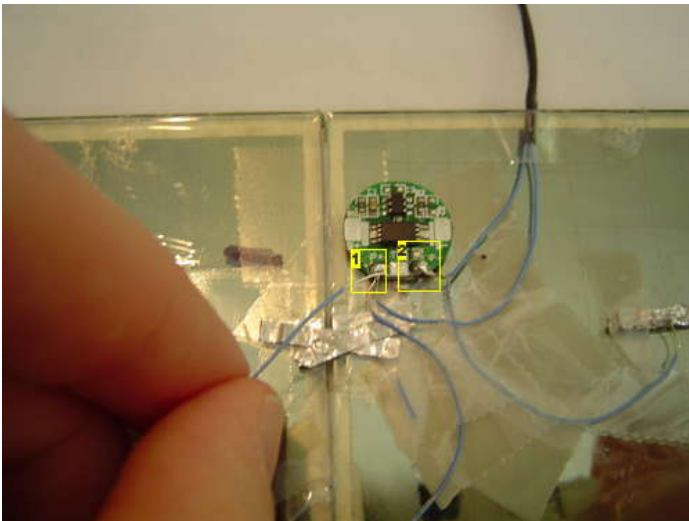


Image Notes

1. Solder the positive DS wire to P+ (it should be the third wire to go there).
2. Solder the negative DS wire to P- (it should be the third wire to go there). I don't have a pictures of this one.

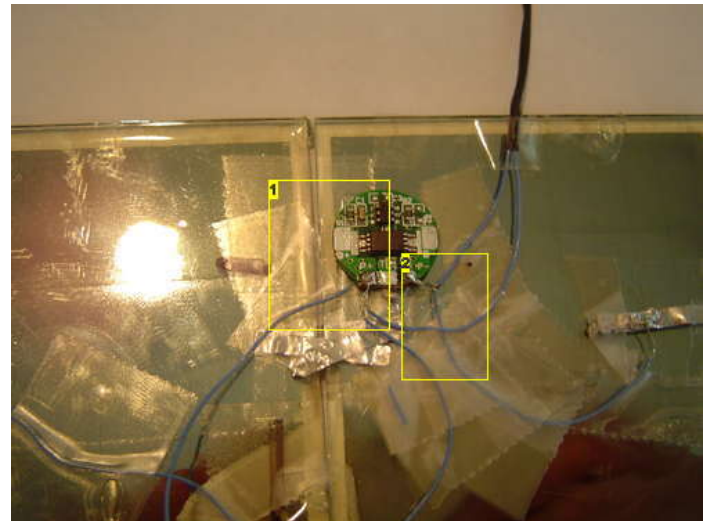


Image Notes

1. Tape it down.
2. Tape down the negative wire, too (no pictures).

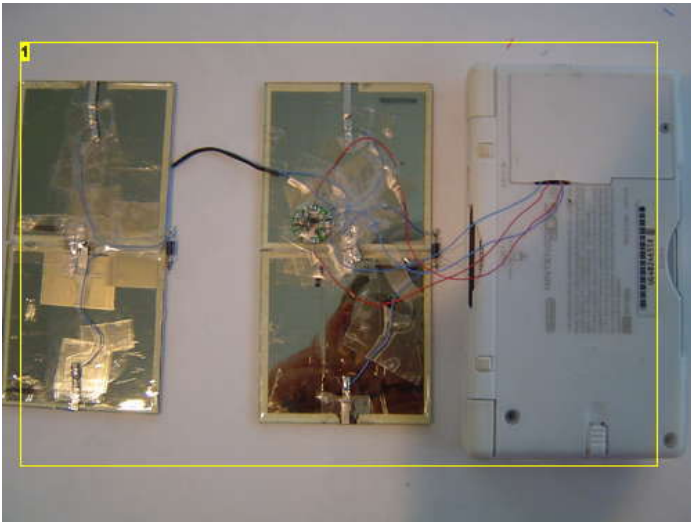


Image Notes
1. Overall view.

