BLADELESS FAN V2

Assembly Instructions

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1. Impeller

1.1 Printing the requires parts

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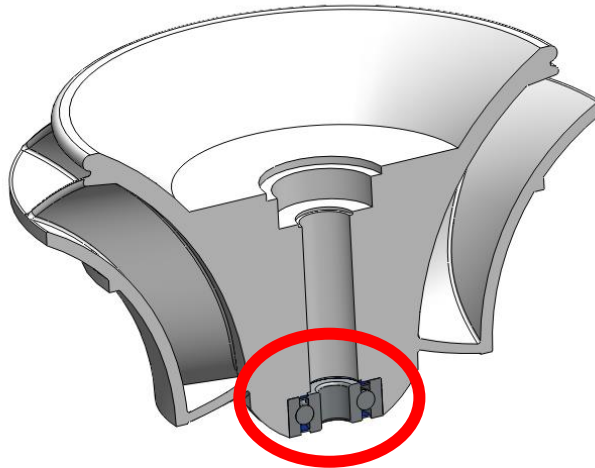3

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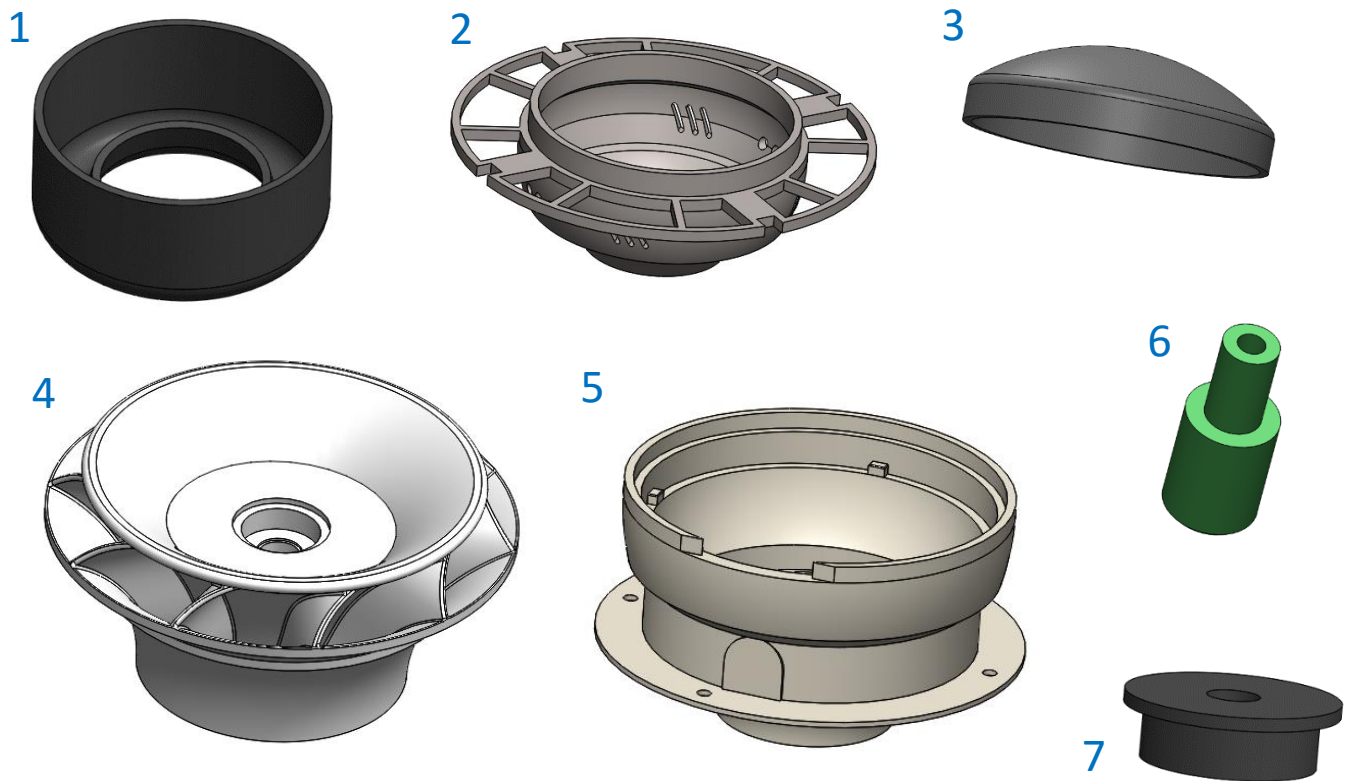
Printing instructions:

1. Impeller-Airguide:
2. Impeller-MotorHolder:
   - Print this part extra strong. Use min. 3 perimeters and 20% infill.
3. Impeller-TopCover
4. Impeller-Main:
   - Print this part extra strong. Use min. 3 perimeters and 20% infill.
5. Impeller-Outside:
   - Print this part extra strong. Use min. 3 perimeters and 20% infill.
6. ShaftCoupling:
   - Extra strong, 100% infill. If possible, print it with NinjaFlex. (Not needed but better)
7. ImpellerCap:
   - Extra strong, 100% infill

