The Team

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Outline

● Project Selection and Definition
● Design Decisions
● Issues
● Final Solution
● Conclusion
● Acknowledgements
● Questions
Project Selection

- Hands-on
- Prototype
- Improve quality of life
Project Definition

To design and construct an improved running cart specifically for disabled passengers

- Low cost
- Lightweight
- Transportable
- Multiple Surface Capability
- Easy Entry and Exit
- Comfortable
Design Decisions

• Primary application
• Frame material
• Fabric material
• Easy entry/exit
• Quick-wheel change
• Collapsible nature
Decision Process

• Decision Matrices
  – Decision Variables
  – Design Norms
    • Transparency
    • Stewardship
    • Caring
    • Trust
Primary Application

• Competitive vs Recreational
  – Market Research
    • Caretaker Survey
    • Similar Products
  – Previous Projects

Carrying Weight vs Cost

Design Goal
Frame Material

- 4130 Steel Tubing
  - Outer Diameter: 1.05 in
  - Thickness: 0.113 in
  - Weight: 0.34 lb/in

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Fabric Material

- Nylon
  - 1.9oz, 70 denier urethane coated UV rip stop
- Comfortable
- Outdoor capable
- Strong

Other Options
- Polyester
- Acrylic
Easy Entry/Exit

- Adjustable Seat
  - 4” Translational

- Transparent
- Reliable

Other Options
- Rotational
- Open Seat
Multiple Surface Capability

- Quick Wheel Change
  - Rear Wheel
    - Custom design
  - Front Wheel
    - Quick release skewer pin
Transportable

• Collapsible
  – Folded Assembly
• Fit within standard trunk

Other Options
• Detachable
• Jointed
Issues

• Budget
• FEA
• Testing Timetable
Team Deliverables

● Working prototype
● User manual
● Completed website
● Design report
Conclusion

• Design process
• Possible modifications
• Improve standard of life
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Questions