Project Apollo

Why

- Ventilators need oxygen! (typical FiO2 0.3 … 1)
- Oxygen generation is a big problem in developing countries.
  - No established infrastructure.
  - Oxygen bottles are expensive
- People are already looking at alternative (local) ways for producing oxygen

What it is

- Goal of the Apollo prototype = enabling people around the world to build the prototype as fast as possible
- Focus = Simplicity and speed of build
  - Open source, off-the-shelf materials
  - Very low cost (aspirational target = $100 for 5 liters/min @ 90%)
- Final goal = Enable people to iterate and publish their own designs in the community

How to build it

- Follow the published build documentation
- Buy/source the materials (check out the BOM)
- Build the prototype
- Validate O2 concentration and flow. Use a **good** reference O2 and flow sensor for calibration
- Think about risk analysis and assessment: template for Apollo-derived design
- Document and iterate your own design. Publish your findings to the community!

Collaborations

- Peru, Afghanistan, Guatemala

Documentation

- http://project-apollo.org
- Already working on the next version
  - Focused on safety, user experience and maintainability
  - O2 compatible materials in the oxygen path
  - Dedicated PCB controller board, sensor integration, valve operational sensing
    - 3” TFT touch screen for diagnostic messages, medical-grade buzzer
    - Auto-tuning (valve timing, auto-adjusts to changes in compressed air input pressure)