

March 6, 2025

*Wheelchair Fabrication in Developing Countries*



# ENGR110/210

## Perspectives in Assistive Technology



Ralf Hotchkiss

Whirlwind Wheelchair International

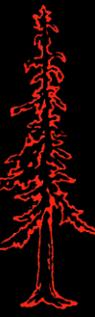
# Questions, Comments, Suggestions, or Concerns?



Please notify me of your comments, suggestions, and concerns so I can explain / address / correct them before the end-of-term course evaluation.

# Week 10 Class Sessions

- ▶ Tue, Mar 11<sup>th</sup>  
End-of-Term Student Team Project Presentations  
Bring your laptop for scoring presentations
  
- ▶ Thu, Mar 13<sup>th</sup>  
Student Project Demonstrations + Burritos  
Bring all your prototypes



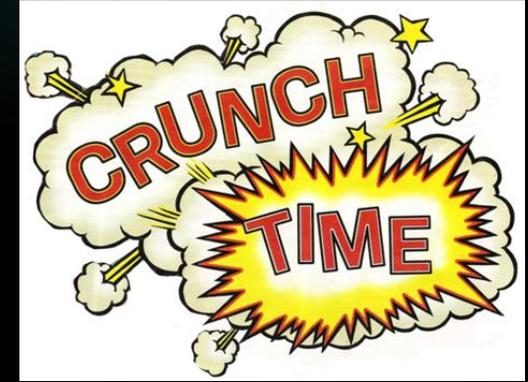
# Reminder - Work with Extreme Diligence



- ▶ Time is your most precious resource
- ▶ 5 days until End-of-term Team Project Presentations
- ▶ Prepare for end-of-term presentation - Tuesday, Mar 11<sup>th</sup>
- ▶ Enjoy end-of-term project demonstration - Thursday, Mar 13<sup>th</sup>



# Week 9

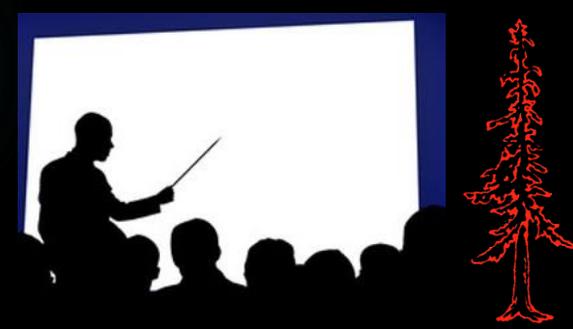


- It's officially project crunch time
- Brainstorm, Select, Prototype, Test, Analyze, Repeat, Report
- Contingency plan
- Discontinue submitting progress reports, ok to ask for advice



# Week 9 Project Activities

- Finalize fabrication, perform user testing
- Focus on Tuesday's team presentation
- Project demonstrations  
bring all prototypes next Thursday



# Final Presentations - Tue, Mar 11<sup>th</sup>



- ▶ Cover your entire quarter's effort
- ▶ Tell a complete story, but focus on what you have achieved since the mid-term
- ▶ Emphasize how your team addressed the problem
- ▶ **7 minutes, no demos, no prototypes, no audience questions**
- ▶ Show your prototype in your slides - point to features
- ▶ **Email Google Docs url to Dave by noon Tuesday**
- ▶ Embed one short video of prototype in use
- ▶ Slide text issues
- ▶ Be prepared to evaluate other teams' presentations - bring your laptop
- ▶ Dress professionally



# Dress Professionally

- ▶ No t-shirts, sweatshirts, hoodies
- ▶ No flip-flops, sandals
- ▶ No shorts, jeans, holes in pants
- ▶ No baseball or stocking caps



Mark Zuckerberg

“Each item of clothing makes a statement about who you are”

“Dress for the grade you want”



