

This is another good use for the solar panel used on the huge amounts of garden LED lights around, coupled to a portable radio that runs off 2 or 3 AA cells.

Most of us have an old radio lying around, so I based the \$5 price on the cost of purchasing/ acquiring a solar powered garden L.E.D light.

I suspect there are plenty of scrap ones lying around, not working because of slightly corroded battery terminals in damp environments - the solar panel will probably be perfect....

With this Instructable I have left my radio on now for 4 weeks, (12 hours a day) while I work and it has never let me down, even at a reasonable high volume level.

You could either leave the solar radio out on a sunny wind sill as I do or leave it in the sun outdoors - every so often to recharge the battery's.

Step 1: Step 1



What you will require:

1. A portable radio, AM/FM or DAB, (2AA or 3AA battery type).
2. One 4 or 4.5v 80 mA solar panel, prised off from a Solar Light.
3. ideally a BAT43 Schottky diode or Silicone IN4001 (more voltage loss)

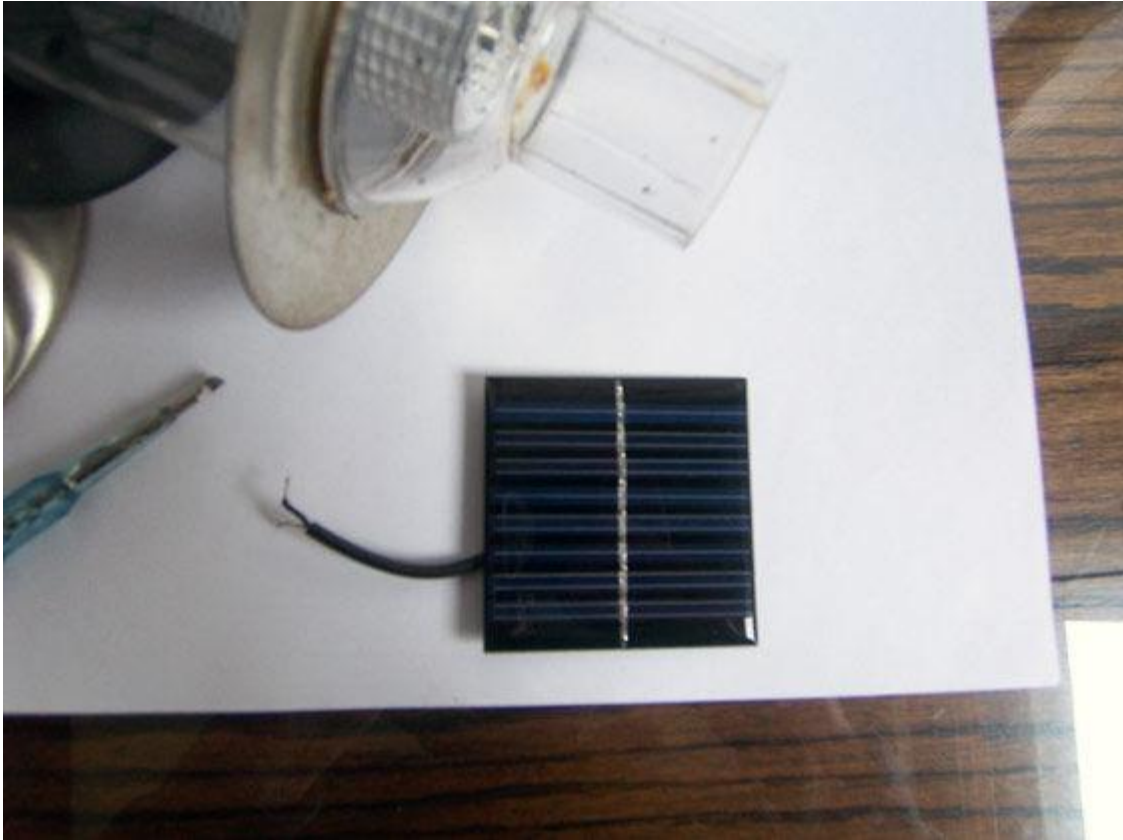
4. soldering iron, solder and red and black cable 6" lengths.
5. 2 or 3 NiMh rechargeable batteries (NiCd are ok but not as good) minimum capacity 800 mAh per battery.

