

# RespiCon 2021

Respiration Inventors' Support Conference

...by Public Invention: <https://www.pubinv.org/>  
Public Invention is a US 501(c)3 Public Charity

# Purpose of the Conference

- To learn and to teach about medical respiration support
- To build a functional humanitarian engineering community
- To recruit new volunteers, both engineers and policy experts
- To ask for your support, both in spirit and with money

We focus on free-libre and open source solutions, because this is the best way to share knowledge.

# Gabriella Marcelja

CEO of SiriusGlobal

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# Basic Format

- I. First two Hours are a Technical Track
  - A. Ventilators - first hour
  - B. Oxygen Concentrators - second hour
- II. Second two Hours are Policy Track

See home page for more details:

<https://www.pubinv.org/respicon/>

Schedules and speaker bios can be found there

# Important Links

Conference HomePage: <https://www.pubinv.org/respicon/>

Code of Conduct: No bullying or harassment!

Webinar Link: <https://us02web.zoom.us/j/89179335211>

Social Hour:

<https://publicinvention.socialhour.com/public-invention-respicon-2021-6vy8k4xiijs>

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# Part 1: Ventilators and Oxygen Concentrators

## Ventilators:

1. OpenVentBristol
2. Respiraworks
3. Vayu Ex Machina
4. PolyVent
5. VentOS (if time allows)

OpenVentBristol

[https://www.youtube.com/watch?v=O\\_og6iGw4qQ](https://www.youtube.com/watch?v=O_og6iGw4qQ)

Respiraworks

<https://www.youtube.com/watch?v=7f39XU3SsbY&t=1s>



# Vayu Ex Machina

Presented by Lee Felsenstein

<https://www.youtube.com/watch?v=mpwHA9bboHQ>

PolyVent

Presented by Nathaniel Bechard

Project Lead: Victor Suturin

# VentOS

Presented by Robert L. Read

<https://www.youtube.com/watch?v=KjjTmSTO2QY>

# A Survey for Medical Professionals By VentOS

[https://docs.google.com/forms/d/e/1FAIpQLSfyWDwFCD6EWK2yj0MqMdU8jzvTI9dJSP9Bh-5FCXS6kSZ\\_8Q/viewform](https://docs.google.com/forms/d/e/1FAIpQLSfyWDwFCD6EWK2yj0MqMdU8jzvTI9dJSP9Bh-5FCXS6kSZ_8Q/viewform)

(Thanks to Jacline Contrino for this!)

# VentMon



- Completely free-libre product
- 30 distributed gratis
- Could make more if there is demand
- But SO CAN YOU!

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# Part 1: Oxygen Concentrators

Moderated by Ben Coombs

1. Prof. Neil Downie and Dr. Diane Ackerley Downie
2. Florin Gheorghe of UNICEF
3. Maker Asylum, Vaibhav Chhabra
4. The Ox (Ben Coombs)
5. Project Apollo Adi Oltean
6. COSMIC OxyCon

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## Part 2: Policy

1. Keynote: Freespireco
2. Panel: Free Culture Medical Technology
3. Talk: Auditing an Existing Project for Regulatory Compliance
4. Talk: Repairing Ventilators in Guatemala - CANCELLED
5. Panel: The Oxygen Concentrator shortage in India
6. Panel: Preparing for the Next Global Crisis

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Keynote: Freespireco Project

Robert L. Read, PhD

Founder and President of Public Invention:

<https://www.pubinv.org/respicon/>

Freespireco Project:

<https://github.com/PubInv/freespireco>

The Freespireco Manifesto:

“The COVID-19 pandemic has demonstrated a clear and present need for a **complete**, free-libre open-source, easily repairable, widely usable, safe and effective respiratory support medical device **ecosystem**.”

We work “in the light”.

<https://github.com/PubInv/freespireco>

Even a draft of our grant proposal is there.

github.com/PubInv/freespireco

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RobertLRead	changing small run to short run	7cbe835 4 days ago	37 commits
LICENSE.md	Update LICENSE.md		2 months ago
README.md	spell checking		8 days ago
proposal.md	changing small run to short run		4 days ago

README.md

## The Freespireco Project: A complete, free-libre open-source, easily repairable, widely usable, safe and effective respiratory support medical device ecosystem

-- Robert L. Read

### The Freespireco Manifesto

The COVID-19 pandemic has demonstrated a clear and present need for a complete, free-libre open-source, easily repairable, widely usable, safe and effective respiratory support medical device ecosystem. [Public Invention](#) asks that you support our project to create such a system, to be called The Freespireco Project.

