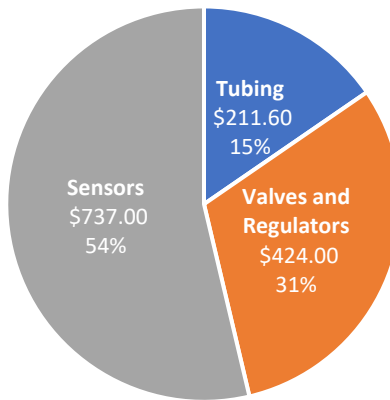


Fig. S2. ALIVE Vent Bill of Materials (BOM) (A) BOM and cost breakdown of the ALIVE Vent used in our testing setup. Note that electronics, microcontrollers, and computing equipment were not included in the final BOM because implementation will vary largely based on the final manifestation and the cost is minimal compared to the part cost. For example, computing could be executed using a \$100 Raspberry Pi or a smartphone. (B) BOM and cost breakdown of the proposed ALIVE Vent to optimize for cost-efficiency. Most of the reduction in cost is due to the use of a medical-grade electro-galvanic oxygen sensor as opposed to a zirconia oxygen sensor, which we chose to use as to not contribute to the oxygen transducer shortage. Note that electronics, microcontrollers, and computing equipment were not included in the final BOM because implementation will vary largely based on the final manifestation. For example, computing could be implemented using a \$100 Raspberry Pi or a smartphone.

A

Item	Quantity	Estimated Price	Supplier	Hyperlink
Push-to-Connect Needle Valve	2	\$ 72.00	McMaster-Carr	Link
Push-to-Connect Straight NPT Adapter	8	\$ 40.00	McMaster-Carr	Link
Push-to-Connect Straight BSPT Adapter	1	\$ 15.00	McMaster-Carr	Link
Push-to-Connect Tee Adapter	2	\$ 14.00	McMaster-Carr	Link
Push-to-Connect Panel Mount Adapter	5	\$ 65.00	McMaster-Carr	Link
Push-to-Connect Elbow to BSPT Adapter	1	\$ 10.00	McMaster-Carr	Link
Push-to-Connect Elbow Adapter	3	\$ 18.00	McMaster-Carr	Link
Push-to-Connect Elbow to NPT Adapter	1	\$ 8.00	McMaster-Carr	Link
Firm Polyurethane Tubing	0.1	\$ 2.60	McMaster-Carr	Link
Stainless Steel NPT Union	3	\$ 39.00	McMaster-Carr	Link
2-Way Solenoid Valve	2	\$ 164.00	McMaster-Carr	Link
Pressure Regulator	2	\$ 188.00	McMaster-Carr	Link
Flow Sensor	1	\$ 137.00	Honeywell	Link
Pressure Sensor	1	\$ 200.00	Cynergy3	Link
Zirconia O2 Sensor	1	\$ 200.00	CO2 Meter	Link
Zirconia O2 Sensor – Interface Board	1	\$ 200.00	CO2 Meter	Link
Total		\$ 1,372.60		



B

Item	Quantity	Estimated Price	Supplier	Hyperlink
Push-to-Connect Straight NPT Adapter	8	\$ 40.00	McMaster-Carr	Link
Push-to-Connect Straight BSPT Adapter	1	\$ 15.00	McMaster-Carr	Link
Push-to-Connect Tee Adapter	2	\$ 14.00	McMaster-Carr	Link
Push-to-Connect Panel Mount Adapter	5	\$ 65.00	McMaster-Carr	Link
Push-to-Connect Elbow to BSPT Adapter	1	\$ 10.00	McMaster-Carr	Link
Push-to-Connect Elbow Adapter	3	\$ 18.00	McMaster-Carr	Link
Push-to-Connect Elbow to NPT Adapter	1	\$ 8.00	McMaster-Carr	Link
Firm Polyurethane Tubing	0.1	\$ 2.60	McMaster-Carr	Link
Stainless Steel NPT Union	3	\$ 39.00	McMaster-Carr	Link
2-Way Solenoid Valve	2	\$ 164.00	McMaster-Carr	Link
Pressure Regulator	2	\$ 188.00	McMaster-Carr	Link
Pressure Sensor	1	\$ 200.00	Cynergy3	Link
Flow Sensor	1	\$ 137.00	Honeywell	Link
Electro-galvanic Oxygen Sensor	1	\$ 76.00	Puritan Bennett	Link

Total

\$ 976.60

