

Proximity Switch

ASSEMBLY MANUAL



BILL OF MATERIALS

1	Case Top	D1	Diode
2	Case Bottom	R3	200k Ohm Resistor <small>RED BLACK YELLOW GOLD</small>
3	PCB	R2	10k Ohm Resistor <small>BROWN BLACK ORANGE GOLD</small>
C3	10pF Capacitor (label: BC10J)	D1	Photosensor Diode (2)
C4	1uF Capacitor (label: 105)	Q1	MOSFET (2)
C1	10nF Capacitor (label: 103)	7	Screws (2)
C2	33pF Capacitor (2) (label: 330)	IC1	OP Amp
LED	LED	S1	Slide Switch
R1		R1	Potentiometer
D2		LED	LED
R3		8	Switch Base
R2			
4	Zip Tie		
5	Battery		
B1	Battery Holder		
6	3.5mm mono cable (half length)		

HOLE W9 = Hole to put part through

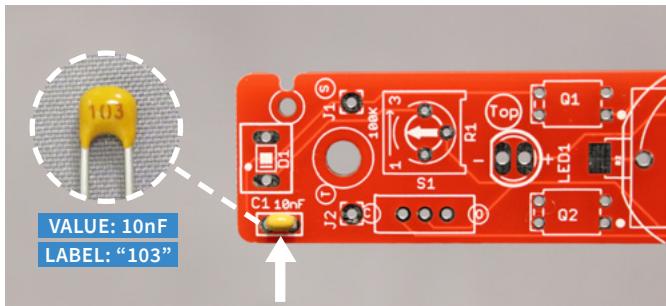
 = Solder the area in the white square

BEFORE STARTING:

- Insert the components in the correct orientation.
- Insert components flush to the PCB except Q1.
- Components are inserted from the PCB side marked as "TOP" and soldered on the side marked as "BOTTOM".

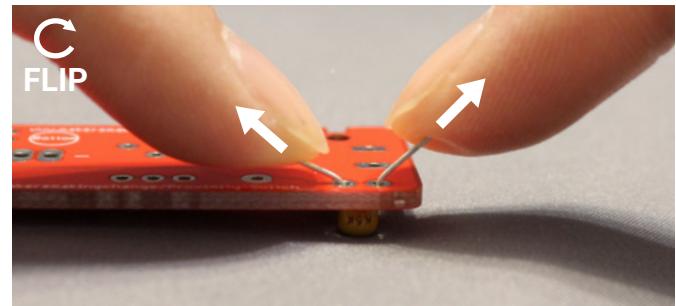
TOOLS

- Soldering iron
- Solder
- Flush cutters
- Wire stripper
- Needle nose pliers
- Phillips screwdriver
- Electrical tape
- Clamp
- Magnifier
- Desoldering pump
- Plate



01.

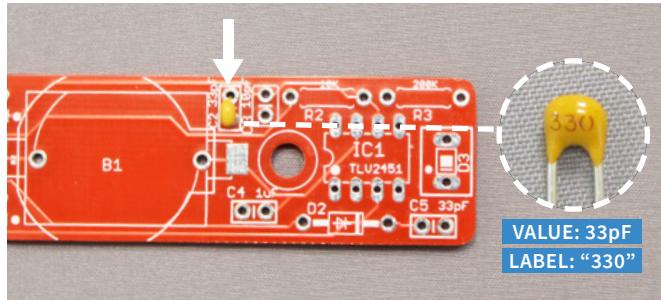
C1 HOLE C1



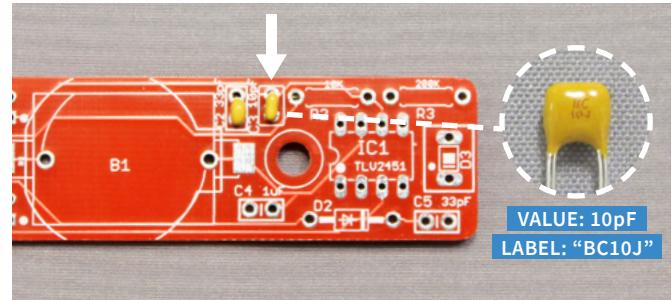
02.

Proximity Switch

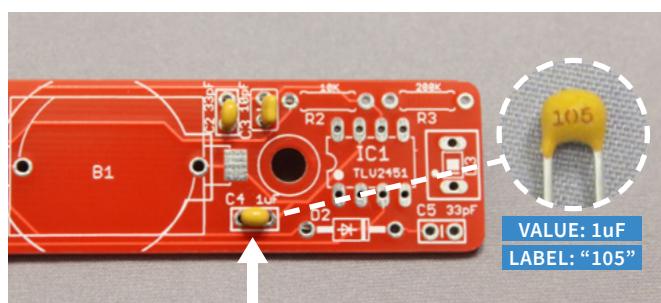
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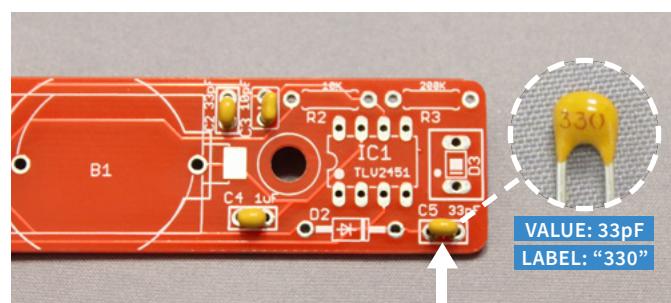
03. Insert and bend the leads 45° outwards like in step 2. **C2** HOLE C2



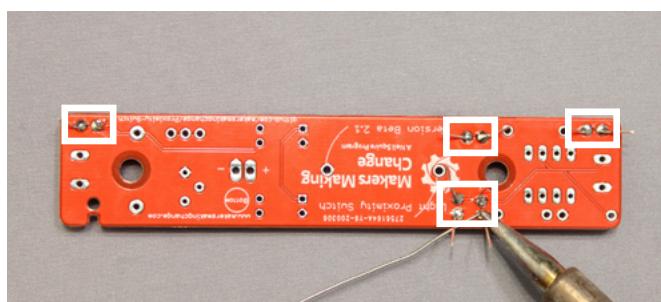
04. Insert and bend the leads 45° outwards like in step 2. **C3** HOLE C3