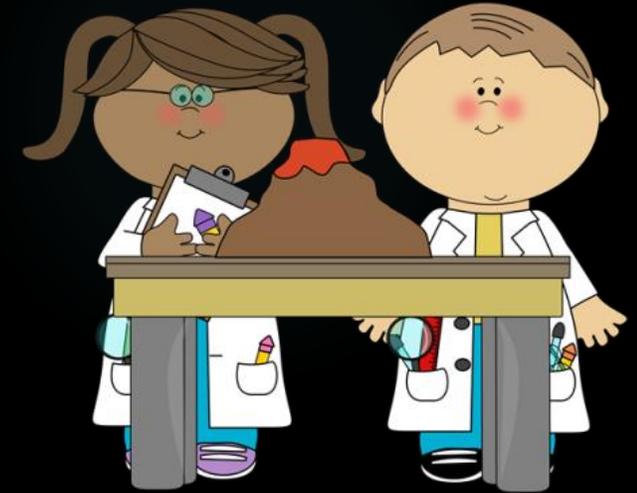
No Jacket  
Required



# Project Demonstrations - Thursday

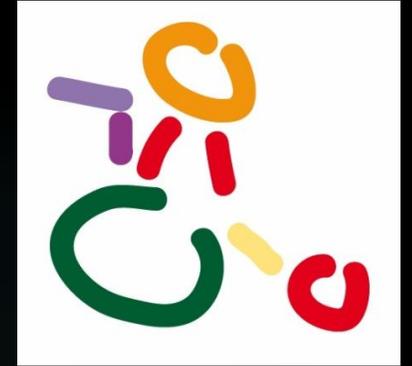


- ▶ Bring all prototypes to class
- ▶ Meet in classroom to fill out a course evaluation form
- ▶ Project demonstrations in classroom or outside on patio
- ▶ No posters or handouts - informal "trade show" presentations
- ▶ Demonstrate prototype's functionality
- ▶ Make sure Mathilda, Lance, and I check it out
- ▶ Check out other teams' projects
- ▶ Enjoy burritos & drinks
- ▶ Community members will attend
- ▶ Invite project suggestors, users, friends who contributed to your project's success
- ▶ Bring laptop to show additional videos and images of your process (no power outside)

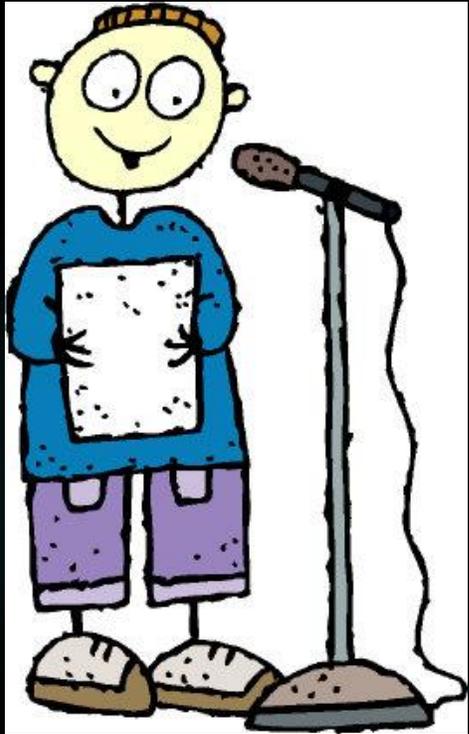


# Project Considerations

- ▶ Your prototype should be functional, but not necessarily ready for market
- ▶ Contingency plans if things don't work out
- ▶ Add a team or Stanford logo
- ▶ Never apologize for what you did or what you were not able to achieve
- ▶ Mention future plans
- ▶ Remember “Everything is a prototype”



# Order of Presentation on Tuesday



1. **Radiant Rollers** – Enhanced Visibility
2. **Water Lilies** – Magical Bridge Playground (1)
3. **Paw Patrol** – Laptray Artwork Easel
4. **Simple Stash** – Laptop Storage
5. **Water Wizards** – Water Bottle Opener
6. **Scoop Squad** – Poop Management
7. **IP68** – Rain Shield
8. **Sensory Seven** – Magical Bridge Playground (2)
9. **Hydro Hold** – Universal Water Bottle & Phone Holder



