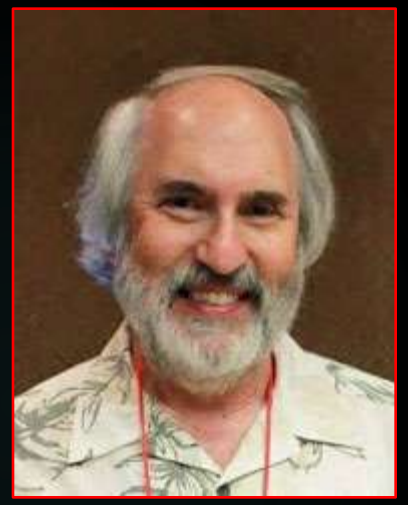
January 11, 2018

Team Project Pitch Day

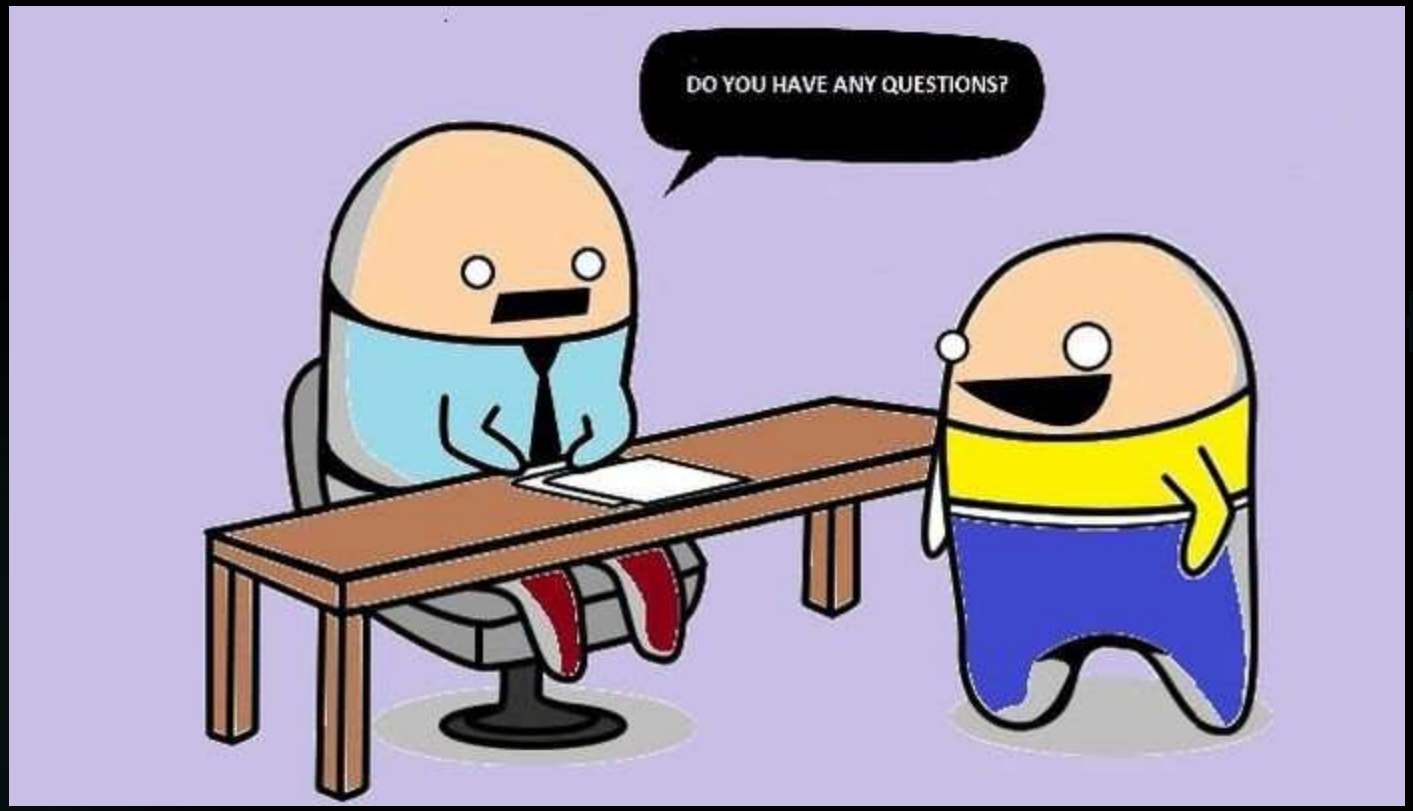
ENGR110/210
Perspectives in Assistive Technology



David L. Jaffe, MS

Instructor

Do You Have Any Questions?

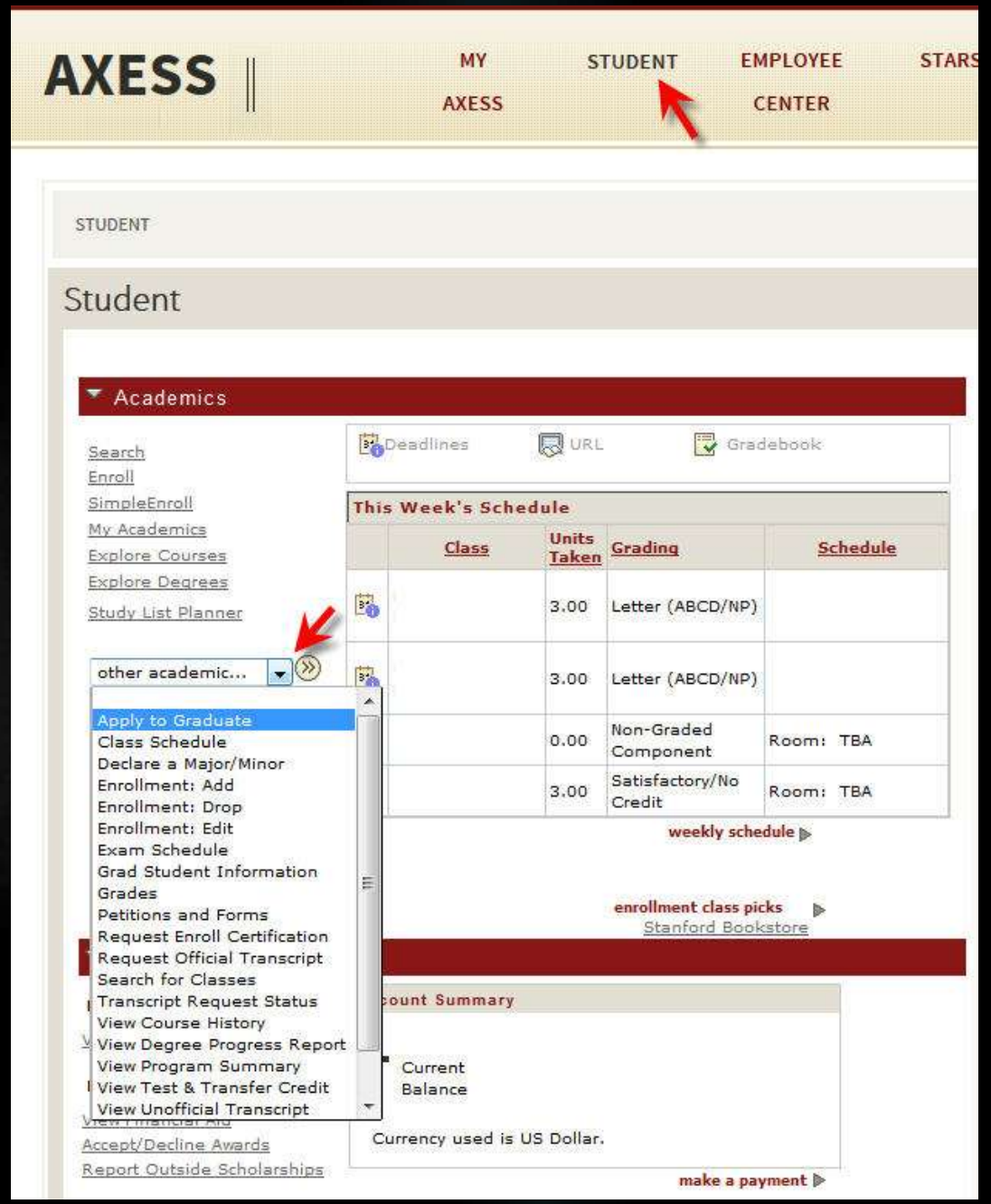


Thanks to:

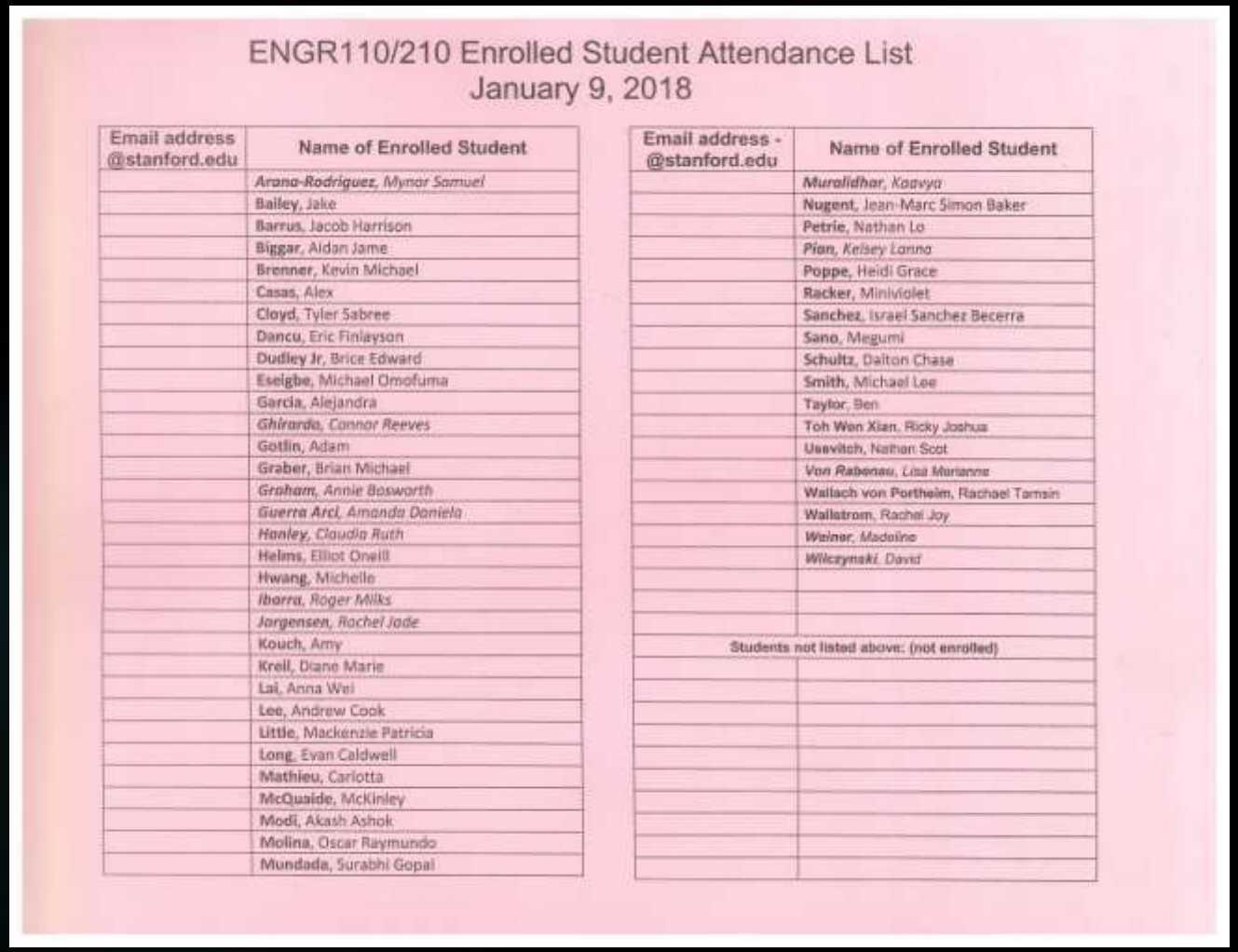
- Students:
  - Enrolling and participating in the course
  - Filling out lecture evaluations and comments
- Haas Center for Public Service
  - Funding
- Community members
  - Participating and "adding to the conversation"
- Project suggestors
  - Suggesting great projects
  - Working with teams

Enroll on Axess

Students: If you haven't already done so, please enroll or drop ENGR110/210 on Axess.



Enrolled Student Attendance List



ENGR110/210 Enrolled Student Attendance List
January 9, 2018

Email address @stanford.edu	Name of Enrolled Student
	Arana-Rodriguez, Mynor Samuel
	Bailey, Jake
	Barrus, Jacob Harrison
	Biggar, Aidan Jame
	Brenner, Kevin Michael
	Casas, Alex
	Cloyd, Tyler Sabree
	Dancu, Eric Finlayson
	Dudley Jr, Brice Edward
	Eseigbe, Michael Omofuma
	Garcia, Alejandra
	Ghirarda, Connor Reeves
	Gotlin, Adam
	Graber, Brian Michael
	Graham, Annie Bosworth
	Guerra Arcl, Amanda Daniela
	Hanley, Claudia Ruth
	Helms, Elliot Oneill
	Hwang, Michelle
	Ibarra, Roger Milks
	Jorgensen, Rachel Jade
	Kouch, Amy
	Krell, Diane Marie
	Lai, Anna Wei
	Lee, Andrew Cook
	Little, Mackenzie Patricia
	Long, Evan Caldwell
	Mathieu, Carlotta
	McQuaide, McKinley
	Modi, Akash Ashok
	Molina, Oscar Raymundo
	Mundada, Surabhi Gopal

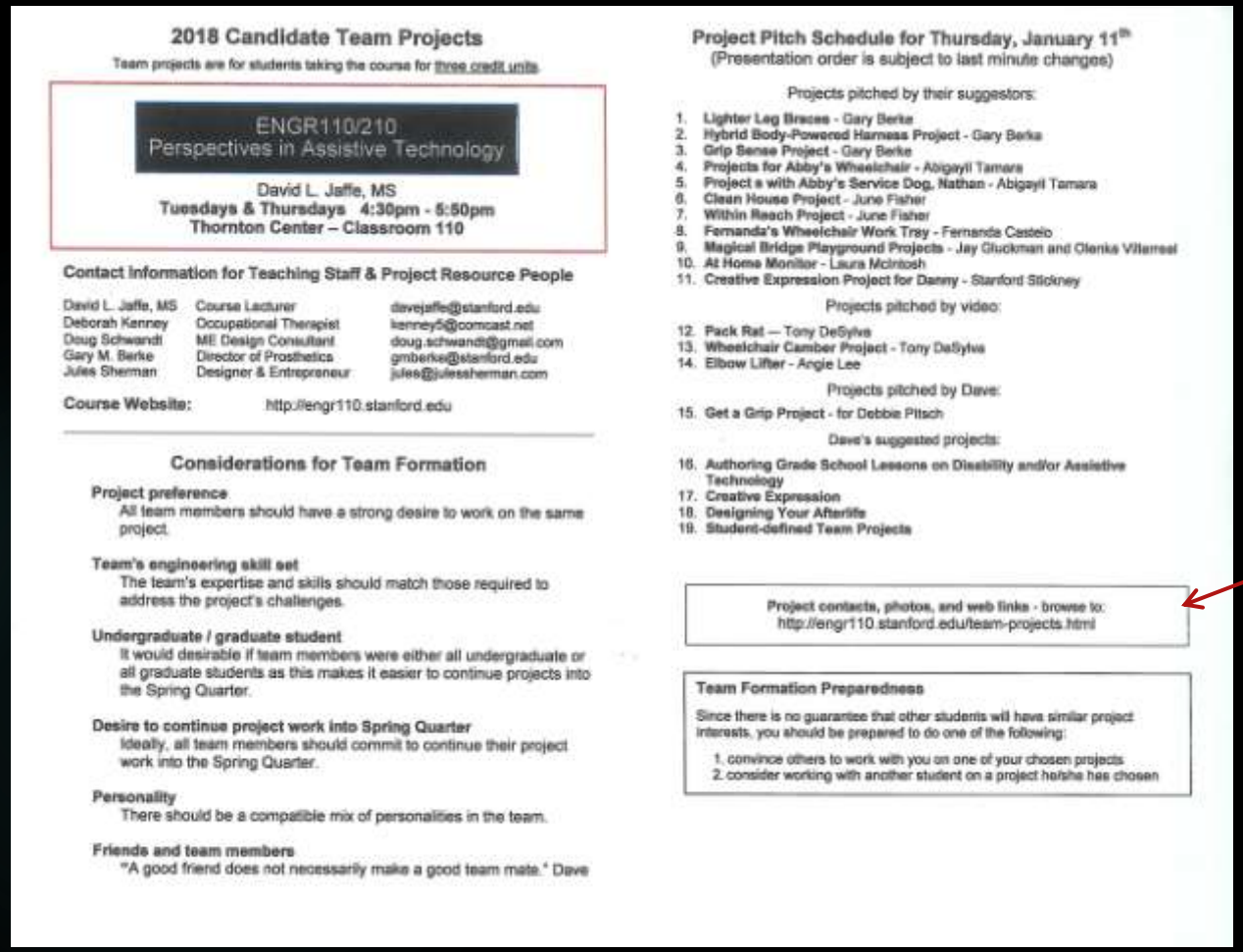
Email address - @stanford.edu	Name of Enrolled Student
	Muralidhar, Kaavya
	Nugent, Jean-Marc Simon Baker
	Petrie, Nathan Lo
	Pian, Kelsey Lanna
	Poppe, Heidi Grace
	Racker, Miniviolet
	Sanchez, Israel Sanchez Becerra
	Sano, Megumi
	Schultz, Dalton Chase
	Smith, Michael Lee
	Taylor, Ben
	Toh Wen Xian, Ricky Joshua
	Usevitch, Nathan Scot
	Von Rabenau, Lisa Marianne
	Wallach von Porthelm, Rachael Tamsin
	Wallstrom, Rachel Joy
	Weiner, Madeline
	Wilczynski, David
Students not listed above: (not enrolled)	

<u>All enrolled students:</u>
Please sign this list in every class session to confirm your attendance.

<u>Other students:</u>
Please sign this list in every class session to get credit for your attendance.

It is important to verify your attendance at every class session

Candidate Team Projects



2018 Candidate Team Projects

Team projects are for students taking the course for three credit units.

ENGR110/210
Perspectives in Assistive Technology

David L. Jaffe, MS
Tuesdays & Thursdays 4:30pm - 5:50pm
Thornton Center – Classroom 110

Contact Information for Teaching Staff & Project Resource People

David L. Jaffe, MS	Course Lecturer	davejaffe@stanford.edu
Deborah Kenney	Occupational Therapist	kenney5@comcast.net
Doug Schwandt	ME Design Consultant	doug.schwandt@gmail.com
Gary M. Berke	Director of Prosthetics	gmberke@stanford.edu
Jules Sherman	Designer & Entrepreneur	jules@julessherman.com

Course Website: http://engr110.stanford.edu

Considerations for Team Formation

Project preference
All team members should have a strong desire to work on the same project.

Team's engineering skill set
The team's expertise and skills should match those required to address the project's challenges.

Undergraduate / graduate student
It would desirable if team members were either all undergraduate or all graduate students as this makes it easier to continue projects into the Spring Quarter.

Desire to continue project work into Spring Quarter
Ideally, all team members should commit to continue their project work into the Spring Quarter.

Personality
There should be a compatible mix of personalities in the team.