By “complete ... respiration system,” we mean all of the composable components needed to medically and therapeutically assist people having trouble breathing for whatever reason. By “free-libre open-source,” we mean ordinary skills can construct each component in the art of making electromechanical

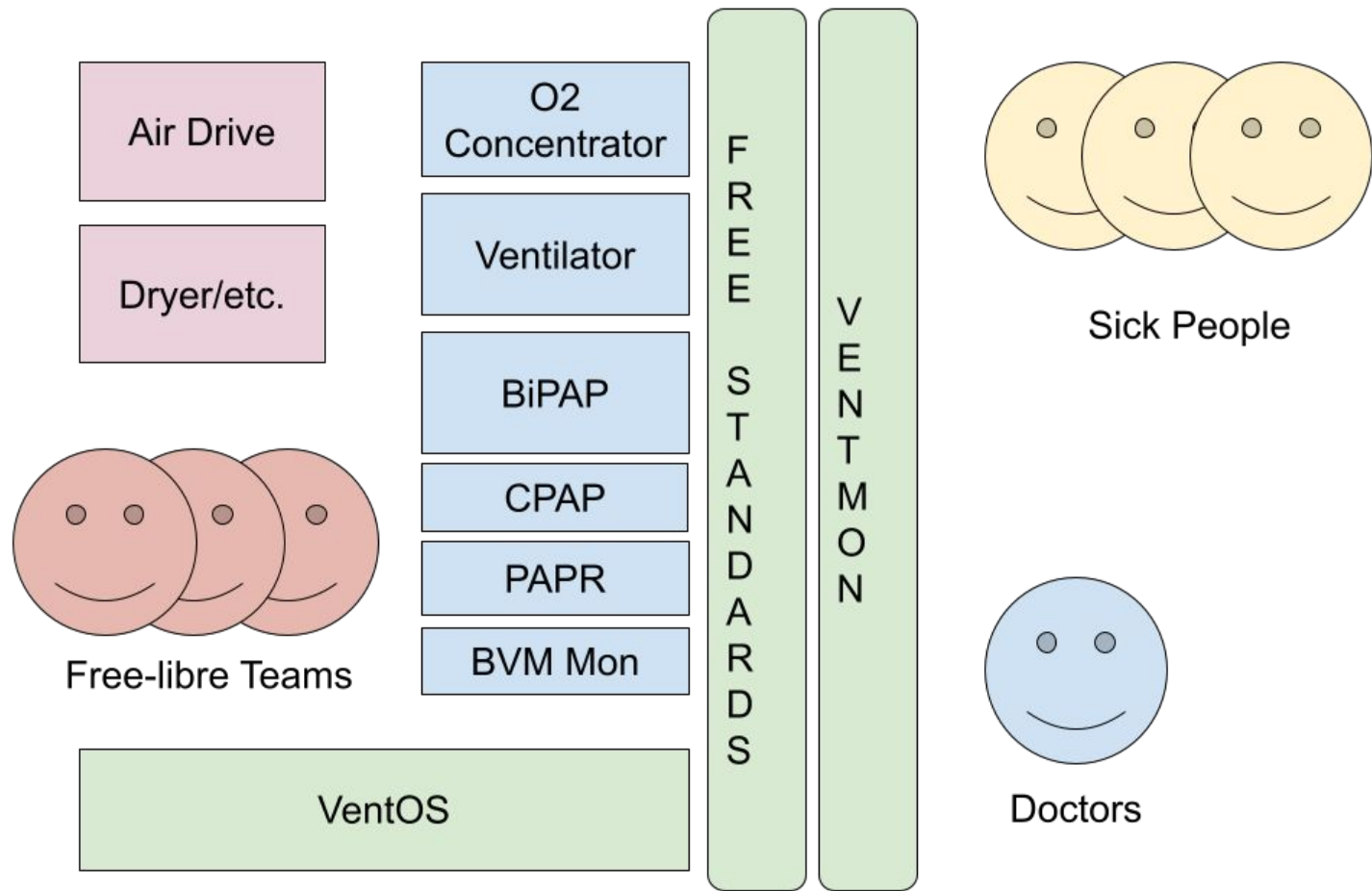
Q: Why do something big when you can do small things?