These parts are fairly easy to print so no detailed instructions here. The biggest part is Ø62 x 70 [mm] so this should fit on most printers.
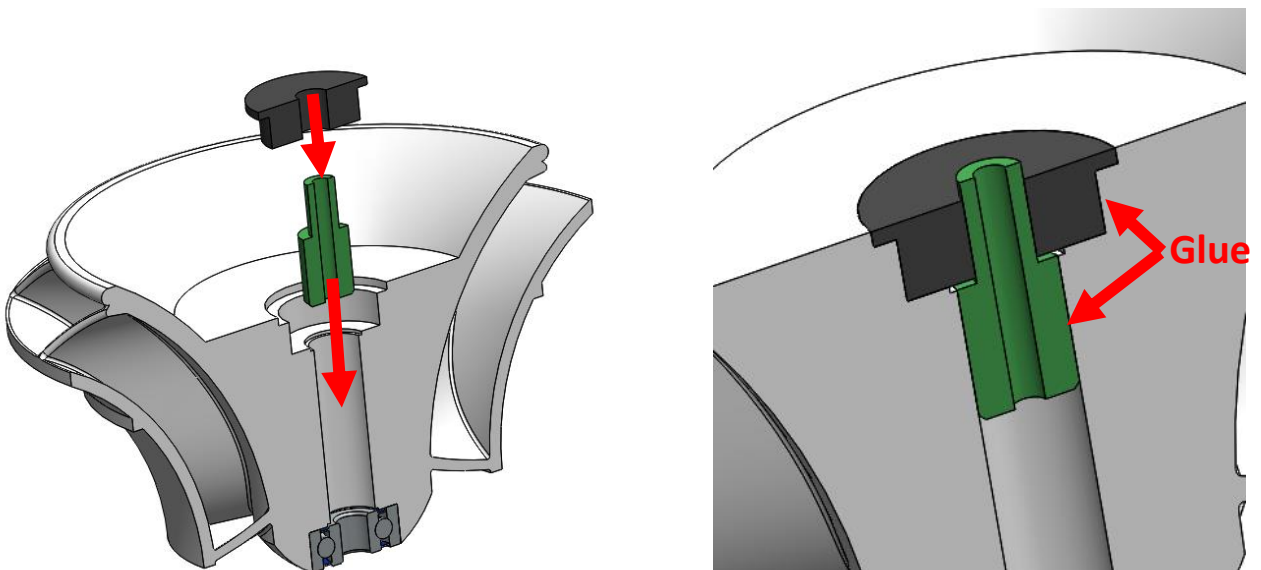
1.2 Assembling the Impeller

1   Begin with putting the 624 bearing into the Impeller-Main.

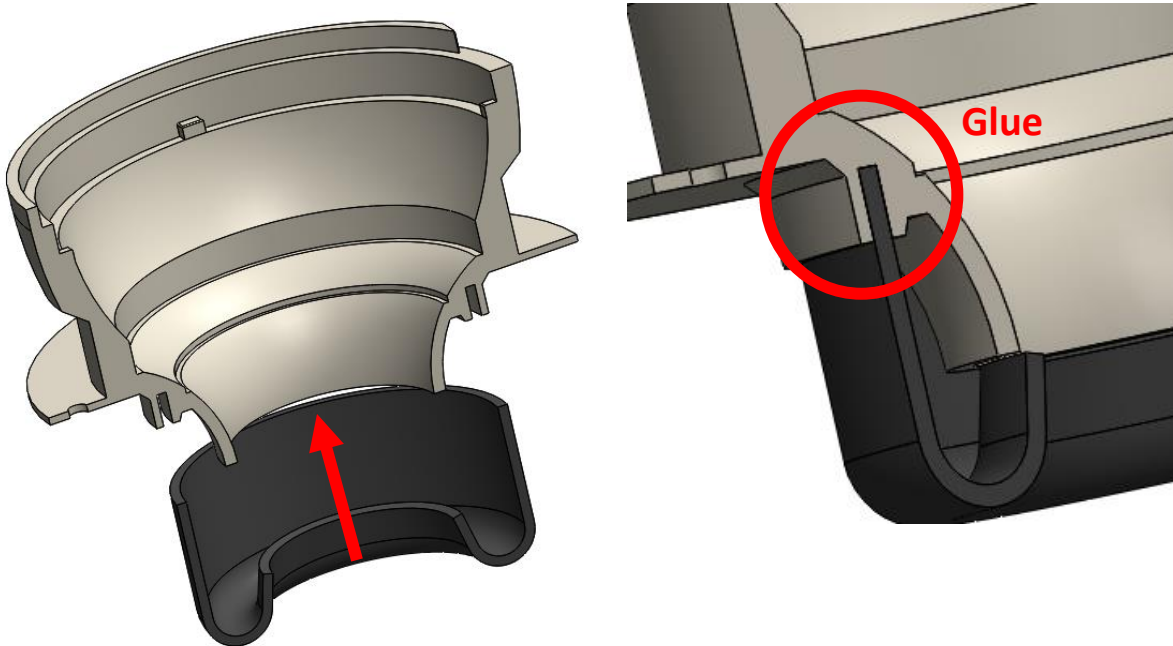(**http://www.ebay.co.uk/itm/10-PCS-Miniature-Rubber-Sealed-Metal-Shielded-Metric-Radial-Ball-Bearing-Model-/400458020258**)

