Alternative Design Two

Assisted Walking Device

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Project for Annalee Hughes
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The second alternative design will also be customized for the user by purchasing a medical walker, such as the Medline folding walker, and then adding modifications. This walker has a completely different design. It has a lower center of gravity which will help prevent Annalee from tipping if she leans too far in any one direction. This walker also comes with brakes and a resting seat directly from the manufacturer. The seat will be removed since the device is not meant for Annalee to sit in, but the built-in brakes will be immensely helpful since Annalee has substantial difficulty in hauling her momentum. The cage underneath the seat can be incorporated into the motor casing if a motor is deemed necessary by the family. Another positive feature of the walker is that it is collapsible, which will make transportation easier. The stock wheels will be used in the final design since they are made to work on all flooring types.

A major alteration in this device is the leg constraints. The first alternative design used Velcro straps to fasten the user into the braces. This design, however, uses altered blood pressure cuffs to tightly fasten Annalee into the braces. The inflating balloon inside a blood pressure cuff will be manufactured into a padded sleeve which will be attached to the brace. As the user increases the pressure of the balloon, her leg will be pressed against the front of the constraint. This will prevent slipping and provide for a more customized fit for Annalee. The steel rods that run down her legs will be designed to allow for full range of motion in the hips and twenty degrees of motion in the knees.

The general design of the handle bars will be similar to the first design as they will be obtained commercially. The mounting handle bars in the first design will be changed since the walker contains handle bars which are located in a good position for Annalee to pull herself into the device. The last change in the device is with the foot constraint. This design uses a soft material slipper which will be easier for Annalee to slide into. This also erases the need for sneakers to be worn when she uses the device. The changes in the foot and leg constraints cannot be depicted in the CAD drawing due to limited experience in the software. Figure 3 and 4 show the technical drawing and three dimensional picture of this alternative design.
Figure 4. Technical Drawing of Alternative Design 2

Figure 5. Three Dimensional Model of Alternative Design 2