If You Build It, They Will Come

Reflecting on the Successes (and Failures) of Building a Collaborative Workspace to Support Creativity, Experimentation, and Making

DSST 2013 Mini-Workshop
July 30, 2013

Human Computer Interaction Laboratory

@jonfroehlich
Assistant Professor Computer Science

University of Maryland

Starter Activity

GROUP

1. Have you ever built or led a group?

   Could be a research lab, sports team, or even debate club.

2. What are some key properties that make up your “ideal” group/team?

   Could be related to the skills in the group, the group dynamic… Does your response change if this is about a “research group?” If so, how?

SPACE

3. Have you ever designed/built a space?

   Could be a research lab or a home renovation. What did you do? Why?

4. What are the top 3 or 4 most important attributes of a vibrant, creative workspace?

   Could be a research lab or a home renovation. What did you do? Why?

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If You Build It, They Will Come?

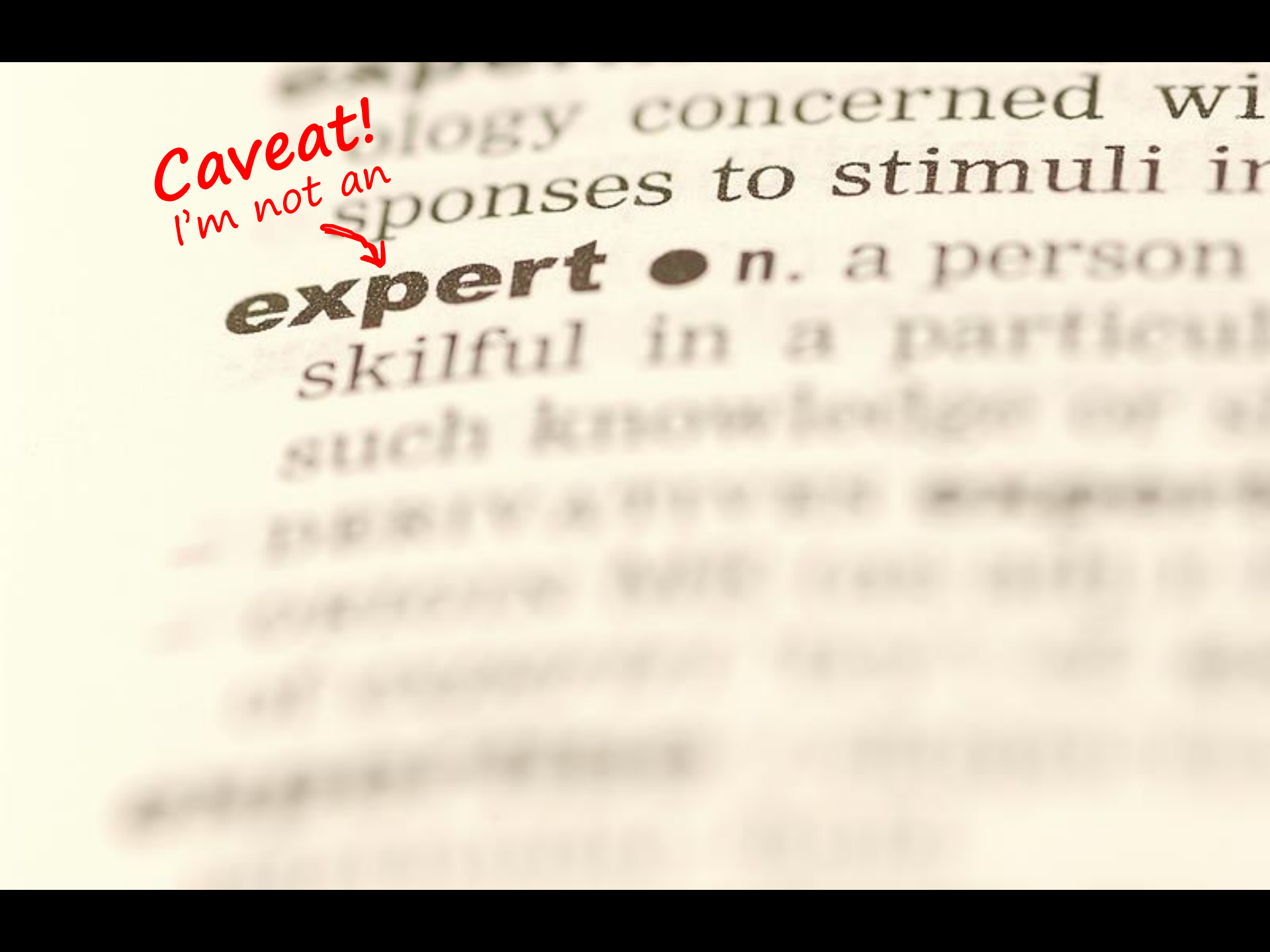
If You Build It, They Will Come?

If You Build It, They Will Come?

How?

What?

Who?