2   Put the ShaftCoupling and ImpellerCap into the Impeller-Main. Use glue to bond them together.
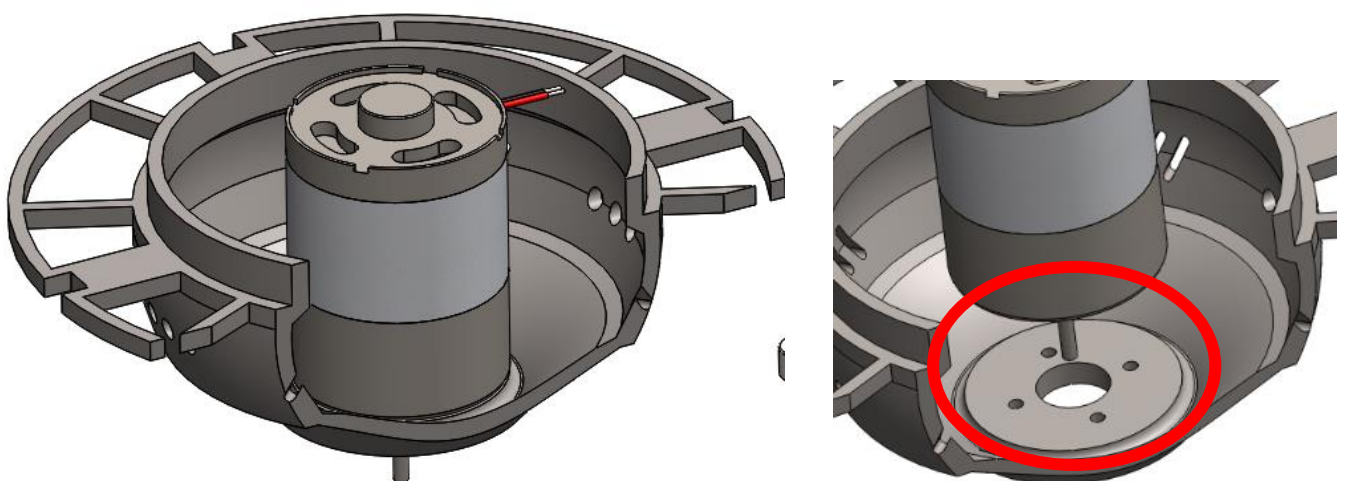
*Use enough glue!

3   Glue the Impeller-Airguide into the opening of the Impeller-Outside.

Glue

4   Mount the motor in the Impeller-MotorHolder with 4 (countersunk) screws. Route the wires trough one of the holes to the outside.
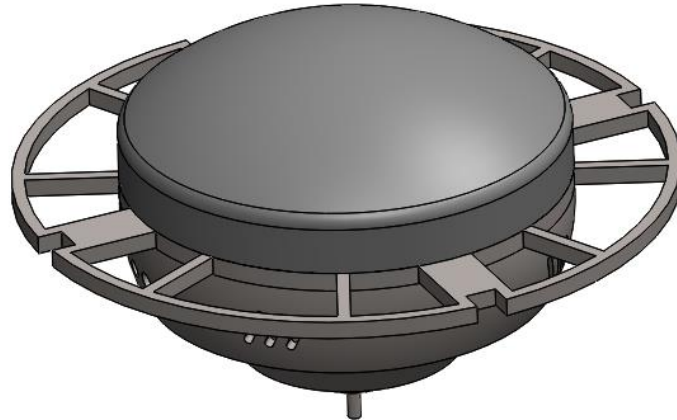
Make sure the screws don't stick out at the bottom!

(**ttp://www.ebay.com/itm/For-MABUCHI-RS-380SH-20150-DC12-24V-10000-21000RPM-High-Speed-Carbon-Brush-Motor-/121992439564**)

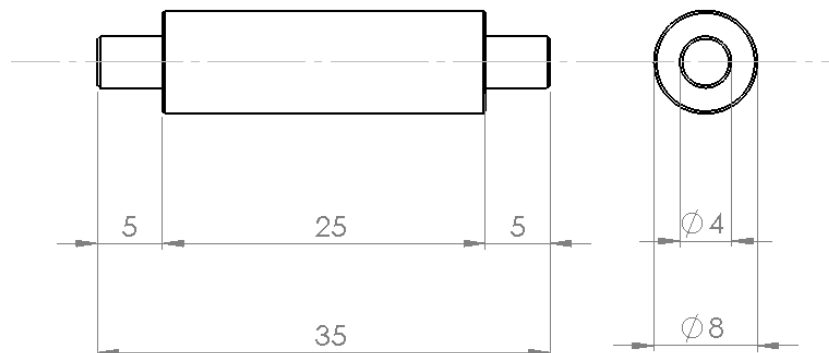5   Place the Impeller-TopCover on top of the Impeller-MotorHolder.

This should be a fairly tight fit. If the Impeller-TopCover is not tight enough, use some glue.

6   Axle.

If you have access to a lathe, it is recommended that you make the axle out of metal. This improves stability and reduces vibration and noise.
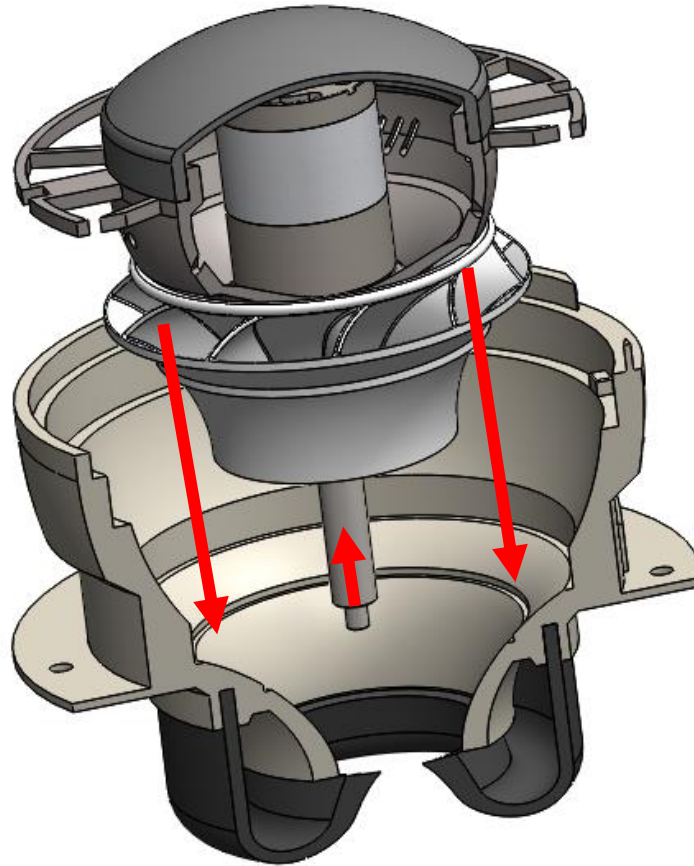
If not, a 3d printed axle works just fine. (MainAxle.STL)

7   Join the Motor with the Impeller.

Join the Axle with the impeller.

