Photos and designs by Katherine Kuan.

Assignment

1. Make a device that can amplify (without electronics) heart and lung sounds for recording on a cell phone
2. Email recording to yourself, or use USB cord to transfer it to the computer
3. Convert to WAV format using http://download.cnet.com/PeonySoft-WAV-Converter/3000-2140_4-10911514.html
4. Look at its waveform in MATLAB

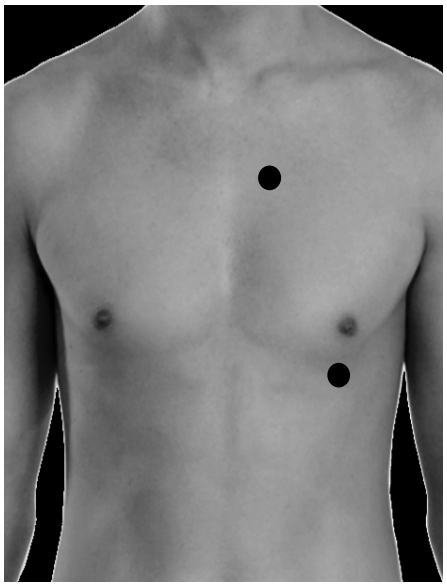
   ```
   y = wavread('hello.wav');
   plot(y)
   ```

5. Can you see the heart beats or breaths? (May be hard to tell without further signal processing)

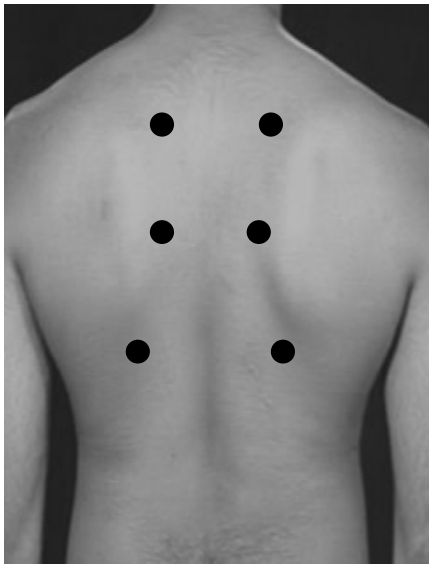
Testing Your Device

Check that the heartbeats/breaths are audible from someone listening on the computer (full volume, with headphones)

Heart sounds: Try the pulmonary and mitral locations



Lung Sounds: Try the trachea (over the front of the throat) and the 6 locations on the back of the chest



Courtesy of Arcot Chandrasekhar. Used with permission.

Resources

- Low-Cost Technologies in Rural Areas
http://www.healthwrights.org/books/HHWL/HHWLchapt16.pdf

- Make a Homemade Stethoscope
http://www.csiro.au/helix/sciencemail/activities/Stethoscope.html

- What Makes a Good Stethoscope
http://reviews.ebay.com/Stethoscope-Basics-What-makes-a-Good-Stethoscope_W0QQugidZ10000000004429816

- All about Stethoscopes
http://www.asahi-net.or.jp/~ig2s-kzm/allabout.html

EC.710 D-Lab: Medical Technologies for the Developing World

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