Portable Monitoring System for Early Detection of Sepsis

A continuous, low-power, non-invasive monitoring system for early detection of sepsis both inside and outside the hospital

Team

Principal Investigators

Kenn Oldham, PhD
Mechanical Engineering

Kayvan Najarian, PhD
Computational Medicine & Bioinformatics

Collaborators

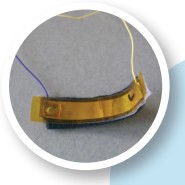
Rodney Daniels, MD
Pediatric Critical Care Medicine

Kyle Gunnerson, MD
Emergency Medicine

Ashwin Belle, PhD
Biomedical Image & Signal Processing

Sardar Ansari, PhD
Biomedical Image & Signal Processing

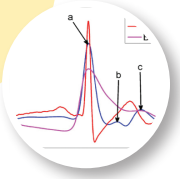
Technology



SENSOR

- **Heart rate + variability**
- **Peripheral vascular resistance**
- **Pulse pressure variation**

SIGNAL PROCESSING



Algorithms extract biomarkers indicative of sepsis

Competitive Advantage

SPEED	Produces results faster than current lab tests which can take up to 24 hours
PORTABLE	Untethered monitoring sensor with wireless communication
SPECIFICITY	Captures high resolution, real-time vascular dynamics information >> early indicators of septic shock
NON-INVASIVE	Technology uses a "sensing ring" worn on the finger
SIZE	Sensor is small, simple, inexpensive + physically robust

Commercialization Roadmap

Potential Partners
Apple
IBM
AirStrip
Phillips
GE Healthcare
Siemens Healthcare

Class II Device
501(k) regulatory pathway

License Technology

PROJECT MILESTONES

MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	MONTH 6
Optimize mechanical structure of sensor ring	Finalize portable data collection unit	Conduct in-lab tests with predefined experiments	Optimize computational methodology using in-lab test data	Initiate data collection in ICU	Start analysis of data collected in ICU