Use glue to join the motor shaft with the ShaftCoupling.

*Use enough glue!

Glue

Double bearing: If one fails, it won't blow up the entire bottom.
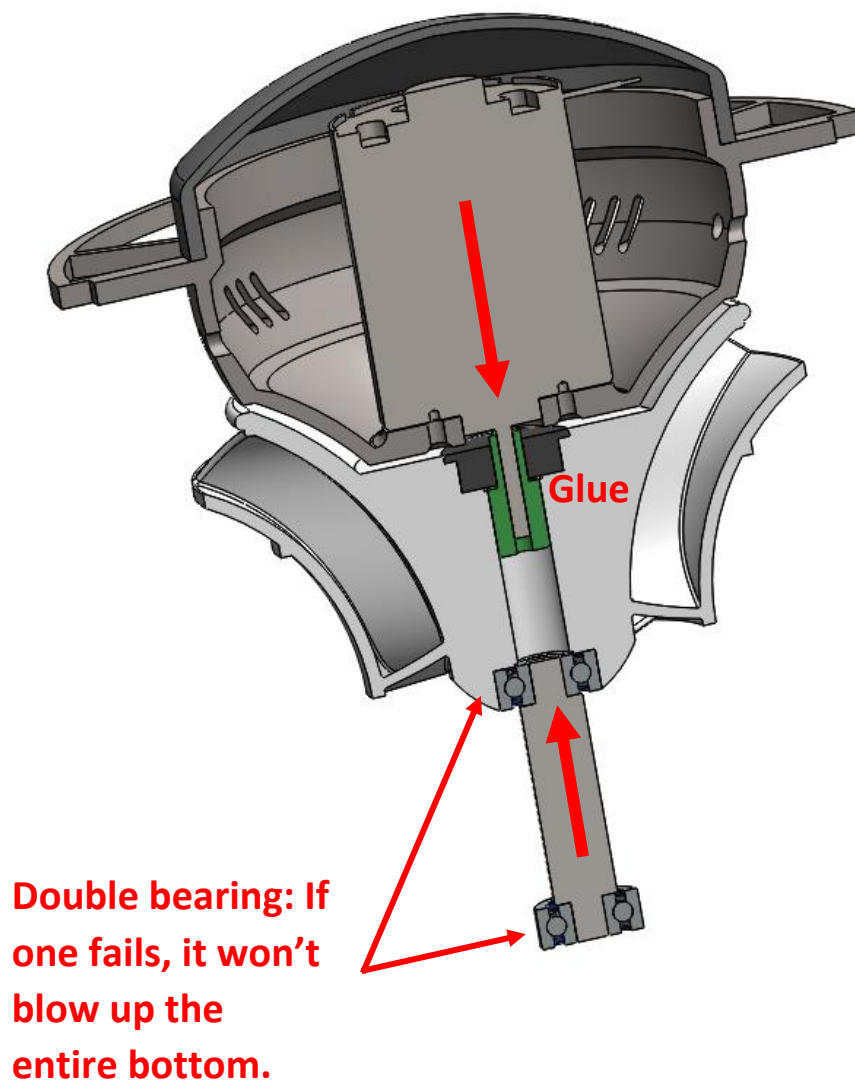
8   Join the Impeller parts with the housing. This should be a thigh fit. If not, use some glue.
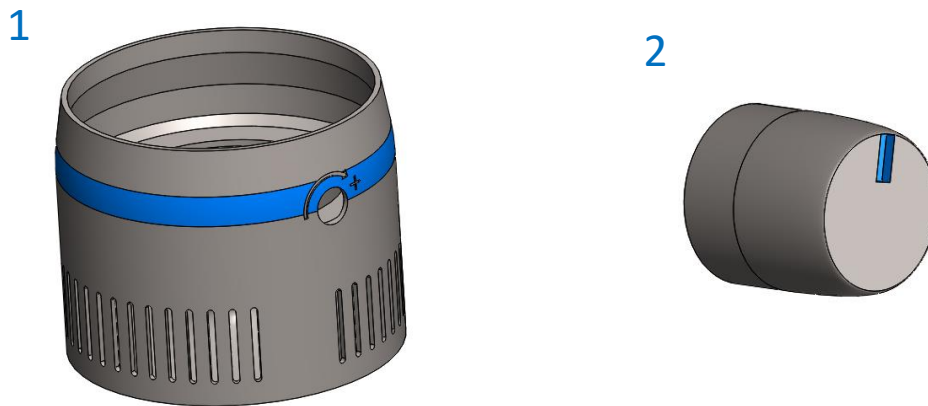

What you should have if you followed all the steps above:
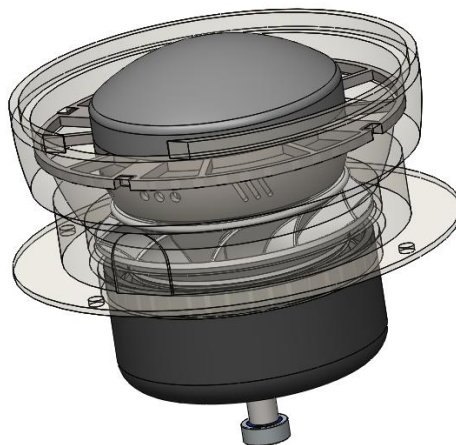
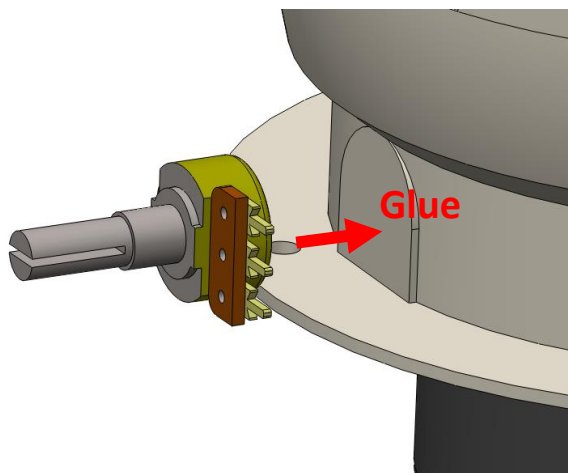# 2. Base and Electronics

2.1 Printing the requires parts

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Parts list:

1. LowerHousing
2. PotentiometerCover

*No Special instructions needed for printing these parts.