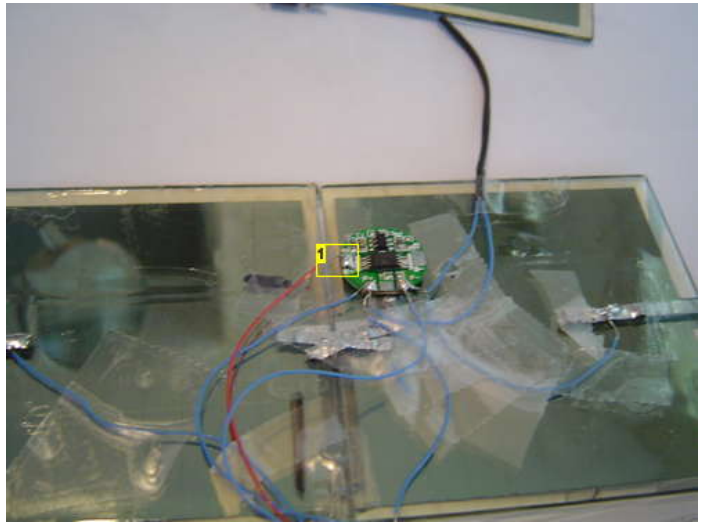


Image Notes
1. Solder the positive battery wire to B+. IT SHOULD BE THE ONLY WIRE ON THAT TERMINAL.

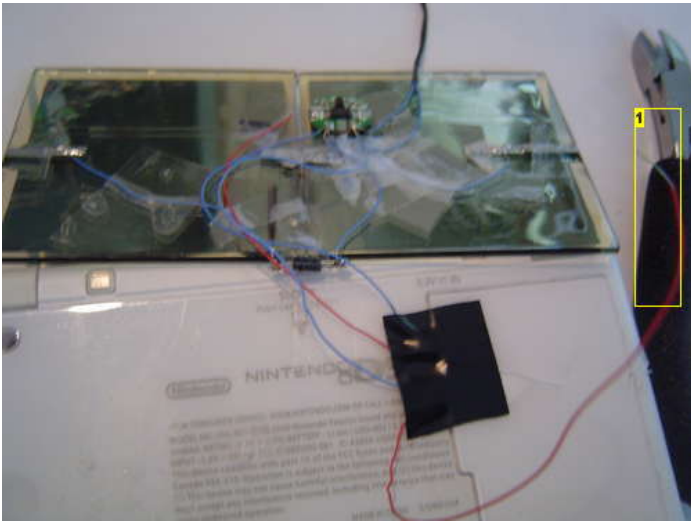


Image Notes
1. Negative battery wire ready to be soldered.

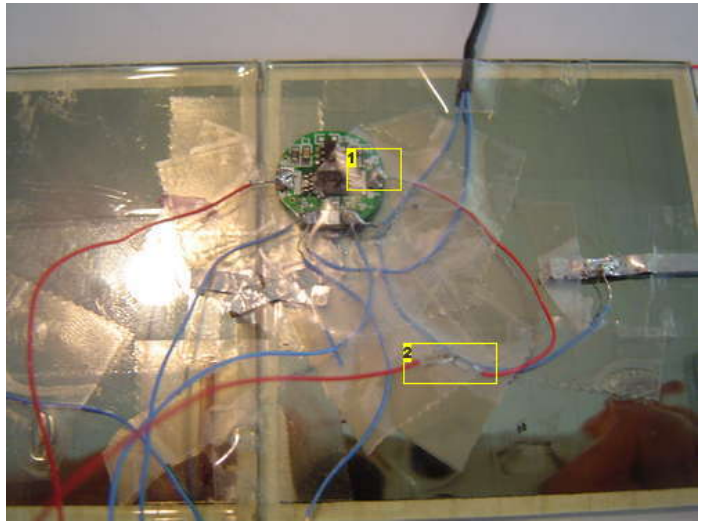


Image Notes
1. Solder the negative battery wire to B-. It should be the only wire there. MAKE SURE YOU HAVE TESTED IT WITH A MULTIMETER FIRST TO MAKE SURE THERE ARE NO SHORTS.
2. Pretend this doesn't look like this. My wire broke (don't ask me how) and I had to solder it back together.