05. Insert and bend the leads 45° outwards like in step 2. **C4** HOLE C4



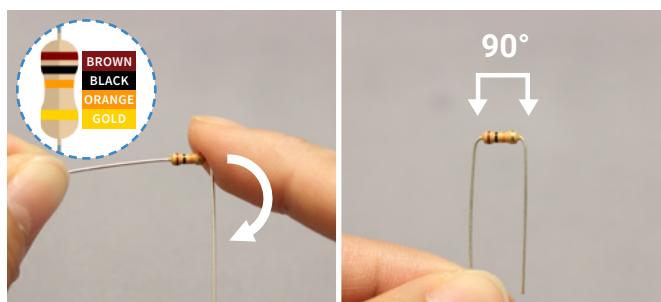
06. Insert and bend the leads 45° outwards like in step 2. **C2** HOLE C5



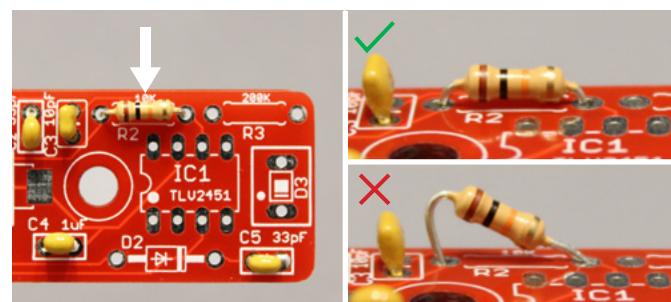
07. 



08. Snip off all excess leads.



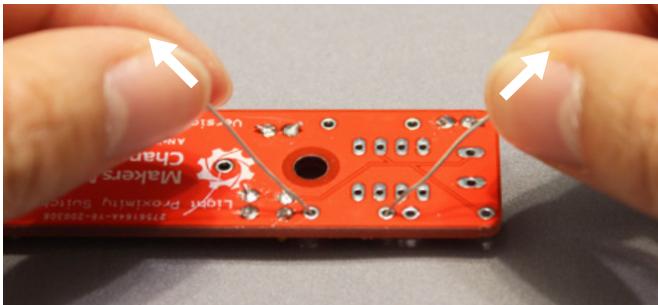
09. Press down with a finger to form 90° corners. **R2**



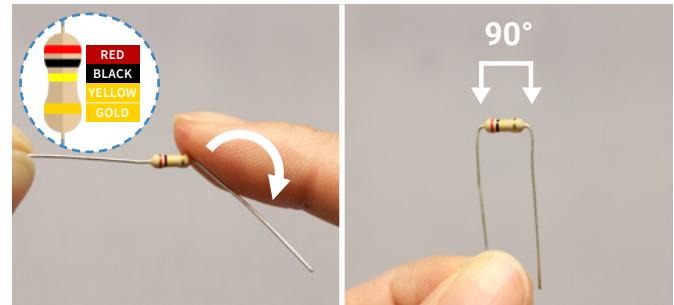
10. Ensure resistor is flush to board. **HOLE R2**

Proximity Switch

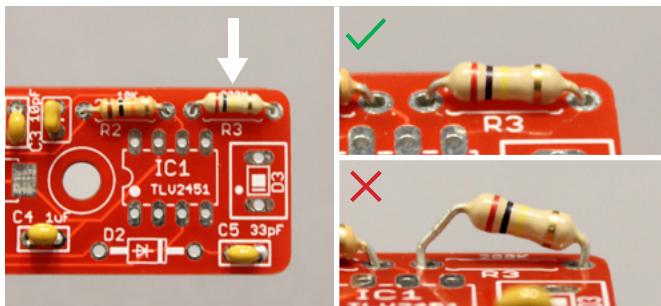
ASSEMBLY MANUAL



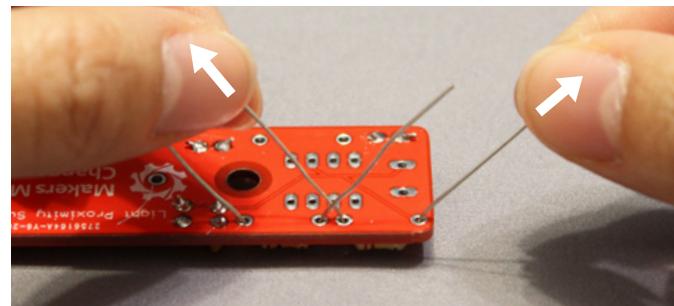
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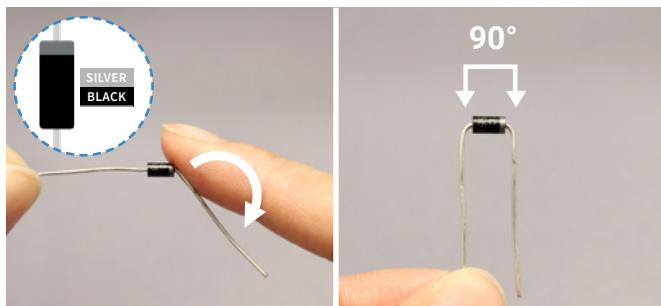
12. Press down with a finger to form 90° corners. R3



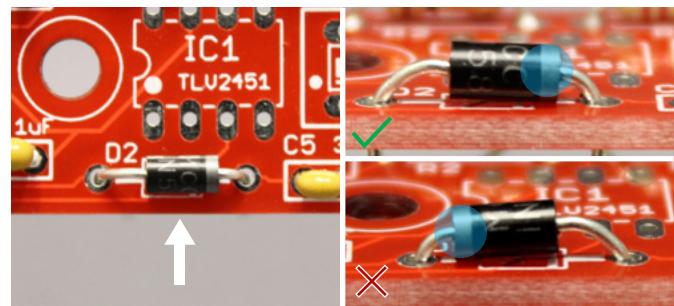
13. Ensure resistor is flush to board. HOLE R3



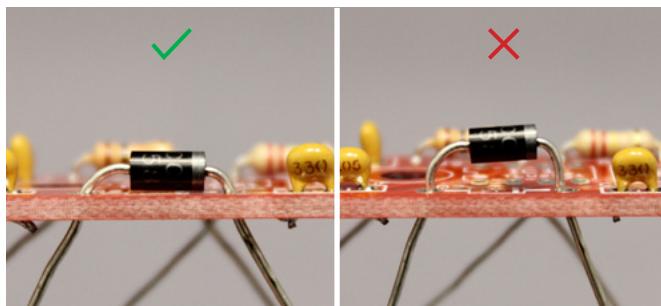
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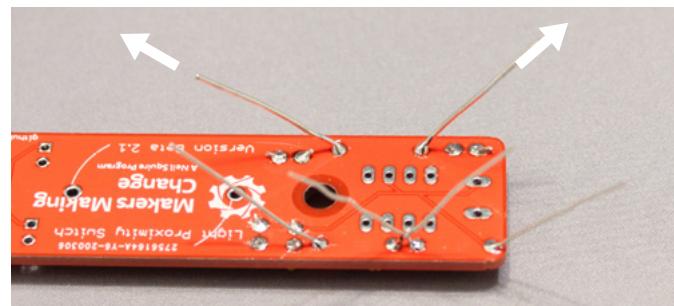
15. Press down with a finger to form 90° corners. D2