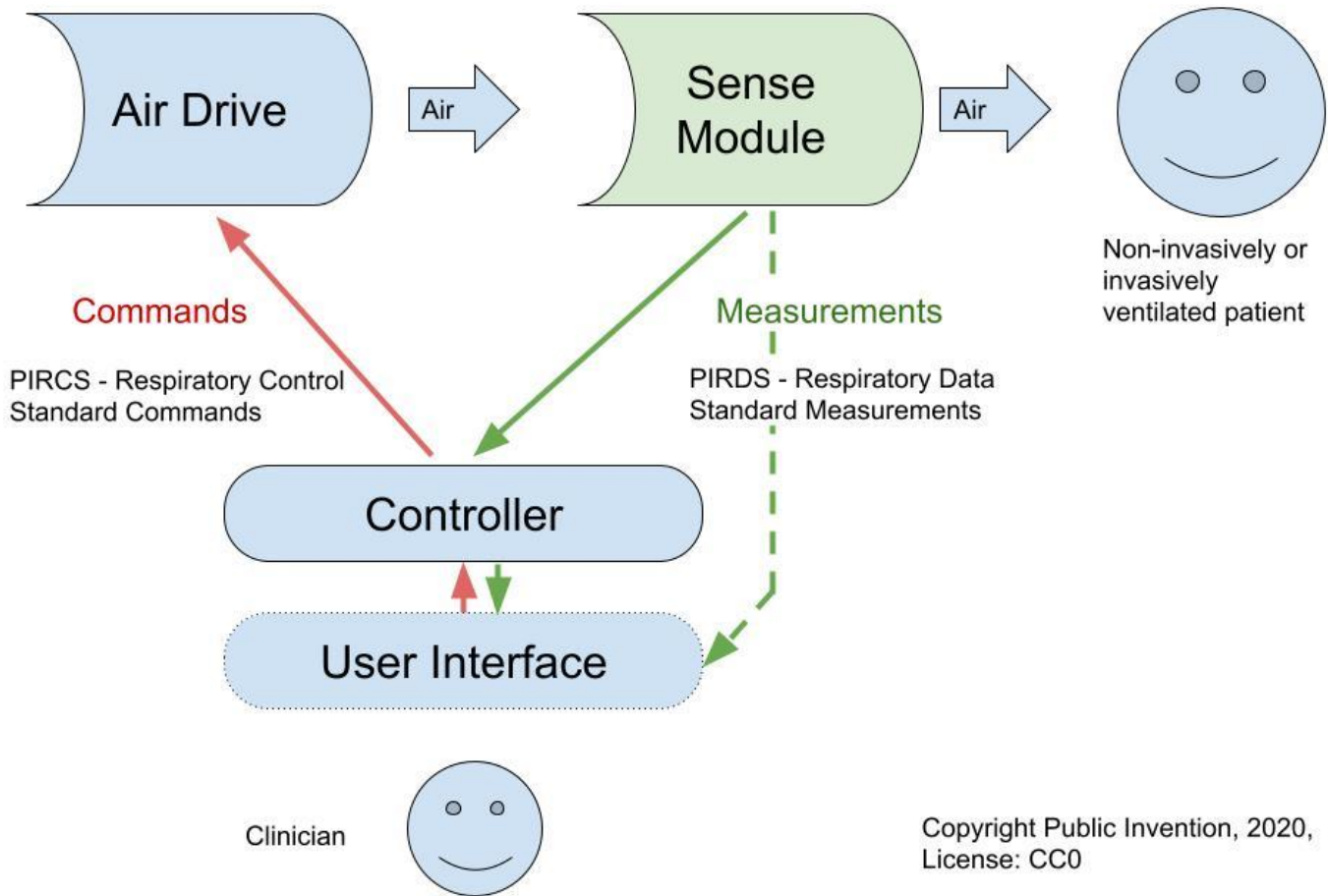
The free-libre open source community knows you should make many small pieces that easily **composed and recomposed**.

Why talk about a **complete ecosystem**?

Because the problems are so similar that there is tremendous benefits from sharing and standardization.

E.g. Apache Modules, Electric Lisp in Emacs







## Public Invention Plans...

Apply for a [grant](#). Money is only the condensation of time.

We have already made:

- [VentMon T0.4](#)
- [PolyVent](#)
- [The Ox](#)
- [VentOS](#)
- [PIRDS](#)
- [PIRCS](#)

...these free-libre projects are already a cooperating ecosystem!  
(VentOS is a Helpful Engineering Project.)

# Panel: Free Culture Medial Technology

Moderated by Marc Jones, IP attorney

Prof. Jorge Contreras, OpenCOVIDPledge and University of Utah

Prof. Joshua Sarnoff, DePaul University

# Open Source and Transparency vs. Medical Devices Regulations: Misunderstandings and Inspirations

Presented by Pierre Lonchamp, PhD

<https://www.diapason.consulting/>

# Talk: Joe Leier, Repairing Ventilators in Guatemala



## Panel: The Oxygen Shortage in India

Moderated by Amish Chadha, Helpful Engineering

<https://helpfulengineering.org/>

Richa Shrivastava, Maker Asylum:

<https://www.makersasylum.com/>

Leith Greenslade, Every Breath Counts:

<https://stoppneumonia.org/about-us/>

# Panel Preparing for the Next Global Crisis

Moderated by Robert L. Read

Renata Petrevska Nechkoska, PhD:

<http://tactical-management-in-complexity.com/>

Andrew Lamb, Shuttleworth Fellow, Massive Small Manufacturing:

<http://www.massivesmallmanufacturing.com/>

Joshua Pearce, “Open Source Appropriate Technology”:

<https://www.appropedia.org/User:J.M.Pearce>

## Call to Action

- Volunteer: All skills are needed, but requires commitment
- Connect: Projects to investors, donors, and needs
- Donate: Every project mentioned here needs money

<https://www.pubinv.org/donate/>

<https://helpfulengineering.org/donate/>

[M19 Initiative](#)

<https://respira.works/donate>

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