Solar Bottle Lamp

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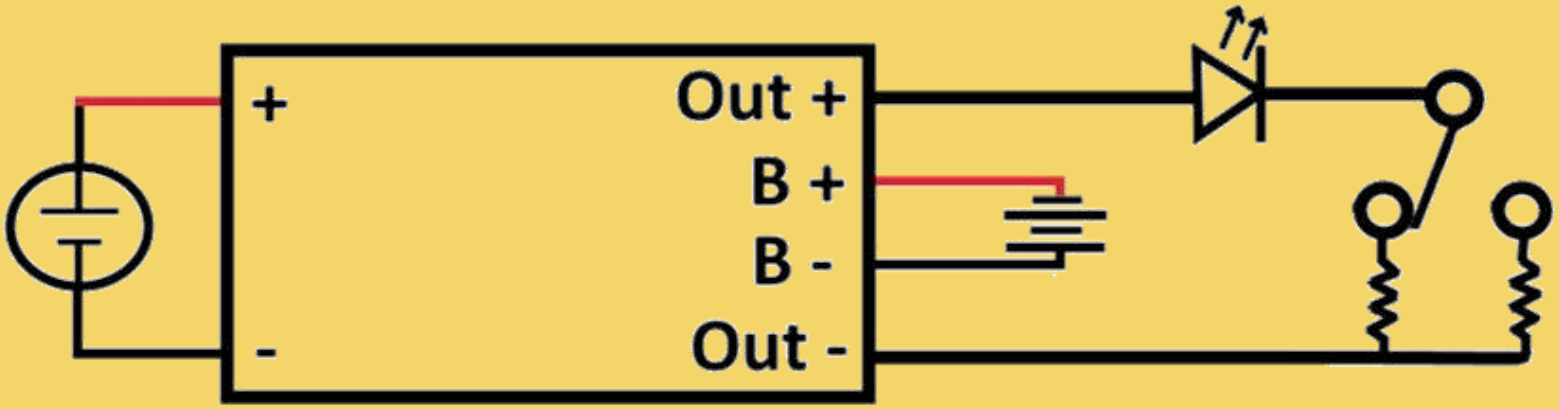
CIRCUIT DIAGRAM

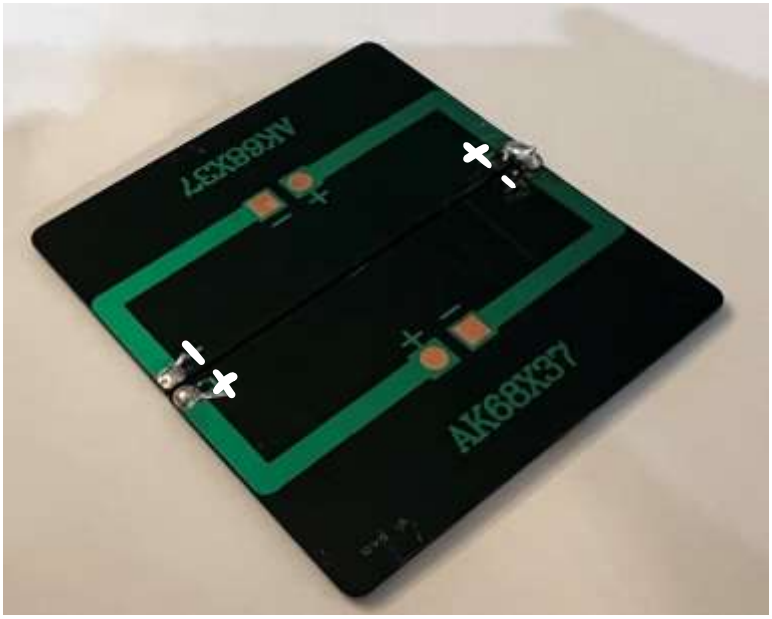


COMPONENTS

- **1x** *Perf Board*
- **1x** *Lithium Battery Charging Board*
- **6x** *Male-to-Male pin headers*
- **2x** *Mini Solar Panels (5V 30mA)*
- **1x** *10Ω resistor*
- **1x** *30Ω resistor*
- **1x** *Rocker Switch*
- **1x** *LED*
- **3x** *Rechargeable AAA Batteries*
- **1x** *AAA Battery Holder*

