ElectroSense

Senior Design Project by: Katie Canedo, Alexis Haley, Aveisha Maharaj, and Kayla Mastin
Our Vision

- Is to have a “Connected Mattress” with sensors
- Allow healthcare providers the ability to continuously monitor their patients
  - Can be alerted when patients vitals are changing too rapidly or fall below a certain threshold
- Benefit understaffed hospitals
- Comfort for patients
- Time logs cut in half (CNA, blood sugar, blood pressure)
Overall Idea

- Pressure sensors (weight + distribution): Tekscan body pressure mapping
- Heart rate sensors: Reflection-type pulse sensors / Optical sensor
- Pulse O2 monitor: Transmissive pulse oximetry
- Convolution Sensor: EEG sensor headrest
- Automatic heater/cooler: Temperature sensor
- Circulation (prevent blood clots): Intermittent pneumatic compression pumps
- Massager/sleep quality analyzer: 3 axis accelerometer sensor
Milestones

- Obtain mattresses (DONE)
- Have a layout of all circuits to be used
- Building each circuit
- Testing the circuits in the mattress
- Forming one circuit with all sensor components
- Testing the final circuit in the mattress
- Making mattress presentable
Need for Software Engineer

- App design
- Connecting Sensors
- MATLAB, Python Programming
- Arduino
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