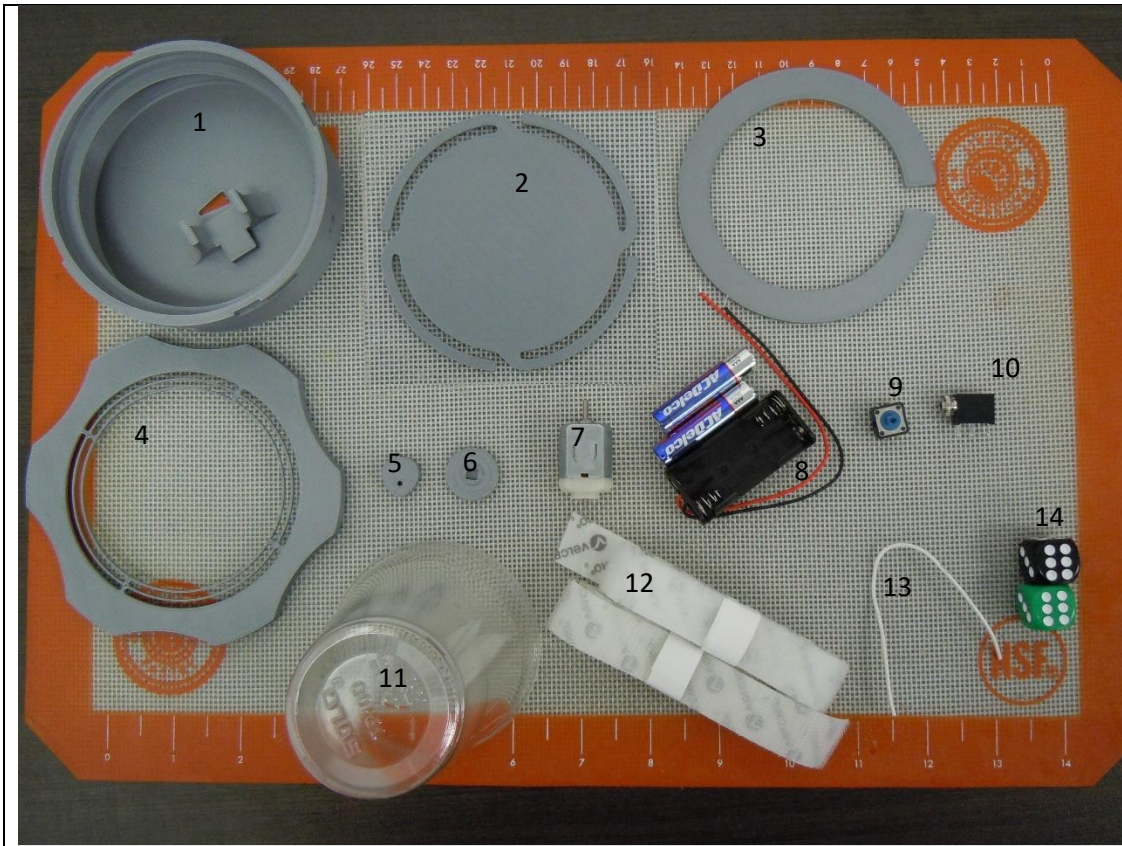


Rumble Plate ASSEMBLY GUIDE

Required Components



BOM

1. 3D printed Base
2. 3D printed Plate
3. 3D printed Retaining Ring
4. 3D printed Lid
5. 3D printed Cam
6. 3D printed Button
7. 130 size DC motor
8. 2x AAA Battery Holder (and 2 AAA batteries)
9. Omron B50503F Switch
10. 3.5mm Jack
11. Clear Plastic Cup
12. Velcro
13. Wire
14. Dice
15. Optional: 3D printed Vertical Push Base parts

Required Tools

- Super Glue (and/or hot glue)
- 3D printer
- Soldering Iron
- Wire Strippers
- Pliers
- Extra wire
- Knife

Required Personal Protective Equipment (PPE)