Friends and team members
"A good friend does not necessarily make a good team mate." Dave

Project Pitch Schedule for Thursday, January 11th
(Presentation order is subject to last minute changes)

Projects pitched by their suggestors:

1. **Lighter Leg Braces** - Gary Berke
2. **Hybrid Body-Powered Harness Project** - Gary Berke
3. **Grip Sense Project** - Gary Berke
4. **Projects for Abby's Wheelchair** - Abigayil Tamara
5. **Project a with Abby's Service Dog, Nathan** - Abigayil Tamara
6. **Clean House Project** - June Fisher
7. **Within Reach Project** - June Fisher
8. **Fernanda's Wheelchair Work Tray** - Fernanda Cestelo
9. **Magical Bridge Playground Projects** - Jay Gluckman and Olenka Villarreal
10. **At Home Monitor** - Laura McIntosh
11. **Creative Expression Project for Danny** - Stanford Stickney

Projects pitched by video:

12. **Pack Rat** — Tony DeSylva
13. **Wheelchair Camber Project** - Tony DeSylva
14. **Elbow Lifter** - Angie Lee

Projects pitched by Dave:

15. **Get a Grip Project** - for Debbie Pitsch

Dave's suggested projects:

16. **Authoring Grade School Lessons on Disability and/or Assistive Technology**
17. **Creative Expression**
18. **Designing Your Afterlife**
19. **Student-defined Team Projects**

Project contacts, photos, and web links - browse to:
http://engr110.stanford.edu/team-projects.html

Team Formation Preparedness

Since there is no guarantee that other students will have similar project interests, you should be prepared to do one of the following:

1. convince others to work with you on one of your chosen projects
2. consider working with another student on a project he/she has chosen

For students taking the course for three credits.

Web links

Today's Handout - Project Preferences for Students working on Team Projects

Perspectives in Assistive Technology – Winter 2018
Project Preferences for Students Working on Team Projects (3 credit units)

Student name: _____

As each project is pitched, indicate your general interest in one of the first three columns with a ✓ or ×. At the end of the all the presentations, select your top five project preferences in the fourth column - optionally providing an ordinal (1st, 2nd, 3rd, 4th, 5th) ranking.

☹	😐	☺	Indicate Top Five	Project Name
				1. **Lighter Leg Braces** - Gary Berke
				2. **Hybrid Body-Powered Harness Project** - Gary Berke
				3. **Grip Sense Project** - Gary Berke
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				15. **Get a Grip Project** - Debbie Pitsch
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				18. **Designing Your Afterlife** - Dave
				19. **Student-defined team projects** – See Dave for approval

Tuesday, January 16th

Needfinding and Assistive Technologies

Gayle Curtis - UX Design Consultant

Leftovers from Tuesday

1. Class session overtime - 4 minutes
2. Course website - http://engr110.stanford.edu
   Syllabus
   Lecture Schedule
3. Gender disability
4. Suggestions and observations
5. Bono is almost never seen in public without sunglasses,
   as he ~~suffers from~~ experiences glaucoma.

> "[I have] very sensitive eyes to light. If somebody takes my photograph, I will see the flash for the rest of the day. My right eye swells up. I've a blockage there, so that my eyes go red a lot. So it's part vanity, it's part privacy, and part sensitivity."

Today's Agenda

1. Introduction of Course Resource People
2. Overview of PRL and Room 36 Resources
3. Considerations for Team Formation and Project Selection
4. Project Pitches
5. Open Question Time and Non-Random Access

Course Resource People

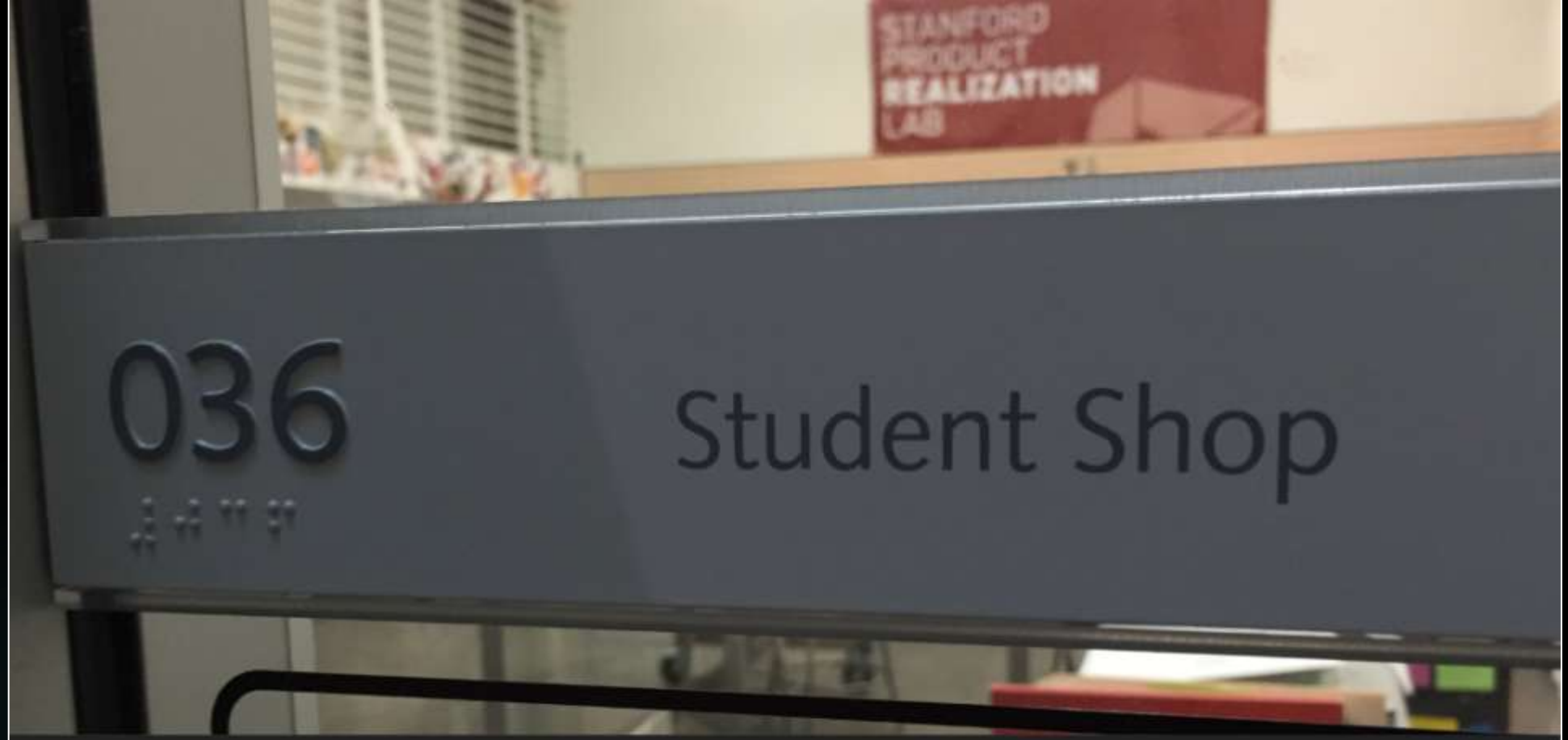
- Deborah E. Kenney, MS, OTR/L
- Douglas F. Schwandt, MS

- Jules Sherman
- Gary M. Berke, MS, CP, FAAOP

Five Minute Overview of PRL & Room 36 Resources

- Dan Somen - Manager of Room 36

Video from last year



INTRODUCTION TO ROOM 36

DAN SOMEN

Adjunct Lecturer
Manager of Room 36

STANFORD PRODUCT **REALIZATION** LAB

- Design and Manufacturing
- Open to any current Stanford student
- Any project*, personal or class-related
- Tools and Workspace
- Training, Advice, and Inspiration from our talented and knowledgeable faculty, staff, course assistants, and user community