Caveat!
I'm not an
expert
n. a person
skilful in a

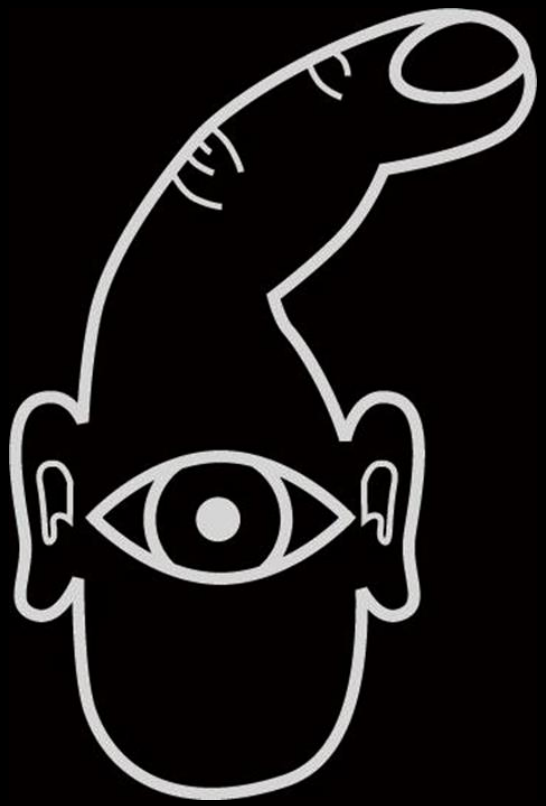
Desired Outcomes For Today

1. **Stimulate reflection** and share ideas on **how to lead a group** & imbue a culture of innovation

2. **Discuss the role of space in creative work and collaboration** & share our mutual experiences

3. Even if you don't have access or (full) control over a space, I think there is **value in thinking about small things** that one can do to make it feel more creative, welcoming, and supportive

How computers have traditionally seen us



O'Sullivan and Igoe, Physical Computing, 2004, p. xix

It doesn't have to be that way. The world of computing is changing.

O'Sullivan and Igoe, Physical Computing, 2004, p. xix

Personal computers have evolved in an office environment in which you sit on your butt, moving only your fingers, entering and receiving information censored by your conscious mind. That is not your whole life, and probably not even the best part.

— Dan O'Sullivan and Tom Igoe
Professors of Interactive Telecommunciations at NYU
Authors of Physical Computing

Personal computers have evolved in an office environment in which you sit on your butt, moving only your fingers, entering and receiving information censored by your conscious mind. That is not your whole life, and probably not even the best part. We need to think about computers that sense more of your body, serve you in more places, and convey the physical expression in addition to information.

— Dan O'Sullivan and Tom Igoe
Professors of Interactive Telecommunciations at NYU
Authors of Physical Computing

I want to create a space that supports…

Collaborative Making

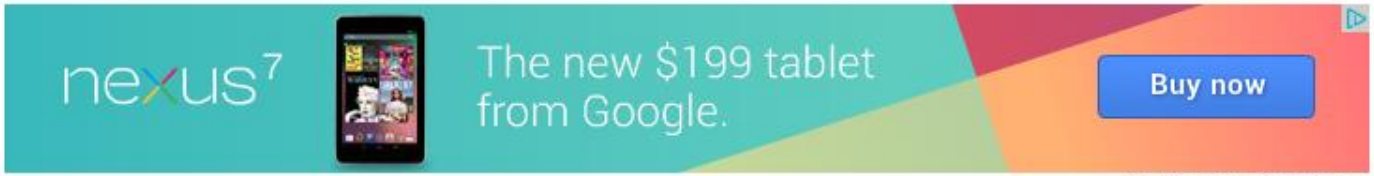
Physical Making

Electronics Making

Seamlessly couple the dual worlds of bits and atoms by giving physical form to digital information

— Professor Hiroshi Ishii
MIT Media Lab
A Founding Father of Tangible User Interfaces
http://tangible.media.mit.edu/vision/

Ryokai *et al.*, I/O Brush: Drawing With Everyday Objects as Ink, CHI2004



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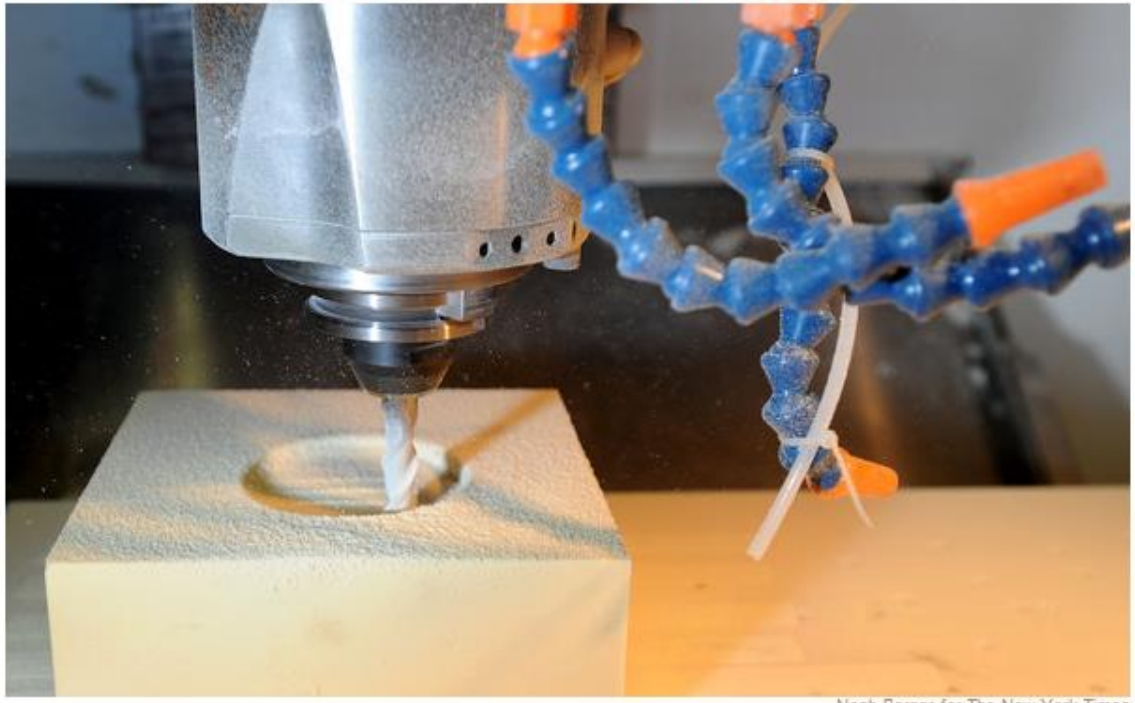
A Hardware Renaissance in Silicon Valley