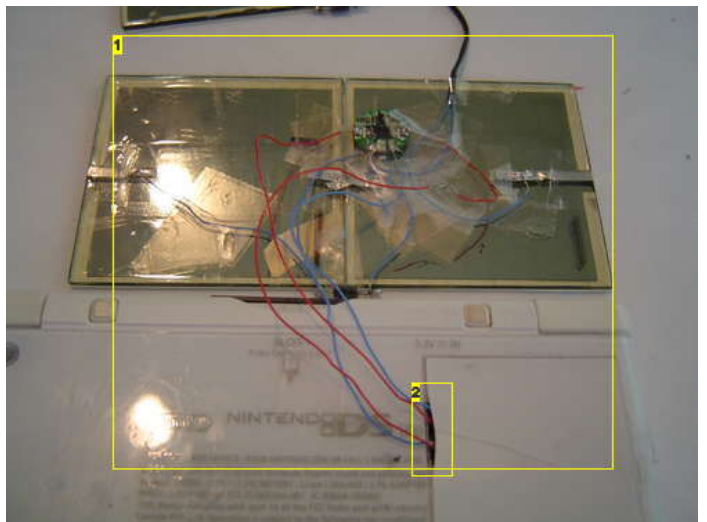
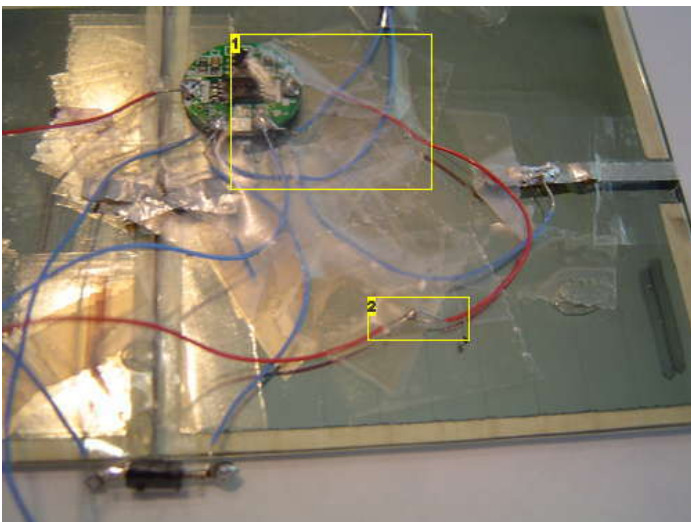


Image Notes

1. Cover it with tape.
2. Pretend this doesn't look like this. My wire broke (don't ask me how) and I had to solder it back together.

Image Notes

1. It should look like this now.
2. This should be taped.

step 15: Test the Setup

The title is pretty much self-explanatory, turn on the DS. If it turns on, CONGRADULATIONS! This means power is going through the chip and coming back into the DS. If it doesn't turn on, first check to see if the battery is charged. Then check all of your wiring with a multimeter for shorted or missing connections if it still doesn't work.

You can now proceed to attaching the panels to the DS.



Image Notes

1. Hooray!

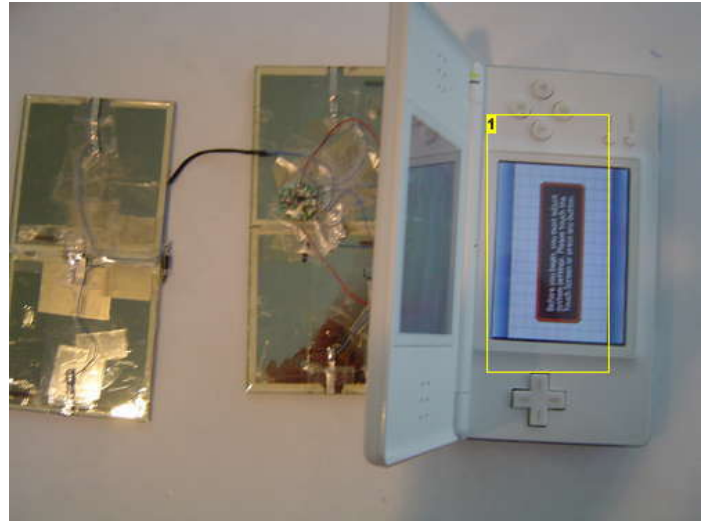


Image Notes

1. It works!

step 16: Attach the Panels

Now that you know that it works, it is time to attach the panels. First hold the DS on its side (see first picture) and arrange the bottom panel underneath it so that no wires poke out the side. Use tape to hold stubborn wires in place. Once it is arranged properly, put a dab of glue on two of the corners of one side (for example, the upper-left and lower-left corners). Quickly press that side of the panel onto the DS, making sure it is straight and isn't covering anything important (L and R buttons, stylus, etc.) and hold it until the glue has cooled. Then gently lift the other side a little bit, apply glue in the corners, and press it back down. Having glue in the corners instead of a big blob in the center makes the panels easier to take off if something doesn't work.

Once you have the bottom panel attached (see second picture), fold the top panel onto the top of the DS (see third picture). Use the same glueing method as with the bottom panel.

Tip: press hard while the glue is drying so the panels don't stick out as much.

NOW IT'S FINISHED!

