WHEELCHAIR FOR ABBY MILLER

Final Presentation

Benjamin Marcus, Katharine Guineau, Julia Olczyk

Team 11
Overview

- Client Information
- Client Needs, Purpose and Goals
- Wheelchair Design
- Budget
- Acknowledgements
Client Information
The Miller Family

- Abby Miller
- 17 year old female with cerebral palsy
- Clinton, Illinois
- Need: More comfortable chair
Cerebral Palsy

- Characterized by disorders involving the nervous system and can affect functions such as movement and posture

- Symptoms: tight muscles, muscle weakness, and an abnormal gait

- Caused by abnormal development or damage to the part of the brain responsible for control of muscle tone and motor activities
Abby

- Weakness on left and right sides of body
- Leans to left side so her back is unsupported
- Exaggerated tone throughout body - frequently tries to stand up
  - Abby pushes through material on her current chair
- Weakness in both arms, head and neck
Goals of Project

- Purple
- Non-pneumatic, removable tires
- Manual features
- Tilt-in-Space frame
- More comfortable, adjustable seat back to support Abby’s sides
- Alternative to plastic clips for harness
- Uniform footrest
Wheelchair Design
Wheelchair Donations

- Shorey Family
  - Ashland, MA
  - Sarah - 22 year old female with Spina Bifida
  - Donate traditional Quickie wheelchair
  - Suggested we incorporate inflatable bladders into chair
  - Visited with family October 23, 2010
Wheelchair Donations

- Hartford, CT
- Donated
  - Quickie Tilt-in-Space wheelchair
  - Seat back
  - Headrest

The NEAT Center at Oak Hill
Tilt-in-Space Frame

- Tilt-in-Space Frame
- Widened the frame to accommodate 17” chair
Powder Coating

- Chair was powder coated by Gene at Central Connecticut Coatings
  - Frame: Purple
    - Clear purple over chrome
  - Footplate & Seat plate: Textured Black
Seat

- Made and designed metal plate for seat support to fit wider chassis

- Wedged cushion to raise Abby’s legs off of her footrest
Seat Back

- Bladders incorporated vertically to allow for comfort adjustment
- 2” Memory foam padding added
Headrest

- Wider to accommodate Abby’s neck weakness

- Denser material
  - Prevent Abby from pushing through to the metal

- Adjustable angle
Armrests and Wheels

- Long armrests
- Solid Tire Tubes
Footrest

- Wheelchair came with two footrests
- Made uniform footplate with raw material and had it powder coated
Seatbelts

- X-Strap for Chest with Metal Clips
- Airline Buckle with Padding for seat.

Echo Clips
Final Result
Budget

- Allotted: 1,000
- Total Spent: $525.64
Acknowledgements

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- Central Connecticut Coatings - Gene
- The Shorey Family
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- Marek Wartenberg
- Emily Jacobs
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- Mansfield Supply
Questions?