Noah Berger for The New York Times

A move toward hardware development, and away from an obsession with dot-com services and Web-based social

Log in to see what your friends are sharing on nytimes.com.
Privacy Policy | What's This?
Log In With Facebook

What's Popular Now

The Real Romney

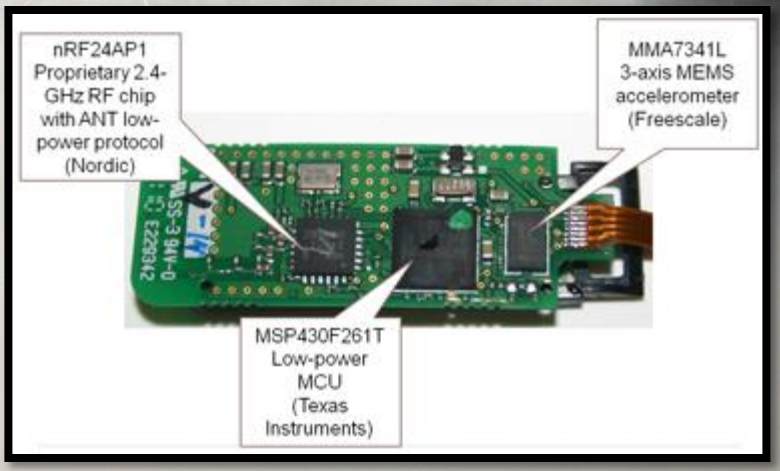
Philippine Economy Set to Become Asia's Newest Bright Spot

New Program: Columbia Management Institute

Begins January 25, 2013 Learn More

FitBit

FitBit

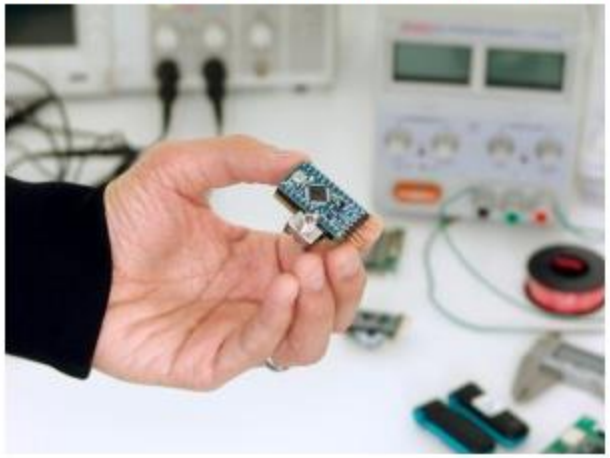

nRF24AP1
Proprietary 2.4-GHz RF chip with ANT low-power protocol (Nordic)
MMA7341L
3-axis MEMS accelerometer (Freescale)
MSP430F261T
Low-power MCU (Texas Instruments)

« Tiny Femtoduino, The Smallest Arduino Compatible Board

Lions and Farmers and Arduinos! Oh My! »