1   Use some glue to mount the potentiometer to the Impeller-Outside and attach some wires to the potentiometer.

(http://www.ebay.co.uk/itm/12V-36V-Pulse-Width-PWM-DC-Motor-Speed-Controller-Regulator-Switch-12V-24V-3A-/191784615003)
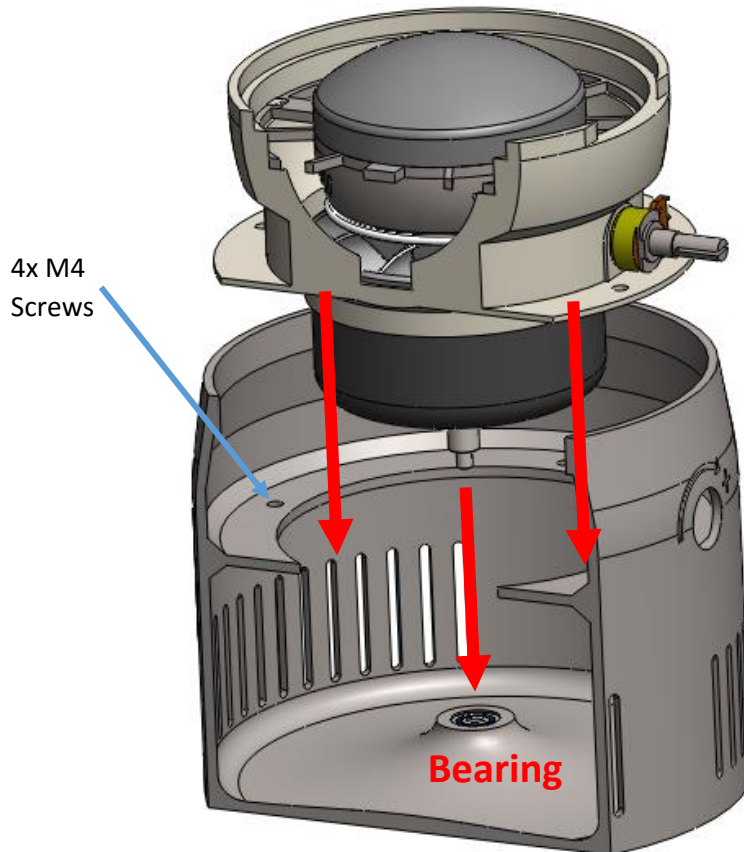
Glue

2   Place a 624 bearing into the LowerHousing.

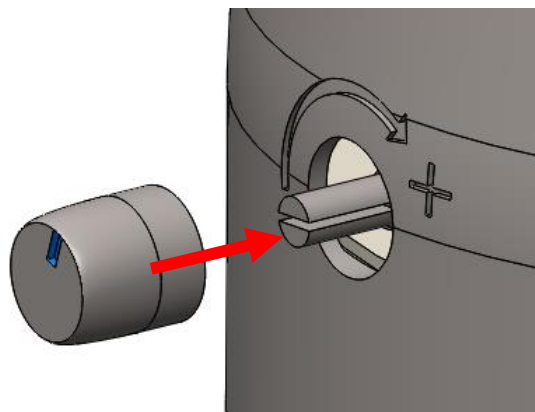If you have dust filters or fine mesh, put it behind the intake vents. (Optional)

Place the impeller parts into the LowerHousing. It's a bit tricky with the potentiometer but it should fit.

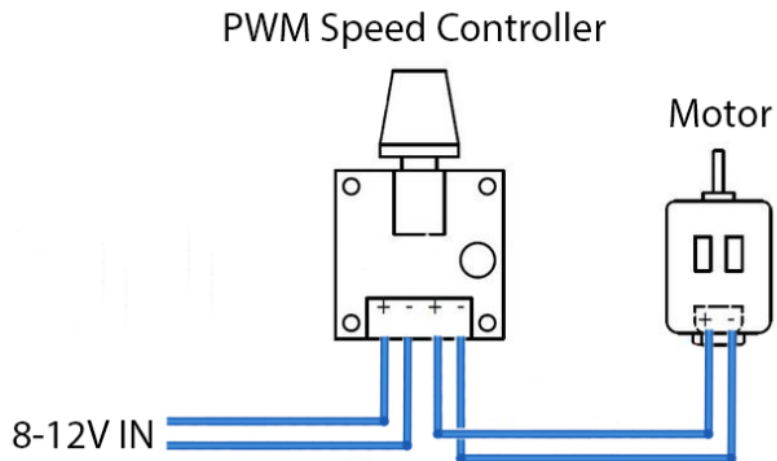Use 4 M4 bolts and nuts to fasten it together.

*Make sure the Axle fits in the bearing!

4x M4
Screws

Bearing

3   Put the potentiometer cover onto the potentiometer.

4   Connect the motor, the potentiometer and the 8-12V in to the PWM Speedcontroller.

Rotate the potentiometer and check if the motor turns.