# Course Evaluations



1. Dave's in-class evaluation on Thursday
2. Cardinal Course Student Survey (Done on Tuesday)
3. Registrar's evaluation - online (on your own)



	Strongly Agree	Agree	Disagree	Strongly Disagree
The instructor had a nice haircut.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The instructor knew how to cook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The instructor had a good singing voice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shaving cream was used.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dogs were permitted in class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The instructor had a masculine nose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



# End-of-term Report



- ▶ Cover your entire quarter's work
- ▶ Include material from mid-term report
- ▶ Consider mid-term report mark-ups
- ▶ Due **Monday, March 17<sup>th</sup>**



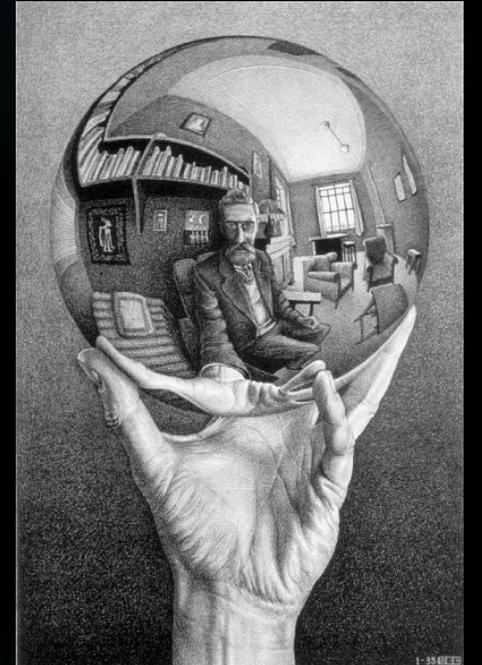
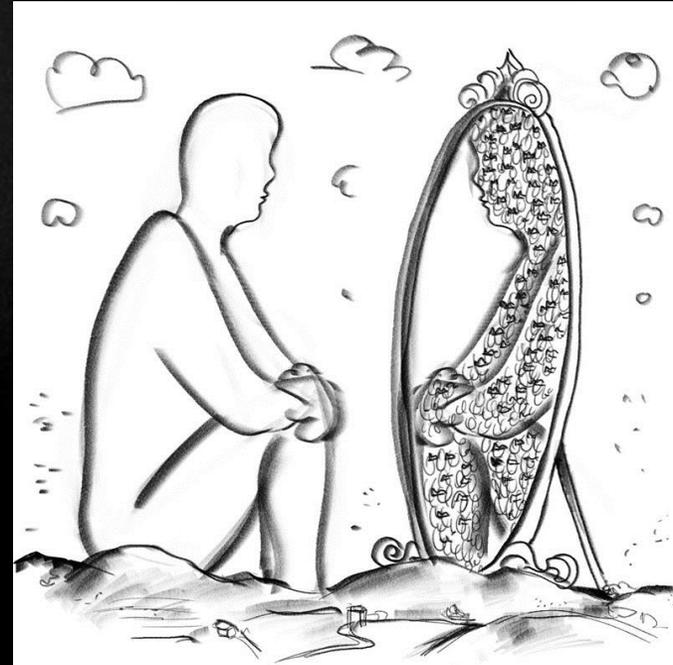
# Individual Reflection



- ▶ How you felt about your course, project, user, team experience
- ▶ Due **Monday, March 17<sup>th</sup>**

We do not learn from  
experience... we learn  
from reflecting on  
experience.