STANFORD PRODUCT REALIZATION LAB

Leadership Team

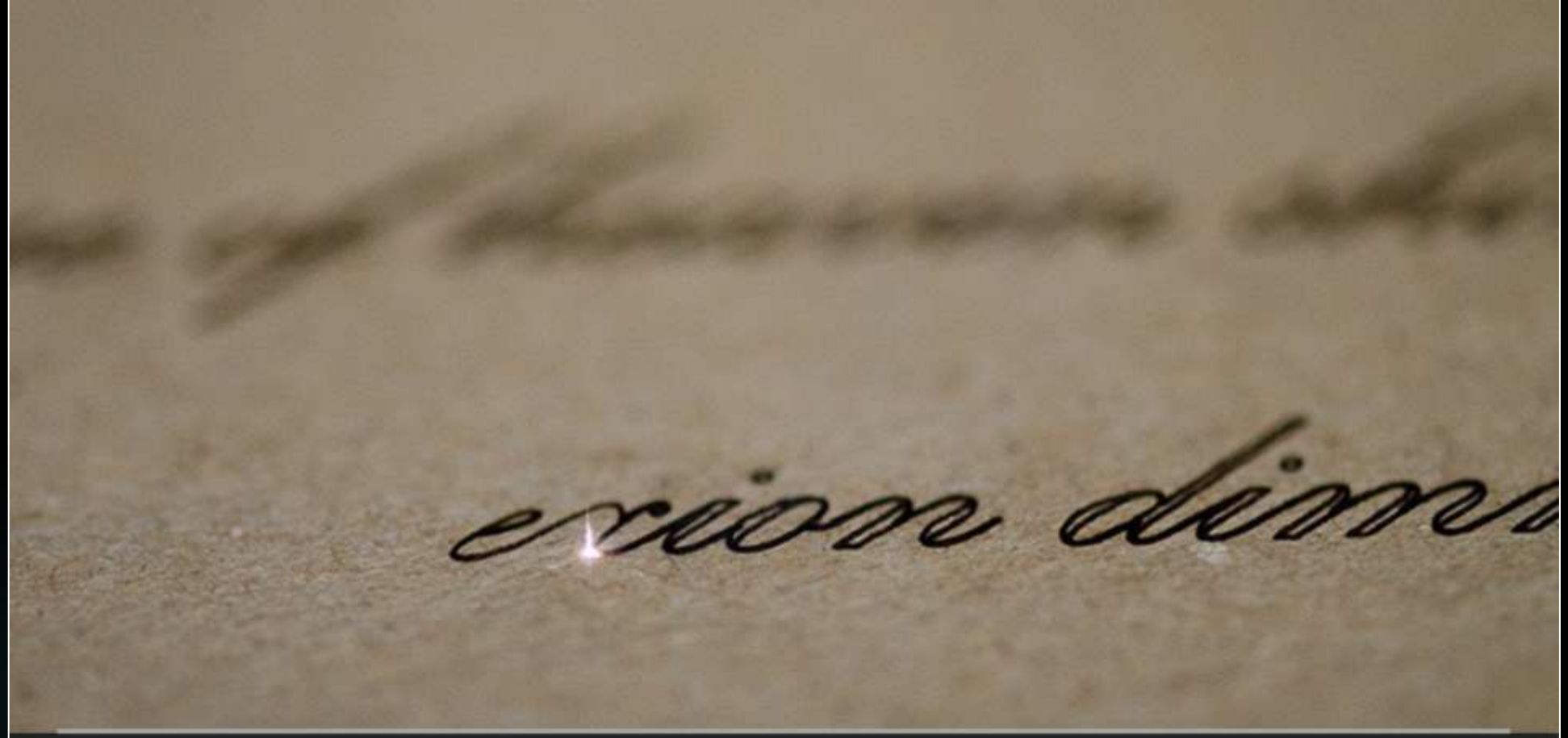
STANFORD PRODUCT REALIZATION LAB

Course Assistants

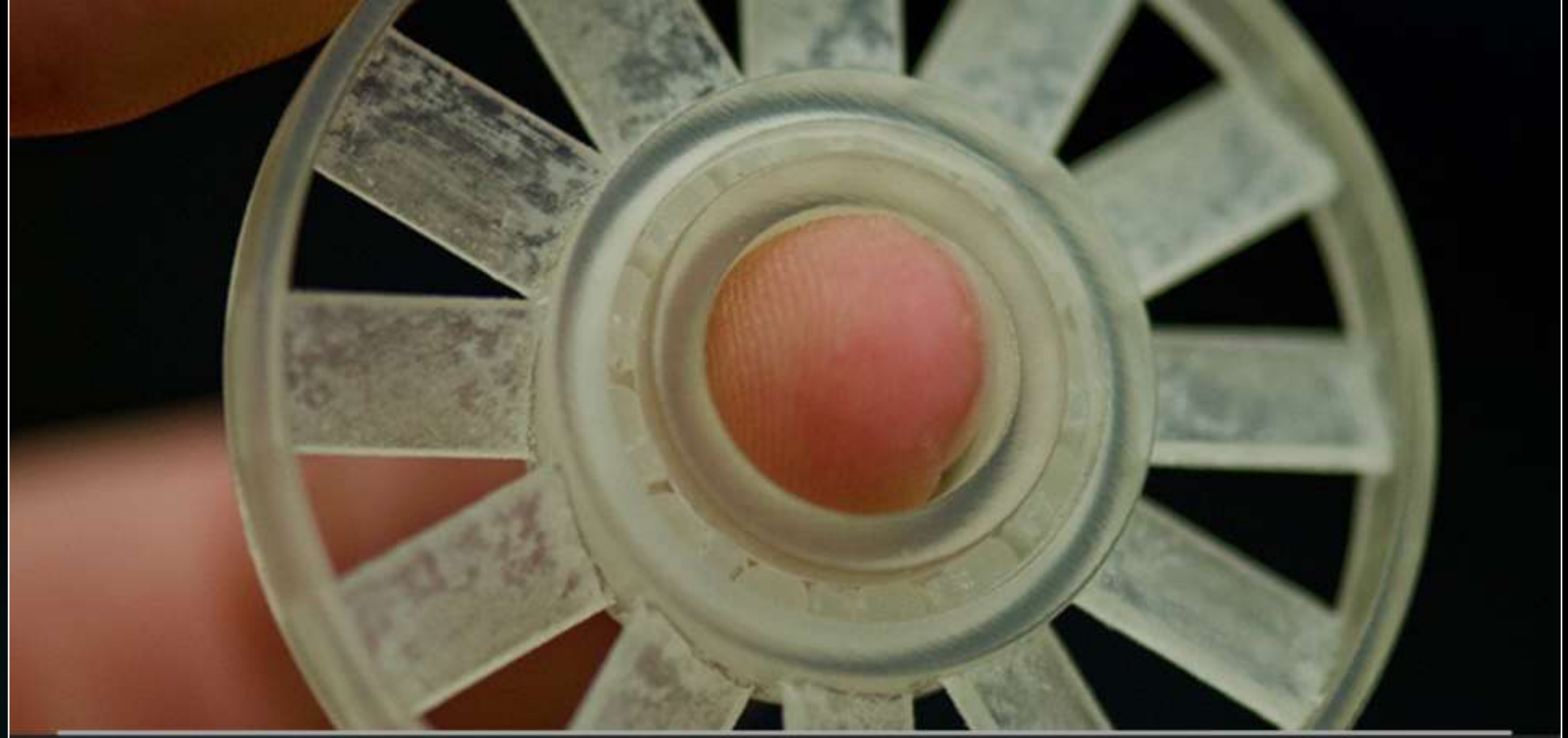
ROOM 36

RAPID PROTOTYPING

- Make Something!
- Build, Test, and Communicate your ideas... quickly
- No experience necessary
- Think with your hands
- Have Fun!