16. **IMPORTANT:** Orient the diode with the silver band towards the "C5" marking. HOLE D2



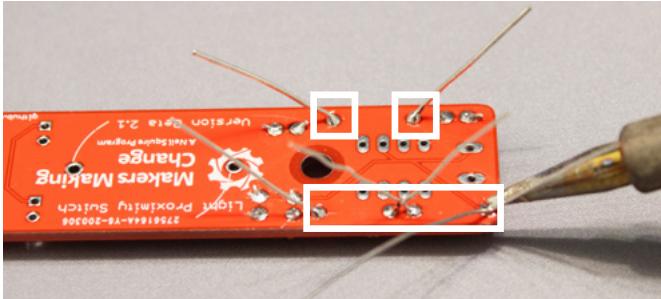
17. Ensure diode is flush to board.



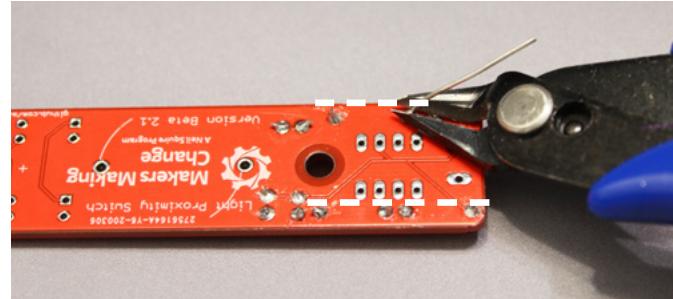
18.

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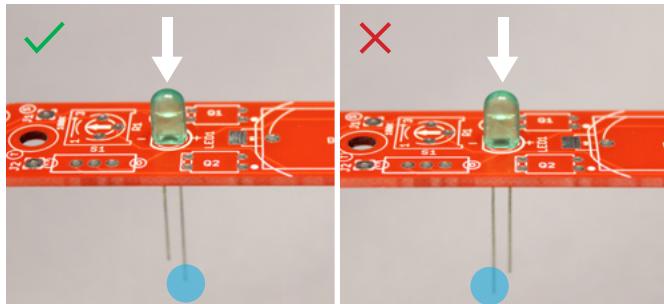
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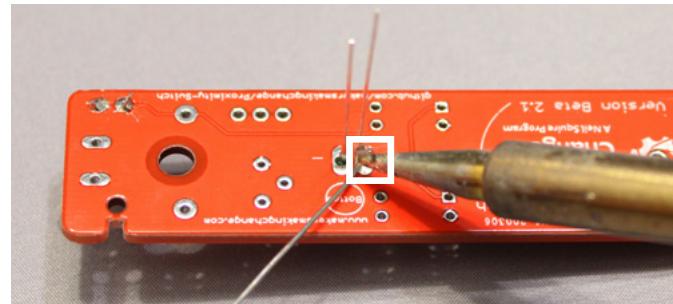
19.  x 2



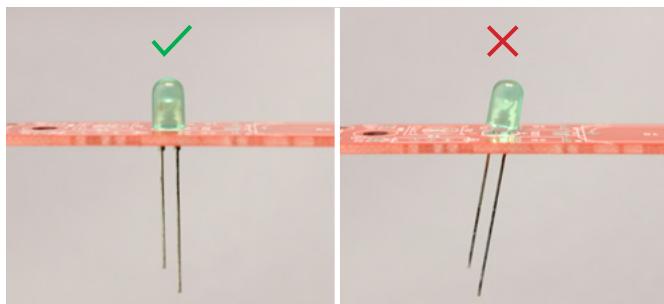
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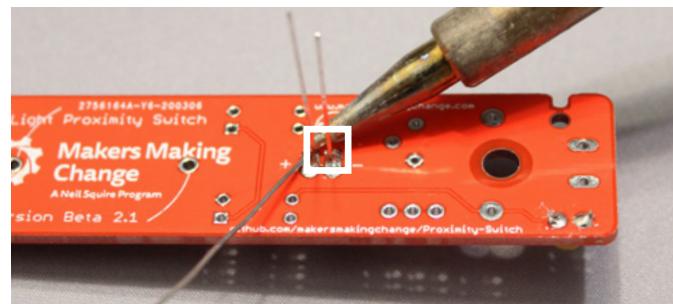
21. IMPORTANT: Insert the LED with the longer  lead towards the centre of the PCB. 



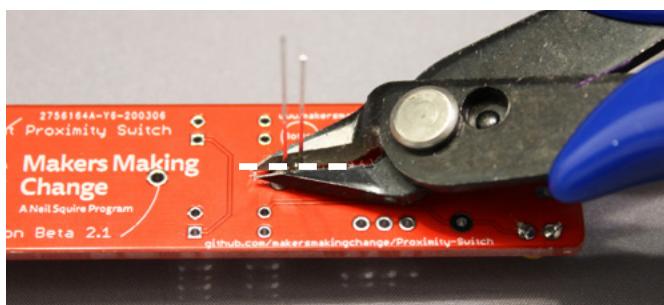
22. IMPORTANT: Solder **one** lead quickly to avoid damage. 



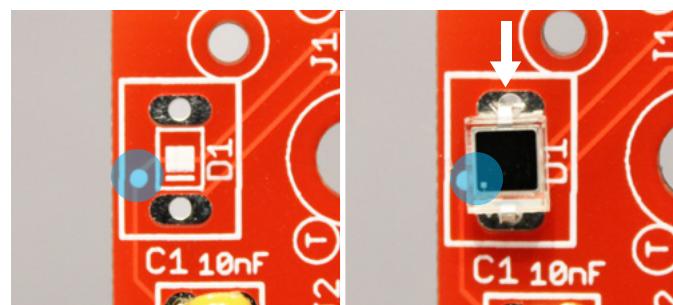
23. Ensure the LED is flushed to the board and aligned with the white outline.



