Ventilator, Powered Suction, Oxygen- & Network-Enabled (VSON) Medical Device with TeleCritical Care Support

Charles Sperry[1], Karl Wassmann[1], Dan Kennedy[2], Eric Hanson MD, MPH[1,3]

[1] Sperry Medtech, [2] Asana Medical LLC, [3] International Scientific Advisors, Inc.

SperryMedtech

Vision: Transport ventilator and powered suction with TeleCritical Care support for use by DoD/Federal Agencies, first responders, EMS, firefighters, mass casualty incident response (Strategic National Stockpile), rural medical facilities, low- to middle-income countries.

Problem: Marketed transport medical devices are single function or manual devices requiring hands needed for other emergencies. Limitations: 1) Limited modes for patient support; 2) Inadequate suction capability; 3) High training and cognitive load requirements; 4) High maintenance requirements; and 5) No telemedicine support.

Solution: VSON is a <$5,000 Ventilator and Powered Suction with TeleCritical Care Support. Patent pending, portable, ruggedized, MIL-STD, low-SWaP (size, weight, power) full function ventilator and powered suction. Easy to use, intelligent preset modes, toolless modular repair for simplified logistics, scalable/sustainable manufacturing.

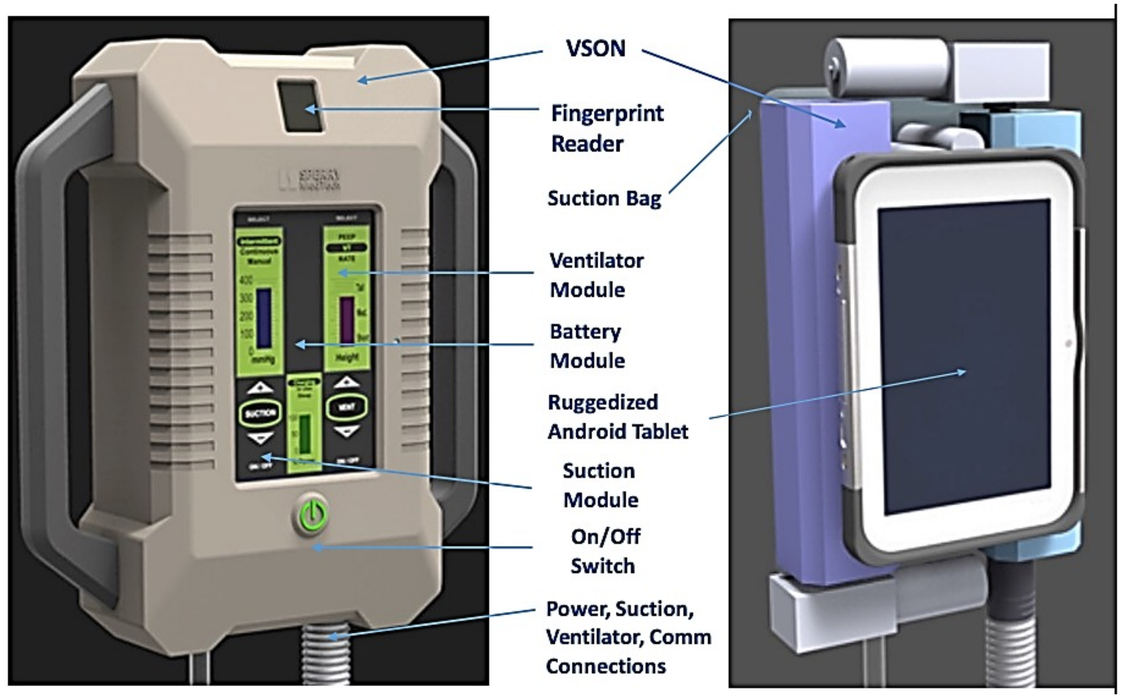
Ventilator Performance Data	Sperry Medtech VSON (1)	Hamilton T-1 Specs.	AutoMedx Save II Specs.	Zoll Impact 731 EMV+ Specs.
Respiratory Rate	1 to 80 BPM	1 to 80 BPM	8 to 30 BPM	1 to 80 BPM
Tidal Volume	20-2000 ml	20-2000 ml	200-800 ml	50-2000 ml
Inspiratory Pressure	0-60 cmH2O	0-60 cmH2O	10-60 cmH2O	10-80 cmH20
PEEP	0-30 cmH2O	0-35 cmH2O	0-20 cmH2O	0-30 cmH20
FiO2	21 to 100%	21 to 100%	21 to 100%	21 to 100%
(1) Tested in Assist Control on Michigan Instruments PneuView3 Lung Simulator				

TeleCritical Care Support: Integration with National Emergency Tele Critical Care Network (NETCCN) cloud-based health information system will support healthcare facilities in rural areas without adequate access to trained healthcare providers as a networked transport capability. Provides networked support for public health emergencies including anticipated future viral respiratory pandemics.

NATIONAL EMERGENCY TELE-CRITICAL CARE NETWORK NETCCN

Technical Readiness Level 4: VSON prototype funded in part by NSF SBIR Phase I Award.

POC: Karl Wassmann, President of Sperry Medtech | karl@sperrymedtech.com



VSON size 7.5”W x 5.0”D x 13.5”L (506 sq inches); weight less than 8.0 pounds

Modular: Easy maintenance; no tools required.

Low Life Cycle Cost: Self-diagnostic modules with rapid end-user serviceability,

Innovative Pump Module: Simplified ventilator powered suction systems; ruggedized and inexpensive capability without losing functionality.

Sustainable Supply Chain: Motor, battery, and electronic controls/communication use commercially available, inexpensive industry standard parts.