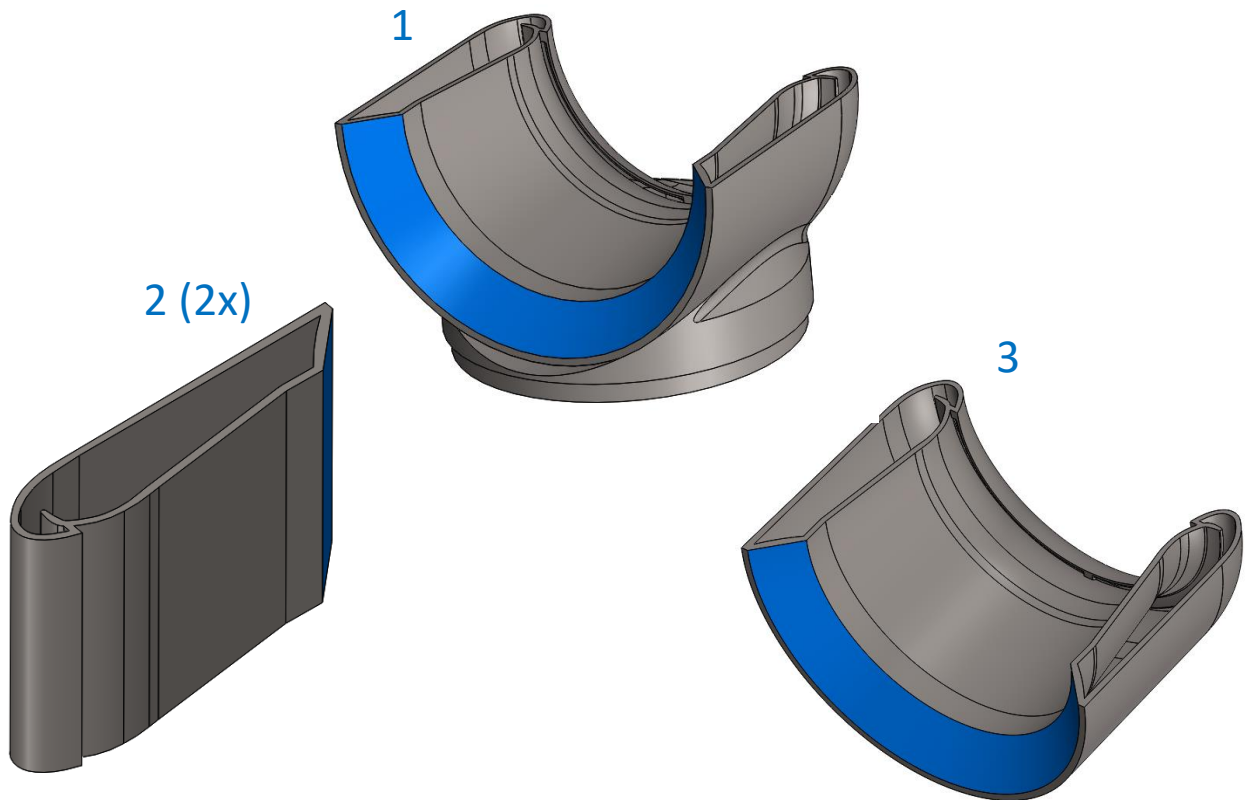Check if the impeller blows air. If not, reverse the polarity on the motor wires.

PWM Speed Controller

Motor

8-12V IN

What you should have if you followed all the steps above:
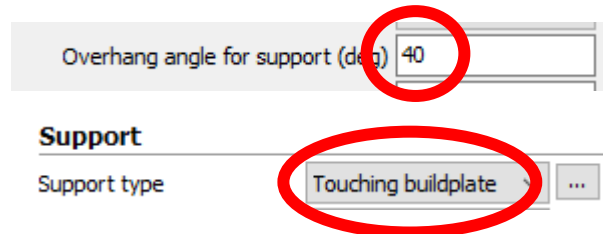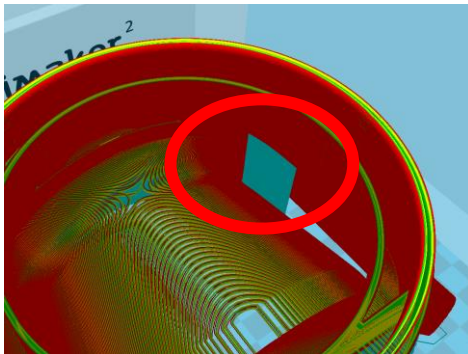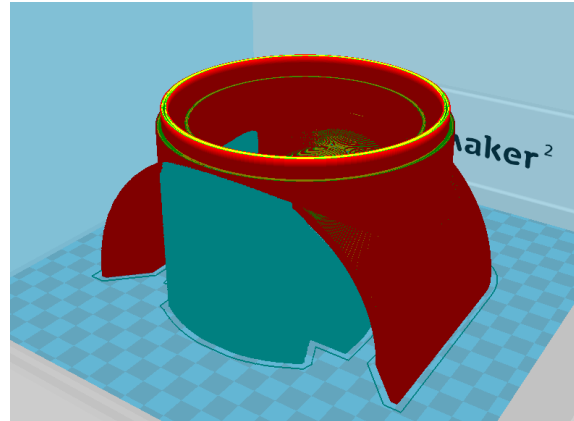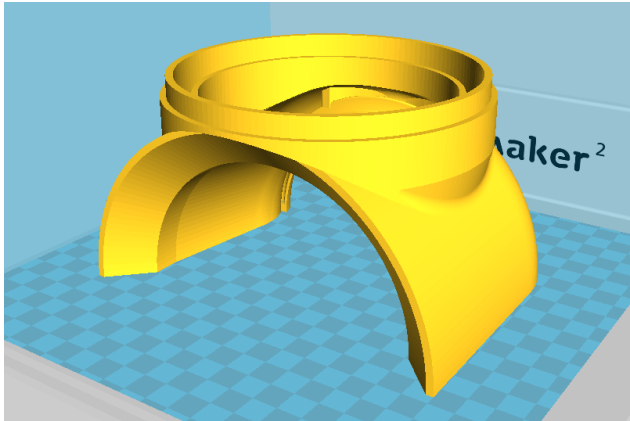
Air out