LASER CUTTING



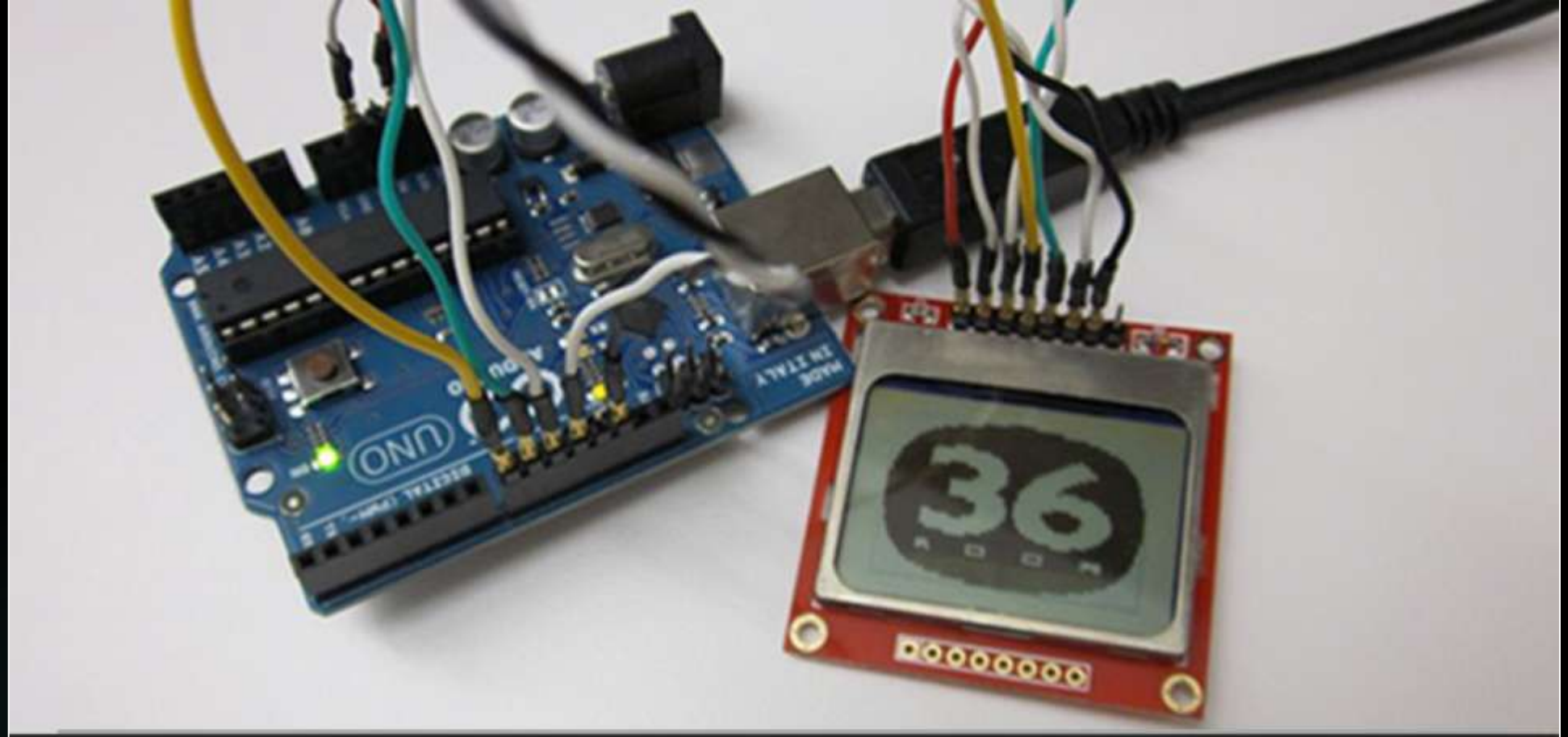
ADDITIVE MANUFACTURING

3D SCANNING

VINYL CUTTING

FOAM CUTTING

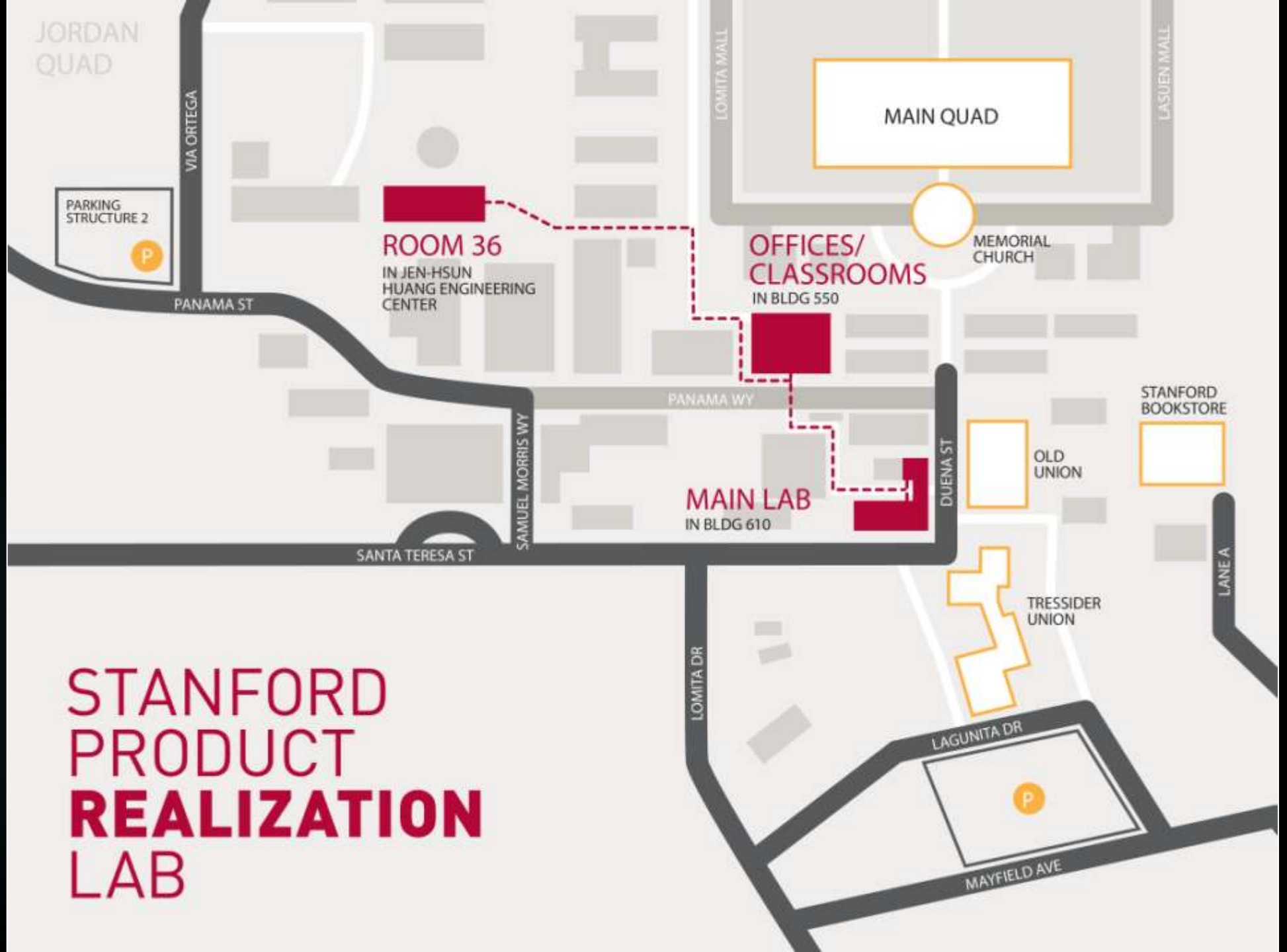
SEWING



ELECTRONICS

MATERIALS

ADVICE


JORDAN QUAD
VIA ORTEGA
LOMITA MALL
LASUEN MALL
MAIN QUAD
PARKING STRUCTURE 2
P
ROOM 36
IN JEN-HSUN HUANG ENGINEERING CENTER
OFFICES/ CLASSROOMS
IN BLDG 550
MEMORIAL CHURCH
PANAMA ST
PANAMA WY
SAMUEL MORRIS WY
DUENA ST
STANFORD BOOKSTORE
OLD UNION
MAIN LAB
IN BLDG 610
SANTA TERESA ST
LANE A
TRESSIDER UNION
LOMITA DR
LAGUNITA DR
P
MAYFIELD AVE
STANFORD PRODUCT REALIZATION LAB

HOW TO GET STARTED

- Visit Webshop https://webshop.stanford.edu Follow link
- Create a login profile with your student ID number
- Sign up for a safety orientation (roughly 75 min)
- Pay for a lab pass when you show up for the safety orientation ($60 for 1 quarter, $80 for 2, $100 for the academic year)
- That's it! Then come in and use the PRL!

SEE YOU SOON!

https://productrealization.stanford.edu

Follow link

Short Break

- Pick up team or individual project packet if you weren't here on Tuesday or have changed your enrollment option
- Sign Attendance Sheet
- Sign up to Meet with Dave
- Hand in your Student Signup Form from Tuesday

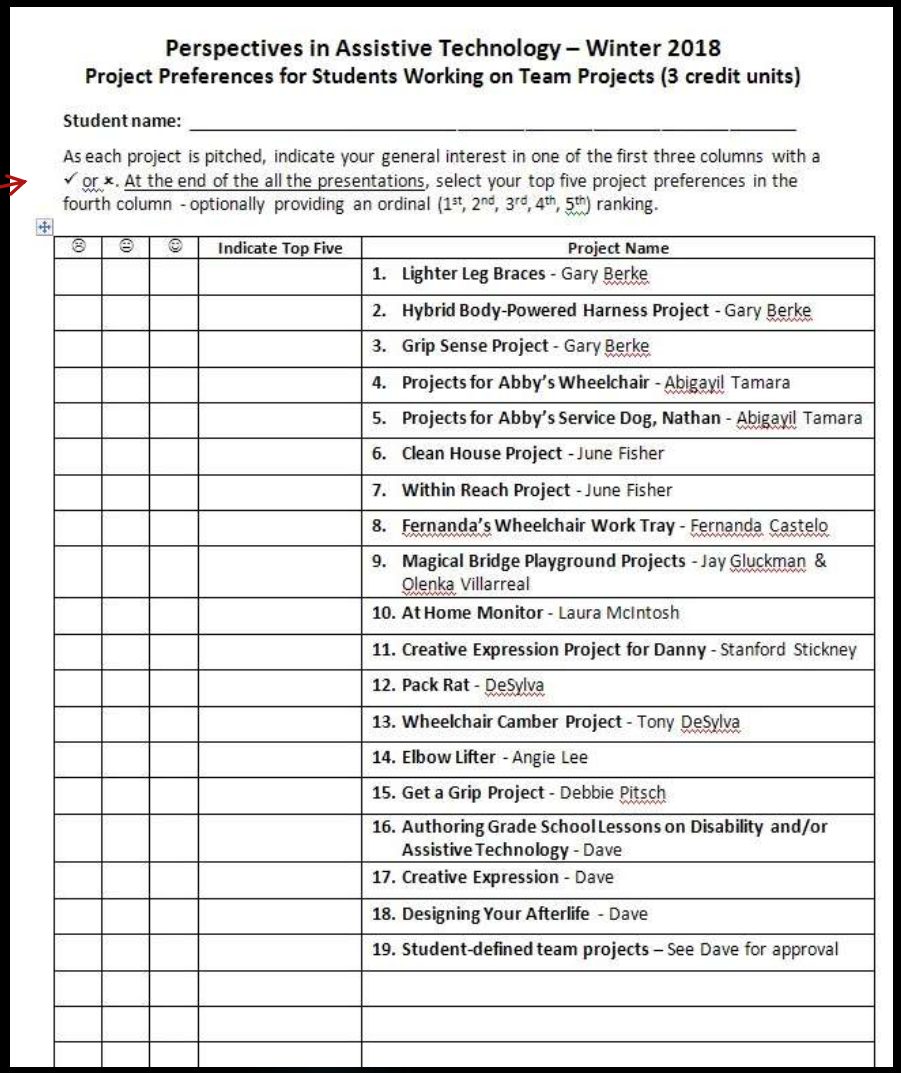
Project Pitches & Team Formation

Project Selection & Team Formation

For those working on **team** projects:

- Read project descriptions
- Fill out Project Preferences Form during pitches
- Talk to project presenters after the pitches
- Hand in Project Preferences Form
- Your preferences will be posted online
  - http://engr110.stanford.edu/preferences.html
- Inform me of team members (teams of 3 only)
  - Students on the Wait List are not eligible
  - Name of your team
  - Name of your selected project
  - Name your device (after it develops a "character")

Project Preference Form for
Students Working on Team Projects



Perspectives in Assistive Technology – Winter 2018
Project Preferences for Students Working on Team Projects (3 credit units)

Student name: _____

As each project is pitched, indicate your general interest in one of the first three columns with a ✓ or ×. At the end of the all the presentations, select your top five project preferences in the fourth column - optionally providing an ordinal (1st, 2nd, 3rd, 4th, 5th) ranking.

☹	😐	☺	Indicate Top Five	Project Name
				1. **Lighter Leg Braces** - Gary Berke
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				14. **Elbow Lifter** - Angie Lee
				15. **Get a Grip Project** - Debbie Pitsch
				16. **Authoring Grade School Lessons on Disability and/or Assistive Technology** - Dave
				17. **Creative Expression** - Dave
				18. **Designing Your Afterlife** - Dave
				19. **Student-defined team projects** – See Dave for approval

Project Selection & Team Formation

Your preferences will be posted online

- http://engr110.stanford.edu/preferences.html

Bailey, Jake

Junior
STS (BS)

ENGR110/210 Student Team Project Preferences - 01/12/2018 - 9:00am

Student / Project	Lighter Leg Brace	Hybrid Body Powered Harness	Grip Screw	Abby's Wheelchair	Abby's Service Dog	Clean Hours	Within Reach	Pack Rat	Wheelchair Camber	Wheelchair Work Tray	Magical Bridge Playground 1	Magical Bridge Playground 2	At Home Monitor	Creative Expression for Danny	Elbow Lifter	Got a Grip	Grade School Lessons	Creative Expression	Designing Your Afterlife	Student-Defined 1	Student-Defined 2
Bailey, Jake																					
Barrus, Jacob Harrison																					
Biggar, Aidan James																					
Brenner, Kevin Michael																					
Casas, Alex																					
Dancu, Eric Finlayson																					
Dudley Jr, Brice Edward																					
Eseigbe, Michael Omofuma																					
Garcia, Alejandra																					
Graber, Brian Michael																					
Guerra Arci, Amanda Daniela																					
Hwang, Michelle																					
Kouch, Amy																					
Lai, Anna Wei																					
Little, Mackenzie Patricia																					
Long, Evan Caldwell																					
Modi, Akash Ashok																					
Molina, Oscar Raymundo																					
Nugent, Jean-Marc Simon Baker																					
Petrie, Nathan Lo																					
Pian, Kelsey Lanna																					
Poppe, Heidi Grace																					
Racker, Miniviolet																					
Sanchez, Israel Sanchez Becerra																					
Smith, Michael Lee																					
Taylor, Ben																					
Usevitch, Nathan Scot																					
Wallach von Portheim, Rachael Tamsin																					

Legend:

Formed project team
Formed project team

Considerations for Team Formation and Project Selection (1 of 2)

Project preference

- All team members should have a desire to work on the same project.