- Safety Glasses

Rumble Plate

ASSEMBLY GUIDE

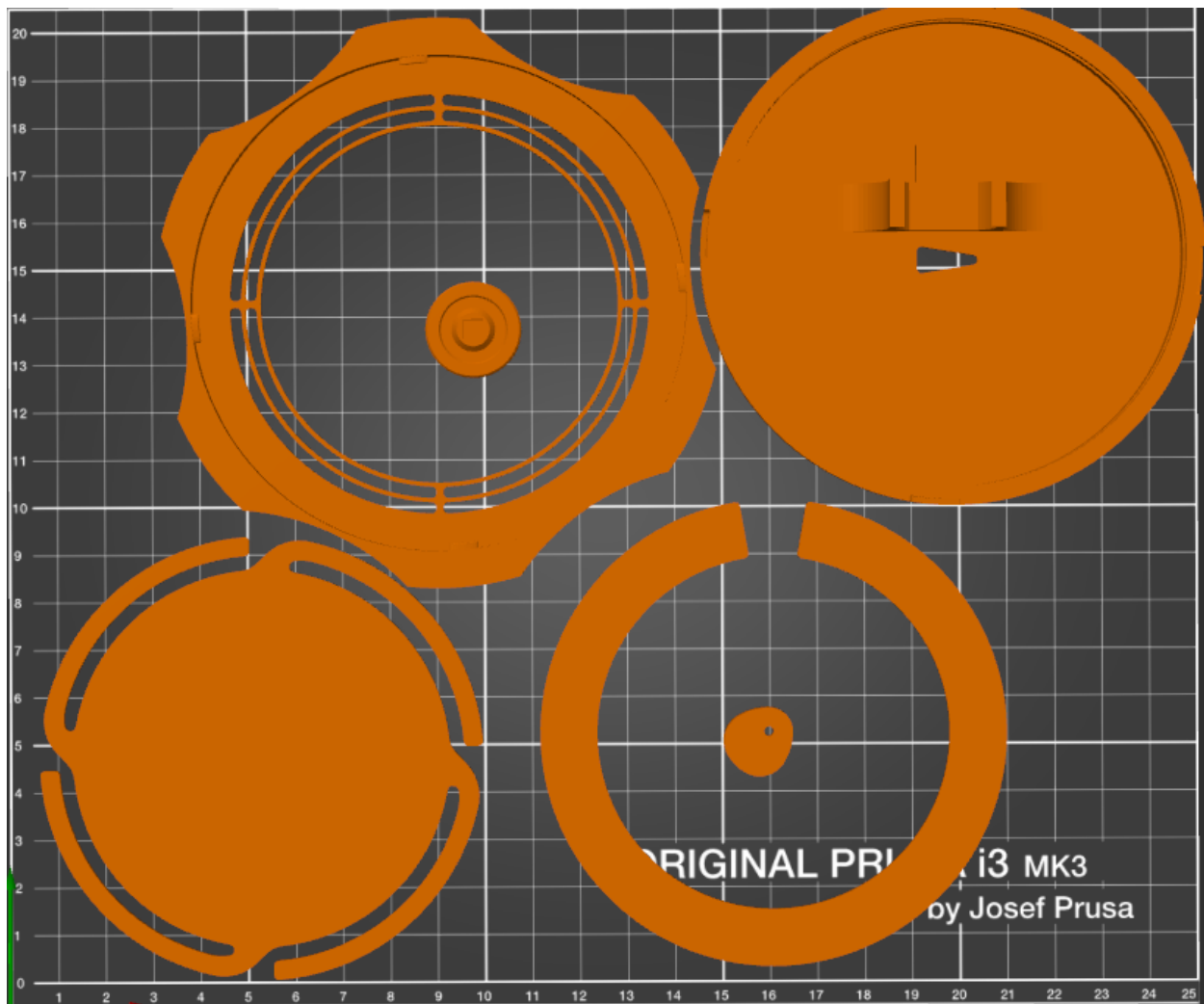
Assembly Instructions

Step 1

Setting up the 3D prints:

All STLs are oriented in the correct printing position. For an ideal print time, a layer height of 0.3 mm and 20% infill is recommended for all parts. If you desire a nicer finish, 0.2 mm is also ok, but will increase the print time. This is most noticeable for the Base.

All the prints can fit on a Prusa i3 MK3 print bed if arranged nicely, otherwise, some must be printed separately.

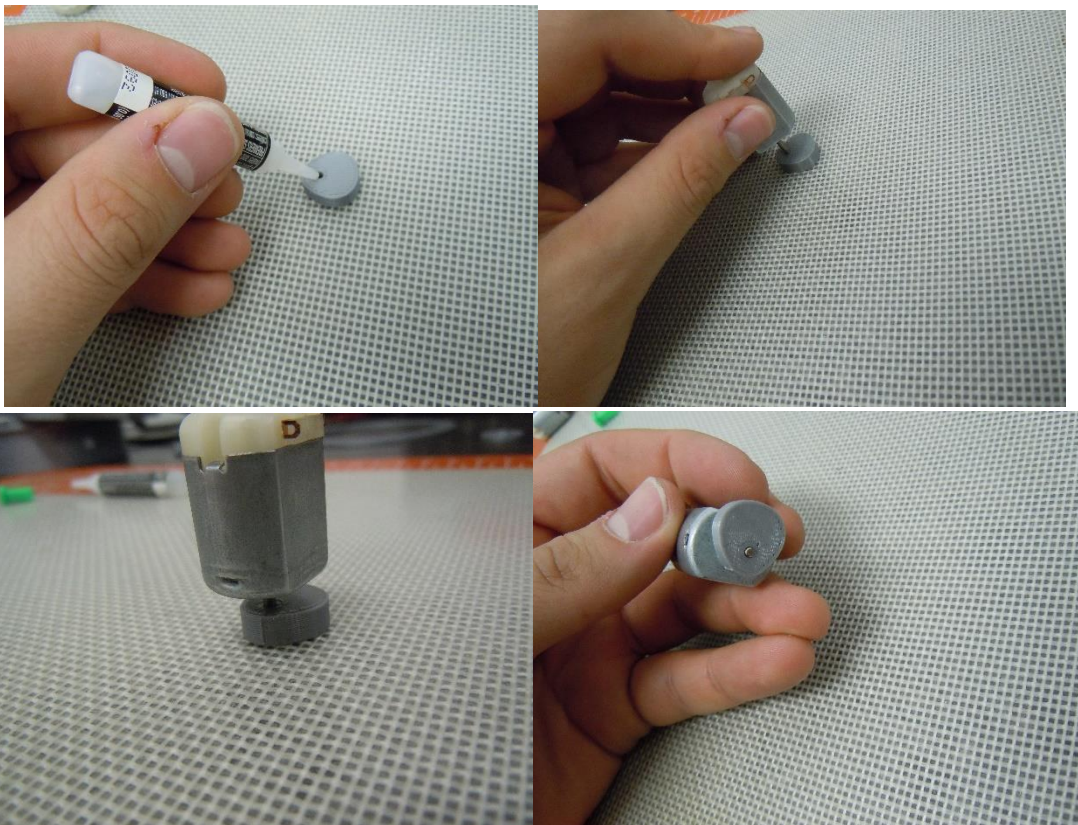


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Step 2

Fitting the cam to the motor shaft:

Place 2-3 drops of super glue into the hole on the cam, careful not to let it drip fully through. Place the cam lying on its flat side and press the motor shaft into the hole until it is flush with the opposite side. Place the motor on its side (the flat) to allow the glue to dry. Note: Important not to let super glue drip into the motor and to make sure the shaft ends up flush with the face of the cam.



