

## Breathe better: Store products transform to DIY Ventilators

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“If I can help one person breathe tomorrow, then I’m glad this was created” said Steve Harrington Ph.D, the CEO of Flometrics, who created the GoFundMe (a free fundraising platform) page for the DIY respiratory device (Ventilator) on March 24, 2020. Using parts found at a typical hardware store like Home Depot or Lowes, Harrington created a rudimentary device that is not yet tested, but could potentially save the lives of many, especially in countries with few resources. He’s sharing this with the community and wants to have the product tested and used wherever there is a need for respirators and the standard ones are not available. Breathing is a complicated mix of fluid dynamics, biology and chemistry, he explains and there’s still so much to learn about it. His expertise is in the flow of liquids and in cooling systems, and this engineering knowledge transfers to the ventilator engineering services that Flometrics provides to local ventilator companies. This expertise has been used to develop an enhanced CPAP device. For more information, you can visit his [GoFundMe page](#).

<https://www.gofundme.com/f/diy-ventilator>

There are many ventilators on the market now being produced as fast as possible by firms with well known names like Medtronic, Phillips and ResMed. But production is not keeping up with the global demand. Harrington’s goal is to get this prototype design tested and posted in a matter of days or weeks, if possible, so that others in countries where these companies are not distributing could have access. Due to the simplicity and low cost of the product they can build it themselves.

If you think about the movie, [Apollo 13](#), there was a scene where the astronauts had to fix their life support system. The engineers on the ground had a table full of tools and products similar to what was on the spaceship, and created the breathing apparatus that made it possible for them to live. This is a similar situation, but the selection of parts are available at the local Home Depot.

Steve and his teams at Flometrics/Chillydyne built a prototype DIY respiration assistance device (DIYRAD) made entirely from parts that were bought at hardware stores. It does not substitute for hospital care, but as a backup for those with relatively stable, mild-to-moderate respiratory distress and a way to get the patients off of the ventilator faster.

Here’s a short video intro: <https://tinyurl.com/breathassist1>  
... plus a 7 minute, detailed, how-to video: <https://tinyurl.com/breathassist2>  
... plus a detailed write-up: <https://tinyurl.com/breathassist4> (*With an appendix linking to other projects around the world.*)

There are lots of people working on developing low cost ventilators, but most of them have no experience in medical respiratory equipment. “It is very hard to explain to someone in another industry about the interaction between oxygen, CO2, lung function, blood chemistry and medical ventilators. Keep in mind that the operators (respiratory therapists) are people who trained for several years.” Harrington has high respect for those in the industry.

Find out more at the GoFundMe page, <http://www.flometrics.com/covid19-ventilator> or by connecting with the Flometrics team. He has approached Tesla with the product, but they were busy buying every Chinese ventilator on Ebay. This is an Open Source project, so others are welcome to send their improvements and build and test it also.

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Buy these parts from your local hardware store, and you too can make a CPAP device.