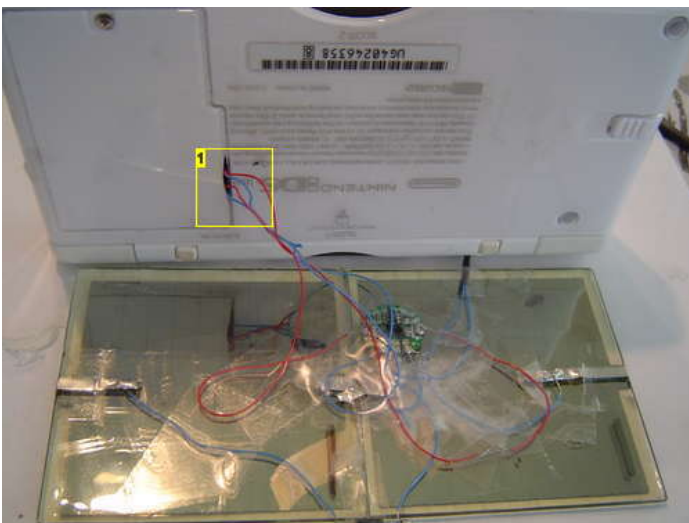


Image Notes

1. Pretend the electrical tape is still covering this.

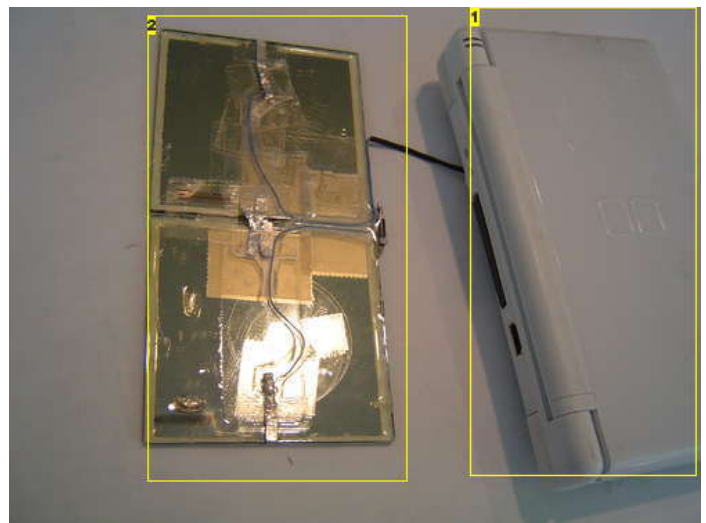


Image Notes

1. The bottom panel has been glued.
2. Fold this onto the top, then glue it.



Image Notes

1. correct placement.

step 17: Option 2

In my previous instructable, many people were saying they wanted to build a base that would stay in the sun all day collecting power and transfer it to the DS overnight. So I came up with a schematic for a device like that.

This switch changes between charging the battery from the solar cells and transferring the charge to the DS.

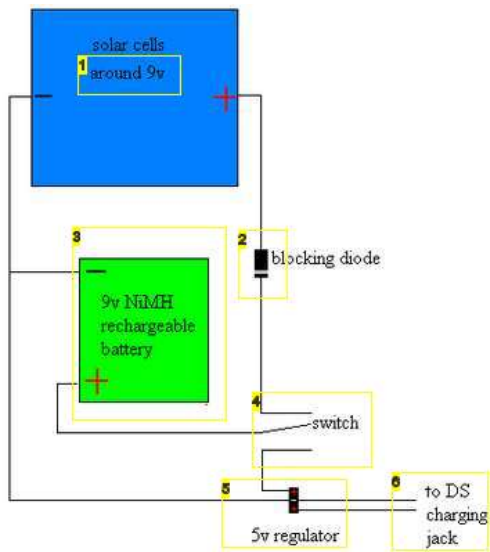


Image Notes

1. At least 9 volts.
2. This prevents the battery from discharging into the solar cell overnight.
3. This is where the power is stored.
4. This switch changes between charging the battery from the solar cells and transferring the charge to the DS.
5. The regulator puts out a constant voltage for the DS.
6. These wires go to the spliced end of a DS charging jack. Make sure the polarity is correct.

step 18: Enjoy not Using the Charger!

Hooray, you finished!

