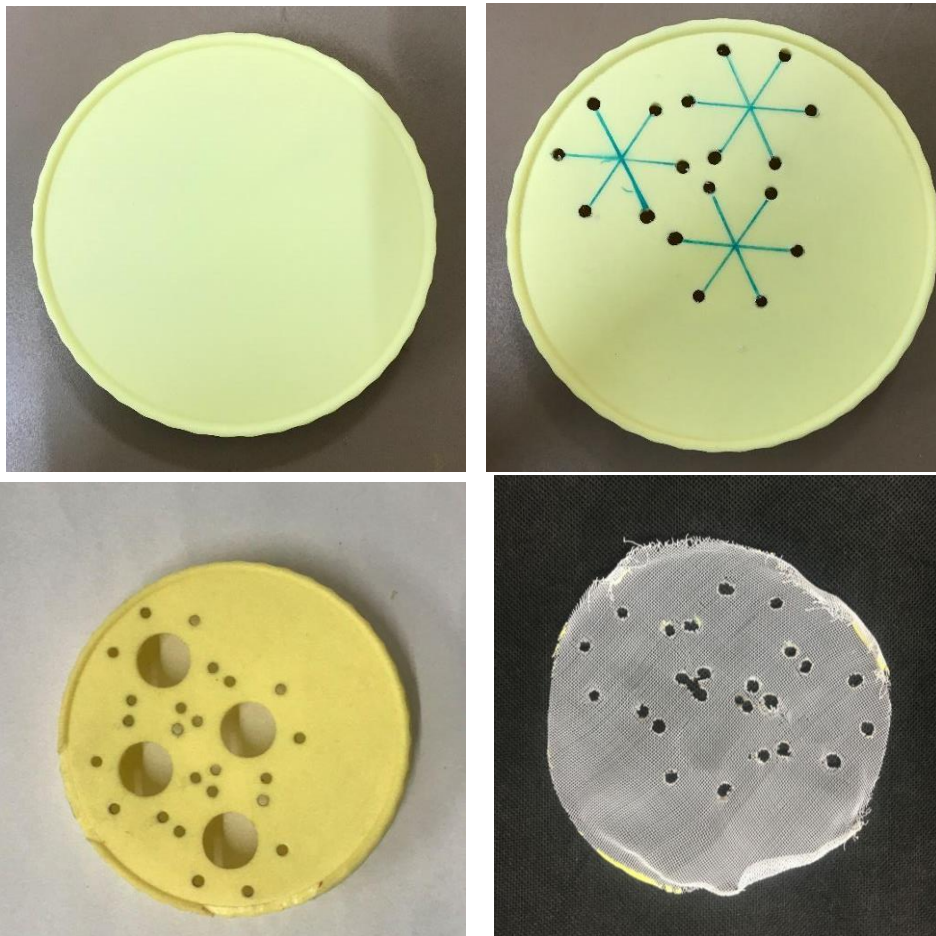


reBreather Assembly Instructions

Before starting the assembly process, please ensure that you have all the items mentioned in the BOM which are to be purchased, 3D printed and Laser Cut.