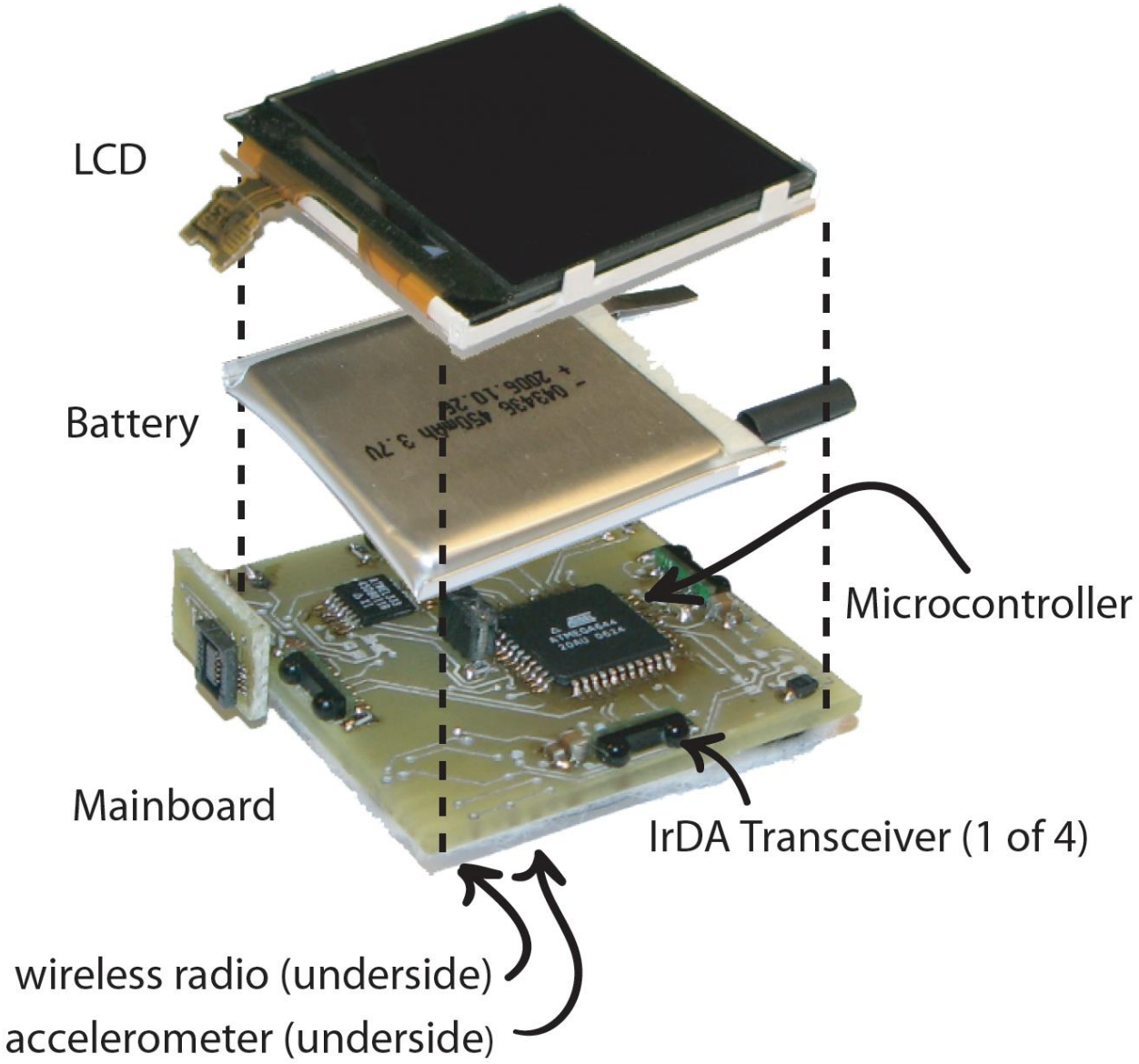
FitBit: Arduino in the workplace

FitBit is a company that makes a nifty little activity tracking device that lets you track your walking, running, sleeping, and general activity based on movement. We had a nice note from Shelten Yuen to say "We've been using Arduino for rapid prototyping for a few years now. It's been a great tool for us in trying things out quickly." It's always nice to hear how people use Arduino at work as well as in their hobbies. Thanks Shelten and thanks Christine Brumback for the intros.



Shelten also mentioned that FitBit is hiring.

Power Ke


LCD
Battery
Microcontroller
Mainboard
IrDA Transceiver (1 of 4)
wireless radio (underside)
accelerometer (underside)

Sifteo, https://www.sifteo.com/, http://youtu.be/dF0NOtctaME

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The Maker Movement: Forming the Next Tech Tidal Wave

Posted by Ashish Arora on June 25, 2013 at 9:06am View Blog

With a wealth of unprecedented tools and resources, it has never been easier for people to explore their own personal creativity. Technology is adding simplicity and removing barriers, allowing for a fuller range of creative expression, something particularly true in the emerging maker movement.

For the unfamiliar, the maker movement is a tech-infused subculture of do-it-yourself (DIY) culture. So where one would engage in a creative project – jewelry making, scrapbooking, fashion, etc. – a maker would leverage technology to complete it. Think using a cutting machine instead of scissors. It takes manual processes and makes them automatic, resulting in more professional-looking, high-quality work.

While perhaps best known by its use of 3-D printers, maker culture also consists of traditional arts and crafts, robotics, electronics and metalworking and woodworking. Its parent DIY culture is a burgeoning one, no longer confined to hardcore creative types. The rise of dedicated e-commerce platforms like Etsy and social services like Pinterest are contributing to a formidable industry, one to the tune of $29 billion.

So what has created this sleeping giant? There are a number of factors. The first, and most obvious, is advances in technology that streamline and simplify everything. Not a novel concept, but let me provide an example that illustrates what I mean.

Prior to Cricut, I worked at Logitech. While the Logitech name was synonymous with innovative keyboards and computer mice, we wanted to gain entry into the living room and establish our footprint there. If you remember in the mid-2000s, remotes were out of control – there was one for the television, the cable box, the DVD player, the stereo receiver, the game console...the list goes on. I led a team of researchers to observe in-depth how people watch television, consume content and control their entertainment system. 20,000 research hours later, we delivered one of the company's most successful and well-received products – the Logitech Harmony One, a universal remote that added convenience and eliminated confusion by replacing people's dozen-plus remotes.

As I look at the DIY industry and maker movement, I see a similar change under way, with easily digestible user interfaces and intuitive design humanizing technology. This is allowing the industry to attract a wider audience who may not consider themselves tech savvy. The movement has gained further momentum as the millennial generation, who are all "digital natives," matures. Technology is not a foreign, unapproachable concept to them, but already integrated into every aspect of their everyday lives.

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Forum

Is Big Data Pros-in-a-Box the Next Big Thing?
Started by Mike Barton in Data Tools. Last reply by Daniel Dean Gutierrez Nov 1, 2012.
1 Reply 0 Favorites

Integrated Systems and Streamlined Practices Propel New, Responsive IT Organizations
Started by IBM in IBM White Papers Mar 18.
0 Replies 0

Maker culture

From Wikipedia, the free encyclopedia

The **maker culture** is a contemporary culture or subculture representing a technology-based extension of DIY culture. Typical interests enjoyed by the maker culture include engineering-oriented pursuits such as electronics, robotics, 3-D printing, and the use of CNC tools, as well as more traditional activities such as metalworking, woodworking, and traditional arts and crafts. The subculture stresses new and unique applications of technologies, and encourages invention and prototyping.[1] There is a strong focus on using and learning practical skills and applying them creatively.