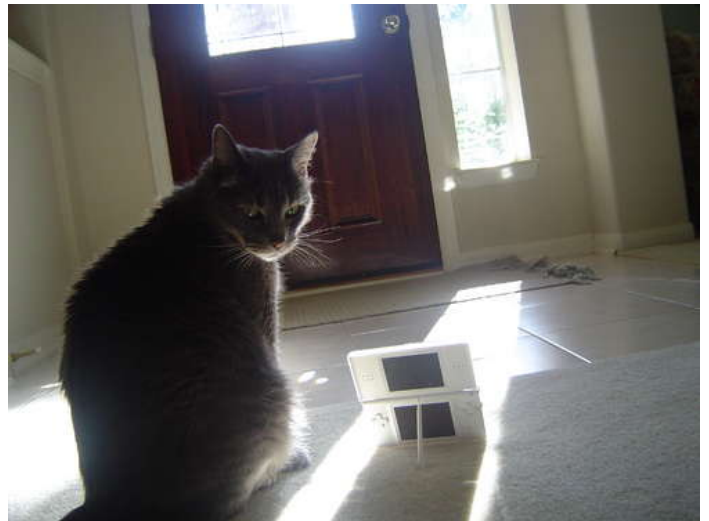
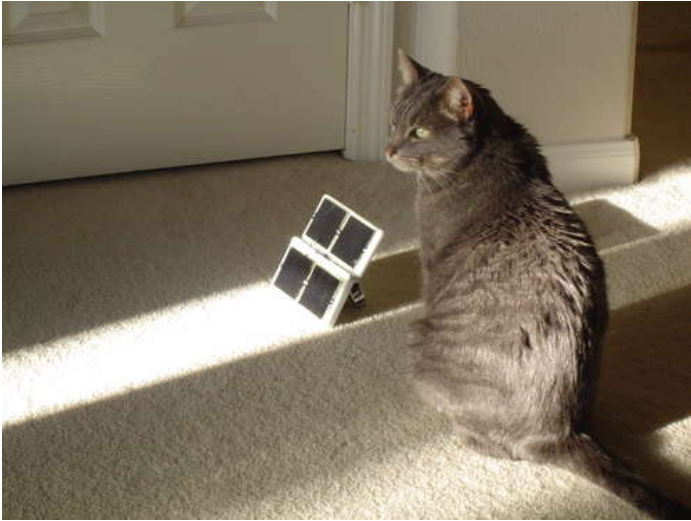
Whenever I am not using the DS and it is sunny outside, I set the DS in the sun to charge. I never leave it outside, I just set it by a sunny window or on the floor. Unlike my previous instructable, it doesn't matter how long you leave it in the sun because the chip protects the battery. The solar panels are made for charging the battery, so don't get the idea that you have to hold this in the sun to play it. Also, the way I did this still works with the charger,

Ever since I did this, my DS never needed to use the charger. It works excellently and looks cool too. It has a much sleeker design than my previous solar DS and the protection circuit saves the battery. Not only is this good for the environment, but you will never have to worry about bringing the DS charger with you again!

By the way, do not let the security people see this in an airport. You have been warned.

Here are some pictures of it charging. It is propped up on the stylus to get as much sun as possible.

Thanks for viewing, and don't forget to rate! I hope you try my project, please send me pictures if you do this! If you have a question, don't hesitate to ask, I will gladly answer it!





Related Instructables



Make a Solar DS "light" (The Easy, Not-as-Good Version) by dark sponge



Solar Power (guide) by Plasmana



Home-made Sun Jar by cre8tor



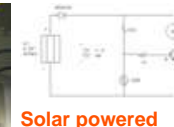
Double Joule Solar Thief All Contained in a Mint Tin by nunepi



Solar Powered jack-o-lantern by pcapelo



Solar Rechargeable Battery Powered PSP Charger by YoChuck



Solar powered nocturnal personal fan by Wonko the sane



Assemble & Make Your Own Portable Solar Lantern (video) by vidhi

Comments

50 comments

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cclementi6 says:

instead of rewiring the DS battery, could i just take a normal DS charger plug and solder the wires in it to the solar panel, and then just plug the solar panels into the ds? then i could charge it with the normal charger if i wanted to, and i could change my mind if its sunny!

Jun 9, 2009. 1:53 PM [REPLY](#)



dark sponge says:

If you do it this way you can still use the charger, it still works.

Jun 12, 2009. 8:23 AM [REPLY](#)



1997589 says:

what about a dsi

Jun 4, 2009. 2:45 PM [REPLY](#)



dark sponge says:

It should work fine, you would just have to cut a hole for the camera.

Jun 4, 2009. 6:08 PM [REPLY](#)



Jayceetoo says:

Would a black DS work better as it attracts more heat ?

May 31, 2009. 1:28 AM [REPLY](#)



dark sponge says:

They should work equal, the black just absorbs more heat when light hits it. It doesn't actually attract the heat.