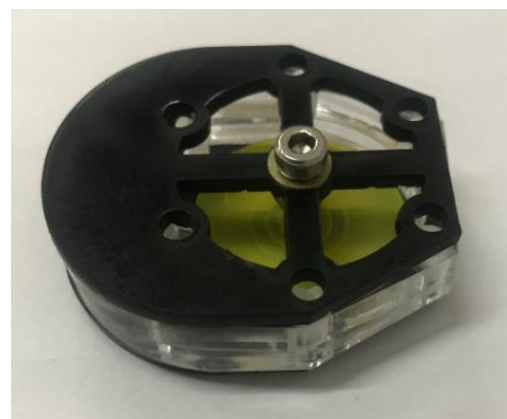
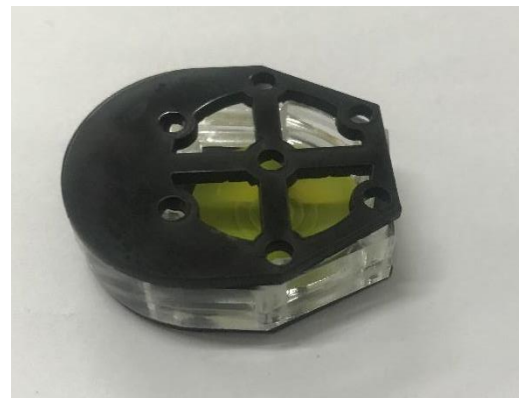
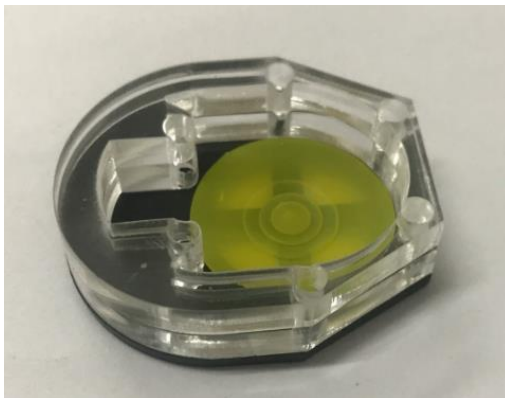
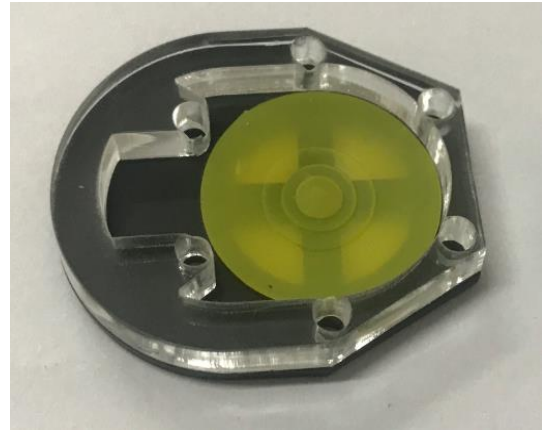
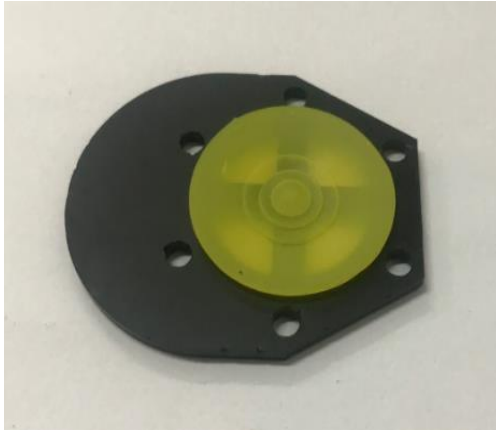
1. Jar Lid Modifications

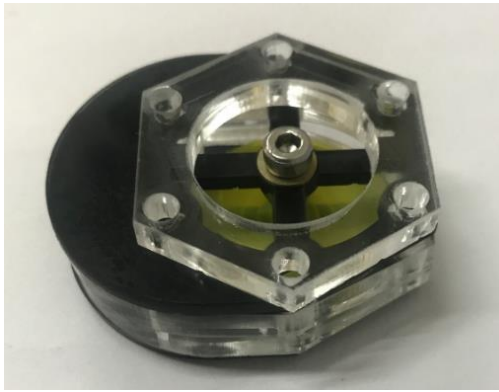
- Take the jar lid and drill holes of 3mm diameter to fit your M3 bolts.
- Draw lines to find the midpoint of the 6 holes.
- Drill a hole of 13mm diameter for airflow at the centre. Repeat this for all 4 holes.
- Make the same pattern holes on the net as well to fix it inside the section of the lid.



2. Making the unidirectional valves

- Stack up the parts of the unidirectional valves as shown below. There are 3 unidirectional valves to be made in total (Two inlets and one outlet).
- The direction of the valves is determined by the bolt which is screwed in the middle. If the bolt head is facing away from the hole of the Male Adapter Port, then the airflow direction is into the jar. If you mount the bolt head in the opposite way, the airflow direction is out of the jar.

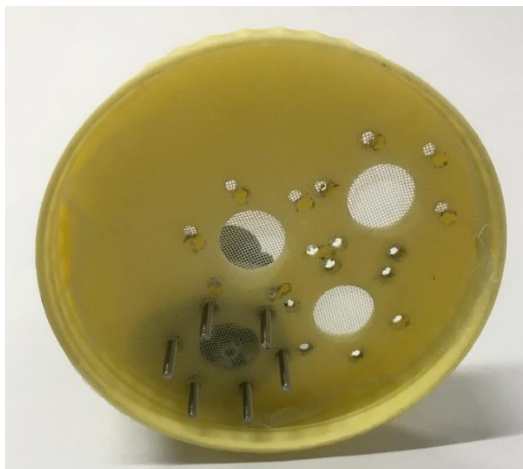


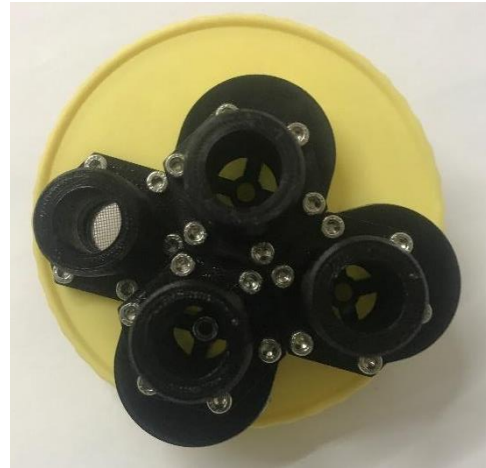


Use Transparent Acrylic for all the parts (In pictures we used black because of resource constraints due to lockdown)

3. Fixing connectors to Jar lid

- Screw the three unidirectional Ports and one Male Adapter Port to the top of the lid. Of the three unidirectional Ports, two of them allow air into the jar and one allows air to move out of the jar.
- Add the net and Hexagonal Net Filter Holder below the lid before screwing the nut in position.
- On the centre hole, after connecting the unidirectional valve make sure to connect a male connector on the bottom of the lid. Make sure both top and bottom male connectors are in line.