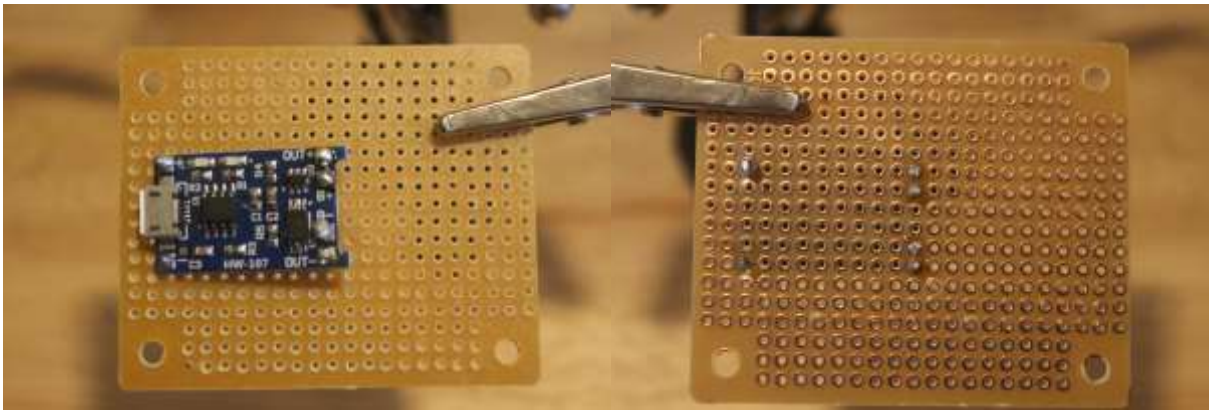
Step 1: Use the birch wood pieces in your kit to assemble and glue the housing for your bottle lamp. Insert the switch into the pre-cut hole, and **don't glue to TOP and BOTTOM of the box.**

Step 2: Solder the positive node from one of the solar panels to the negative node of the other. Be sure to keep the other positive and negative nodes separate, as seen below.

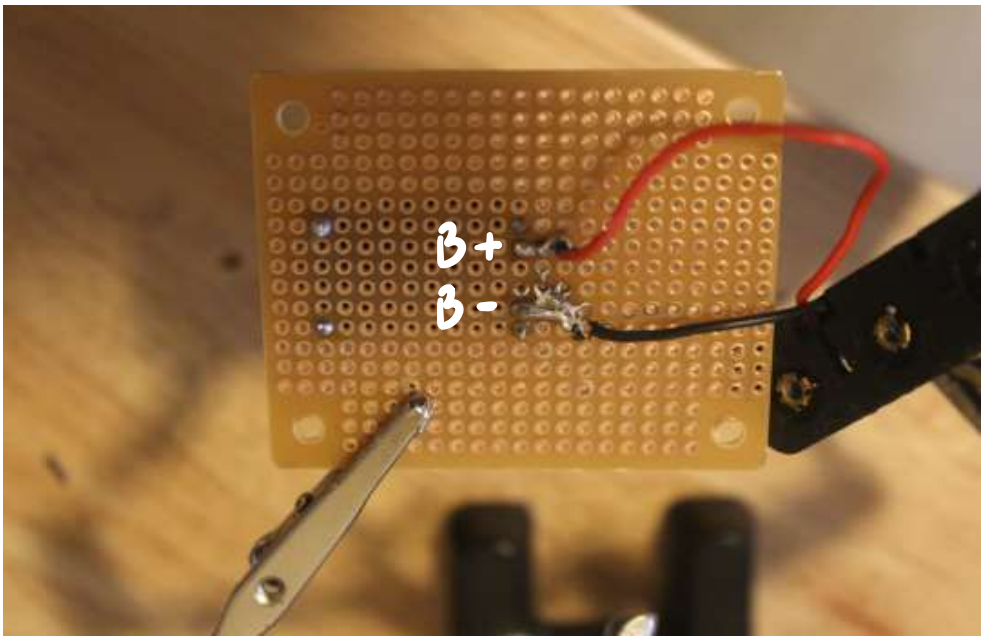


Step 3: Use the male-to-male headers to solder the solar charging board to the perf board.