May 31, 2009. 1:13 PM [REPLY](#)

As far as I know, the heat shouldn't affect the panels.



Sammaron says:

May 26, 2009. 7:04 PM [REPLY](#)

A grand idea, says I, but i would like to mod it to suit my conditions. The problem is ordering all the stuff to do this certainly is not green as it will probably be flown or driven, and either are bad. Therefore, to be truly green, I want to use stuff that i already own. Here's what i would like to know:

1. I thought the battery had to have a certain level of input. Is that input no longer necessary (hell, it'd probably be too much) because i do not run the charge through the system (i.e., direct feed to battery?). The reason i would like to know this is to see if it's all right to use a different small panel i have.
2. Like i said, i don't want to order anything. I'm not much of a tech guy (this is gonna be so much fun :D), but could i pull out a diode or (kind of a stretch) the charge protecting chip out of any household items?
3. Lastly, just for my info, are the 'B' sockets on the protection chip the outputs?

Sorry if i'm not being clear, and sorry for asking so many questions. Hopefully you can help me out. Anyhoo, great project, i applaud you :D



dark sponge says:

May 27, 2009. 2:18 PM [REPLY](#)

Thanks for viewing! I'll try to answer the questions the best I can.

1. It depends on the voltage of your solar cell. What is it? I could help you if I knew.
2. You could probably find the diodes, but they might not survive the desoldering-resoldering. I don't think you can find the protection chip anywhere. Laptop batteries might have them but they would be the wrong voltage.
3. I wouldn't consider them outputs. The chip allows power to go from the "P" ports (the ones with the DS and solar cells) to the battery ("B" ports), but it also allows power to go from the battery to the DS/solar cell side. It only stops the flow of power if:
 - A) the battery is fully charged
 - B) the battery is undercharged
 - B) the DS has a short and is drawing way to much power

I hope that clears things up a bit. Feel free to ask more questions!



Sammaron says:

May 28, 2009. 4:23 PM [REPLY](#)

1. Sorry, i have a knack of leaving that kinda info out. I'm ripping it out of this solar panel: <http://www.sunjoules.com/bat>. It says it gives out 5 volts at 160ma.

2. A shame. I guess i'll order each. Should i get a different protection chip for 5 volts (if that'll work. If not, what voltage should i shoot for?)
3. Is that why you need the diodes, to make sure the power won't flow back to the panels?

I really appreciate the help. Your a good man :)



dark sponge says:

May 28, 2009. 8:03 PM [REPLY](#)

1. The link isn't working for me, so going by 5v at 160ma, this should be fine.

2. Get the protection chip at <http://www.batteryjunction.com/prcimopfor3l.html>. It is for 3.7 volt batteries.

3. Precisely!

Your welcome! :-)



Sammaron says:

May 30, 2009. 7:55 PM [REPLY](#)

My apologies, but i like you cause you respond, so I'm going to ask a few more questions if you don't mind too much.

The protection chip simply protects from over charge, but it DOES NOT protect from too much charge at a time (overloading it, i guess). Therefore i could have a panel that is too powerful for the battery, and break it?

Also, the reason i'm trying to generalize everything, is because i might try this on an old cell phone before on an expensive thing (a la DS). This is theoretically not DS specific, right?

Sorry to bother. If this is getting old, just don't reply. thanks for the help :)



dark sponge says:

May 31, 2009. 1:10 PM [REPLY](#)

You would have to have a pretty big mobile device in order to fit a solar cell on it so powerful it overloads the battery.

Yes, this is not DS specific.

Once again, if you have any more questions, feel free to ask!



sddhhanover says:

May 29, 2009. 11:09 PM [REPLY](#)

Will this work on the new DSi? also, after i finish this project, will the LED indicators for "charging" and "power level" still light up? Finally, will i have less playing time with the solar panels? (im afraid that the solar cells provide less electricity than the charger).



dark sponge says:

This should work with the DSi if you cut a hole for the camera. The LED indicator does not light up when you are charging with the solar panels, but if you charge it with the charger it does. What does the power level LED indicate? I don't have a DSi. You will have the same amount of playing time with the solar panels because it runs from the battery, it just takes a lot longer to charge.

May 30, 2009. 7:31 AM [REPLY](#)



1997589 says:

will it work on the first ds

May 29, 2009. 2:09 PM [REPLY](#)



dark sponge says:

Yes.

