US Population
313.9 Million
19% have some degree of a disability
59.6 Million
Less than half (aged 21-64) are employed
Assistive Technology

- “Assistive Technology is the great equalizer, when it comes to people with disabilities.”
  - Scott Renner
is the professional service of creating and developing concepts and specifications that optimize the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer.
Assistive Technology

Collaborative Studio

Creating Innovative Solutions and Improving Lives
Changing Lives through Independence, Productivity, and Inclusion
The main objectives of the presentation

• Collaboration Team

• The Focuses

• Look at a former collaboration study

• Current Collaborative

• Phases 1, 2, & 3

• Future Efforts
Collaboration
Collaboration

Individual with Disability
1-2 Rehabilitation Students

Individual with Disability

Collaboration
Individual with Disability

Collaboration

1-2 Rehabilitation Students

2-3 Industrial Design Students
Former Collaboration

- Polly uses a cane everyday to assist her independent mobility
- Mitten to cover cane and hand when it’s cold
  - So she can still feel the cane when she walks
- Meant to work like standard mitten
- Too large for her hand
- Has to take it off to do anything else
Is there a place that needs to be addressed?
When I am in the … I wish I could …

Is there a task that needs to be addressed?
When I am … I wish I could …

Is there a feeling that needs to be addressed?
I wish I could feel … when I am …

Collaboration
Phases and Timeline

Phase 1 2 Weeks
Phase 2 2 Weeks
Phase 3 3 Weeks
Phase 1

2 Weeks

- Contextual User Research
- Problem Identification
- Concept Generation

- Research about the user’s disability
- Identify 3 challenges or problems
- Generate 3 concepts per challenge
User Client

Jane Doe
Wife
Mother to 14 month old son
Current P.H.D Student
Employed by Auburn University
Paraplegia

It is usually the result of spinal cord injury or a congenital condition such as spina bifida that affects the neural elements of the spinal canal. The area of the spinal canal that is affected in paraplegia is either the thoracic, lumbar, or sacral regions.

While some people with paraplegia can walk to a degree, many are dependent on wheelchairs or other supportive measures. Depending on the level and extent of spinal damage, people with paraplegia may experience some, or complete loss of sensation in the affected limbs.

http://www.spinal-injury.net/paraplegia.htm

- Paraplegia is an impairment in motor or sensory function of the lower extremities
Is there a place that needs to be addressed?
When I am in the ... I wish I could ...

Is there a task that needs to be addressed?
When I am ... I wish I could ...

Is there a feeling that needs to be addressed?
I wish I could feel ... when I am ...

Collaboration
Challenge One:

Lacey has a collapsible wheelchair. After driving somewhere she has to put her chair back together outside the vehicle. This is a challenge when it is raining, because Lacey cannot hold an umbrella and put together her chair at the same time.
UMBRELLA HOLDER

- SUCTION CUPS ATTACH HOLDER TO WINDOW
- ADJUSTABLE HOLDER SO USER CAN ANGLE IT
- PROVIDES PROTECTION FROM RAIN WHEN DOOR IS OPEN

ADJUST & TIGHTEN
RAIN CLAMP

- Foam protects door
- Grips handle of umbrella
- Joint allows umbrella rotation
- Clamps to side of door
Challenge Two:

When Lacey goes to the grocery store she does not want to switch chairs just to have a basket. She would like to stay in her chair and still be able to have a place to put her items.
FOLD EASE

- Foldable basket
- Attaches to chair bar and swivels out
- Good for use when shopping
GROCERY GO

FOLD LINES

FOLDS INTO FLAT PACK

CENTRAL ROD ALLOWS COLLAPSE

ATTACH TO CHAIR BACK
Challenge Three:

Lacey also has a fourteen month old child. When they are out it is difficult to push the child’s stroller and her wheelchair at the same time.
- Allows user to push child while operating chair.

Articulating leg.
STROLLER FUSION

- Easy connect tubes
  connect stroller to chair

- Allows user to
  operate chair and
  push child

Snap Fit
- STRONG METAL SUPPORTS HOLD BABY CAR SEAT ON CHAIR

- CAR SEAT LOCKS ON TO BAR ACROSS LAP

- ADJUSTABLE HEIGHT

LOCK ON
Phase 1
- Contextual User Research
- Problem Identification
- Concept Generation

Phase 2
- Prototyping
- Testing/Feedback
- Concept Refinement
STROLLER PUSH

- Easy connect tubes
- Connect stroller to chair
- Allows user to operate chair and push child

Snap fit
Development Process
Development Process
Phase 1
- Contextual User Research
- Problem Identification
- Concept Generation

2 Weeks

Phase 2
- Prototyping
- Testing/Feedback
- Concept Refinement

2 Weeks

Phase 3
- Design Finalization
- Concept Communication
- Presentation, Report

3 Weeks
Additional Solutions
How It Works:
Easily pull off with the loop
180° Project Truck

Assistive Technologies Studio
An interdisciplinary collaboration project between the Department of Industrial Design and the Department of Rehabilitation and Special Education at Auburn University.
how it works:

**Accessibility**

180 degree pivot allows the user to easily reach anything in tow.

Items in tow are now at the side instead of completely behind.

**180° Project Truck**

*Assistive Technologies Studio*

An interdisciplinary collaboration project between the Department of Industrial Design and the Department of Rehabilitation and Special Education at Auburn University.
Final Model

- Comfortable to hold handle
- Strong shaft long enough to reach across gap
- Tapered hook with dog-leg bend to easily grab button base
Usage
Identify opportunities for *universal design*
New and Current Collaboration Efforts

Military Veterans, Wounded Warriors
And In Remembrance of...

Jesse Upshaw 1943-2013
thank you for your time and attention