Air in
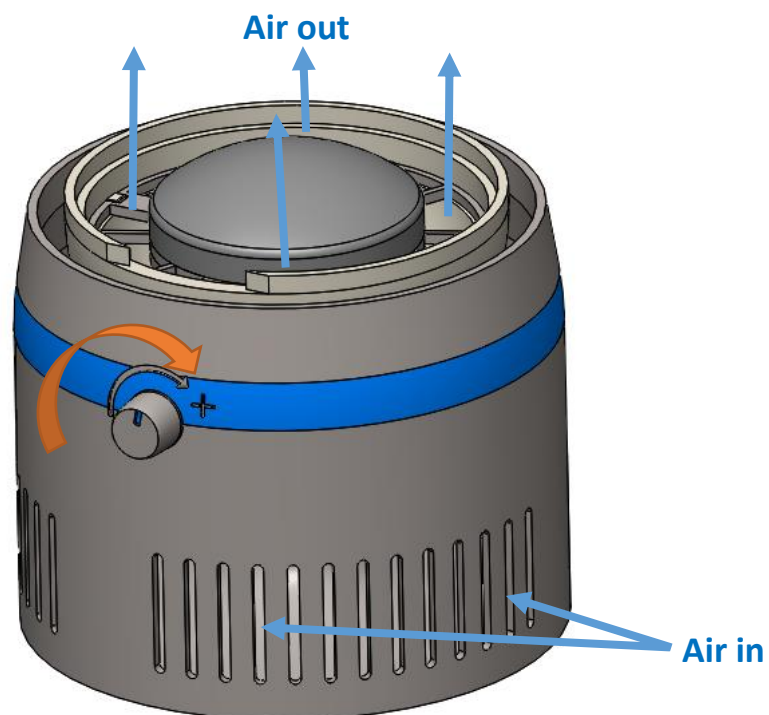
3.   Shroud

3.1 Printing the requires parts

! **Note: The following settings are just recommendations and
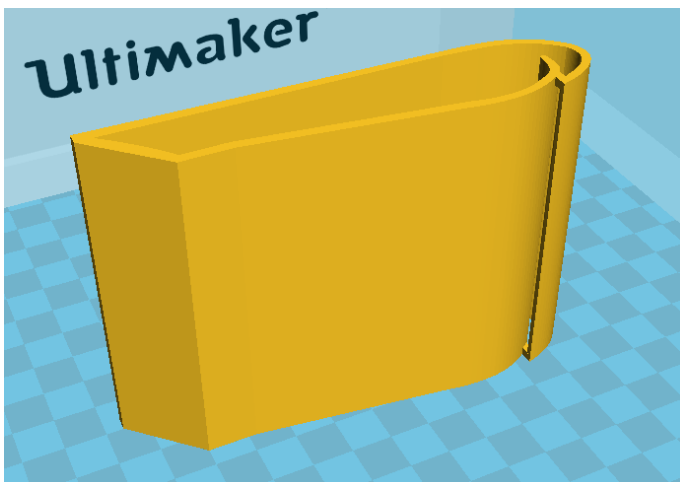there's no guarantee it'll work on your specific printer.**

Printing instructions:
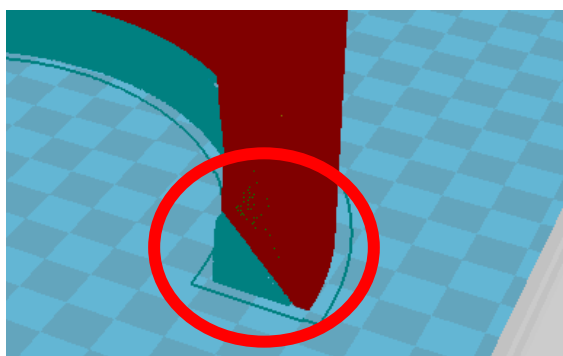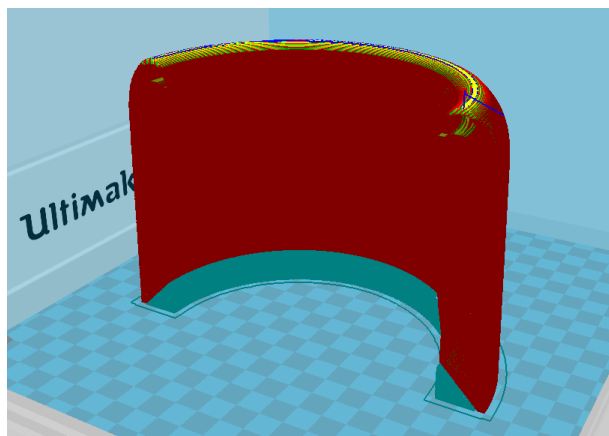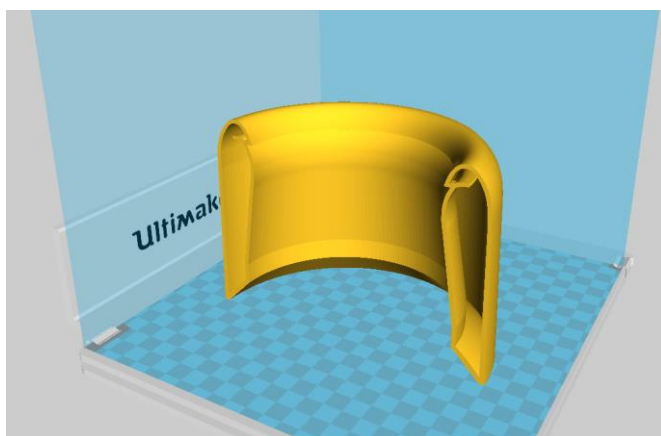
1. ShroudLowerHalf