May 29, 2009. 3:14 PM [REPLY](#)



Lettucehead says:

Your instructable is awesome. I made a video about your ds,

Click link-<http://animoto.com/play/Oxyn237Mhe4rbV6fRVHfCQ?autostart=true>

May 29, 2009. 2:58 PM [REPLY](#)



hobbles says:

Id just make a separate panel with 4 rechargeable batteries a 5v regulator and cut up a ds cable for mine. I couldn't do that to mine, yours looks very convenient though. If on a road trip or something it would be nice to leave in the back window flipped open. One question though why did you use two diodes couldnt you just use one?

May 21, 2009. 9:59 PM [REPLY](#)



dark sponge says:

You mean like step 17?

May 23, 2009. 8:15 AM [REPLY](#)



hobbles says:

Id rather use double a's but yes like that.

May 26, 2009. 5:11 PM [REPLY](#)



jotapedos says:

A couple of questions before trying to do it myself...

Does the battery charge while you play games with it too or only when it is OFF?

How long does it take to fully recharge the battery? Is the battery light indicator working while the battery is being charged?

Since you have assembled it several months ago, is it still working for you?

Do you decide when you want your panels to charge the DS or do they start charging all the time or every time you turn it off?

Great step by step instructable but I think you did not mention how it really works once you complete the project.

Thanks!!! And one of the greatest ideas I have ever seen online. We need more people like you!

May 24, 2009. 12:05 AM [REPLY](#)



dark sponge says:

Thanks for reading! Heres the answers to all of your questions:

The battery probably wouldn't charge when it's off because the DS uses more power than the cells produce.

I don't know how long long it takes to fully charge the battery because I have no indicator.

The solar DS is still working for me.

The panels charge the DS whenever it is in the sun and the battery isn't topped off with power.

Let me know if you have any more questions/concerns/comments!

May 24, 2009. 2:56 PM [REPLY](#)



artist without a medium says:

Any ideas on how to fix microphone?....I hate to send off at \$50.00.

May 20, 2009. 12:59 PM [REPLY](#)



HardCoreHacker says:

I have no idea if this works, but if you can get a tri-driver (screw driver with one less fold on it that a philips) and take the bottom faceplate off. Get and disassemble a microphone at home and get the tiny thing inside. take out the mic in the ds and resolder the mic into the wires were the other mic was. just a guess

May 20, 2009. 6:37 PM [REPLY](#)



artist without a medium says:

Wow. I haven't tried soldering yet. Will have to think on this one. Thanks

May 21, 2009. 3:11 AM [REPLY](#)



HardCoreHacker says:

yea, try and see if you can get scematics for it first. This project we speak of might void your warentee

May 21, 2009. 1:25 PM [REPLY](#)



artist without a medium says:

Bought it off line. The warranties expired now. Checked today on Nintendo.com. They want \$75.00 now; two years ago I had to send it off and it cost \$50.00.

Wish I'd have bought the hand-held playstation instead. Unfortunately lost games outnumber the ones we still have.

May 21, 2009. 6:19 PM [REPLY](#)



jeff.yeh says:

Hey,

I was looking at your build in an attempt to understand solar charging applications a little more in depth, and I absolutely love it. Unfortunately, I don't have a DS Lite :(But, I was wondering if the following would be possible. Instead of soldering directly to the battery, solder the B+ and B- terminals of the PCB chip to a charging jack (say, buy a DS charger and cut the end off or the like) and just plug that into the DS to charge the battery. Would this be possible, and what are the consequences of doing it and leaving the thing unplugged (a.k.a. the solar panels are generating voltage and current, but the jack is not plugged into anything)?

Sorry for the questions, again, loved the instructable!

May 15, 2009. 6:41 AM [REPLY](#)



jeff.yeh says:

OK, just kidding, shame on me for not reading your first page thoroughly. However, I still have a question (of course).

If you use the 5V regulator and a DS charging jack, then you would still need the PCB chip? I assume you wouldn't, as you can leave a DS plugged in with no (serious) problems. If that's the case, I was wondering if you knew if there was an overcharge protection built in somewhere between the jack and the battery. Thanks!

May 15, 2009. 7:17 AM [REPLY](#)



dark sponge says:

If you did use a 5v regulator with the DS charging jack, you would not need the chip. Yes, the DS does have built in overcharge protection.

May 16, 2009. 8:00 AM [REPLY](#)



Astraea says:

If I upgrade to DSi will it still work?

May 11, 2009. 2:31 PM [REPLY](#)



dark sponge says:

Do you mean "If I did this to a DSi will it work"? It should, but I don't have one so I don't know for sure. You might have to cut a hole in a panel for the camera, but shouldn't affect the cell's output much.

