Project Apollo

Why
- Ventilators need oxygen! (typical FiO2 0.3 … 0.5)
- Oxygen generation is a big problem in developing countries
- People are already looking at alternative (local) ways for producing oxygen

Apollo Control Box v4
- Universal control box
  - Should work with any PSA-based O2 concentrator
- Focus
  - **Safety**: detect all failure scenarios
  - **Ease of use**: User experience and maintainability. Clear, actionable error messages
- What is it = Self-contained control box
  - Large (3.5") touch screen for diagnostic messages, medical-grade buzzer
  - Open source, modular PCB design. Works with a variety of sensors
  - New: self-tuning (valve timing, auto-adjusts to changes in compressed air input pressure, machine learning)
- Patient sensor/data integration (optional)
  - SpO2 oximeter Bluetooth sensors, detecting breathing pattern to optimize O2 flow
  - Continuous **and** pulse mode of operation. Pulse mode = key to greatly reduces compressor size and power consumption
- Status
  - v1..v3 designs published and tested, with Apollo O2 concentrator reference design
  - Working on v4 (ETA November 2020 for first prototypes)

Collaborations
- Helpful Engineering, Public Invention, Oxikit, Microsoft Garage, Quick2space.org

Documentation, code
- http://project-apollo.org