Design & Control of Exoskeletons for Rehabilitation

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The Exoskeleton
  • Motivation

Design of an Exoskeleton
  • Design requirements
  • Design features

Demo / Q&A
Exoskeletons: Helping People Move

Indego
Parker.com

Rex
Rexbionics.com

ReWalk
Argomedtec.com
Who can benefit?

- Spinal cord injury
- Traumatic brain injury
- Stroke
- Multiple Sclerosis
- Etc.
Why exoskeletons?

- Gait training
  - Repetitive stepping
  - Varied assistance
  - Balance training
- Long-term use
  - Bone density?
  - Bowel & bladder function?
  - Pain?
  - Circulation?
  - Emotional
Ekso on the Market

- For sale in hospitals
  - New Model: Ekso GT
- FDA clearance
- Studies
Outline

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Design Requirements

- Brainstorm time!
Size Adjustment
Size Adjustment
Fit Kit & Padding
Donning / Doffing
Safe Motion / Fail Safe

- Hard stops & soft stops
- Adjustable settings for SW joint limits
- Normally-on brakes
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Demo / Q&A
Thank You