24. IMPORTANT: Solder quickly to avoid damage. 



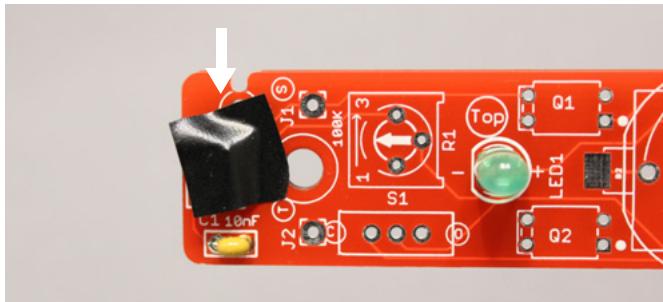
25. IMPORTANT: Solder quickly to avoid damage.  x 2



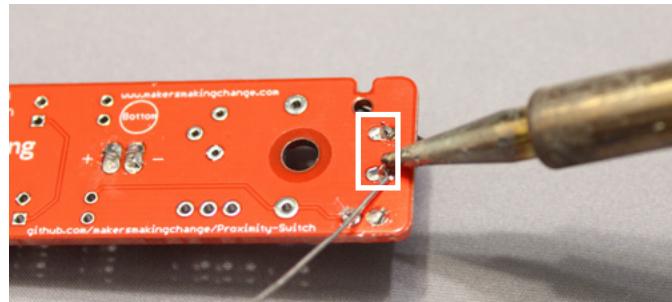
26. IMPORTANT: Insert and orient the sensor with white dot towards the PCB white dot.  

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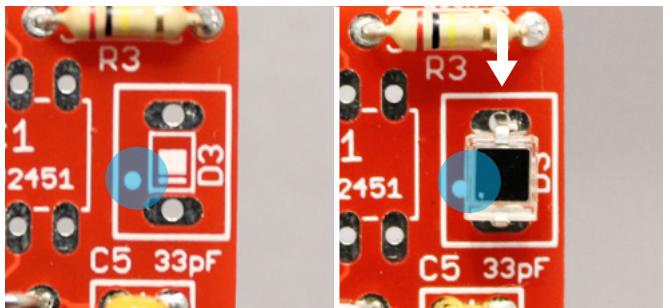
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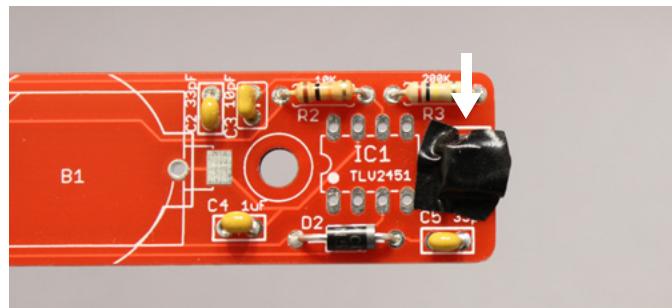
27. Use a piece of tape to hold down the sensor.  x 2



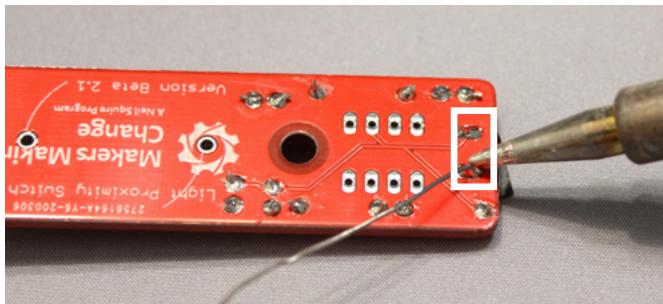
28. **IMPORTANT:** Solder quickly to avoid damage.  x 2



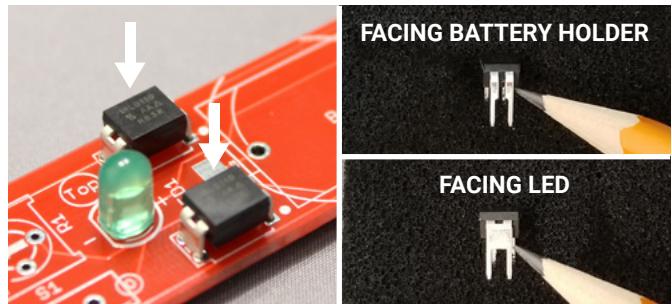
29. **IMPORTANT:** Insert and orient the part with white dot towards the PCB white dot. 



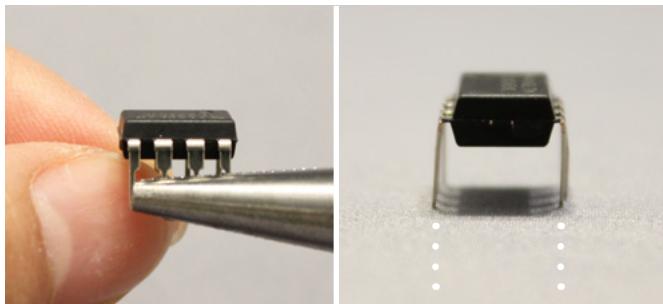
30. Use tape to hold down the sensor.  x 2



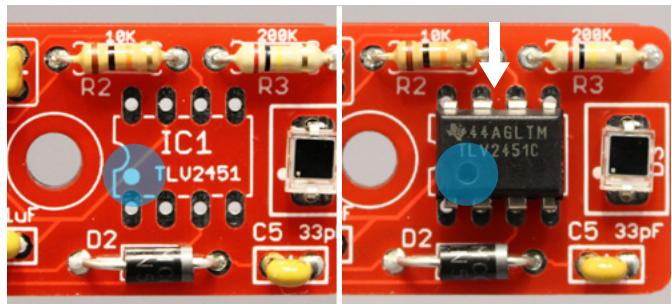
31. **IMPORTANT:** Solder quickly to avoid damage.  x 2



32. MOSFETs will sit higher than the PCB. 



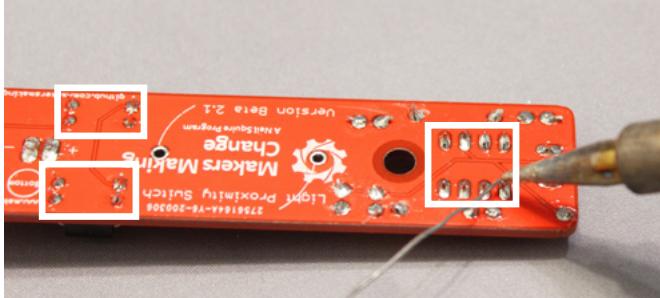
33. Gently bend the leads so they're straight and parallel. 



