

Share Chair: The Side Push Wheelchair

Green B

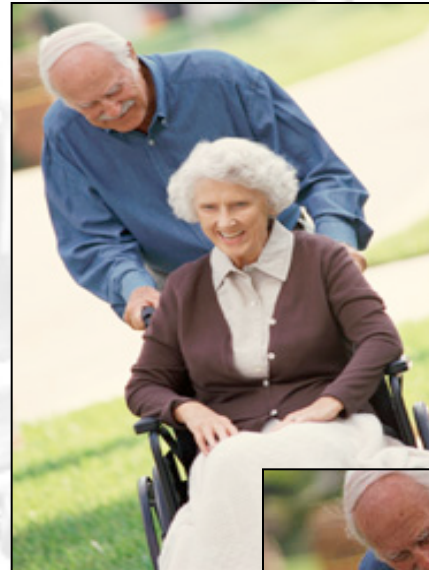
Mockup Presentation

October 19, 2006



Overview

- Communication from behind a wheelchair can be difficult and awkward
- Side-by-side configuration allows for better communication



Mockup Design Results

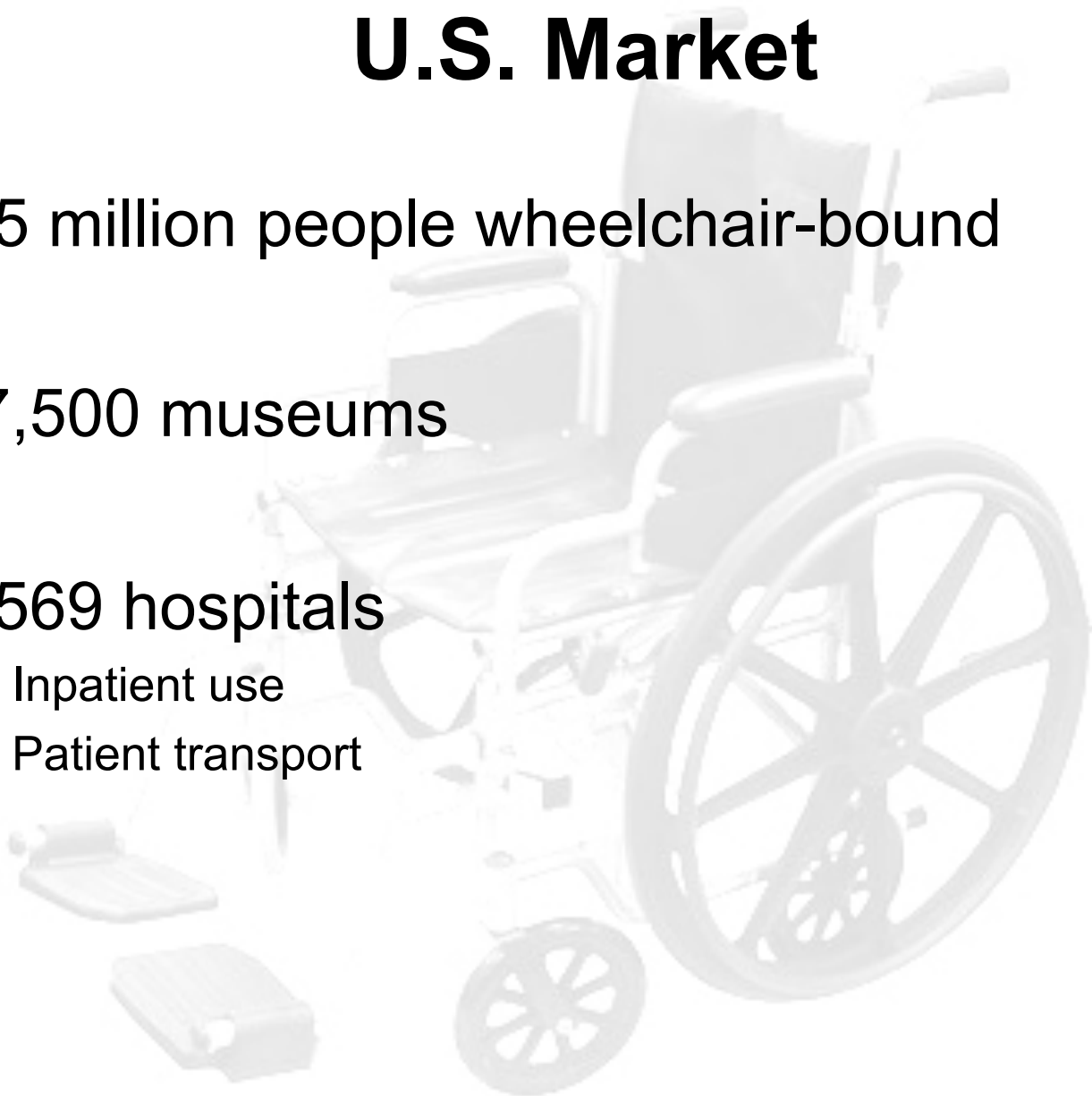
- Easy-folding handle
 - Pushes from side
- Locked axle
 - Straight line of motion
- Binary clutch
 - Unlocks axle