Optional - heat shrink sleeving, Adhesive foam strip

This is a very quick project, that can be made in about 2 hours, and helps save the planet :)

Step 2: Removing solar panel from Garden light





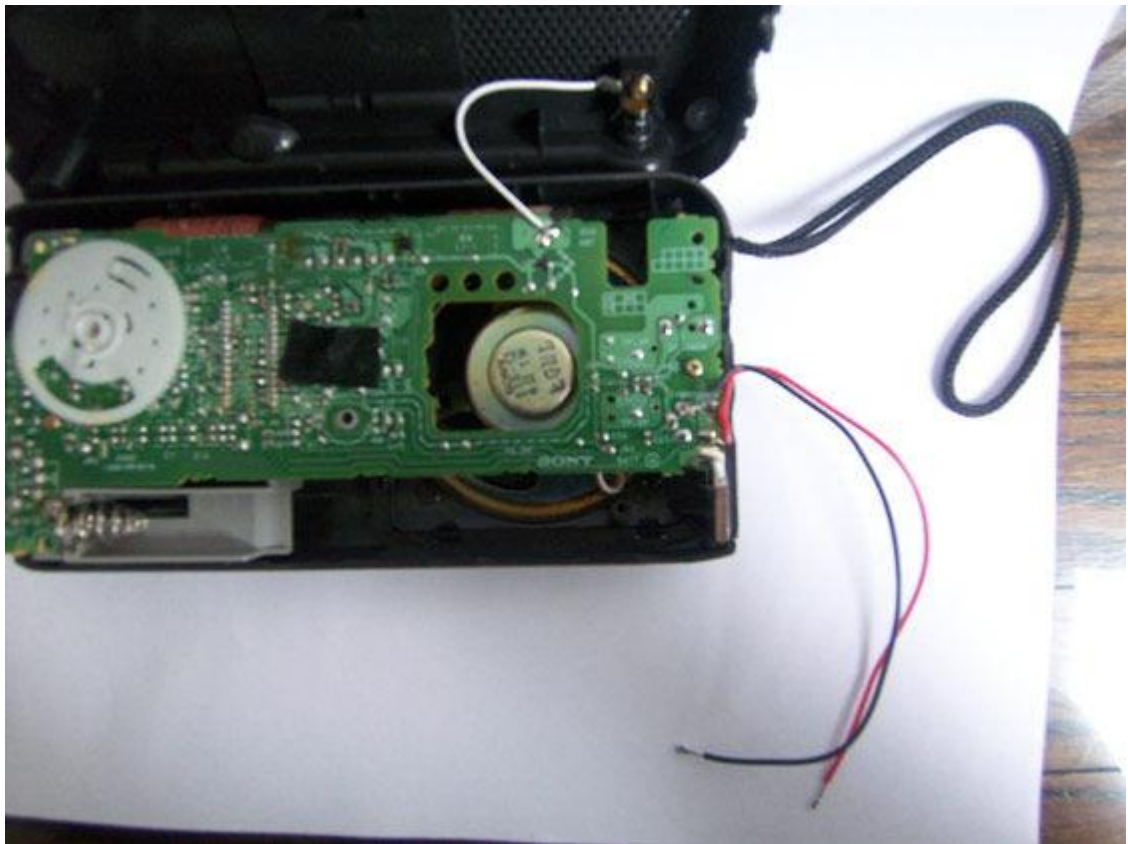
