

# Wheelchair exercise

- Test in 2 weeks.
- We will supply wheelchairs (thank you Andy!)
- Spend 1 day in wheelchair during the week
- Keep to your normal schedule.
- If you cannot get to a place with wheelchair, note the issues
- Write 1-2 pages on experience

# Lecture 3

- Discussion and Choice of Projects
- Team Formation- three students per team
- Team Rules
- Team Management

# Projects

- Great ideas suggested!
- Reviewed by Andy, Meera, Nora, Jason, and Ken
- Chose the ones we thought were the best-doable, and can be done in time and will make a big difference to the user
- You can now choose the team you would like to be on with Total Team size 2 or 3

# Candidate Projects Selected

1. Clip-on wheelchair accessories

Jeff Biasmark

1. Wearable early warning system for Cataplexy

Anne Sandra

1. Mobile Arm support

Jimmy Haojie

1. Assistive wheel and next generation Caretaker's wheelchair

Ellen, Cindy, Lia

1. Self-stabilizing Cane for fall prevention

2. Sandra Liu Maegan Tucker

3. Next generation pressure sore prevention

4. Sandra Liu Maegan Tucker

5. Attachable handle for transfer from wheelchair to car

# Team Formation Process

- Consider these posted ideas
- Write down your name on your 1,2,3 choice on sheets
- We will select the Teams
- Obviously, the people who suggested project get their first choice for their project
- We will announce the Teams today

- Selection Time!
- Instructor Breakout Time to select teams!

# First steps with your chosen projects

- Get feedback from Potential Users/Professionals in field
  - Andy will help!
  - Villa Gardens Dmitry Estrin  
[destrin@frontporch.net](mailto:destrin@frontporch.net)
- Supplement with secondary Research. If you need help in locating papers the Caltech Library can help
- In research, validate or question your choice of project
- If validated, working with users will also challenge initial assumptions as to optimum solutions.

# Preliminary research due Jan 30

From Each Team

Have you spoken to someone who can critique project?

What have you learned from the conversation?



# Hypotheses

After your initial research, Write down

1. Vision Statement
2. Hypotheses

# Vision Statement- some thoughts

- *Our product will serve. . .*

*And produce an improvement in ability to. . .  
Resulting in an improvement of. .(%) .to perform  
the . . . function. This will enable the user to  
perform functions such as. . .*

- *We estimate that the product will help. .  
.people world-wide*

# Hypotheses some thoughts

- Some assumptions as to what will be accomplished by the project and why

*The project will be accomplished by the end of the quarter providing a working model*

*Vision Statement and Hypotheses due Jan 30*

# Teams

# Breakout session

1. Why are Products Developed by teams?

# Breakout session

## 2. In your experience,

What Works? – the best things	What Doesn't? –the worst things

# Why are products developed by teams?

- Complexity
- Challenge ideas
- Change direction
- Can specialize
- Division of labor

Everyone has worked on Teams before

Then, in your experience

- What worked- what were the best things that happened?



# What didn't work?

- Missed deadlines
- Communication
- Timing
- Personality
- Organization
- Non-unique solution- need alternatives

# Why are products developed by teams?

- Complexity
  - Skill specialization
  - Diversity
- Parallel Processing
  - Workload
  - Speed
- Insight
  - $1+1=3$
  - self-correcting

# What are some of the negatives?

- Complexity
  - Many interactions amongst people require some effort to “manage”
  - Communications
- Teams can break down
- Possibility of “Groupthink” overwhelming the lone independent thinker
- Possibility of Dictatorship

# What are some of the characteristics of a good team process?

- Clear delineation of responsibilities
- Generate many ideas
- Writing down clear goals
- Effective communication of progress, and challenges
- Deadlines
- Clear meeting dates and times, good attendance

# Some Characteristics of Successful Teams

- Leadership
- Commitment
- Integrity
- Common purpose
- Behaviors
  - respect
  - pitch in
  - delegate
- What else?