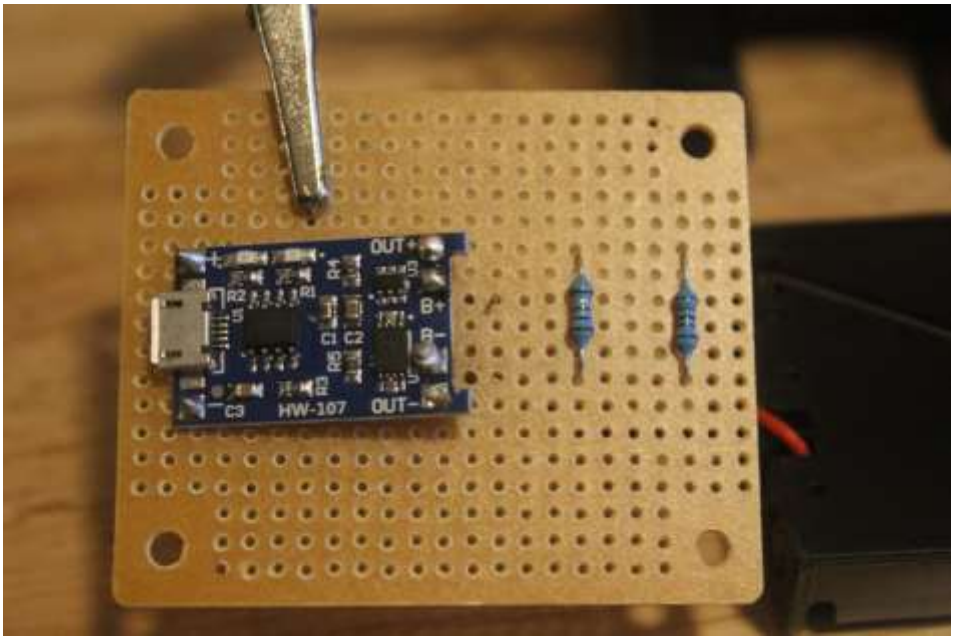
Note: Be sure to mount the Out + and Out - towards the center



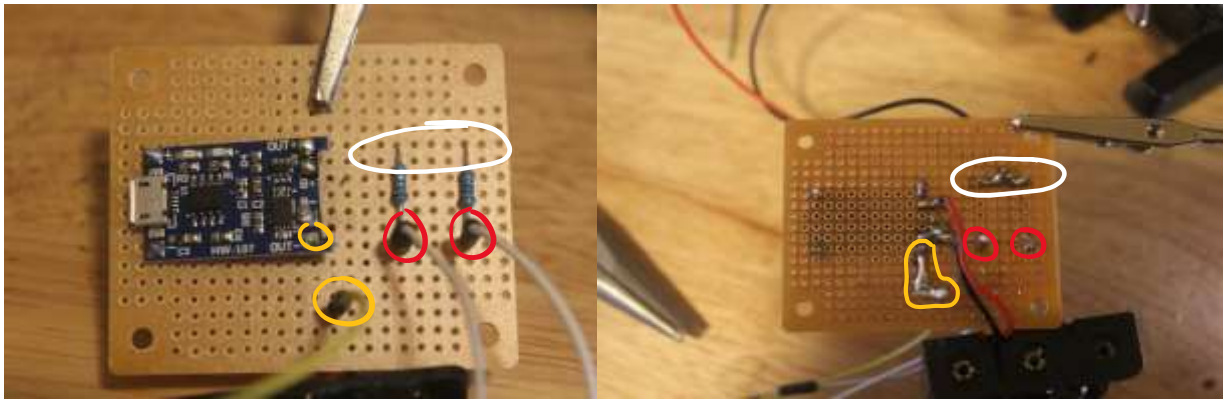
Step 4: Solder the battery holder wires to their corresponding nodes on the battery charging module. **RED to B+, BLACK to B-**



Step 5: Solder the 10Ω and 30Ω resistors to the perf board. The nodes on the top end of both resistors should be soldered together, the bottom nodes **MUST BE SEPARATE.**