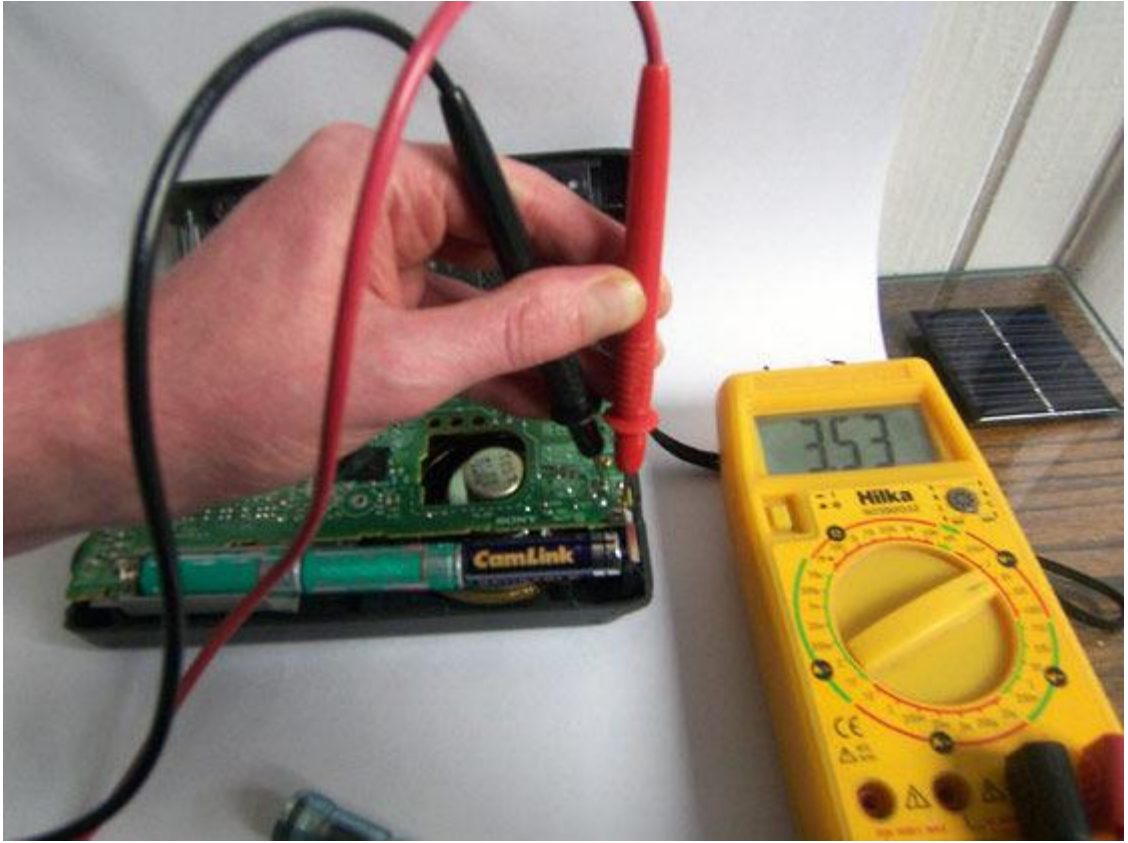
Please choose a solar panel that has 8 solar strips that run the entire width of the panel - some cheaper panels only have 4 strips or are cut down, you will need the full 8 strips to provide the 4.5v 80 mA output.