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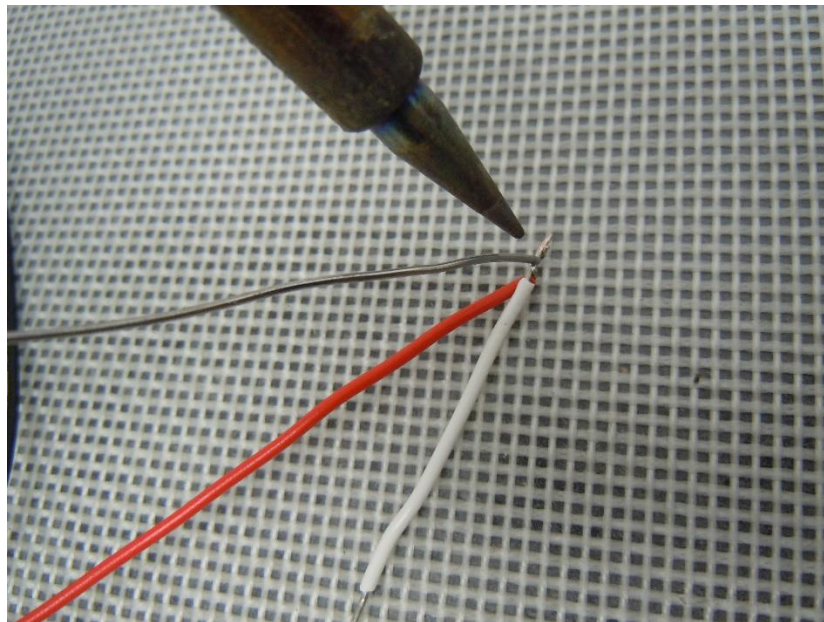
Step 3

Soldering the motor jack, and battery holder:

Cut three 7 cm lengths of wire and strip 1cm off both ends of each:



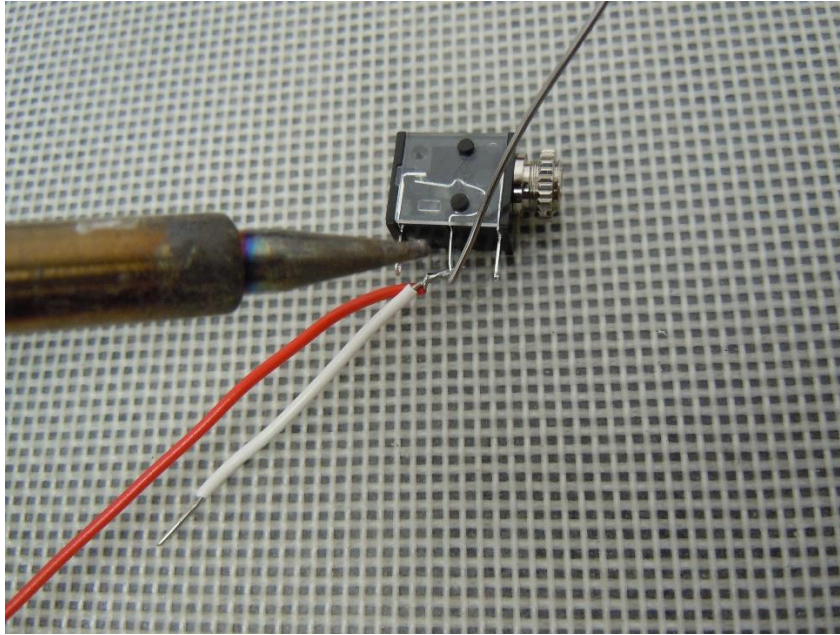
Solder one of these lengths to the red wire of the battery holder:



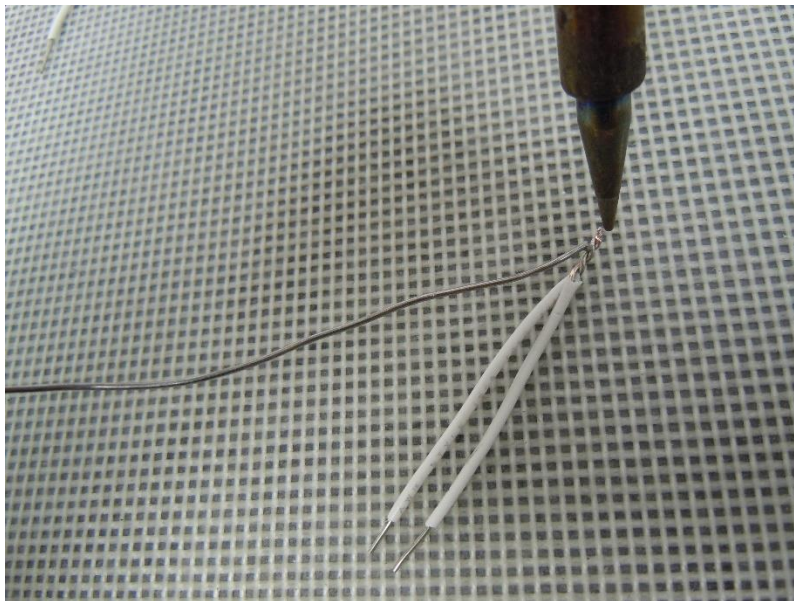
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Solder these connected wires to the middle prong of the jack:



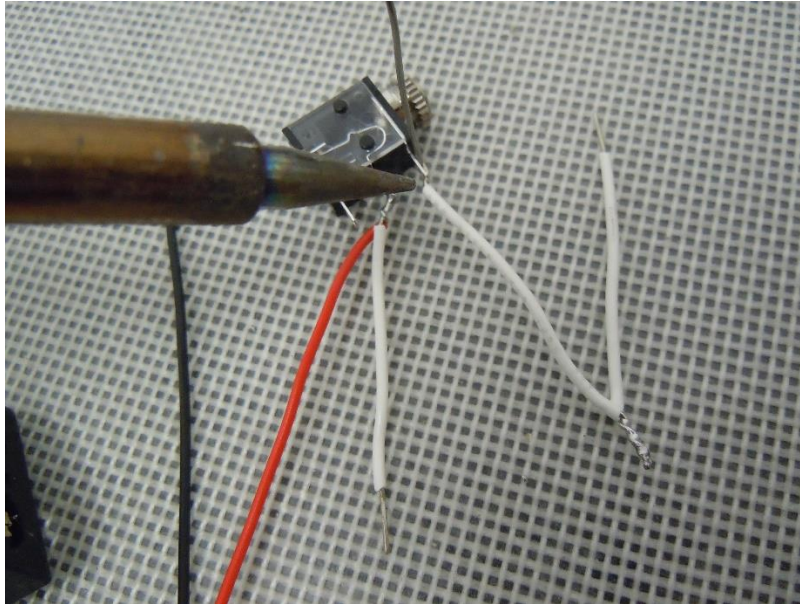
Solder the other two 7 cm wires together as shown:



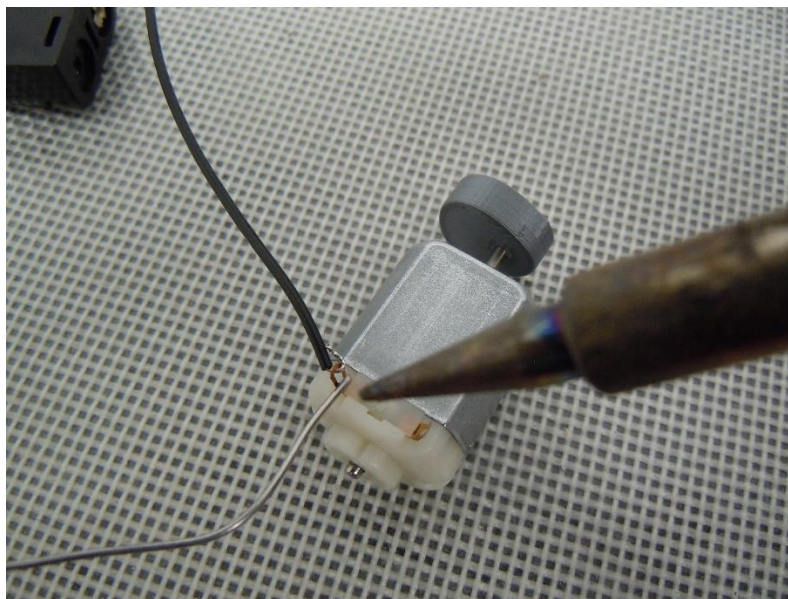
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Solder one single end of the connected wires to the prong closest to the jack input:



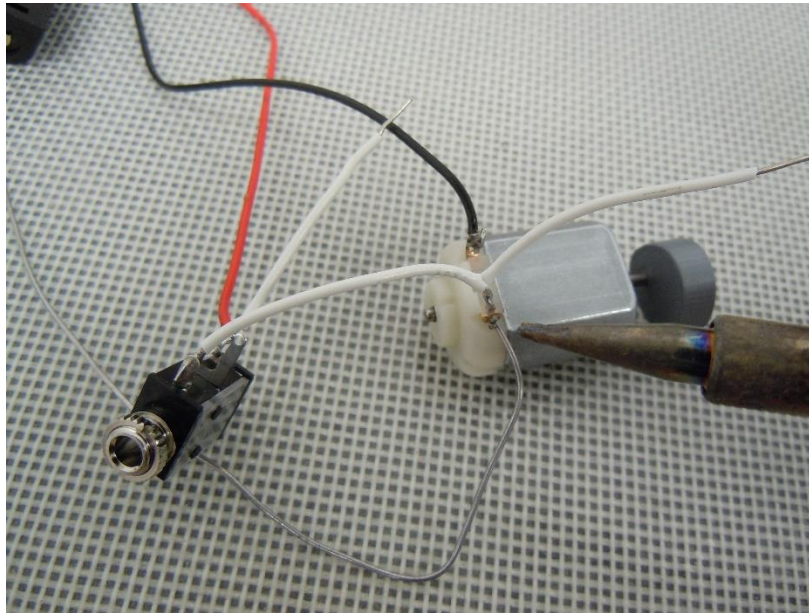
Solder the black wire of the battery holder to a motor prong:



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Solder the connected section of the two 7 cm wires to the other motor prong:

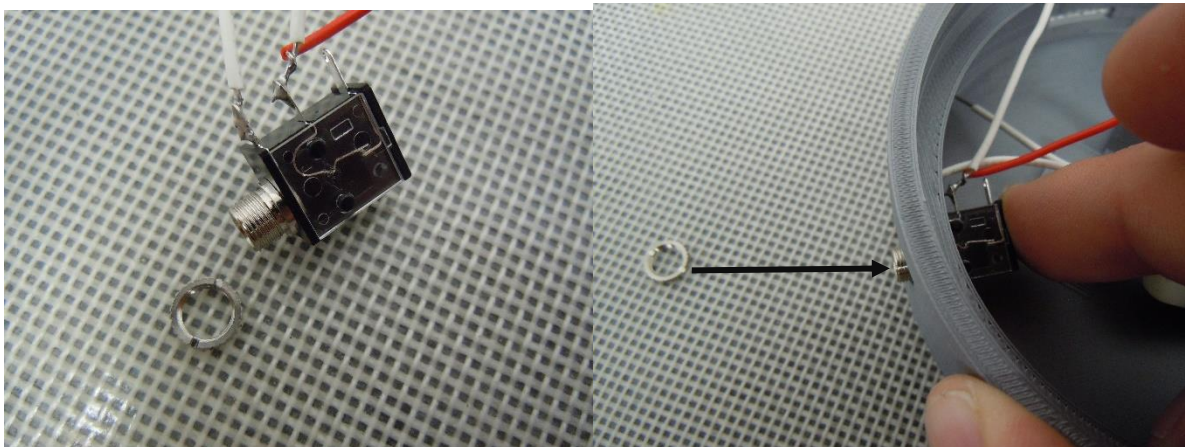


Insert batteries into the holder and test the circuit. (input switch into jack and touch switch wires together)

Step 4

Securing the soldered parts into the base:

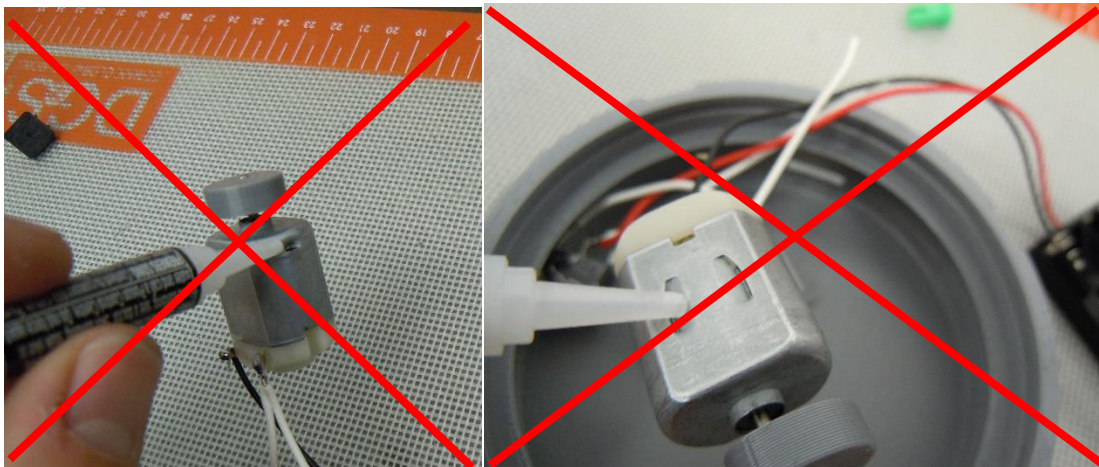
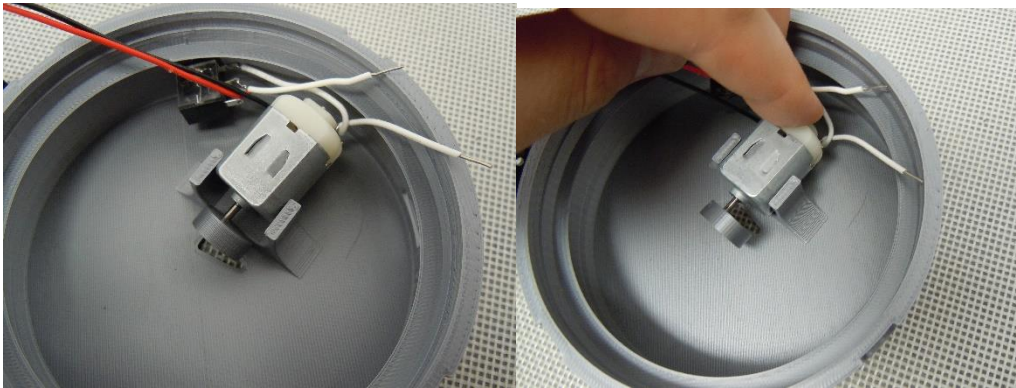
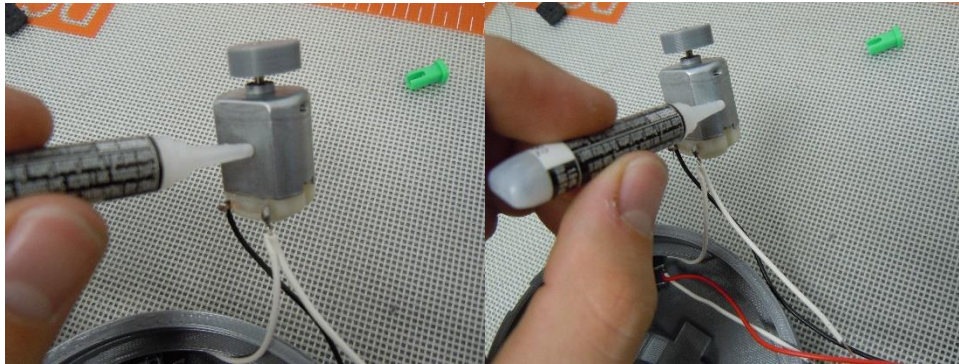
Remove the nut from the jack and insert through the circular hole with the prongs pointed to the switch mount opposite, re-screw the nut back on and tighten with pliers:



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Put super glue or hot glue on the motor body, avoiding vents, and slide the motor into place, wire side down. Ensure it is sitting flat and slid so the wire end butts up against the mounting base. Hold it down until the glue is dry:



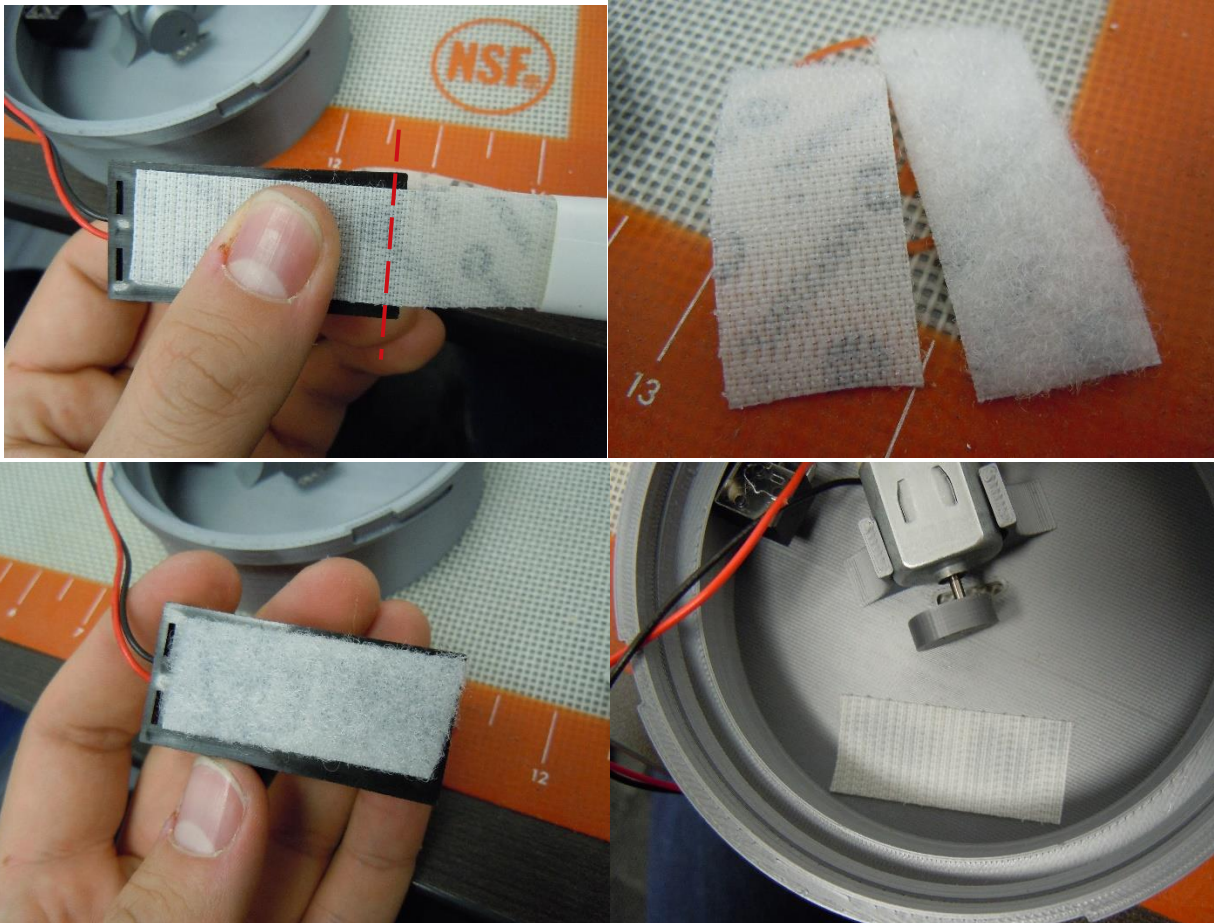
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Glue opposite patches of Velcro to the backside of the battery holder and to the floor of the base:

Note: Some Velcro is self-adhering, in which case, glue is not necessary.

Note: Put the hook, or scratchy, section of Velcro on the base itself.



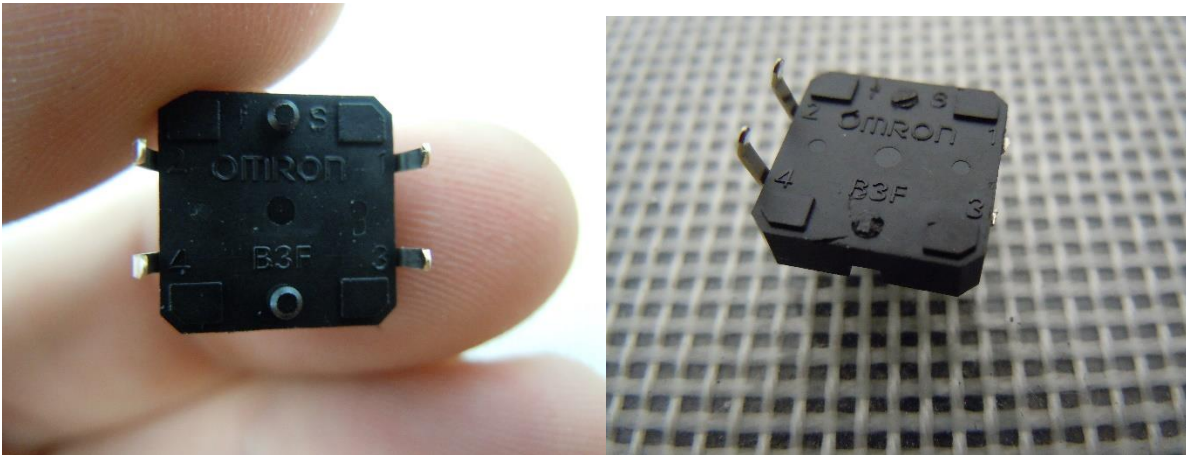
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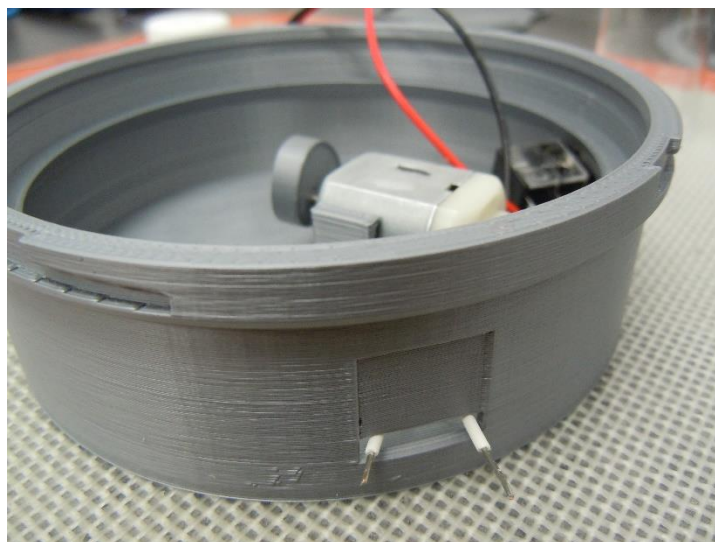
Step 5