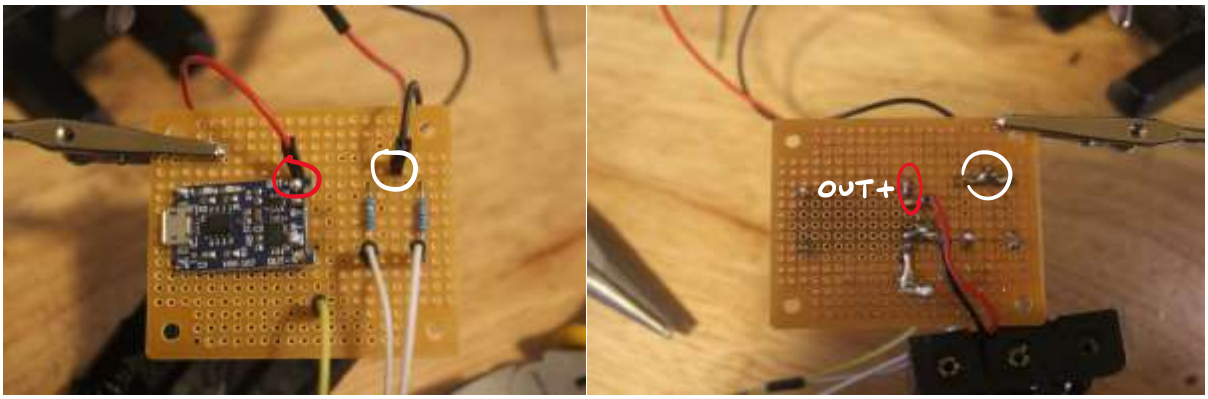


Step 6: Individually solder one end of each white wire to the bottom nodes of each resistor. Then solder one end of the yellow wire to the perf board and connect it to the **OUT–** node of the battery charging board.



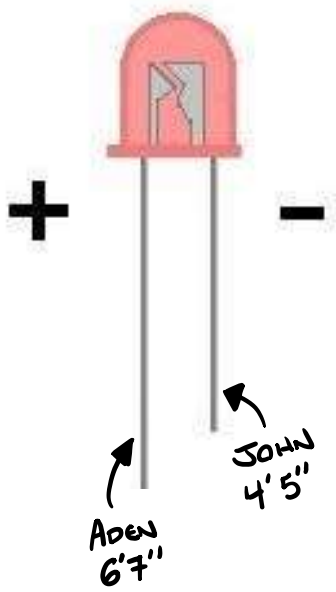
Step 7: Solder the wires connecting to the resistors individually to the each outside prong of the switch, then solder the wire connected to the OUT- node to the middle prong of the switch.

Step 8: Solder one end of the red wire to the **OUT+** node of the battery charging module. Solder one end of the black wire to the node that connects the top end of the two resistors.