4. Diffuser Assembly

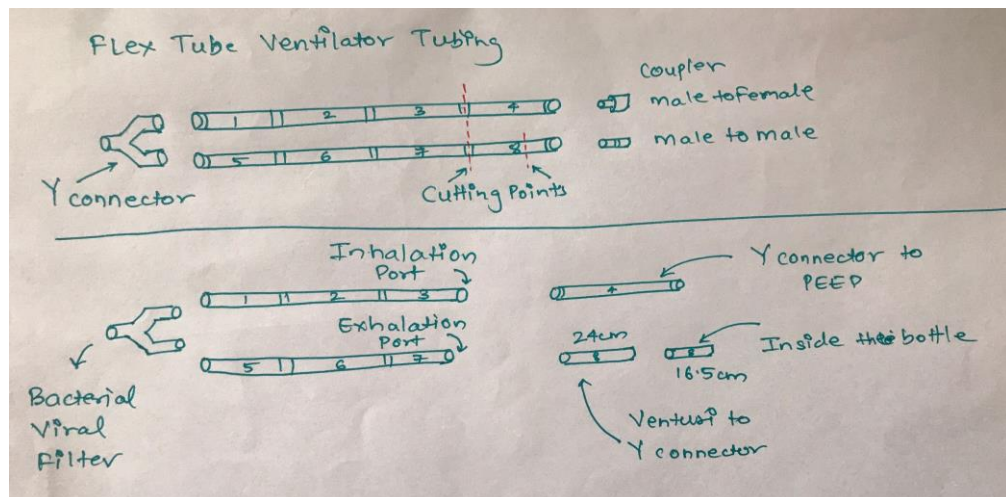
- It consists of a total of four 3D printed parts, one mesh net and twelve M3 nuts and bolts.
- Assemble these parts as shown in the figure with the help of nuts and bolts with tight mesh net fitting.

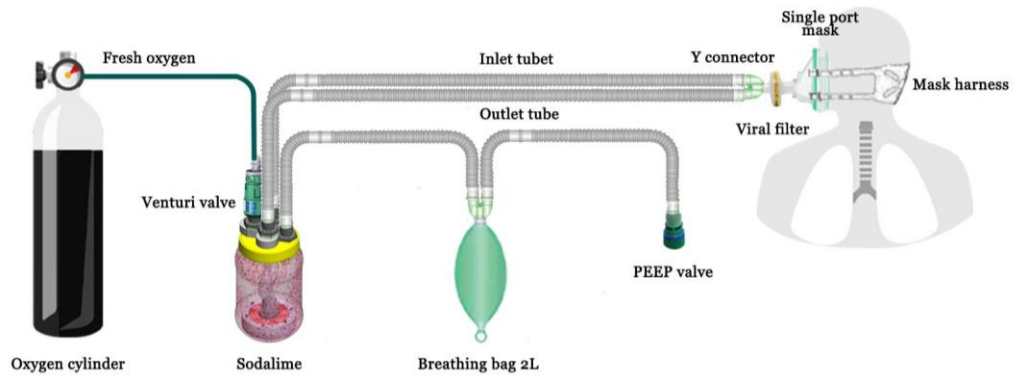




5. Cutting Ventilator Tubing

- Cut the ventilator tubing as mentioned at the following spots. The two smaller sections are used to connect the PEEP valve, tubing inside the jar and the rebreather bag.
- Please ensure that each numbered section of the tube goes to its respective position to ensure the optimal usage of tubes in a package.
- Cut Section 8 into 2 parts.
- Use the 16.5 cm part to connect two male ports inside the Jar i.e. one port below the lid and the on the diffuser part. The 24.5cm part is used later to connect the PEEP valve to the rebreather bag.





6. Fill the bottle with around 1.5kg of soda lime up to the top.



7. Connect the venturi valve and O₂ inlet valve to one of the inlet unidirectional valves on the jar.



8. On the single non-directional port, connect one section of the ventilator tubing along with the rebreather bag and the PEEP valve as shown below.



9. Connect the Viral Filter to the mask. The ventilator tubing is then connected via a Y connector to the viral filter. The other end of the two sections of tubing is connected to the inlet and the outlet unidirectional valves on the jar. The mask harness is also connected to the mask to finish the assembly of the reBreather.