Rotate the model like the pictures above. Set support to 'Touching buildplate' and in Expert settings (Ctrl/Cmd+E) set Overhang angle to 40. Layer height 0.2[mm], infill 18%, 2 perimeters.
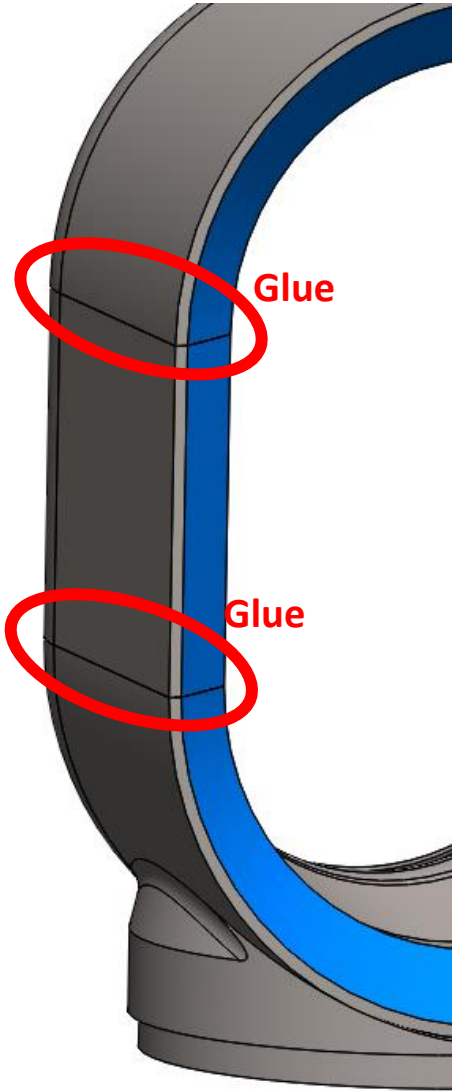
2. ShroudStraight

Rotate the model like the picture on the right. No support needed. Layer height 0.2[mm], infill 18%, 2 perimeters. Raft enabled.

3. ShroudUpperHalf

Rotate the model like the pictures above. Set support to 'Touching buildplate' and in Expert settings (Ctrl/Cmd+E) set Overhang angle to 40. Layer height 0.2[mm], infill 18%, 2 perimeters.
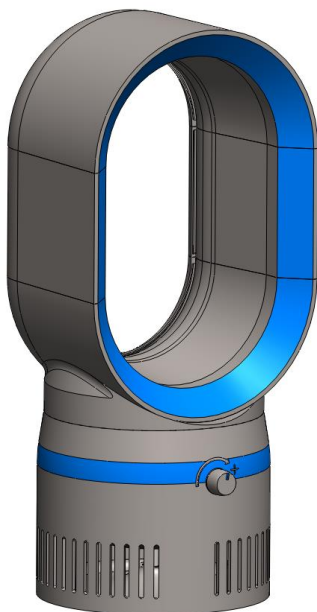
3.2 Assembling the Shroud

Use glue (superglue) to assemble the printed pieces. Make sure the shroud is smooth on the inside so there's nothing blocking the airflow!

Glue

Glue

4.   Assembling Shroud and Base
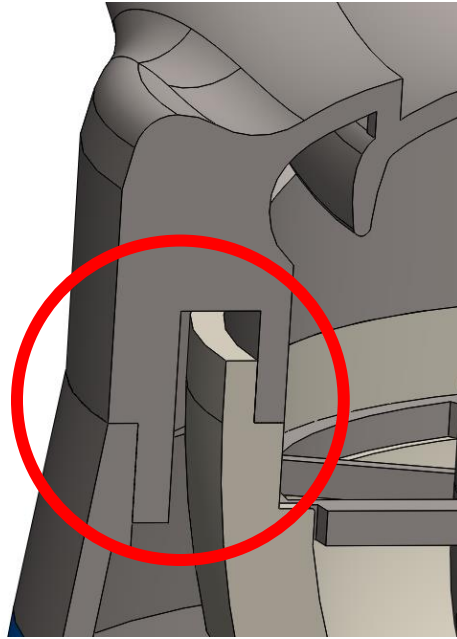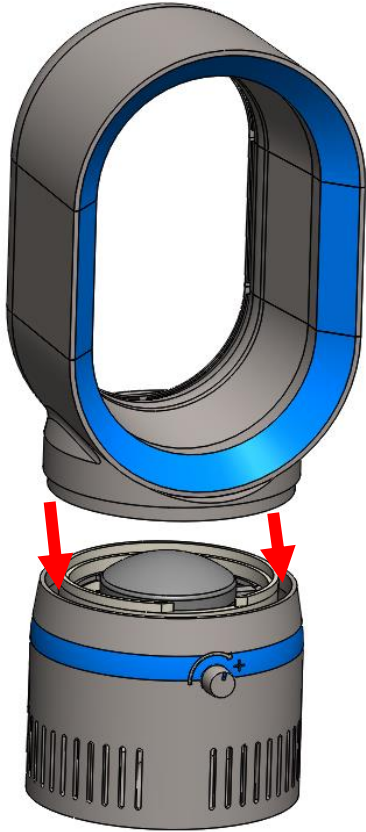
Pay attention to the connection and make sure there are no airgaps.

That's it, you're done! Turn on the power and enjoy the airflow. Thanks again for making this model. If you have any questions, I'd be happy to answer them on the Thingiverse comments' section.