Silicon Valley billboard

Contents [hide]

1 Hackerspaces
2 Media
3 Maker Faire
4 Everything old is new again
5 References
6 See also
7 External links

Hackerspaces [edit]

Main article: Hackerspace

The rise of the maker culture is closely associated with the rise of hackerspaces, of which there are now over 100 in the United States, and many around the world.[2] Hackerspaces allow like-minded individuals to share ideas, tools, and skillsets.[3][4] Some notable hackerspaces which have been linked with the maker culture include Noisebridge, NYC Resistor, A2 Mech Shop, Pumping Station: One, Artisan's Asylum,[5] and TechShop. In addition, those who identify with the subculture can be found at more traditional universities with a technical orientation, such as MIT (specifically around "shop" areas like the MIT Hobby Shop). As maker culture becomes more popular, hackerspaces are becoming more common in universities.[6]

Media [edit]

Some media outlets associated with the subculture include *MAKE* (a magazine published since 2005 by O'Reilly Media) and the popular weblog Boing Boing. (Boing Boing editor Cory Doctorow has written a novel, *Makers*, which he describes as being "a book about people who hack hardware, business-models, and living arrangements to discover ways of staying alive and happy even when the economy is falling down the toilet".[7])

Maker Faire [edit]

Since 2006 the subculture has held regular events around the world, Maker Faire, which in 2012 drew a crowd of 120,000 attendees.[8] Smaller, community driven Maker Faires referred to as Mini Maker Fairs are also held in various places where an O'Reilly-organised Maker Faire has not yet been held. [9][10][11][12] Maker Faire provides a Mini Maker Faire starter kit to encourage the spread of local Maker Faire events.[13]

Everything old is new again [edit]

Hobbyists have made custom things for a long time. Evidence is in ham radio and RC modelling where very early innovation came from the garage, the shed or the loft. Similarly, the evolution of hobbies into for-profit businesses has a long history.

A famous example is in the relationship between the Homebrew Computer Club and Apple Inc., in which Steve Jobs became involved in the maker subculture through his early interest in Heathkit electronics kits. "The kits taught Steve Jobs that products were manifestations of human ingenuity, not magical objects dropped from the sky", writes a business author, who goes on to quote Jobs as saying "It gave a tremendous level of self-confidence, that through exploration and learning one could understand seemingly very complex things in one's environment".[14]

"Maker-Culture" re-brands pursuits and processes that extend into prehistory — making things and communicating how. That re-branding helps shift focus onto the *new* pursuits and processes enabled and reshaped by recent innovations: Internet, open-source memes & means, and the growing ubiquity of computing tools in smaller, faster, cheaper, more flexible forms.

Greater emphasis on some memes distinguishes the newer "Maker-Culture":

Vyvanse® is for the treatment of ADHD in adults and should be used as part of a total treatment program that may include counseling or other therapies.

Vyvanse (lisdexamfetamine dimesylate) helps control ADHD symptoms.

V

You do the rest.

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Vyvanse has a risk of abuse or dependence. Ke safe place to prevent misuse and abuse. Selling sharing Vyvanse may harm others and is illegal Vyvanse is a stimulant. Misuse of stimulants ma cause sudden death and serious heart problems

- Do not take Vyvanse if you or your child:
  - is taking or has taken within the past 14 d anti-depression medicine called a monoam oxidase inhibitor or MAOI
  - is sensitive to, allergic to, or had a reactior other stimulant medicines

DIY Muscle Sensor / EMG Circuit for a Microcontroller

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Author: Gundanium (Advancer Technologies)

Brian Kaminski Owner - Advancer Technologies Brian graduated from North Carolina State University with a BS in Biomedical Engineering with a concentration in Biomechanics in May, 2006. While at North

more »

If you are a smoker in [District of Colum need to read this

I want(ed) to make the HCIL Hackerspace…

A place to inspire creativity
A place to encourage and allow for serendipitous interaction between HCIL members
A place where students *want* to come
A place for playfulness and fun
A place to try and fail and try again
A place to build community and imbue a spirit of collaboration
A place to rapidly prototype physical computing designs
…

My L ng Tangible Things

Middle School

Fewer Hardware Oriented Classes After Freshman & Sophomore Year

Construx

TA'd Intro to Digital Design at ISU

Grad School at UCI; Dourish says: "I don't do hardware" ☺

LEGO

Created HCIL Hackerspace

TA'd Intro to Digital Design at UW

Computer Engineering at Iowa State University

Joined Shwetak's UbiComp Lab

Anything I could put in my mouth
Also: blocks, puzzles, etc.

Involvement Level

Time

Given this, what can /should we do? How?

My Thesis

Space can have a profound impact on thought, creativity, and collaboration.