Green B

U.S. Market

- 1.5 million people wheelchair-bound
- 17,500 museums
- 7,569 hospitals
 - Inpatient use
 - Patient transport



Critical Issues



- Market

- New concept, unknown market
- Contacts
 - Carlos Vasco, Manager of Patient Transportation, MGH
 - Agreed to test mockups
 - Possibly buy prototypes to test in hospital
 - Kelly Fink (RN) and Chandra Fontair (RN) MITMed

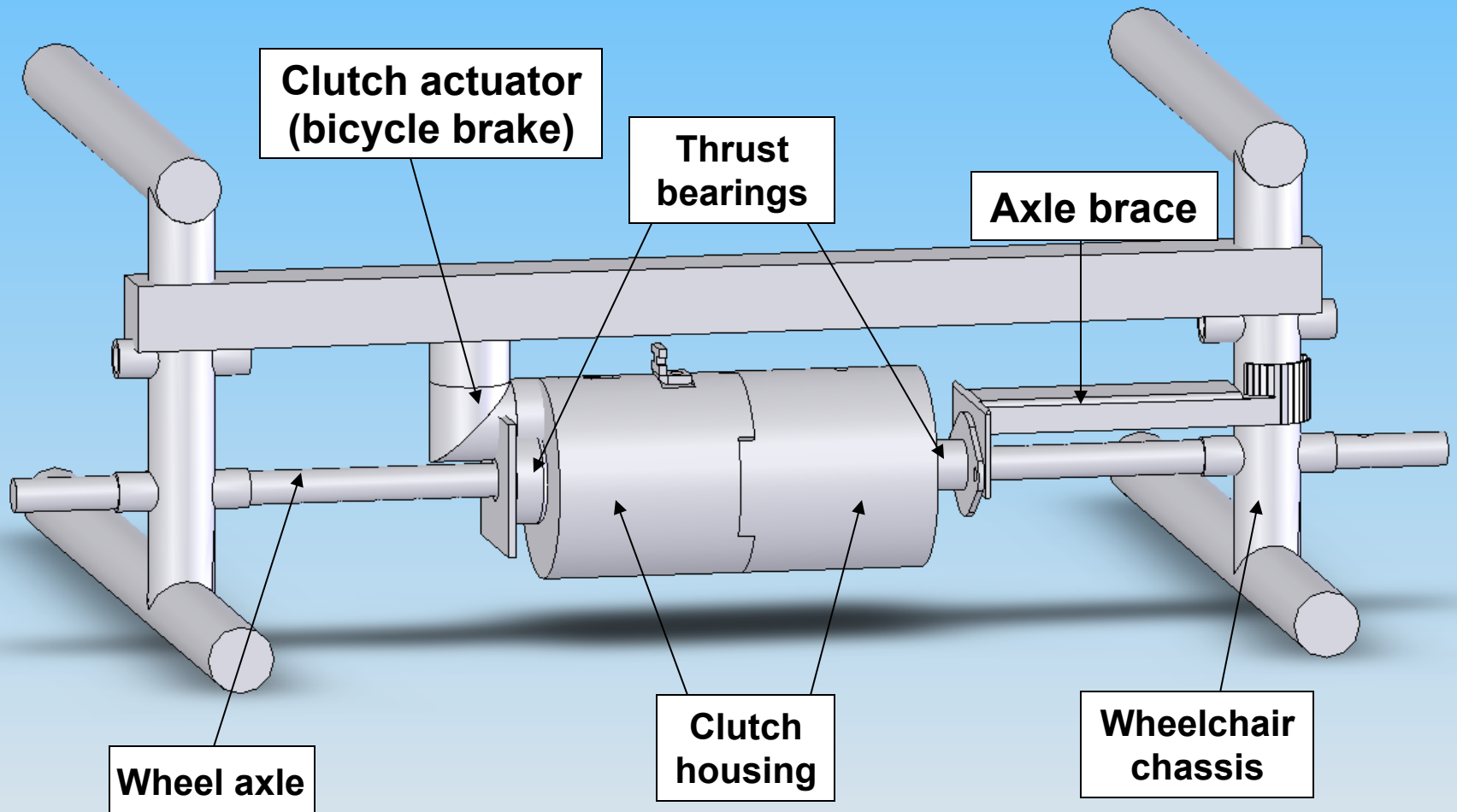
Critical Issues



- Technical

- Maneuverability
 - Clutch allows turning from side
- Versatility
 - Easy to switch from side to rear
- Robustness
 - Public use

