

Coping with COVID-19: Life-Saving Mask and Ventilator Designs

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From: **Deepa Prahalad and Ashwin Abhyankar**

Hope you are well. I wanted to get in touch because I know the current COVID-19 crisis is top of mind everywhere. I wanted to share some resources my husband Ashwin Abhyankar and I have identified to address the critical issues of **mask and ventilator shortages**. **This is an instance where design can save lives**. We have spoken with several people in India already, who think that this is a fairly straightforward model. Trust that you can share with hospitals, innovators, maker spaces, etc. and adapt as necessary. We are also following up on our end and will share what we learn.

1. **Masks:** Free design and open source patterns for sewing critical masks. Patterns/ sizes are ready. **Pillow cases and cotton t-shirts are good materials to use because they are breathable and readily available**.
 - a. Easy DIY printable pattern: [link](#)
 - b. Size up for seam allowance. [link](#)
2. **Ventilators:** Sharing an article about how to increase ventilator capacity - has been done successfully in previous crises. See youtube link at the end to get to 4X capacity. [link](#)



3. **Another design for low-cost ventilators with instructions:** The original paper from MIT on creating low-cost ventilators can be found here and will be updated in the next 2-3 days: [link](#)
 - a. Ashwin is in touch with one of the co-authors of this paper and we understand his advisor Prof. Slocum, is updating the design and getting it tested. [link](#)
4. Facebook group with **open-source ventilator files/ CAD designs**, etc. [link](#)

Please feel free to get in touch with us if we can help.

Ashwin Abhyankar: ashwin.abhyankar@yahoo.com
 DeepaPralhad twitter: @deepapralhad or linkedin:
<https://www.linkedin.com/in/deepapralhad>

Links for easy reference:

Topic	URL path for the resource
Easy DIY printable pattern (Forbes)	https://freeseewing.org/fu-facemask-freeseewing.org.a4.pdf
Size up for seam allowance (Forbes)	https://www.forbes.com/sites/tjmccue/2020/03/20/calling-all-people-who-sew-and-make-you-can-help-solve-2020-n95-type-mask-shortage/#2d9d752f4e41
Canadian doctor turns one ventilator into nine	https://www.dailymail.co.uk/news/article-8136299/Doctors-turns-one-ventilator-nine-genius-DIY-mechanics.html
MIT low-cost ventilator paper	https://web.mit.edu/2.75/projects/DMD_2010_AI_Husseini.pdf
MIT Emergency Ventilator (E-Vent) Project	https://e-vent.mit.edu/
Open-source ventilator files/ CAD designs	https://www.facebook.com/groups/145657020090836/