Not a new idea, of course

ALLISON ARIEFF | July 18, 2011, 8:30 pm | 103 Comments

Beyond the Cubicle

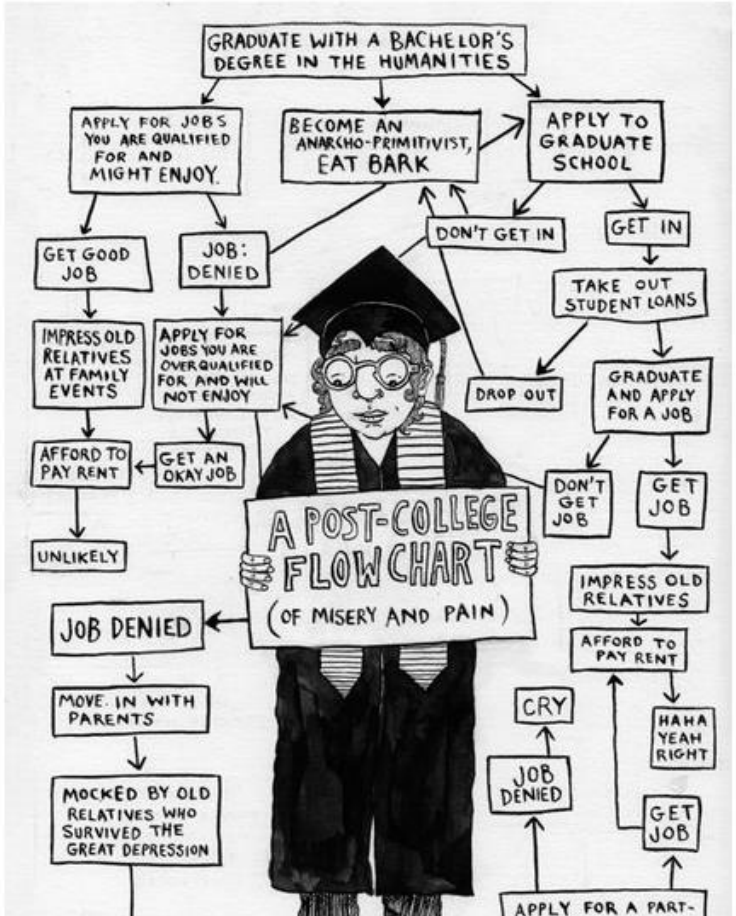
By ALLISON ARIEFF

Allison Arieff on design and architecture.

TAGS:

OFFICE DESIGN, WORKPLACE

Most talk of work these days revolves around the latest unemployment figures, the difficulties of getting and/or holding onto a job and/or how we are all working more hours for less money and less vacation time, or the bleak prospects for newly minted college grads (starkly rendered by cartoonist Jenna Brager in the new anthology "Share or Die: Youth in Recession.")



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Media and Mistrust: A Response
By JASON STANLEY

NEXT POST
A Better Sort of Pig
By MARK BITTMAN

Allison Arieff is editor and content strategist for the urban planning and policy think tank SPUR. She writes about architecture, design and sustainability for Wired Design and The Atlantic Cites. The former editor in chief of Dwell magazine, she is co-author of the books "Prefab" and "Trailer Travel: A Visual History of Mobile America."

INSIDE OPINIONATOR

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July 29, 2013
'Tunnel Vision'
A short impressionistic film shot from New York City subway trains.

October 12, 2012
'Leaf and Death'
A short film celebrating fading (but somehow glowing) leaves.

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GRAY MATTER

Engineering Serendipity

Lisa Hanawalt

By GREG LINDSAY
Published: April 5, 2013

WHEN Yahoo banned its employees from working from home in February, the reasons it gave had less to do with productivity than serendipity. "Some of the best decisions and insights come from

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MOST E-MAILED
MOST VIEWED

Stanford d.school Proves You Really Can Design a Space for Innovation

BY LINDA TISCHLER | 04-26-2010 | 12:00 PM

"Space matters." That's the mantra at the Stanford d.school, where students and staffers have spent six years figuring out how to tweak an environment to make it a more fertile breeding ground for ideas. Now they're going to find out if those ideas work.

The boxes were unpacked in late March, in time for the start of the university's third quarter. But the official ribbon-cutting on the 40K square foot new building (which houses both the d.school and all other design programs at Stanford) isn't until May 7. *Fast Company* got a sneak preview, and we'll be giving you a guided tour (along with photos, videos and critiques of the space from the students themselves) in the days ahead. We'll go behind the scenes to show how every nook, cranny, and fungible wall system has been smartly designed to maximize collaboration.

The school, which is officially known as the Hasso Plattner Institute of Design, began in a

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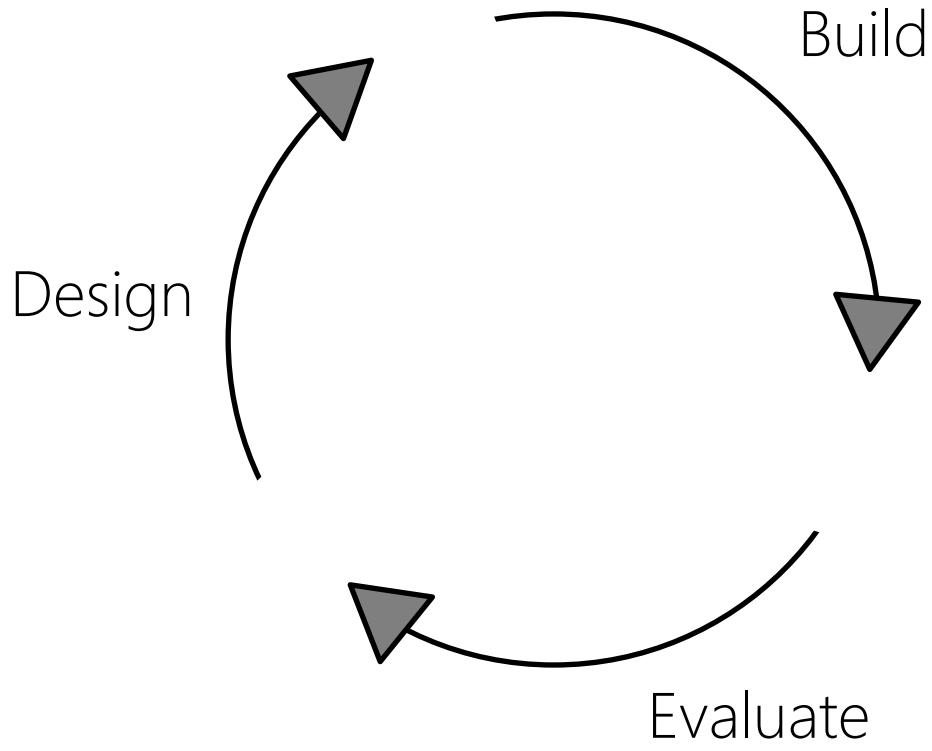
How Serial Innovators Find The Best Problems To Solve

Dude, This

My Approach

Human-Centered Design

Iterative Design



My Approach

Read.
Learn.
Remix.
Design.
Sketch.
Communicate.
Get Feedback.
Revise.
Build.
Use.
Iterate.
Use.
Iterate.
...