Clutch Assembly



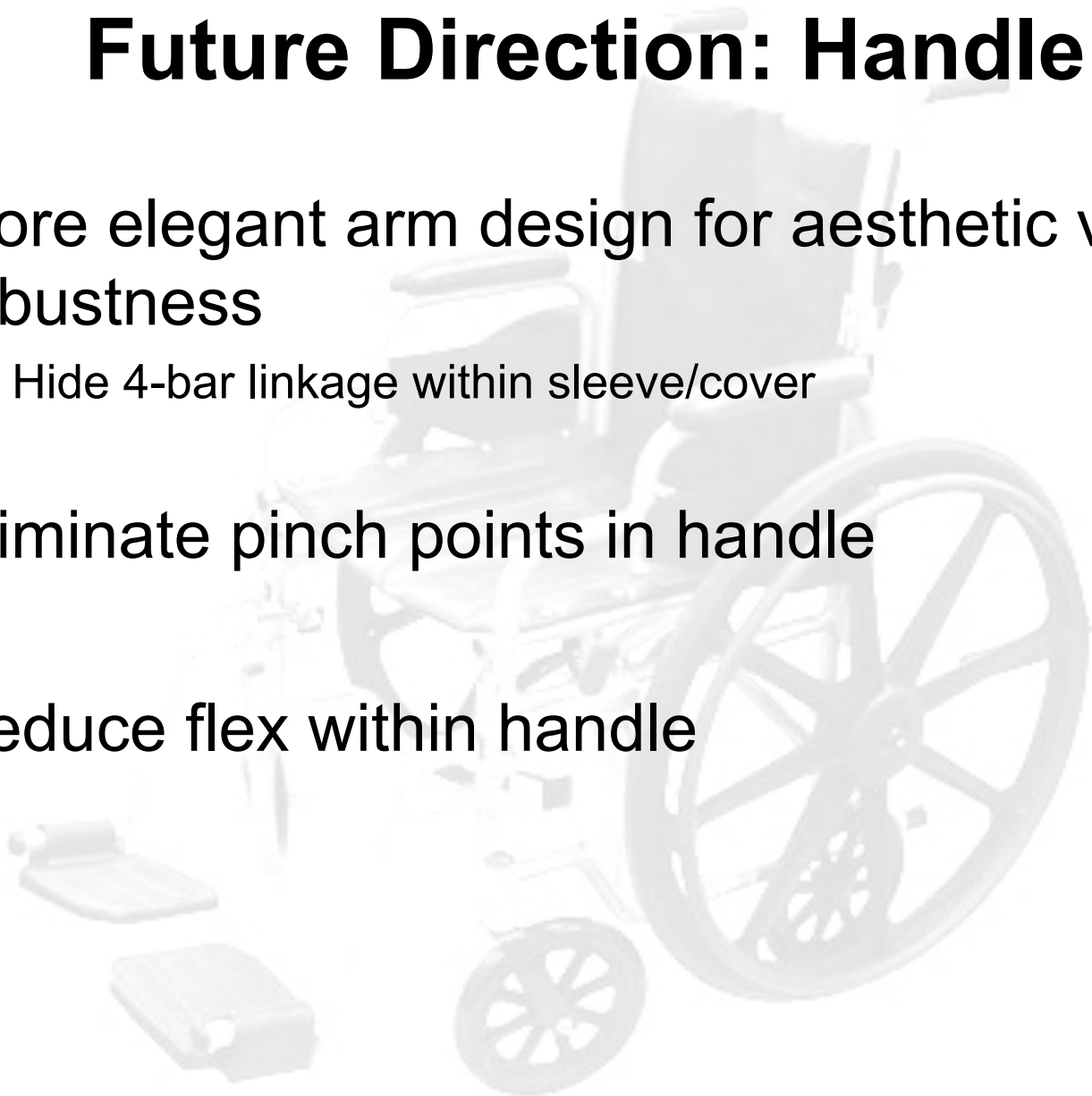
Clutch Design

- Binary clutch (engaged/disengaged)
 - Engages through ABS teeth
- Hydraulic actuation via bicycle brake
- Force distributed through thrust bearings mounted to clutch housings



Future Direction: Handle

- More elegant arm design for aesthetic value/robustness
 - Hide 4-bar linkage within sleeve/cover
- Eliminate pinch points in handle
- Reduce flex within handle



Future Direction: Clutch

- Reduce clutch size to allow for wheelchair to fold
 - Stronger engaging parts
 - Mount axle through bearings to reduce deflection
 - Clutch mounted to wheel hub