Team's engineering skill set

- Match the team's skills and expertise with the project needs. (This depends on the solution chosen.)

Spring Quarter student desire and availability to continue project

- It would be good if all team members were available to participate in an optional Spring Quarter continuation of their project as Independent Study.

Considerations for Team Formation and Project Selection (2 of 2)

Personality

- There should be a compatible mix of personalities in the team.

Friends and team members

- A good friend does not necessarily make a good team mate.

Course load

- Can you spend the time working on a team project? Courses like ME203, ME210, ME218, ME310, and BioE141are very demanding. Are you a TA? Do you have athletic practices?

Team Project Preferences

- Email Dave with selected project, team name, and team members by Friday, January 19th

- Prepare to "hit the ground running"

Why you may want to

If you have enrolled for three units, you may want to consider taking the course for one unit or waiting until next year if:

1. You are not graduating, or
2. If you have limited fabrication experience, or
3. If you are already taking a project course like ME203, ME210, ME218, ME310, BioE141, or …
4. If you have to miss lectures or field trips, or
5. You are on the Wait List, or
6. You are not able to devote 4 hours per week to your project.

Take it twice!

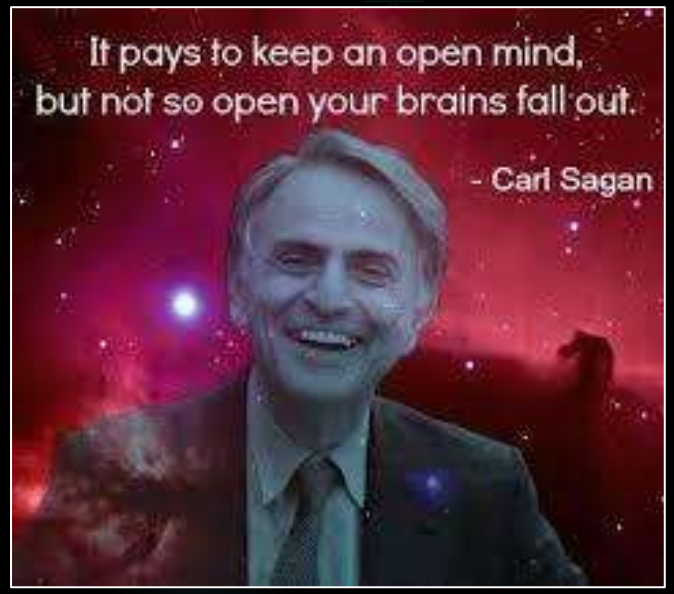
Team Formation Preparedness

Since there is no guarantee that other students will have similar project interests, you should be prepared to do one of the following:

1. Convince others to work with you on one of your selected projects

2. Consider working with another student on a project he/she has chosen

3. Keep an Open Mind!



Project Selection & Team Formation

For those working on **individual** projects:

- Research an assistive technology topic
- Work on a paper design of an assistive technology device
- Create a work of art
- Engage in an aftermarket aesthetic design
- Engage in an aftermarket functionality / usability design
- Pursue a listed individual project
- Optionally pair with another student (new for 2018)
- These projects are not being pitched

- Meet with Dave for suggestions and approval


2018 Candidate Individual Projects

Team Projects Pitched by Suggestor

- Lighter Leg Braces - Gary Berke
- Hybrid Body-Powered Harness Project - Gary Berke
- Grip Sense Project - Gary Berke
- Projects for Abby's Wheelchair - Abigayil Tamara
- Projects with Abby's Service Dog, Nathan - Abigayil Tamara
- Clean House Project - June Fisher
- Within Reach Project - June Fisher
- Pack Rat - Tony DeSylva
- Wheelchair Camber Project - Tony DeSylva
- Fernanda's Wheelchair Work Tray - Fernanda Castelo
- Magical Bridge Playground Project - Jay Gluckman and Olenka Villarreal
- At Home Monitor - Laura McIntosh
- Creative Expression for Danny - Stanford Stickney

Team Project Pitched by Video

- Elbow Lifter - Angie Lee

Projects Suggested by Others, Pitched by Dave

- Get a Grip Project - for Debbie Pitsch

Projects Suggested by Dave

- Authoring Grade School Lessons on Disability and/or Assistive Technology
- Creative Expression
- Designing Your Afterlife
- Student-defined projects

On deck: Gary Berke

Prosthetics Projects

- Prosthetics Projects - Gary Berke
  - Lighter Leg Braces
  - Hybrid Body-Powered Harness Project
  - Grip Sense Project

On deck: Abigayil Tamara

Lighter Leg Brace Project

- Lighter Leg Brace - Gary Berke
  - This project focuses the need for a leg brace to prevent knee buckling and falling.
  - Problem: The user's present brace has an under-heel support which prevents slipping, but is heavy and slows him down.
  - Goal / Aim: Prototype a lighter brace that stays up, remains locked, and makes walking less tiring.
  - Issues: Altered biomechanics, energy consumption, material science, safety, etc

KAFO

Knee Ankle Foot Orthosis

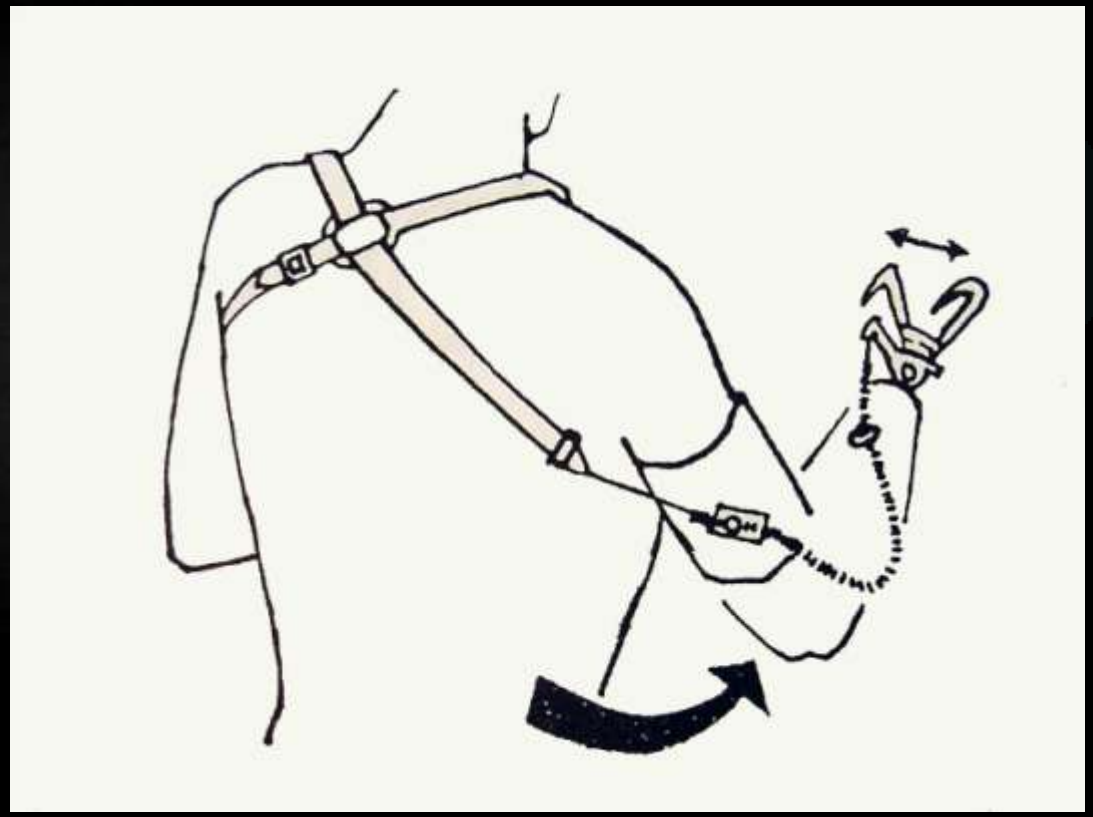
Peter Stansky's orthotic device

Hybrid Body-Powered Harness Project

- Hybrid Body-Powered Harness Project - Gary Berke

- Explore alternative ways of controlling a body-powered prosthetic device, perhaps using electronic sensors and electromechanical systems.

Hybrid Body-Powered Harness Project



Grip Sense Project

- Grip Sense Project - Gary Berke

- Explore designs for a simple sensor system that will inform the user of the grip strength being produced by his/her prosthetic device. The sensing modality must be something other than vibration.

Grip Sense Project

Projects for Abby's Wheelchair

- Projects for Abby's Wheelchair - Abigayil Tamara
  - Personalization Project - Explore ways to add a personal aesthetic to Abby's Whill Wheelchair
  - Enhanced Visibility Project - Explore ways to enhance the nighttime visibility of Abby's wheelchair
  - Storage Project - Explore ways to add a personal secure storage space and facilitate grocery transportation and handling

On deck: June Fisher

Projects for Abby's Wheelchair

- "I am mobility impaired, 4'11" tall, and only able to lift 10 pounds. I am very active in advocacy and social justice issues, especially focusing on individuals with disabilities. I speak at national conventions for many organizations."

- "I have just acquired a new power chair. It is called a WHILL model M. WHILL is a Japanese company with the US headquarters in San Carlos, CA, about 10 miles from my home. The WHILL is 4 wheel drive, and will operate on most terrains."