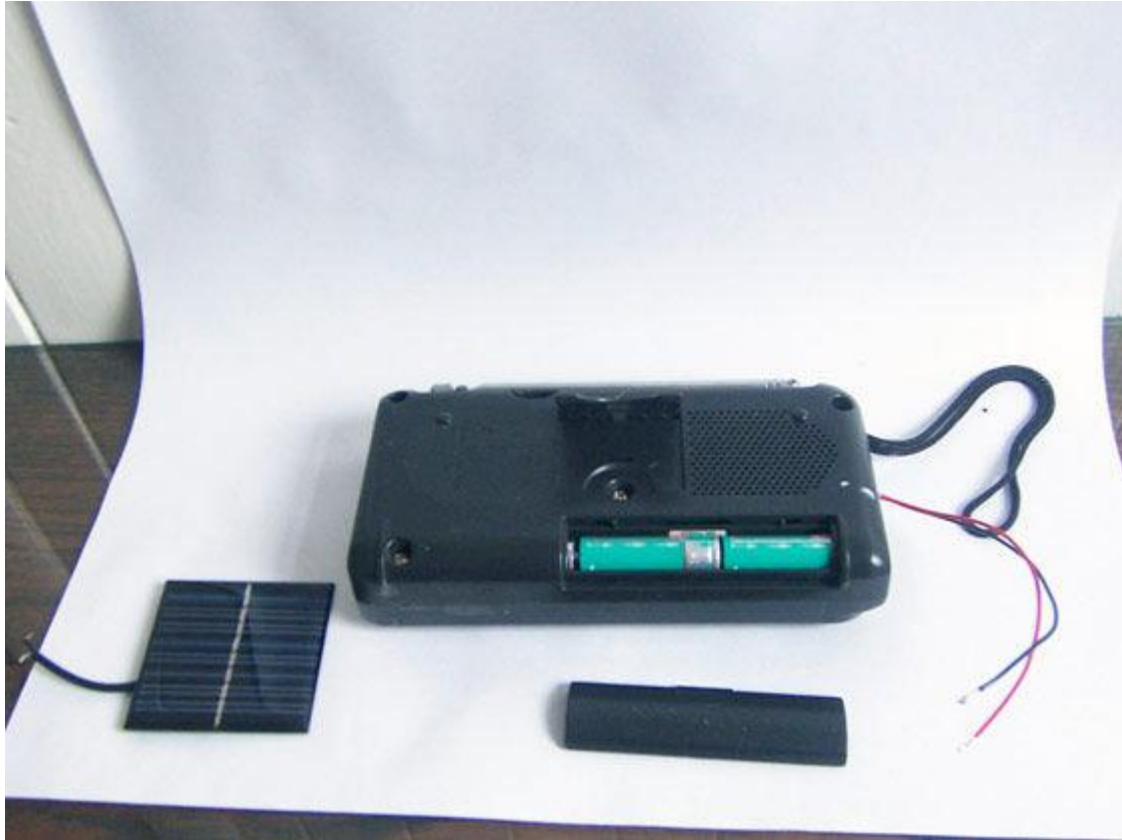
Remove the clear plastic lens and metal rim from the garden light, it's usually a push fit and easy to get off.