My Approach

Read.
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Get Feedback.
Revise.
Build.
Use.
Iterate.
Use.
Iterate.
...

Austin Kleon, Steal Like An Artist, http://youtu.be/oww7oB9rjgw

I am a **creative kleptomaniac**. I'm interested in stealing things that really mean something to me. The things [ideas] that I can actually use in my work.

Austin Kleon
Author / designer

Quote from the TEDx talk: *Steal Like An Artist*, http://youtu.be/oww7oB9rjgw

My Kleptomania

Null Space Labs
Los Angeles Hackerspace

Noisebridge
San Francisco Hackerspace

Unknown

Unknown

Taubman College of Architecture & Urban Planning
University of Michigan

Mono Mpls
Advertising Agency in MN

Innovatrium

Ann Arbor, MI

Oktavilla

Stockholm Design Firm

Design by Front

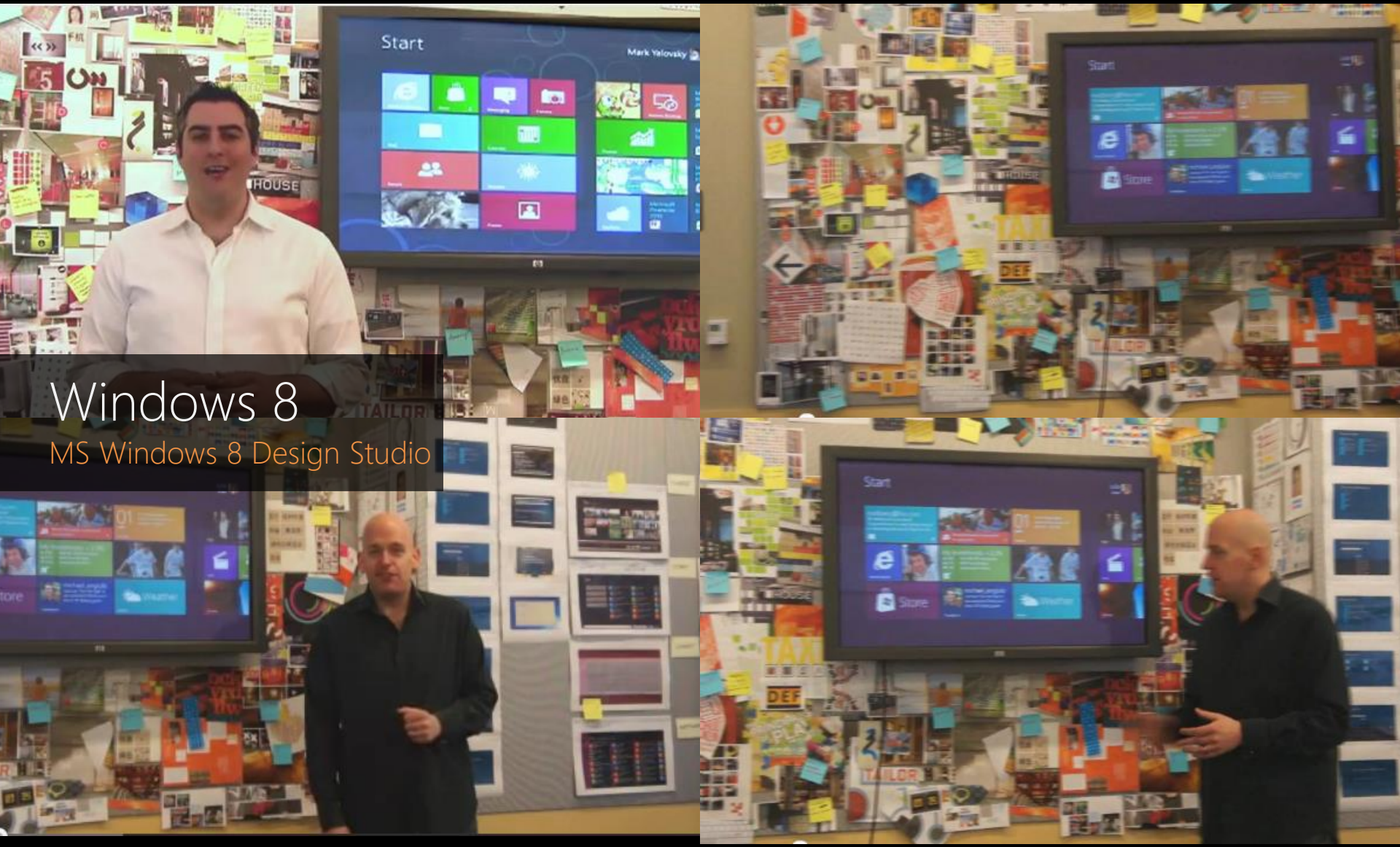
Ireland U/X Design Firm

Teehan Lax
Toronto U/X Design Firm

Invoke Canada

