

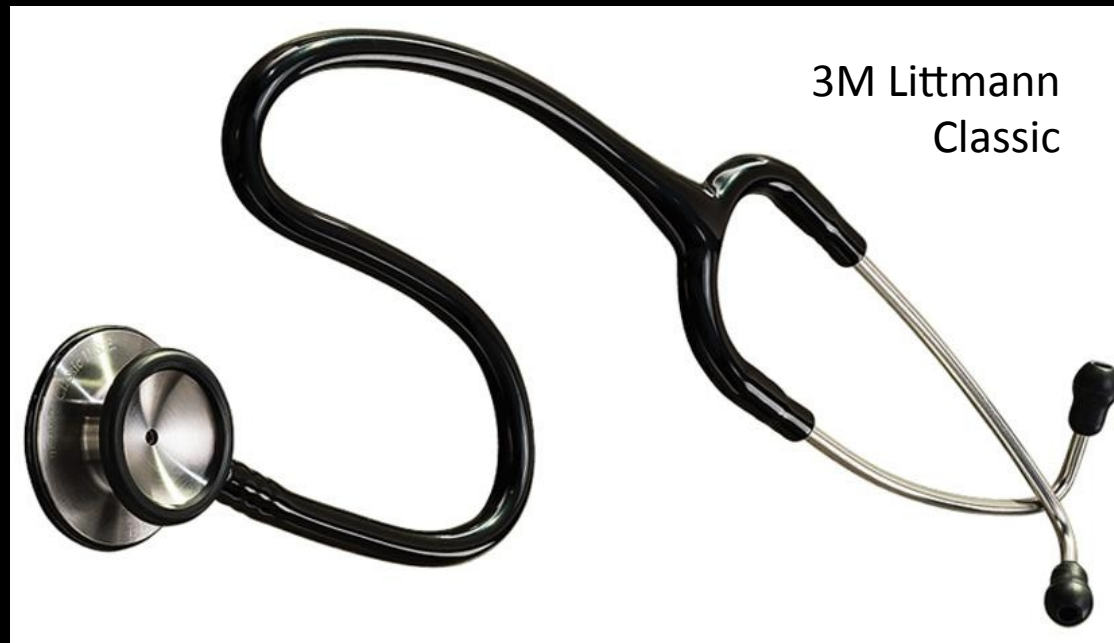
Wireless Stethoscope for Anesthesiologists

Client: Dr. Scott Springman

Advisor: John Webster

Design Team: Charles Rodenkirch, Lucas Haug, Yue Yin, Alex Eaton

Modern Acoustic Stethoscopes



Function, Design, and Applications

Commercially Available Wireless Stethoscopes



Cardionics
ViScope
100

Pros, Cons, and Areas of Improvement

Problem Statement

Prohibiting Cost of Current Wireless Models
and the Inconvenience of Acoustic Models
leave our client without an Adequate Solution