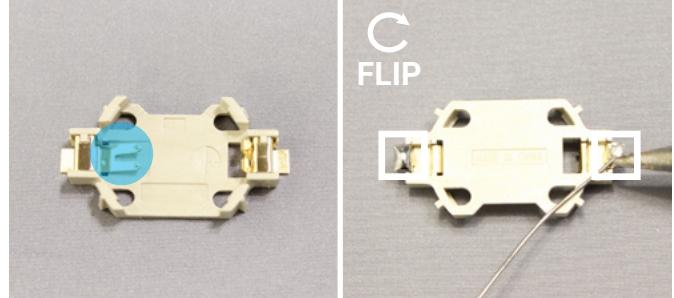
34. **IMPORTANT:** Orient the dot towards the PCB white dot. 

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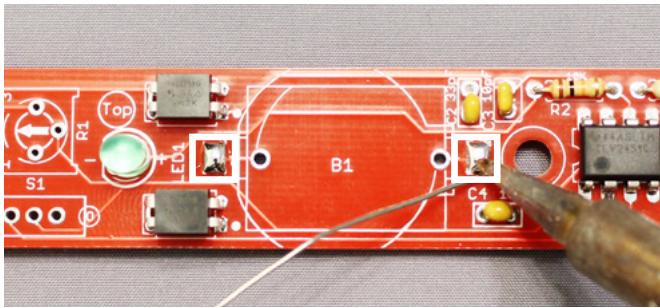
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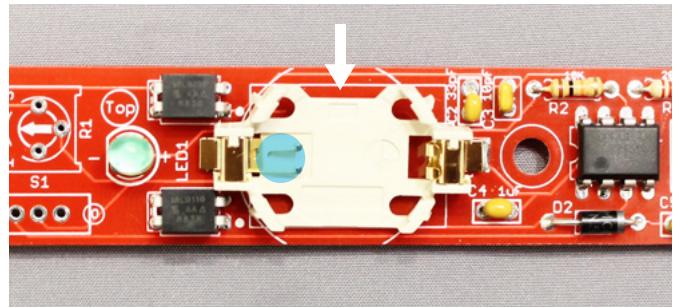
35.  x 16



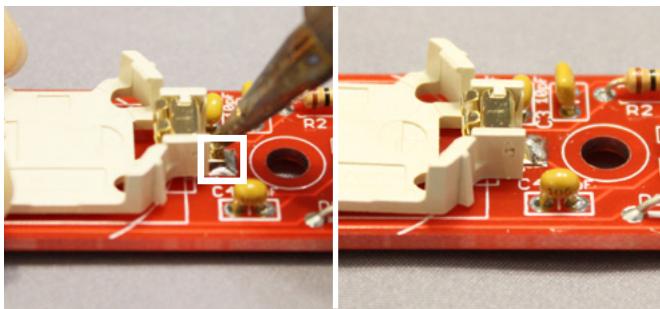
36. With the metal prongs on the left, flip the part over and tin the metal pads with solder.  x 2



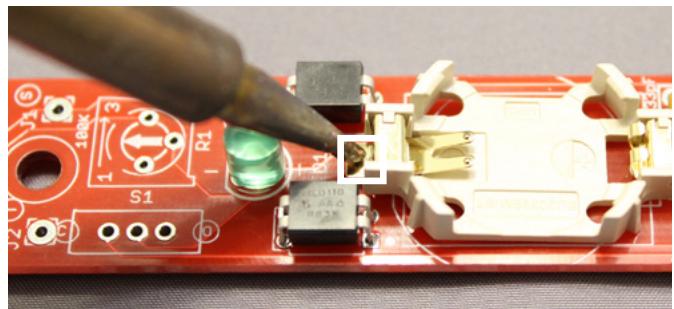
37. Tin the rectangular metal pads highlighted in the white squares with solder.  x 2



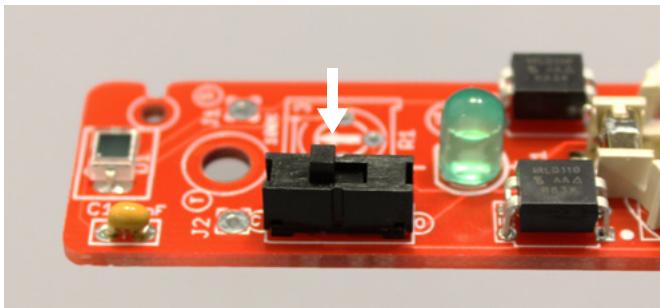
38. Align the battery holder on the PCB with the metal prongs on the left.  HOLE B1



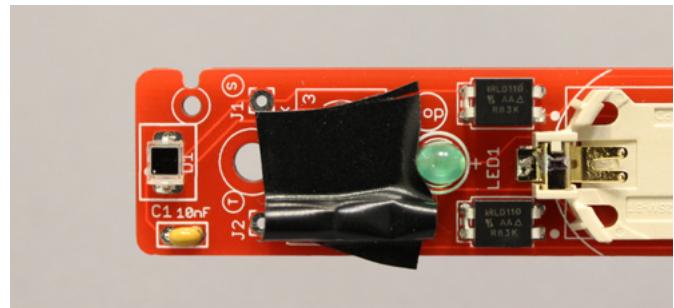
39. Place the soldering iron on the metal pad to melt the solder. The holder should "drop" down. 



40. 



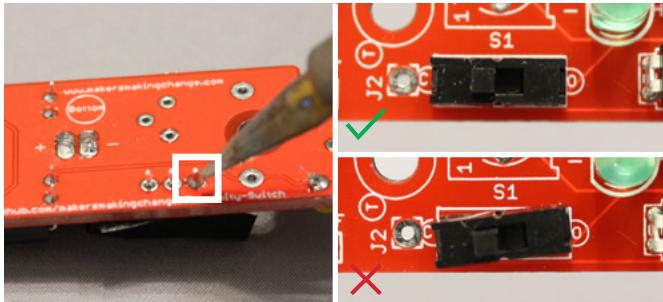
41.  S1 HOLE S1



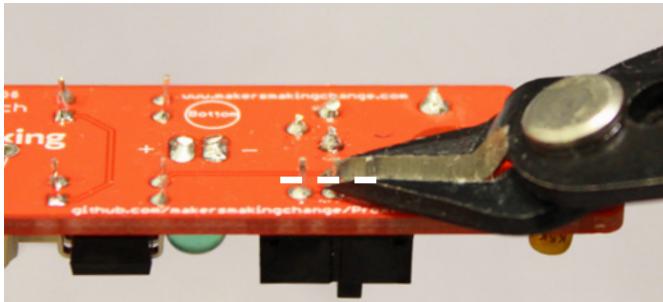
42. Use tape to hold down the slide switch.

