



Rehabilitation
Engineering &
Applied
Research

Designing Assistive Technology

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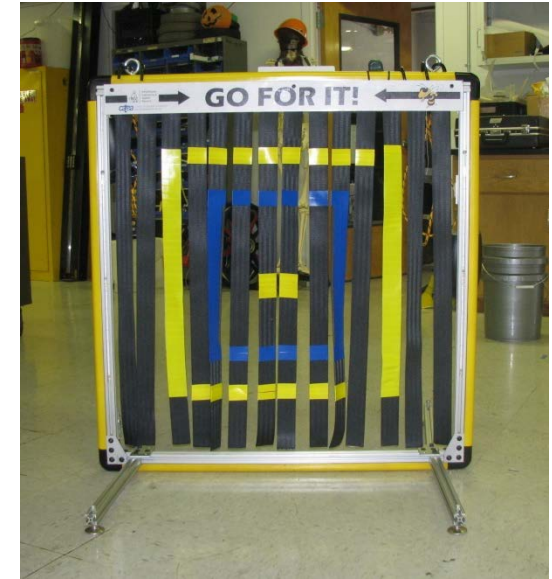
Complexity of designing assistive technology

- Disability is a *functional* construct
- By definition, *function* is meaningful
 - In distinction from *ability*
- By extension, developing assistive technology must consider *function*
 - But can't ignore ...

Stakeholders

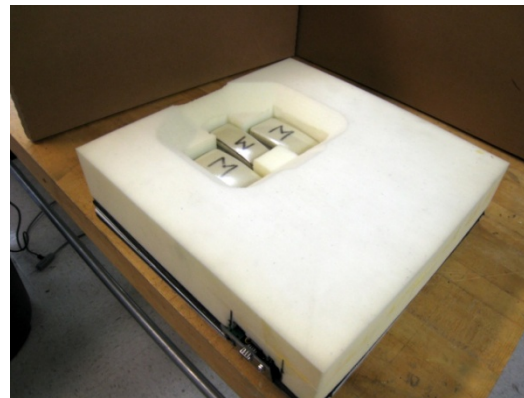
A unique aspect of AT is that the end user is often not the one who selects or purchases the device

- Stakeholders in the process
 - Users
 - Other users
 - Familiar: caregivers, family
 - Unfamiliar: bus drivers
 - Service Providers (prescribe or select)
 - Suppliers (sell and support)
 - Manufacturers (design, fabricate, support)
 - Payers (purchase)
 - Insurance
 - School systems
 - Voc Rehab



Emphasis on function & diverse stakeholders drive our student projects

- Design keys off functional need
- Regular engagement of minimum of 2, strive for 3, stakeholders
 - User, clinician (and manufacturer)
- Establish
 - Both Technical & Market specs
- Design-build is only way to assess functionality
 - Competing needs and desires must be resolved
 - Stakeholders need these eval results as much as the designers
- Ease of prototyping insures proper design iteration

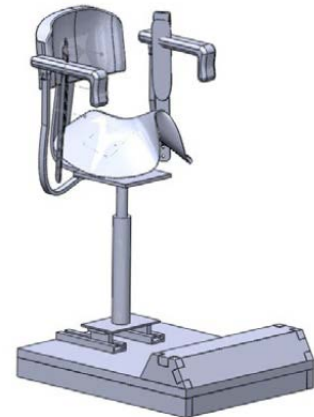


Personal transporter for children with disabilities (Pediatric Personal Transporter)

Objective: Create a fun device that will allow children with mobility limitations to mimic the mobility and environmental interaction of able-bodied children



- Stability and safety dominate technical specs
- Surprisingly, kids, parents & teachers offered different input
 - “it should have a forklift”
 - “it should go over quicksand”
- Nearly all specs related to seating were discarded after testing
 - Too complex
 - Underestimated function



Interested in designing Assistive Technology?

Embrace 2 constructs:

Humility and parsimony