Background

Requirements

Design

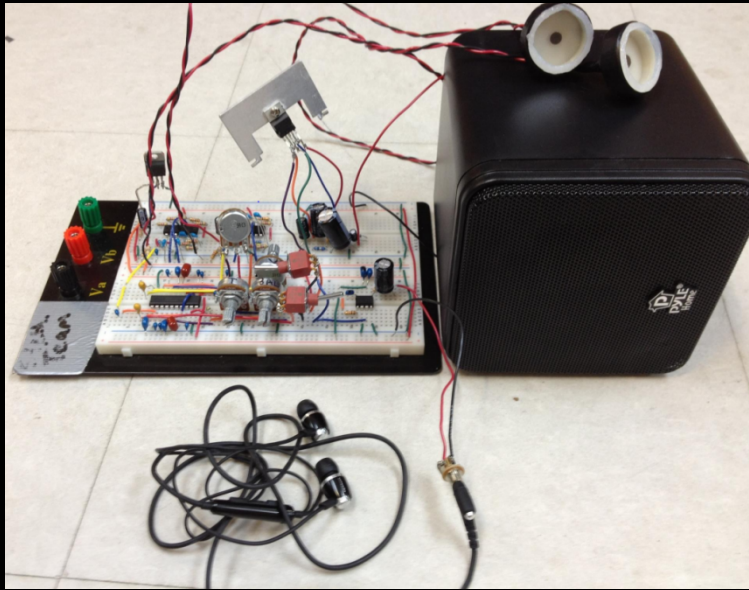
Future Work

Client Requirements



Dr. Scott Springman

Previous Designs



Fall 2011 Design Team:
Kyle Jamar, Michael Scherer,
Taylor Weis, Meghan
Anderson

Two BME Design teams have previously
worked on this project

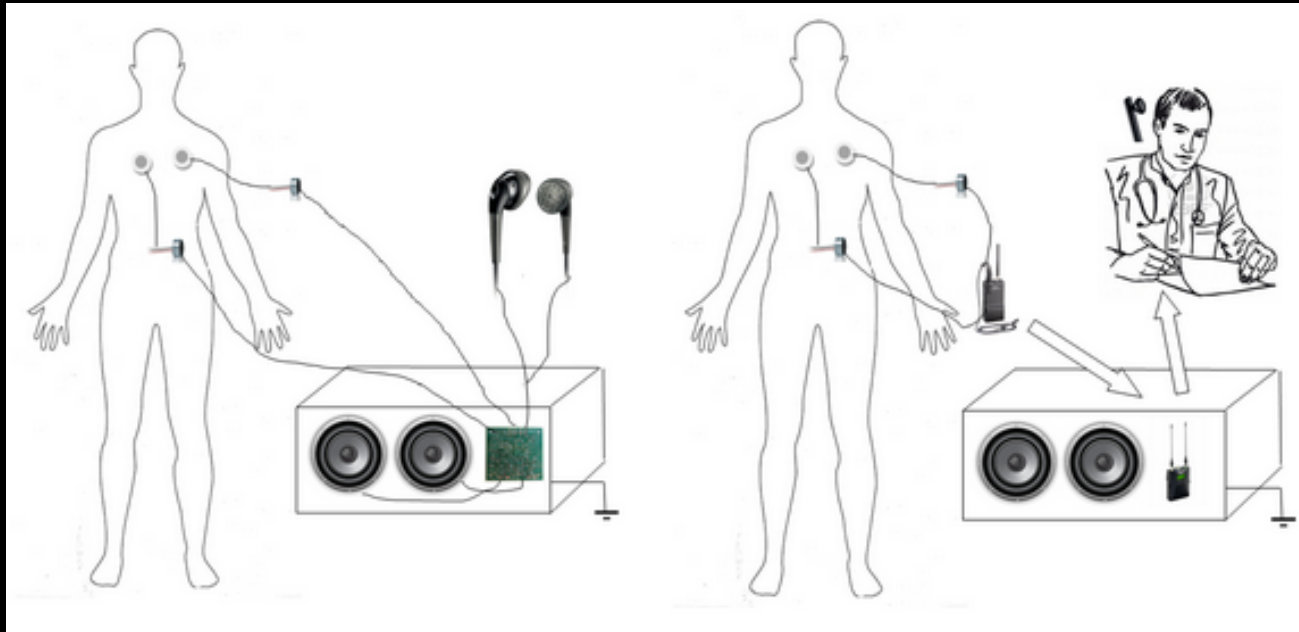
Design Alternatives



Factor	Weight	Position of microphone	
		At the end of tubing	Away from chestpiece
Signal quality	0.3	9	7
Patient comfort	0.25	7	9
Cost	0.15	8	6
Ease of attachment	0.15	7	8
Safety	0.15	8	8
Total	1.00	7.9	7.65

Decision Matrix for Microphone Position

Design Alternatives



Decision Matrix for Signal Transmission Method

Design Alternatives

Factor	Weight	Signal transmit method	
		Wireless	Wire
Signal quality	0.2	9	7
Cost	0.2	7	8
Mobility	0.2	9	6
Accuracy	0.15	8	8
Reliability	0.15	9	8
Safety	0.1	8	8
Total	1.00	8.35	7.4

Decision Matrix for Signal Transmission Method

Final Design



Future Work

PARTS INVOICE

Part Description	Part #	Manufacturer	Amount	Cost
Stethoscope Chest Piece	00-390-A	AINCA	2	Donated
Tubing for Use with Chest Piece	P-151	AINCA	2	Donated
Microphone	GM-W62	Gem Sound	2	Free with Transceiver
FM Transmitter	GM-W62	Gem Sound	2	Free with Transceiver
FM Transceiver	GM-W62	Gem Sound	1	\$90
Active Component Speaker	ET-AR504LR-BK	Eagle	1	\$60

TOTAL COST: \$150

Acquiring Parts and Assembling a Prototype

Future Work

Testing of Prototype for Operating Room Use

- Durability
- Battery Life
- Free of Interference
- Accuracy
- Marketability

A Sincere Thanks to our Client,
Dr. Springman, and our
Advisor, John Webster