Periodic measurement of nighttime weight change while asleep

Week: September 16- September 23

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Geriatric psychiatrist/sleep specialist
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Team: Kyle Herzog – Team Leader
Ben Engel – Communications
Joe Ferris – BWIG
Eric Printz - BSAC

Problem Statement
We would like to be able to measure this weight change accurately on people who are in hospital beds, and be able to view and record the weight changes over various intervals through the night (such as weighing a person who agrees to lay in bed all night at intervals of every 10-15 minutes). This is important from a research perspective on numerous potential variables that may affect this weight change, such as medications as well as sleep stage changes. We would also use this to potentially track and eventually predict those at higher risk of developing obesity, correlate with body fat measurements, activity, and assess for metabolic changes when we do things to improve/correct sleep problems. There is popular concern in the most recent sleep literature about various sleep stages, insomnia, and their impact on obesity. This scale would likely have to support a hospital bed, which sits on 4 legs, and read at an accuracy ideally around 0.02- 0.05 lbs (many scales on the market record to such accuracy, the more accurate the better). I'm not sure how the zeroed weight of the bed would affect this. Ideally it would be a device we could move to a different bed without too much difficulty (such as in 1-2 hours time), without too complex recalibration.
Last Week’s Goals
• Meet with Client
• Meet with Advisor
• Begin work on design notebook
• Begin research on scales

Accomplishments
• We met with Dr. Juergens and discussed the details of our project and what specifications he would like us to follow.
• We did some quick internet searches on scales to begin to see what type of price range a scale that would meet our needs would fall in
• We had our first meeting with our advisor, Professor Block, to discuss what help he could provide us with and also discuss potential road blocks we could encounter
• We met during class time in room 1249 and emailed Professor Block to set up our meeting time and also discussed what times would work for all of us to meet on a weekly basis

This Week’s Goals
• Email Dr. Juergens to get the contact information for a technician who could tell us more about the computer system the sleep study uses.
• Do individual research on scales that would meet our needs, as well as research on similar devices that may already be in existence
• Attend Professor Blocks lecture on team dynamics and then meet as a team afterwards to brainstorm and discuss what our individual research found

Difficulties
• Scales that are of the accuracy we require look to be in the $1000 range. This means we may have to explore other options of achieving the accuracy we require.

Team Effort

<table>
<thead>
<tr>
<th>TEAM</th>
<th>WEEKLY ACCOMPLISHMENTS</th>
<th>TIME (Hrs)</th>
<th>RUNNING TOTAL (Hrs)</th>
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<tr>
<td>Joe Ferris</td>
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<td>Eric Printz</td>
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### Project Schedule

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Expenses to Date: $0.00