Proximity Switch

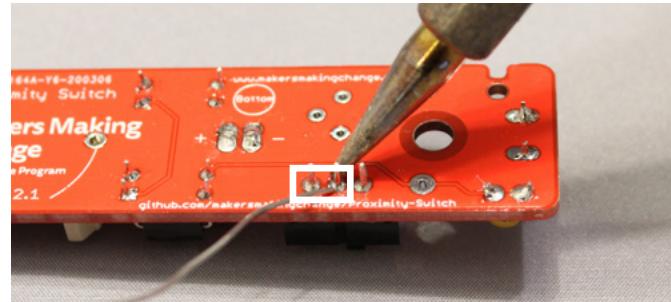
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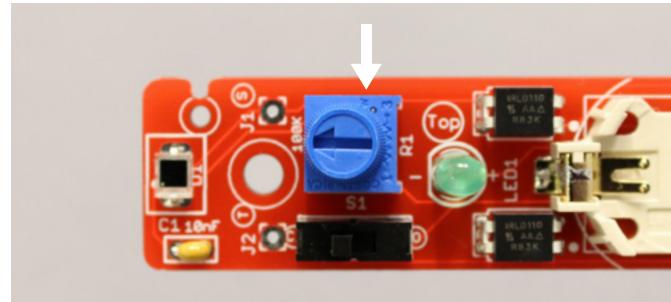
43. Solder **one** pin. Check switch is aligned to the silkscreen outline and flush to the board.



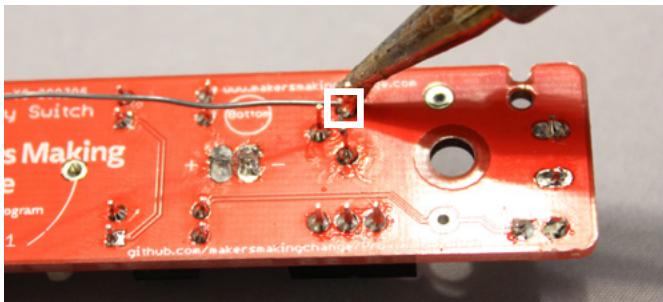
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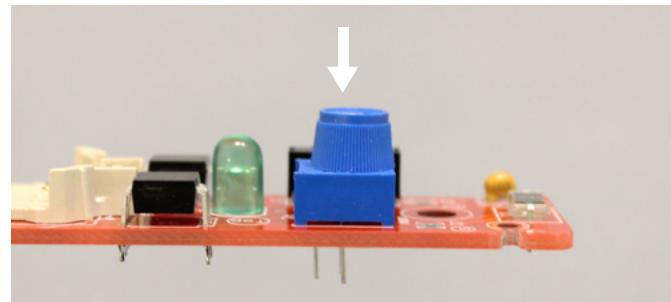
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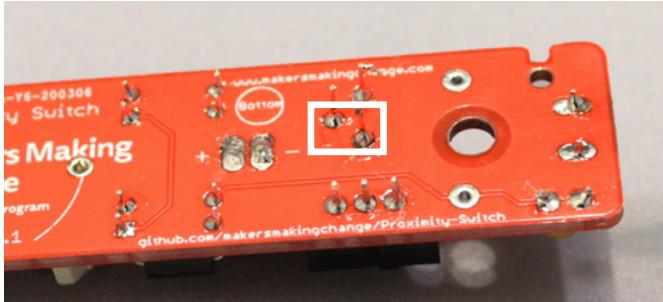
46. Use tape to hold down the potentiometer. **R1** **HOLE R1**



47. Solder **one** pin only.



48. Ensure that the potentiometer is flush to the board and aligned to the white PCB silkscreen.



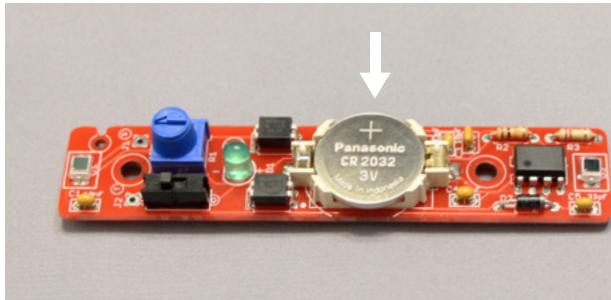
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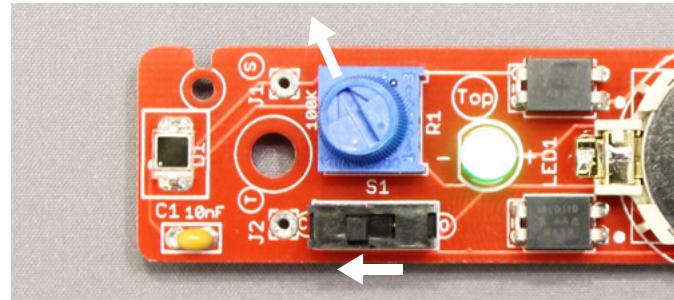
50.

Proximity Switch

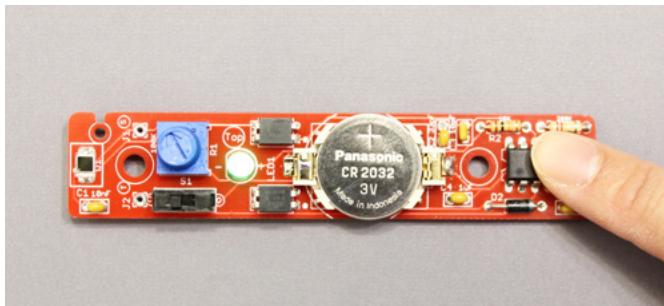
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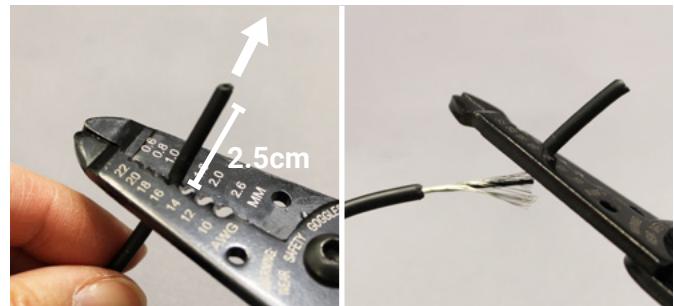
51. BAT



52. Adjust the sensors as shown.



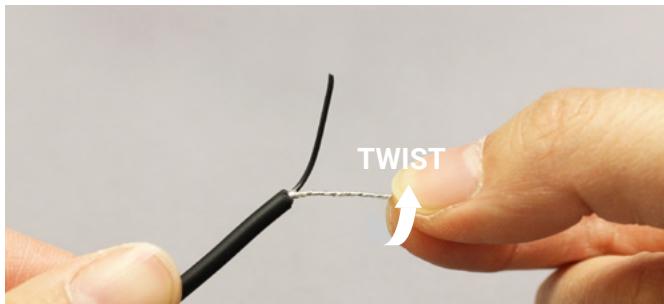
53. Cover the right photosensor with your finger. The LED should light up.