- Challenges to address:
  - personalization
  - enhanced visibility
  - storage

Projects for Abby's Wheelchair







Whill Wheelchair Overview

Projects for Abby's Wheelchair








Whill Wheelchair Details

Projects for Abby's Service Dog, Nathan

- Projects with Abby's Service Dog, Nathan - Abigayil Tamara
  - Simultaneous Operation Project - Explore ways to make it easier for Abby to operate her wheelchair and control Nathan
  - Harness Project - Explore ways to make it easier for Abby to put on and take off Nathan's harness

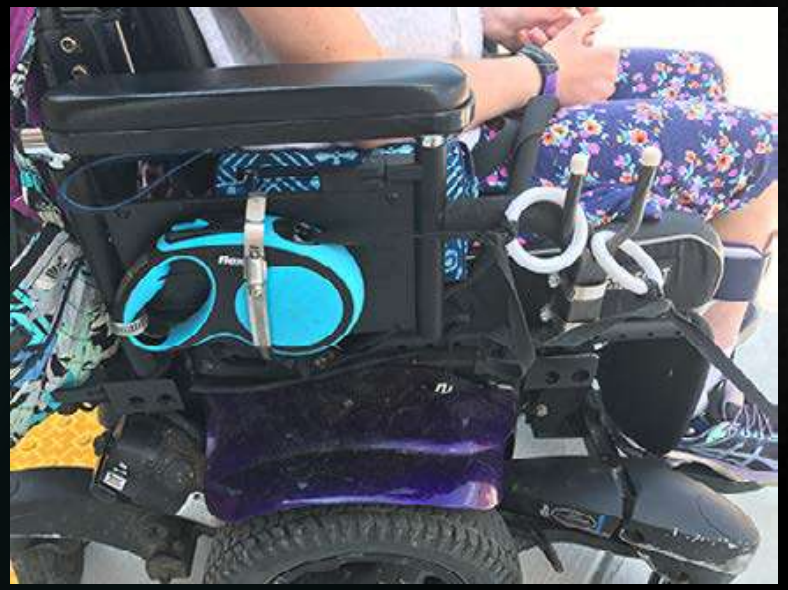
Projects for Abby's Service Dog, Nathan

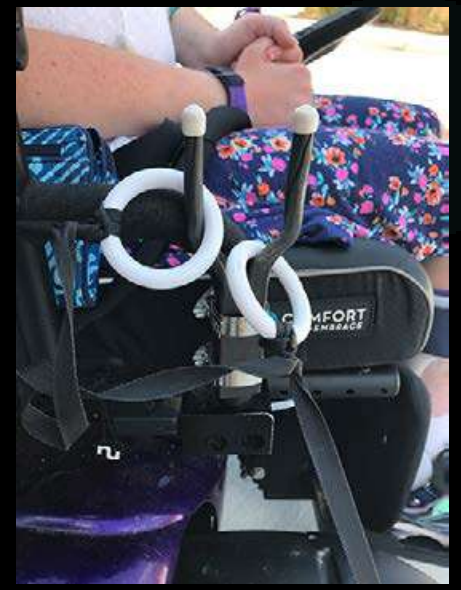



"Nathan, my service dog, provides me with balance and support as I hold on to his harness."

Projects for Abby's Service Dog, Nathan

Simultaneous Operation Project - Explore ways to make it easier for Abby to operate her wheelchair and control Nathan





Flexi Attachment on a Power Wheelchair

Projects for Abby's Service Dog, Nathan

Harness Project - Explore ways to make it easier for Abby to put on and take off Nathan's harness

"With my arthritis and grasping difficulties, the buckles that hold the harness on Nathan are difficult for me to work. The buckles attach by pinching one of the parts to fit in the other part. There are two buckles on the front piece, and one under the belly that attaches on the left side."

Projects for Abby's Service Dog, Nathan

Nathan's Harness

Projects for Abby's Service Dog, Nathan







Detail of Harness Buckles

Clean House Project

- Clean House Project - June Fisher

- Explore designs to provide a safe, effective, and independent means of performing common household cleaning tasks

On deck: Fernanda Castelo

Within Reach Project

- Within Reach Project - June Fisher

- Explore designs to provide a safe and stable means of accessing items on upper shelves

On deck: Tony DeSylva

Pack Rat

- Pack Rat - Tony DeSylva
- Explore designs for a manual wheelchair storage system that addresses shortcomings of existing products.

Video

On deck: Fernanda Castelo

Pack Rat

accessible, secure, stylish

with Tony DeSylva

Background

Like everyone else, wheelchair users have a variety of items that they carry with them as they travel from place to place.

Unlike everyone else, wheelchair users can not easily take their backpacks off to get into them.

Problem

Existing wheelchair storage products exhibit problems related to security, access, and size.

1. Accessing the items in my backpack that is behind me.
   - Some items are heavy
   - Smaller items end up at bottom of my pack.
   - Items like my wallet or mobile phone may need to be access several times a day.

2. Keeping valuables like phone, laptop and wallet secure.

   My backpack is on my chair 100% of the time. Often I find myself in crowded places like Caltrain, BART, or social events. The height of my backpack is at a level that is easy for people to slip their hands in.

Aim

Explore designs for a manual wheelchair storage system that addresses shortcomings of existing products.

Design Requirements

Design Criteria:

The storage system design should be:

- secure - protect items from theft (high priority)
- safe - does not expose the user to a risk of harm
- stable - has no adverse effect on the wheelchair's balance
- accessible - easy to store and retrieve items
- narrow - does not increase the wheelchair's width profile
- size - large enough to carry a laptop
- fit - compatible or adaptable to a variety of manual wheelchairs
- removable - to facilitate wheelchair transfers

Design Requirements

Design Criteria: (continued)

The storage system design should be:

- composed of low cost materials
- durable and waterproof
- easy to install, remove, clean, and wash by the user
- able to incorporate a lap tray

Other: The design should not alter or permanently deface or damage the physical structure of the wheelchair.

Recommended Skillsets: Sewing

Wheelchair Camber Project

- Wheelchair Camber Project - Tony DeSylva

- Explore mechanical solutions to add camber adjustability to a manual wheelchair to improve performance both indoors and outdoors.

Video

Wheelchair Camber

versatile, adjustable, independent

with Tony DeSylva

Background

Wheelchair camber is the slight sideways inclination of the large rear wheels of a manual wheelchair from vertical.

While positive camber improves a wheelchair's stability, it also increases its overall width profile.

Aim

Explore mechanical solutions to add camber adjustability to a manual wheelchair to improve performance both indoors and outdoors.

Problem

The narrowest profile manual wheelchair configuration - in which the wheels are vertical (zero camber) - are favored when negotiating doorways that are less than 30 inches wide. Furniture placement can also present indoor obstacles to wider wheelchairs.

However, when traveling outdoors, having the wheelchair wheels flared out (positive camber) improves stability and prevents tipping over on uneven ground, dirt trails, curb cuts, and cracked sidewalks.

Manual wheelchairs are sold with a non-adjustable fixed axle and camber setting which provides a compromised ability to handle both outdoor stability and indoor access and maneuverability.

Design Requirements

Design Criteria:

- Camber adjustability should have at least two settings, 0 and 6 degrees
- Camber adjustments should be made by the user without tools while seated in the wheelchair
- The design should be lightweight, simple, and should not require drilling into the wheelchair or welding to the original frame
- The design must not increase the zero camber wheelchair width

Other: Users of Quickie Model GPV wheelchairs can add washers to its wheel mounting system to effectively change its camber. But this process cannot be accomplished while the user is seated in the wheelchair.

Recommended Skillsets: Mechanical Engineering, Shop

Fernanda's Wheelchair Work Tray

- Fernanda's Wheelchair Work Tray - Fernanda Castelo
- Explore designs for a wheelchair work tray useful for a variety of activities in a variety of locations

On deck: Jay Gluckman and Olenka Villarreal

Magical Bridge Playground

Two Projects

- Magical Bridge Playground Project - Olenka Villarreal & Jill Asher & Jay Gluckman

- Explore designs to offer a new and innovative play and educational experiences incorporating multiple senses, actions, and outcomes.

- Consider 1) a design that employs tactile / haptic sensing including Braille or 2) an object that generates sounds (or sound effects) when it is touched, pushed, shaken, turned, stepped on, etc. Also consider "sound-ifying" existing playground equipment.

On deck: Laura McIntosh

Magical Bridge Playground Projects

Magical Bridge Playground founder, Olenka Villarreal often says, "The playground is a child's first classroom.“

Introducing children as early as possible to the variety of people in their community is our best hope for removing social and physical barriers.

ADA "Accessibility" Just Isn't Enough

- Not a single public playground has been designed with everyone's unique play needs in mind.
- ADA standards do not meet the needs of many living with a disability.

Magical Bridge Playground, Palo Alto

Seven Unique Zones: Playhouse & Tree Deck; Slide Mound; Spinning Zone; Picnic & Performance Area; Swinging and Swaying Zone; Music Zone; Tot Play Zone

The Playhouse is two stories and the Tree Deck has two bridges including a "rope" bridge - the entire structure is wheelchair accessible.

Playground features are a mix of custom designed equipment and off-the-shelf technology often applied in unique ways.

Seven years of research went into this playground design.

INTRODUCING MAGICAL BRIDGE FOUNDATION, A 501C3

MAGICAL BRIDGE FOUNDATION

brings to life truly innovative and inclusive playgrounds designed for *all* ages and *all* abilities.

It All Starts On the Playground!

WWW.MAGICALBRIDGE.ORG

MAGICAL BRIDGE

MAGICAL BRIDGE
REDWOOD CITY, CA

MAGIC and truly inclusive play is coming to Redwood City, California!

Magical Bridge Foundation broke ground on the playground project in Red Morton Park in Redwood City in November 2017.

We hope to open Magical Bridge Playground in Redwood City in December 2018.