May 11, 2009. 3:07 PM [REPLY](#)



wiiman8 says:

very very cool!!!! faved +5 stars!

Will this work with an older DS? and what kind of Diodes?

May 8, 2009. 8:11 PM [REPLY](#)



dark sponge says:

Thanks! This will probably work with the normal DS, you just might need a longer wire to connect the top and bottom panels. I used some 400v 1A rectifier diodes from Allelectronics.com, but I only used them because I had 100 that I bought earlier when they were on sale. You could use some 1N4001 diodes, they have them at radioshack. Or you could just get them at <http://www.allelectronics.com/make-a-store/item/1N4001/RECT-DIODE-1AMP/50PIV/-1.html>

May 9, 2009. 9:03 AM [REPLY](#)



wiiman8 says:

i dont now what happened, but my original comment disappeared, it might show up later though, but i will probably do this and i have some 1N914 switching diodes, will they work?

May 9, 2009. 6:46 PM [REPLY](#)



dark sponge says:

No, your original comment is still here. The 1N1914 diodes should work, i'm 99% sure.

May 10, 2009. 7:40 AM [REPLY](#)



wiiman8 says:

alright were in business then! i am stoked for this!!

May 10, 2009. 10:48 AM [REPLY](#)



fokusco says:

Finished mine! That was very easy to follow and the finished product looks great. Opted to use white heat-shrink to help blend with the white DS theme... I'll post up pics tomorrow! Thank you!

May 7, 2009. 11:10 PM [REPLY](#)



dark sponge says:

Awesome!!!!!! You're the first person that I know of (besides me) that did this!!!! I'm looking forward to the pics!!!!

May 8, 2009. 3:03 PM [REPLY](#)



fokusco says:

SWEET! Clouds finally broke thru and now I have 1 sun-charged Nintendo DS "light"

May 9, 2009. 5:15 PM [REPLY](#)



dark sponge says:

Great! Glad to hear it's working!

May 9, 2009. 7:39 PM [REPLY](#)



fokusco says:

hmmm.. didnt charge today... It was a bit cloudy but the red light is still on when I turn on the unit. Pics will be up in about 2 hrs. Then i will disassemble and check wiring.. Only prob is I used super strength double stick tape to mount.. :(

May 8, 2009. 5:36 PM [REPLY](#)

Hope I dont break anything! lol Wish me luck!



fokusco says:

Here we are...

May 8, 2009. 5:43 PM [REPLY](#)



fokusco says:

DS

May 8, 2009. 5:48 PM [REPLY](#)



dark sponge says:

Wow! Cool! Nice cat!

May 8, 2009. 6:54 PM [REPLY](#)

Don't assume that it isn't working, these are just weak solar cells. Let it charge for a couple of full sunny days before trying to fix it. If it doesn't work, at least you used tape and not glue!



fokusco says:

It's a bit cloudy today, however I am getting a steady 4.5v out of the panels... Going to check it in a few hours and see how long the red light stays on. My worry was that I broke the contact between 2 of the panels. Now that I know that is not the case I am not so worried. Probably just the weak/slow charge the batt is pulling from the cells like you said....

May 9, 2009. 8:50 AM [REPLY](#)



dark sponge says:

4.5v? What part of the circuit are you measuring this from? When I check mine It is a lot higher than that...

May 9, 2009. 8:56 AM [REPLY](#)



fokusco says:

+ & - of each set of panels... So I am checking 2 spots. Also, if I am reading my multimeter correctly I am also only getting 25ma per set as well. I'll go check the combined voltage of the 2 series now.

May 9, 2009. 9:17 AM [REPLY](#)



fokusco says:

Yeah 4.5v is what I am getting over the entire panel set. Like I said tho, it is cloudy and it spikes to 4.75 or so when the sun breaks the clouds for a second. I am curious as to what your readings are... You say a lot higher? Shouldn't be over 6v in 100% perfect conditions, am I correct?

May 9, 2009. 9:39 AM [REPLY](#)

Optimal conditions are going to be difficult for me to obtain here in Indiana.

I got a cheap multimeter last night because I had lost my old one a few weeks back... Not sure how well this one works.

When I switch from 20 to 200 while reading mA it switches the reading from 8.** to 8.** so I am really thinking it is pushing 80mA... But not sure.



HardCoreHacker says:
awesome... a hosier!

May 20, 2009. 6:39 PM [REPLY](#)

[view all 204 comments](#)