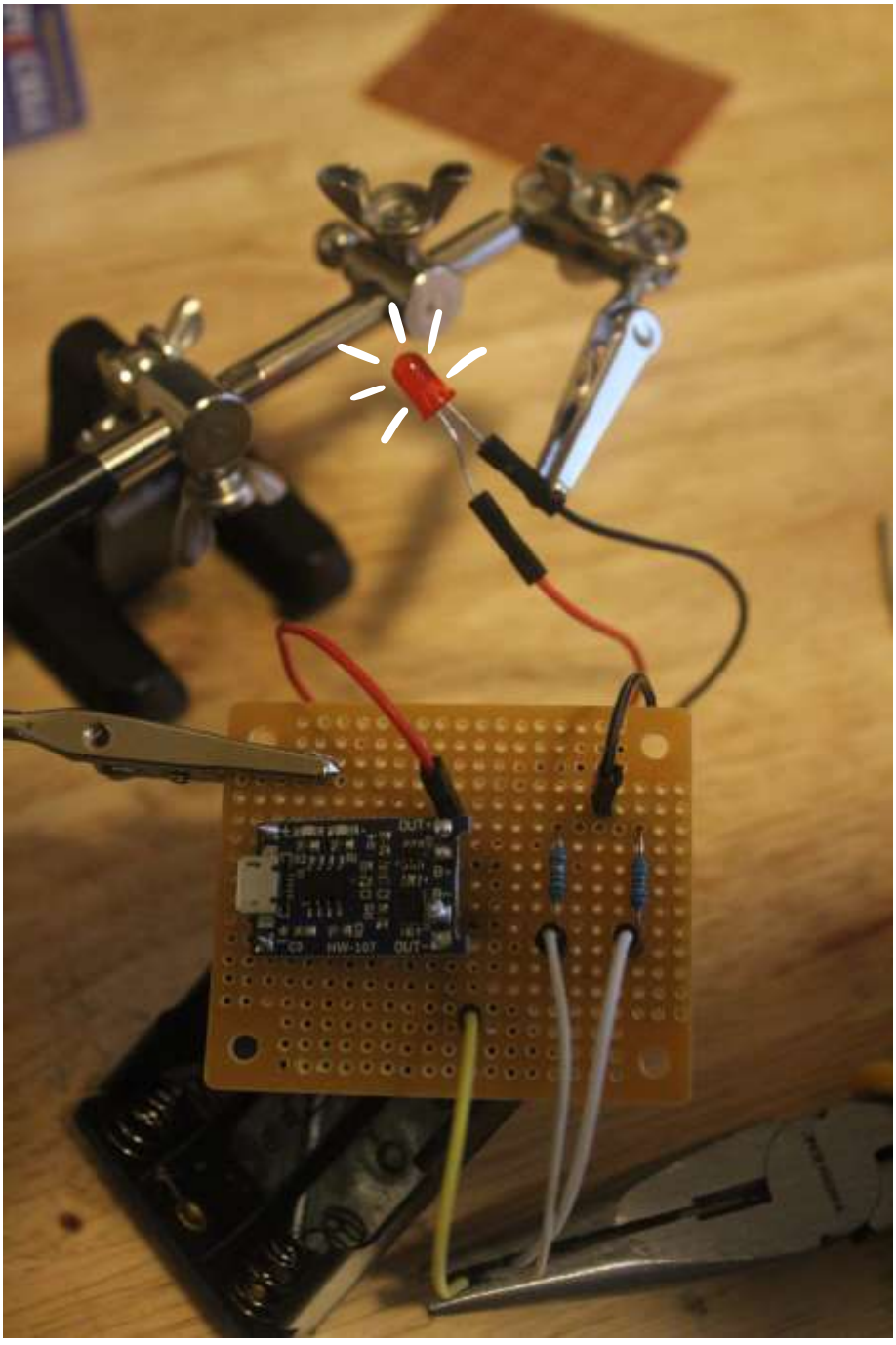


Step 9: Solder the other end of the red wire to the **anode** of the LED, solder the other end of the black wire to the **cathode** of the LED. Be sure to have the LED already inserted through the bottom two holes of the box.

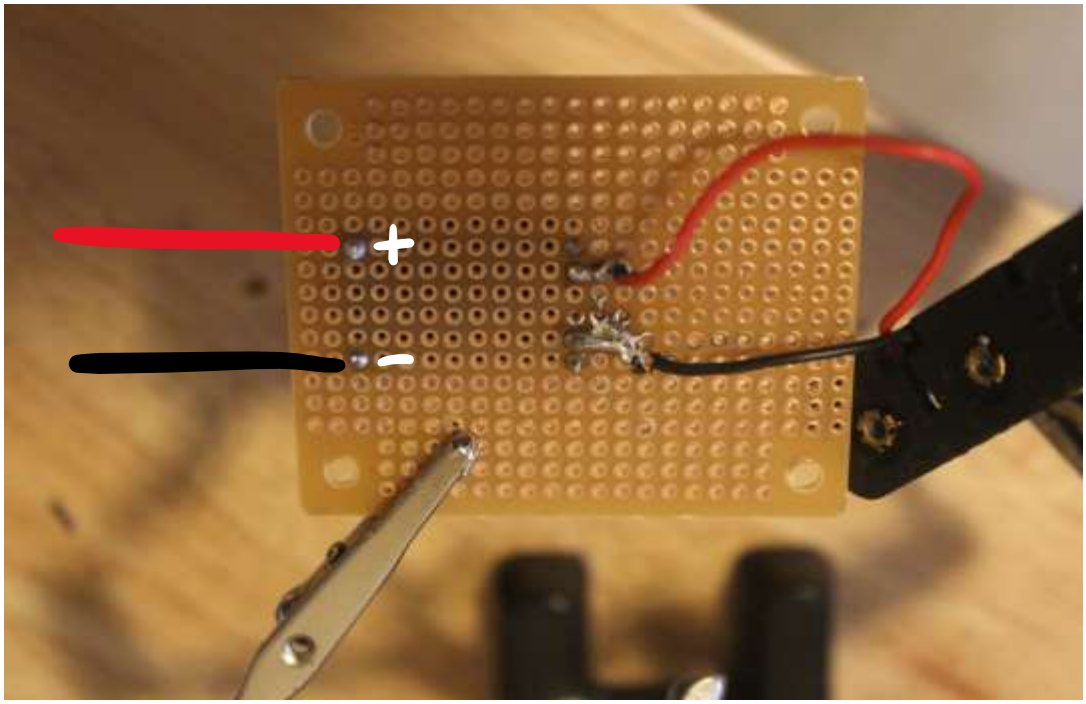
Note: anode is the tall prong, cathode is the short prong



Step 10: Insert the three AAA rechargeable batteries, *brought to you by Amazon Basics,* into the battery holder. Test your circuit by shifting between the three options on the rocket switch.



Step 11: Solder the red wire of your solar panel to the (+) node of the battery charger, and the black wire of your solar panel to the (-) node to of the battery charger module.



Step 12: With the circuit complete, super glue the bottle cap over the LED on the bottom wood piece. Then use wood glue to adhese the top and bottom of the box to the four walls. With the walls complete, use the hot glue gun to glue down the solar panels, and water seal the LED.

Step 13: Sign up for the Prodev Workshop

www.signupgenius.com/go/10c0d4babaf28a4fac70-progaming