Soldering the switch:

Cut the prongs off one side off the switch using wire cutters and cut the cylinders off the back of the switch (Note: You can use a knife to make the bottom smoother):



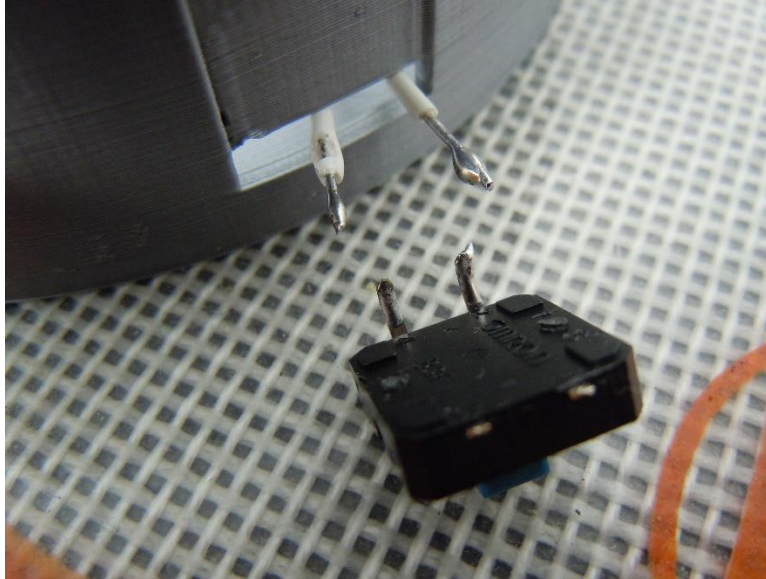
Take the two unused wire ends and poke them out the rectangular hole in the base sidewall:



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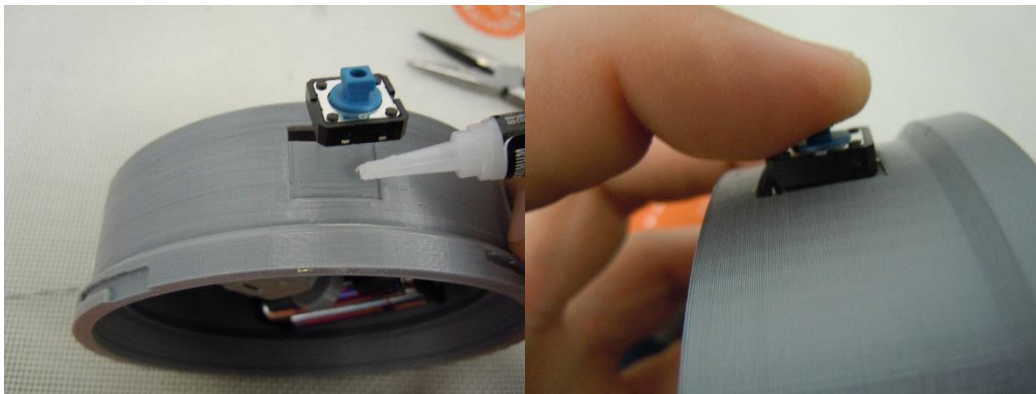
Tack some solder onto both wire ends and to the switch prongs and proceed to solder one wire to each prong, respectively:



Step 6

Assembling the remaining parts:

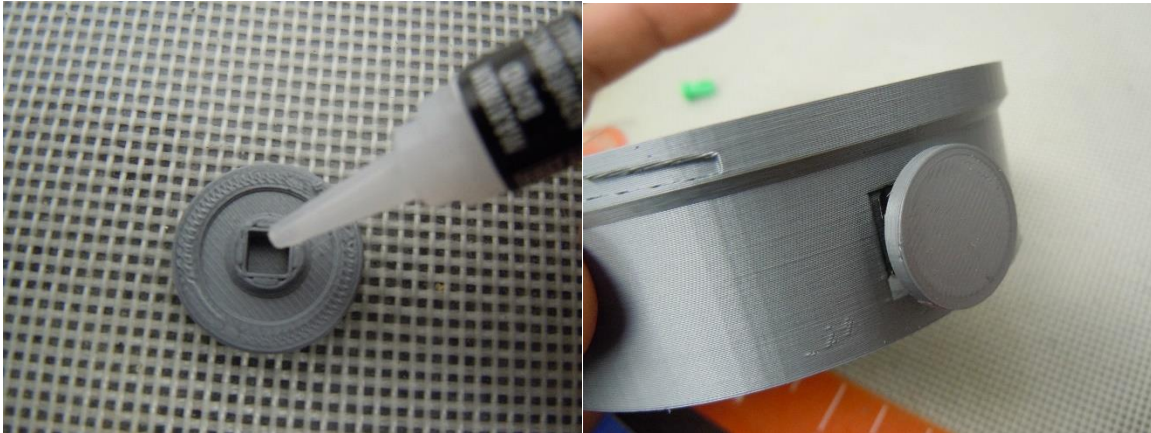
Glue the switch onto the base sidewall:



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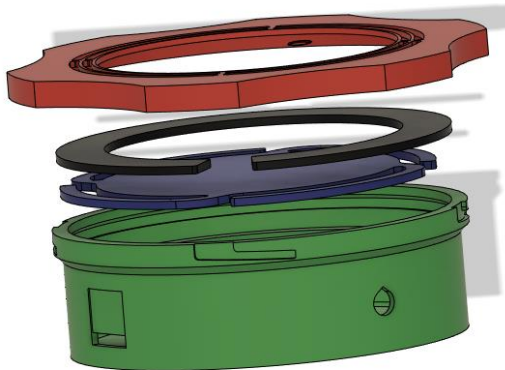
Rumble Plate ASSEMBLY GUIDE

Glue the button cap onto the switch, careful not to let any glue drip into the switch:



Place the plate down, and then insert the retaining ring:

Note: Ensure the retaining ring is in the groove cut out along the inside and not dropped down past it.



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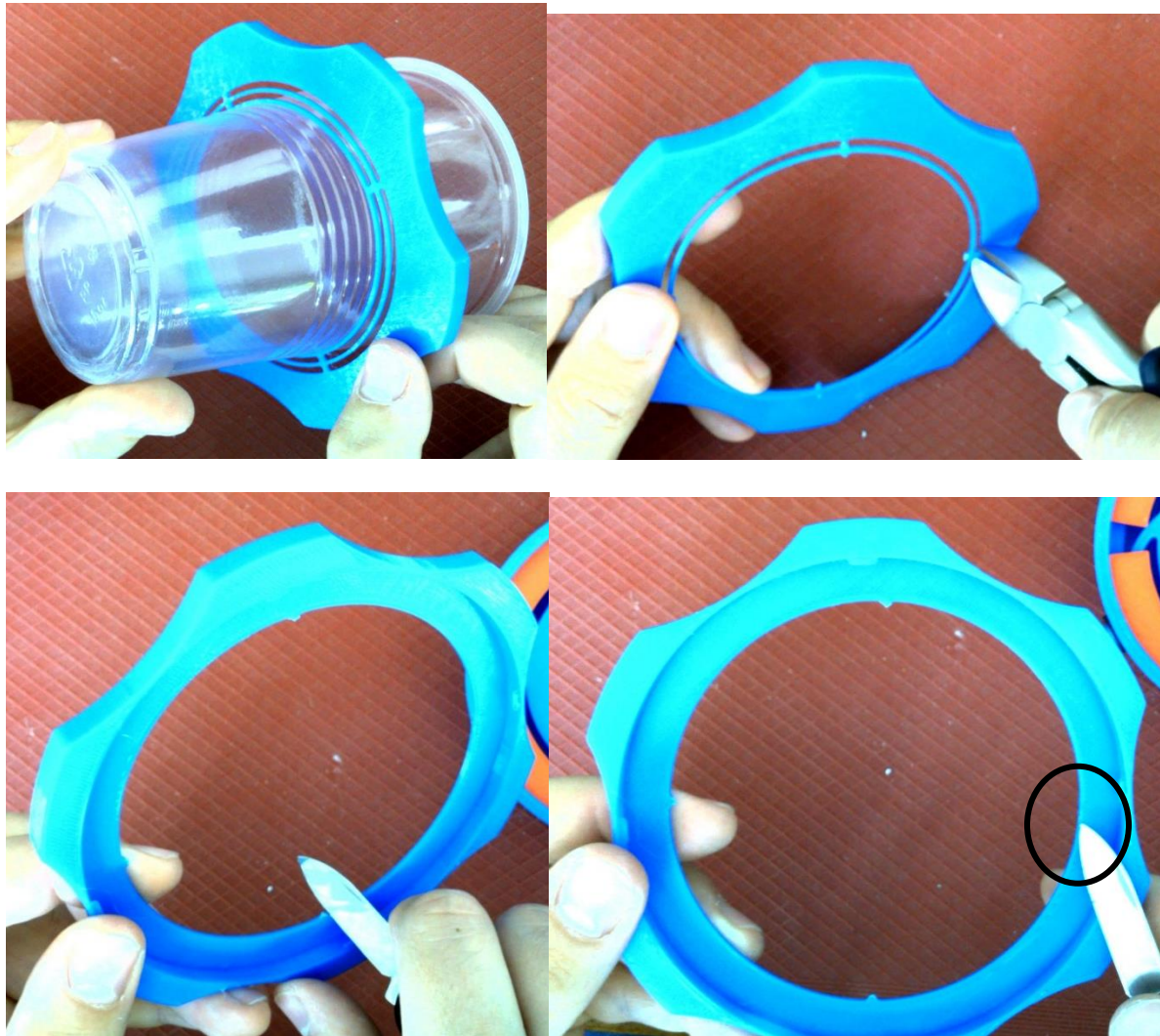
Add in some dice on top of the plate, place your cup over, and then twist on the lid.



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Note: If the cup diameter is larger than the inner diameter of the lid, carefully cut the inner ring out of the lid. You can use a pair of wire cutters or a knife. The knife will help smooth the edges. If the cup diameter is still slightly too large, you can trim the lip of the cup off carefully with a knife or scissors until the cup rim fits in the lid diameter.

Be careful with the sharp knife!



If the cup is still too large, you can carefully trim down the rim until it fits when the lid is twisted onto the base.