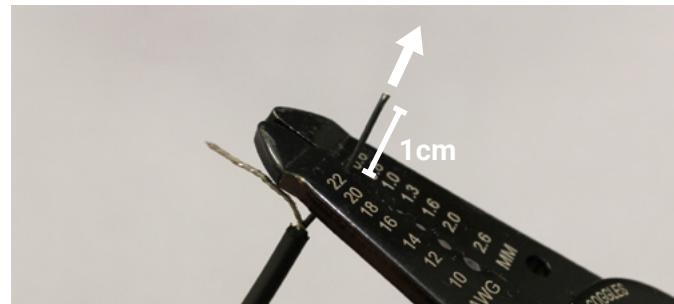
54. Use the wire stripper.



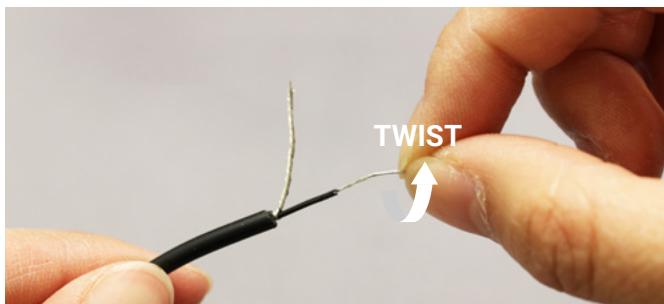
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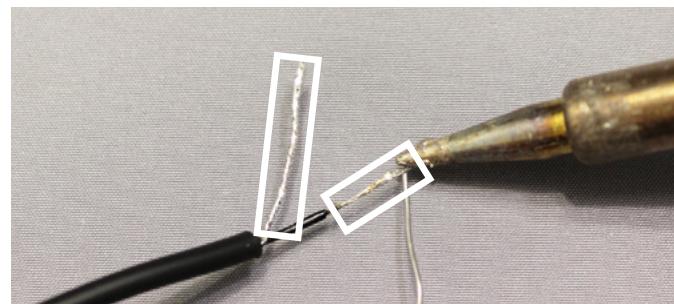
55.



56.



57.

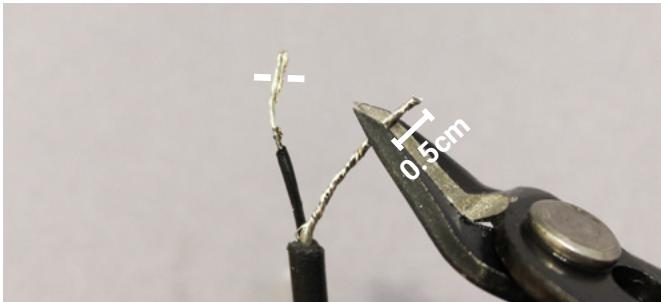


58. Lightly tin the ends of the two exposed cables with solder. Avoid heavy soaking or blobbing.

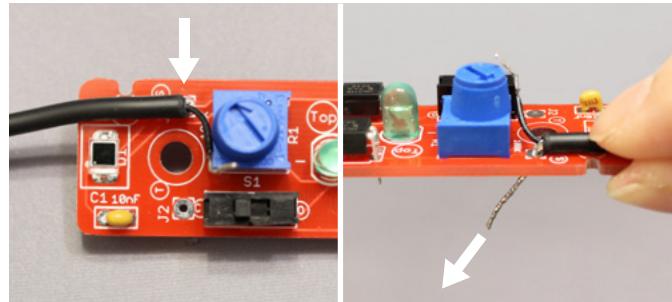


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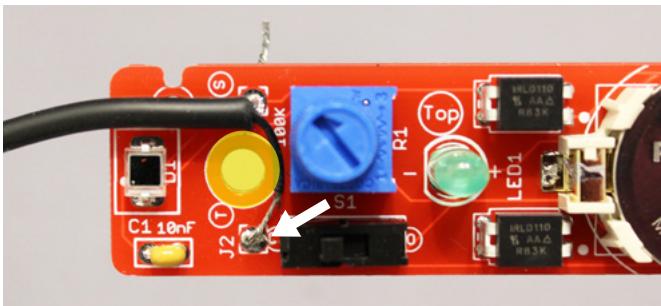
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59. Trim wires at an angle for easier insertion.



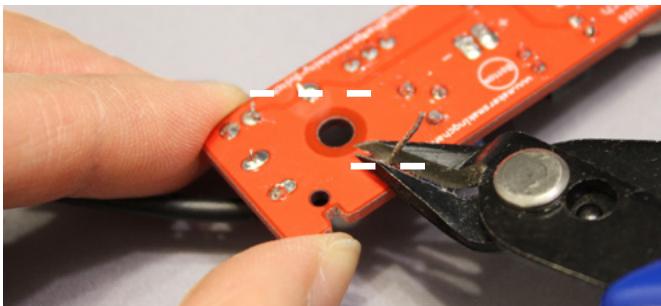
60. Insert the exposed cable (not the insulated cable) as far as possible.
HOLE J1



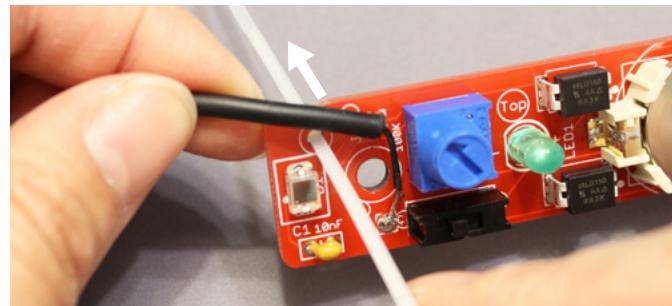
61. **IMPORTANT:** Insert the exposed wires of the insulated cable. Ensure wire loops around the hole (highlighted in yellow) and not over it.
HOLE J2



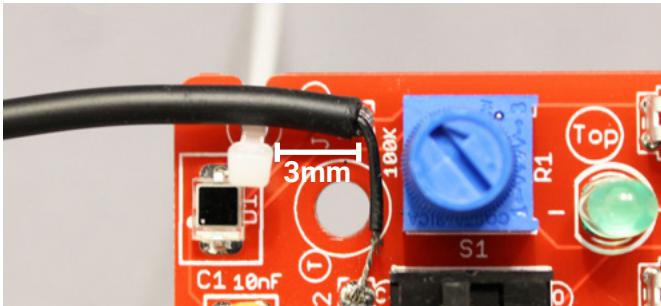
62.