- John Dewey



# Famous TV Characters with Disabilities



Big Bang Theory

# Famous TV Characters with Disabilities - Raj



**Raj** - Social anxiety disorder, selective mutism,  
and fear of spiders (arachnophobia)

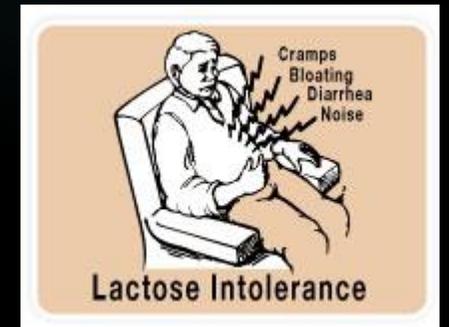
# Famous TV Characters with Disabilities - Sheldon



Marilu Henner

**Sheldon** - Eidetic memory, afraid of dogs (cynophobia) and birds (ornithophobia), mild OCD, "a bit of a germaphobe" (mysophobia), autistic behaviors, but not crazy (his mother had him tested), tardive dyskinesia symptoms

# Famous TV Characters with Disabilities - Leonard



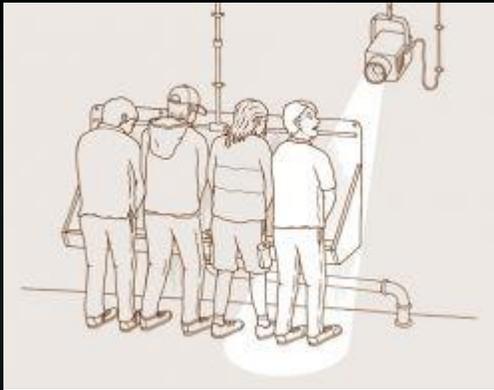
Leonard - Asthmatic and lactose intolerance

# Famous TV Characters with Disabilities - Howard



**Howard** - Severe peanut allergy and fear of going into space (astrophobia)

# Famous TV Characters with Disabilities - Penny



**Penny** - No last name!, shy bladder (paruresis)

# Famous TV Characters with Disabilities - Barry



Elmer Fudd



Barbara Walters

Barry Kripke - Speech impediment (rhotacism)

# Famous TV Characters with Disabilities - Mrs Wolowitz



**Mrs Wolowitz** – extreme obesity, neck size of 43, facial hair, gout

# Famous TV Characters with Disabilities - Amy



Amy Farrah Fowler - night terrors

# Famous TV Characters with Disabilities - Stuart



Stuart Bloom - night blindness (nyctalopia)

# Today



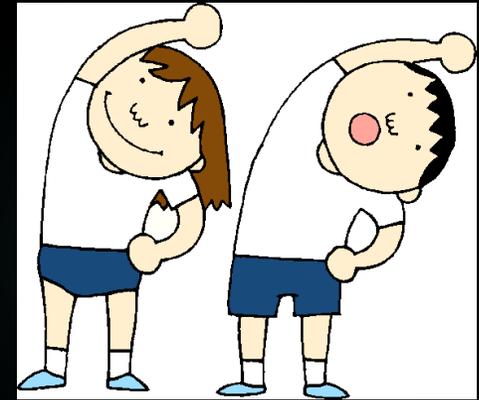
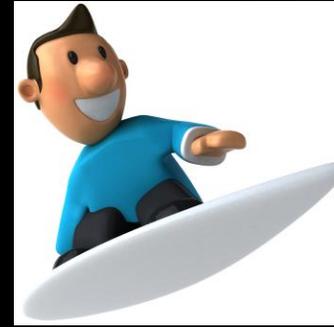
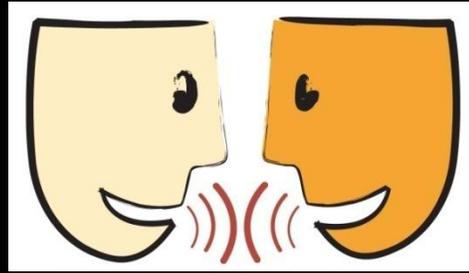
## *Wheelchair Fabrication in Developing Countries*

Ralf Hotchkiss

Whirlwind Wheelchair International

# Break Activities

- ▶ Stand up and stretch
- ▶ Take a bio-break
- ▶ Text message
- ▶ Web-surf
- ▶ Respond to email
- ▶ Talk with classmates
- ▶ Reflect on what was presented in class



# Short Break