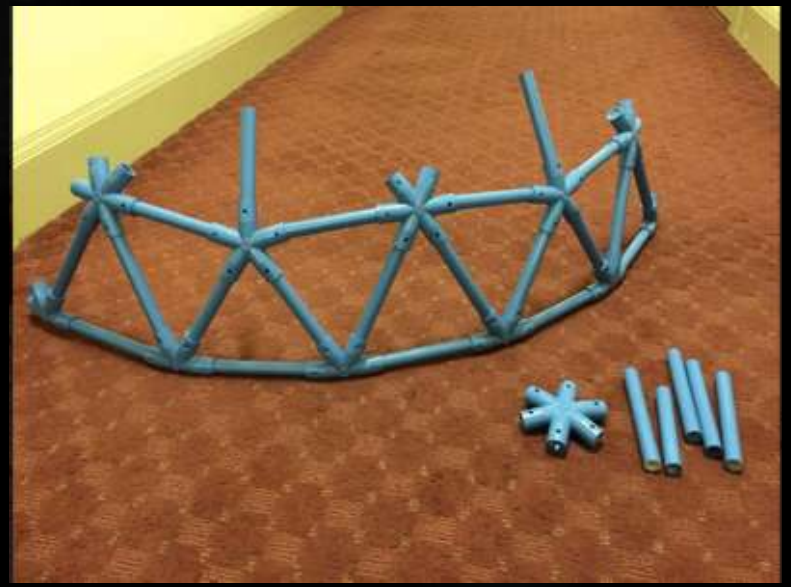
Magical Bridge Playground Projects have been announced for Morgan Hill, Mountain View and Sunnyvale.

Previous Prototypes from 2016

- Team worked collaboratively on overall structure to mount prototypes.
- Individual team members each focused on individual prototypes.

- QR Codes with links or text to provide information for the visually impaired
- Pick up and play musical instrument.
- Tactile puzzle with slideable pieces.
- Slideable bead exploration.
- Tactile Braille exploration for the visually impaired and the sighted.

Previous Prototypes



Jay's notes regarding prototyping for the Magical Bridge Playground

- There will be an opportunity to get information about the project and feedback about teams' fabricated prototypes on site from playground visitors.
- The prototypes can be as rough or refined as your team chooses - we just want to understand your vision about how your design would work in an actual playground application.
- Prototypes can be strictly mechanical, structural, electrical, or conceptual or some combination thereof.
- Student prototypes will not necessarily be installed in a playground.

Be Part of the Magic - Join Us!

MAGICAL BRIDGE FOUNDATION

Olenka Villarreal
olenka@magicalbridge.org

Jill Asher
jill@magicalbridge.org

Jay Gluckman
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At Home Door Monitor

- At Home Door Monitor - Laura McIntosh
- Explore solutions that detect whether the monitored user is at home or not

On deck: Stanford Stickney








Why Mollie is a Test User

Problem – Determining when a quiet house is due to a fall or to leaving the home

Problem – Determining when a quiet house is due to a fall or to leaving the home

Call for help!

False alarm

Problem – Determining when a quiet house is due to a fall or to leaving the home

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Problem – Determining when a quiet house is due to a fall or to leaving the home

Direction of travel

Passive monitoring

Small visual footprint

Minimal installation / maintenance

Creative Expression for Danny

- Creative Expression for Danny - Stanford Stickney

- Explore ways to enhance creative expression for Danny. This could include the creation of new activities or fabrication of new tools.

On deck: Dave for Angie

Creative Expression for Danny

- Meet Danny & Stanford Stickney
- Cerebral Palsy
- Cortical Vision Impairment
- Smile & the World will Smile Back

Project Suggestions

- Pottery wheel
- Painting
- Using his manual wheelchair as a paintbrush
- Computer painting with hand movements
- Making jewelry bracelets

Facilitating Art Independence

- Tools to assist lifelong independence
- Voice activation
- Easily accessible for Danny's dexterity challenges

Elbow Lifter

- Elbow Lifter - Angie Lee

- Explore device designs that would enable Angie to feed herself completely independently.

Video

Projects Suggested by Others, Pitched by Dave

- Get a Grip Project - for Debbie Pitsch

Get a Grip Project

- Get a Grip Project - Dave for Debbie Pitsch - VA Palo Alto Health Care System, Spinal Cord Injury Service

- Explore designs that would enhance a handbike user's with quadriplegia ability to pedal the Freedom Ryder.

Dave's Suggested Projects

- Authoring Grade School Lessons on Disability and/or Assistive Technology
- Creative Expression
- Designing Your Afterlife
- Student-Defined Team Projects

Authoring Grade Schools Lessons on Disability and/or Assistive Technology

- Authoring Grade School Lessons on Disability and/or Assistive Technology - Dave

- Author lesson modules on Disability and/or Assistive Technology suitable for use in a grade school classroom.
- This project is for students in the Learning, Design & Technology (LDT) Program in the Graduate School of Education.

Creative Expression

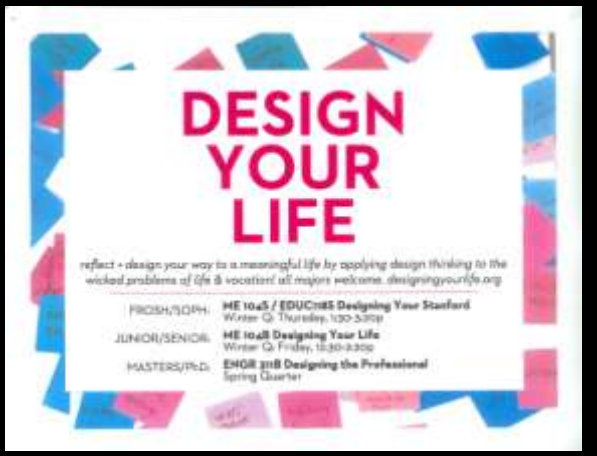
- Creative Expression - Dave

- Explore ways to enhance creative expression for people with disabilities. This could include the creation of new activities or fabrication of new tools.

Designing Your Afterlife

- Designing Your Afterlife - Dave

- Explore ways to preserve one's essence after death. In the technology extreme, this might manifest itself as an interactive system that responds to queries, retells stories, relates experiences, shares expertise, and expresses humor. The pre-dead user would be able to create and program his / her eternal computer-based persona before her / his demise.



Student-defined Team Projects

- Student-defined Team Projects - Dave

- Interview, observe, and discuss assistive technology problems with an individual with a disability or older adult. Address their desire to participate in one of the following activities by designing an adaptation to an existing device / tool or creating a new, more useful one:
  - Activities of daily living
  - Sports and exercise
  - Leisure activities and hobbies

Sample Individual Project - Project for Aurora

- Background: Aurora is an extroverted 10 year old, lives in the Sacramento area, and has Cerebral Palsy. She has no speech, but answers either / or questions by shifting her eye gaze to the speaker's left or right hand. She is quick enough that the other kids have made a game of asking her questions. She also has a speaking computer that her mother uses frequently. She is unable to walk, but may be able to support her own weight. She uses a power wheelchair for mobility, but the joystick is positioned behind her and operated by others.
- Problem: Aurora has a lack of independent mobility which affects her ability to interact with others.
- Aim: Explore paper designs (non-functional) that would either improve Aurora's ability to move independently or help her interact with her parents and peers.

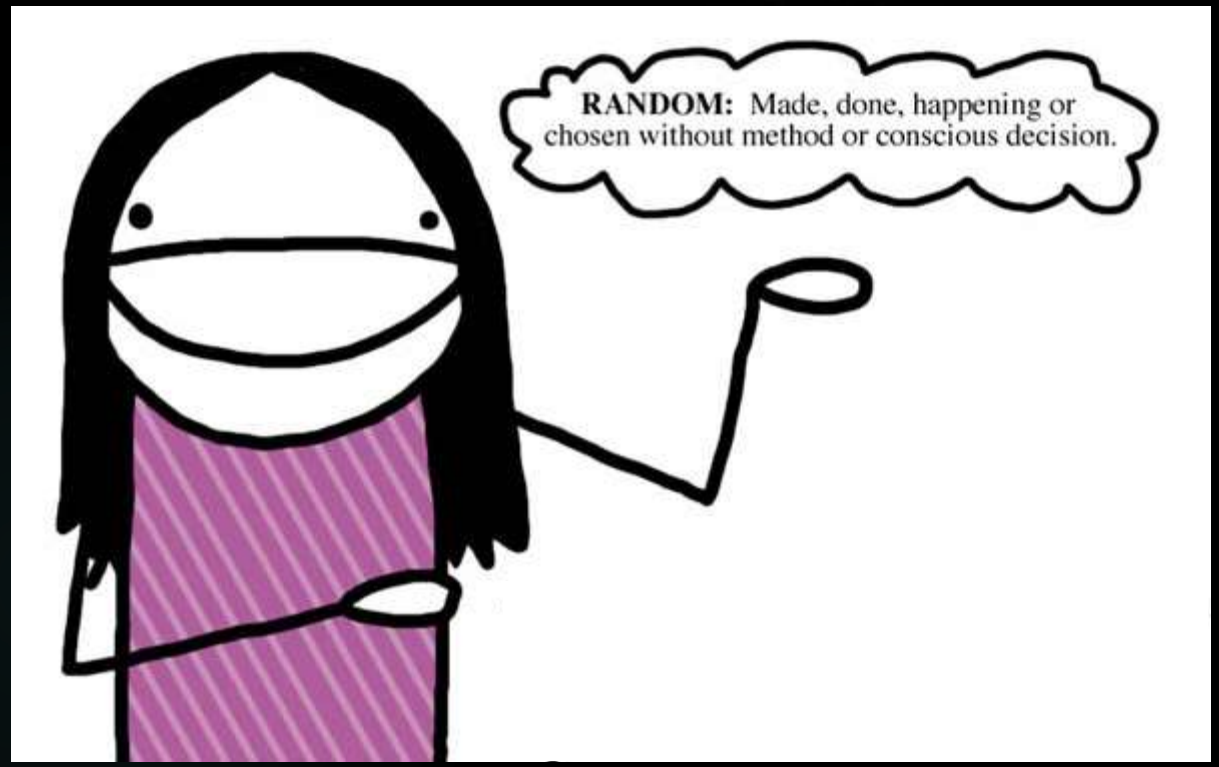
This is the last project

Open Question Time and Non-Random Access

Who is working on team projects?

Get more info from project suggestor

Identify others interested in same projects



What are your project preferences?

Rank your top choices

Hand in your Project Preference Sheet!

Have course questions? Ask Dave

See Dave if you are working on an individual project