Using a screwdriver, carefully prise the panel away from the lights body, it is adhered on with some type of glue - BE CAREFUL.

Cut the connector wire and remove the panel completely.

Step 3: Connecting up the radio.





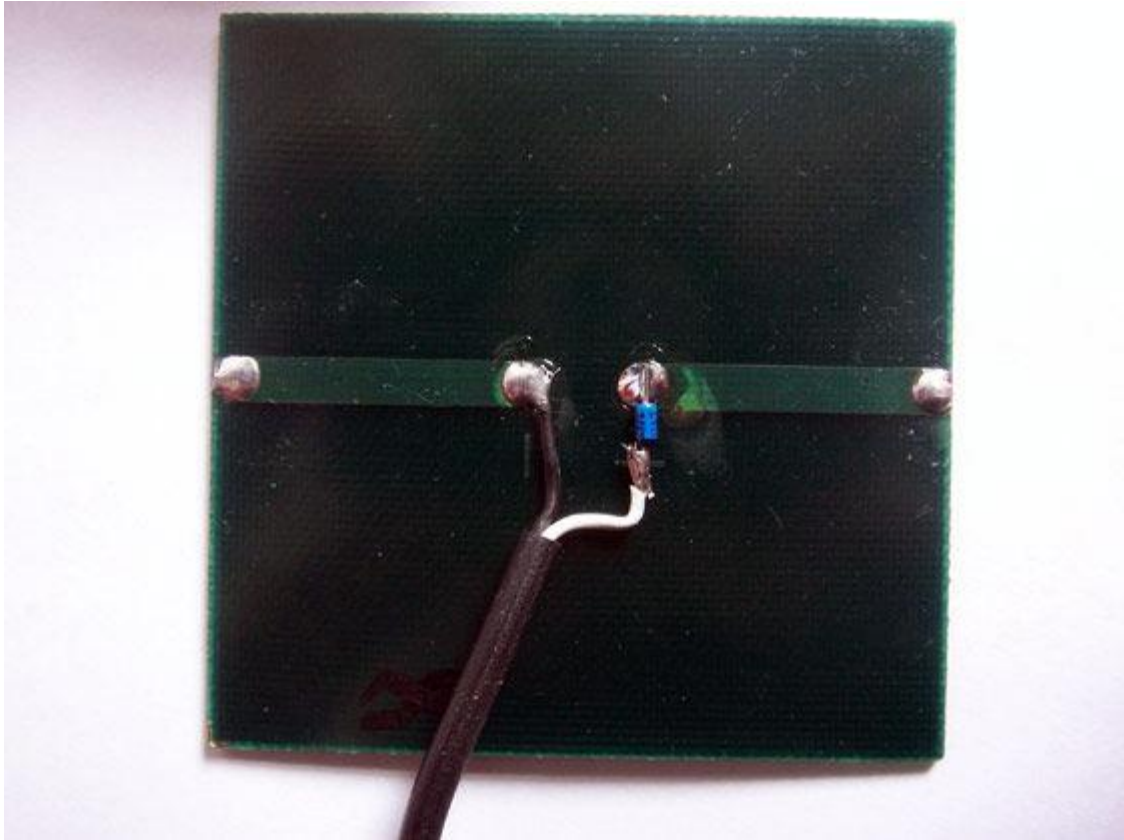
Some radios have a power input socket for mains adapters, mine did but it was an odd size (Sony).

This option makes connecting the panel more easy, just connect a suitable jack plug to the solar panel (using a blocking diode) and that's it, check polarity is correct!

I decided to hard wire my solar panel, here is how I approached it.

1. Remove the rear panel of radio, and with the battery's in situ, using a multimeter identify the positive and negative connections (where the battery's would connect to). Make sure the multimeter doesn't indicate a negative value, you have the positive and negative probes the wrong way around if so.
2. Solder the 6" lengths of red (to positive) and black (to neutral).
3. drill a small hole in the plastic to allow the two wires to exit the back of the radios panel when reassembled.

Step 4: Solar Panel and blocking diode



You will have to solder a BAT43 or IN4100 blocking diode to the positive terminal on the solar panel.

The BAT43 Schottky type diode is better because it has a lower voltage loss, (about 0.3v) particularly important if you are charging 3 battery's like me.

The diode prevents any reverse current from the battery's happening when there is low light.

Please make sure the white or black 'band' faces away from the solar panel, you can check if you have connected the diode the correct way around by using a multimeter set to mA's or volts and see if there is any output in bright light from the panel, if not the diode needs connecting the other way around.

Step 5: Final Assembly



Using a piece of double sided foam adhesive tape you can position the solar panel centrally onto the radio.

Fortunately my Sony radio had a positionable stand that was ideal to mount the panel on, however if your radio doesn't you could position it on the top of the radio.

Solder up the positive and negative wires from the radio to the solar panel, and use heat shrink tubing or insulation tape to cover any bare joints.

Step 6: Final photos





There it is done, it works great, I used to work at my computer all day listening to my stand-alone stereo system that used over 40 watts of mains power just to listen to BBC radio 2 (U.K. station).

This lasts forever and costs no energy.....