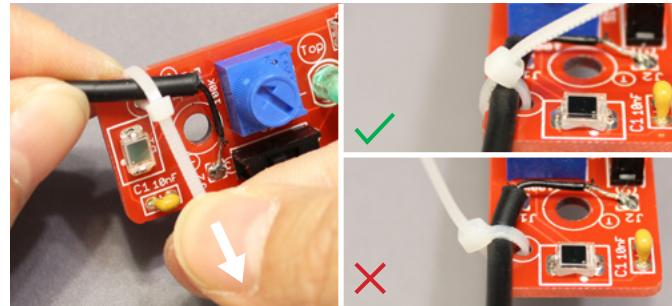
63.



64.



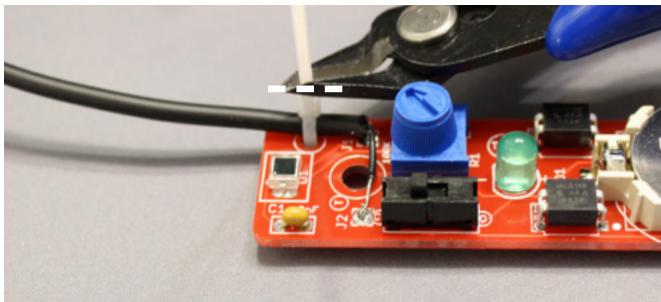
65. **IMPORTANT:** Ensure 3mm of black cord remains to the right of the zip tie.



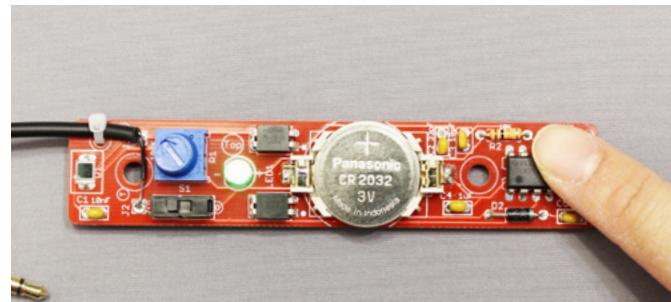
66. **IMPORTANT:** Make sure the zip tie knot is oriented as depicted or it will interfere with the enclosure.

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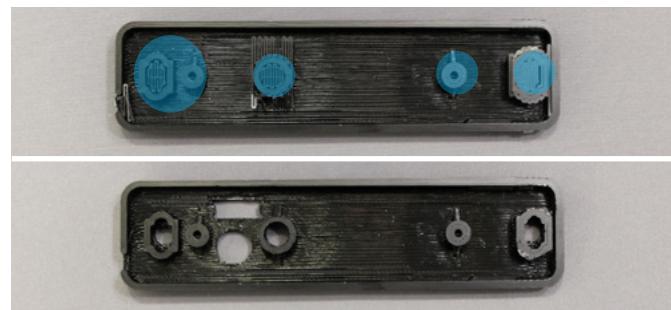
67.



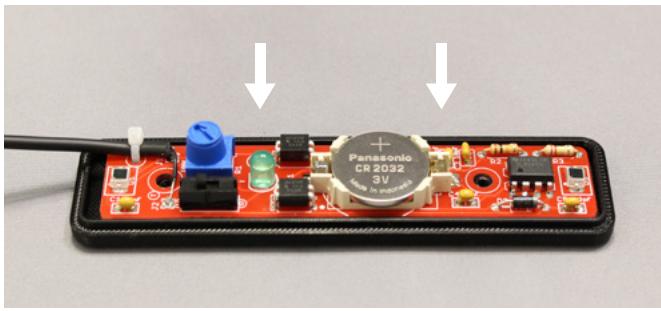
68. Cover the right photosensor with your finger. The LED should light up.



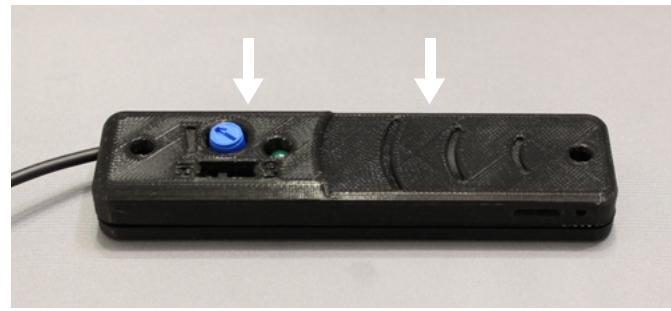
69. Trim any long leads on the underside of the PCB.



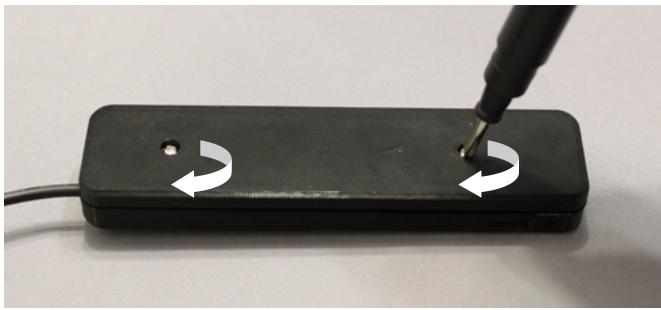
70. Remove all support material and make sure the holes are free of any plastic. 1



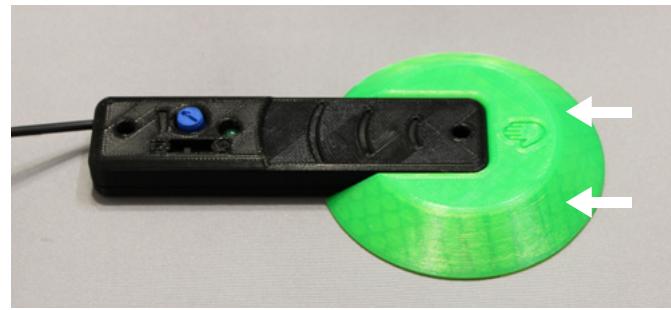
71. Insert the PCB into the enclosure base, aligning the holes in the PCB with the cylindrical posts on the bottom case. 2



72.



73. Gently tighten the 2 screws. Do not overtighten. 7



74. 8