Media and U/X Design Firm

Parliament
Portland Design Firm



Windows 8

MS Windows 8 Design Studio

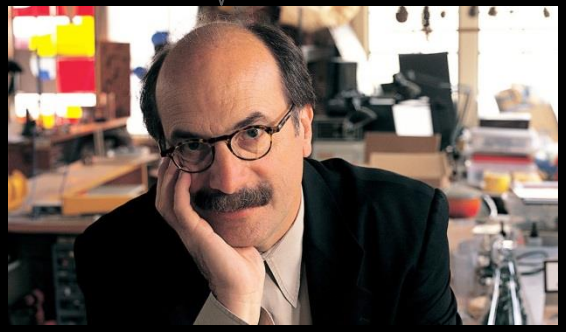
WOOD CUTTING
DELTA

IDEO Workspace & Culture
ABC News Nightline, July 13, 1999
abc

Being playful is of huge importance for being innovative.

[Re: DC3 Wing]. That's décor. That's ambience. That says, we're weird and we're proud of it.

Try stuff and ask forgiveness instead of asking permission.



David Kelley
Founder of IDEO & Hasso Plattner Institute of Design
Professor at Stanford

Stanford d.School

Make A Space For Innovation

My Approach

Read.
Learn.
Remix.
Design.
Sketch.
Communicate.
Get Feedback.
Revise.
Build.
Use.
Iterate.
Use.
Iterate.
...

My Approach

Read.
Learn.
Remix.
Design.
Sketch.
Communicate.
Get Feedback.
Revise.
Build.
Use.
Iterate.
Use.
Iterate.
...

roughly 9' ceilings

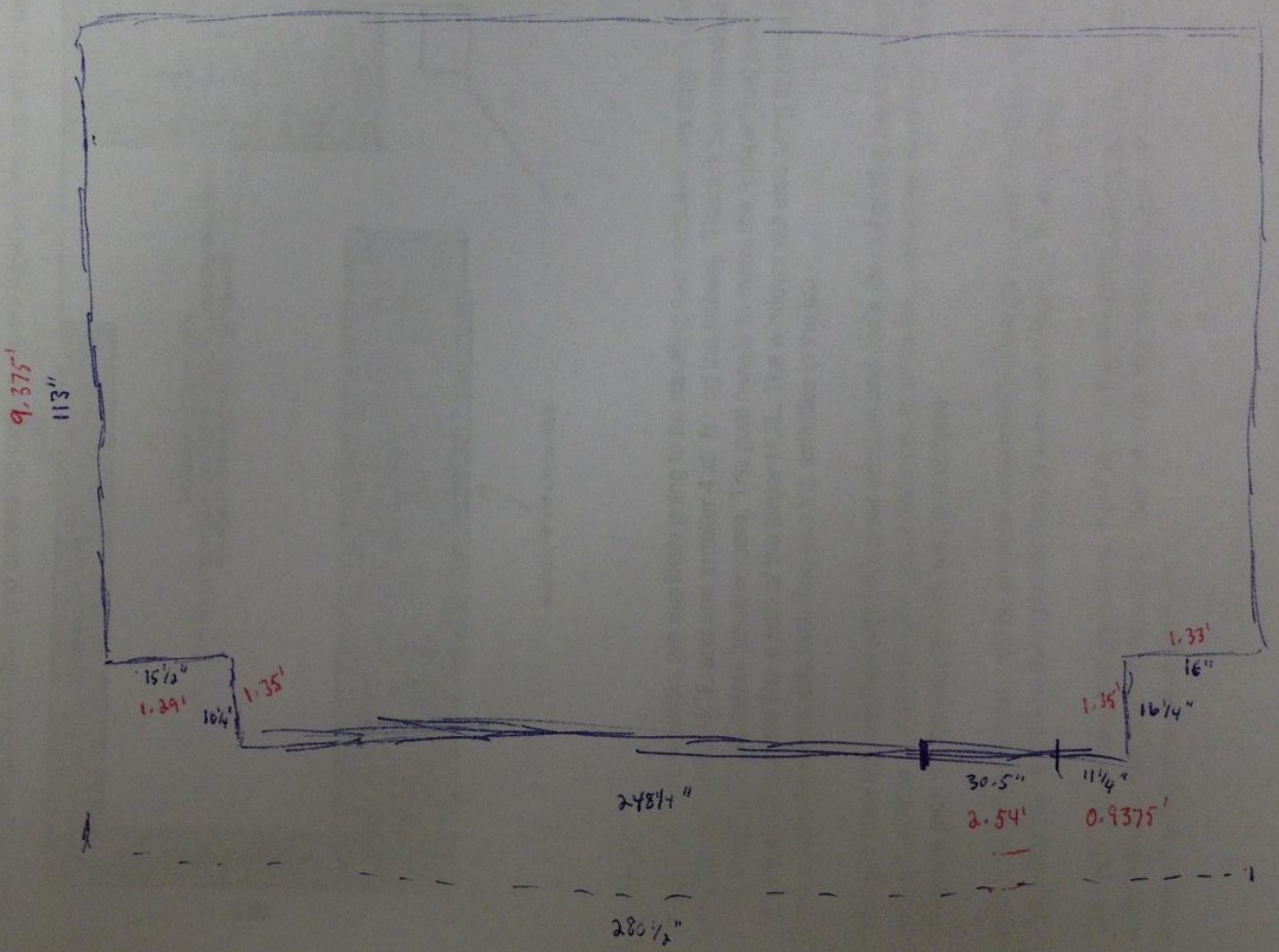
Rear:

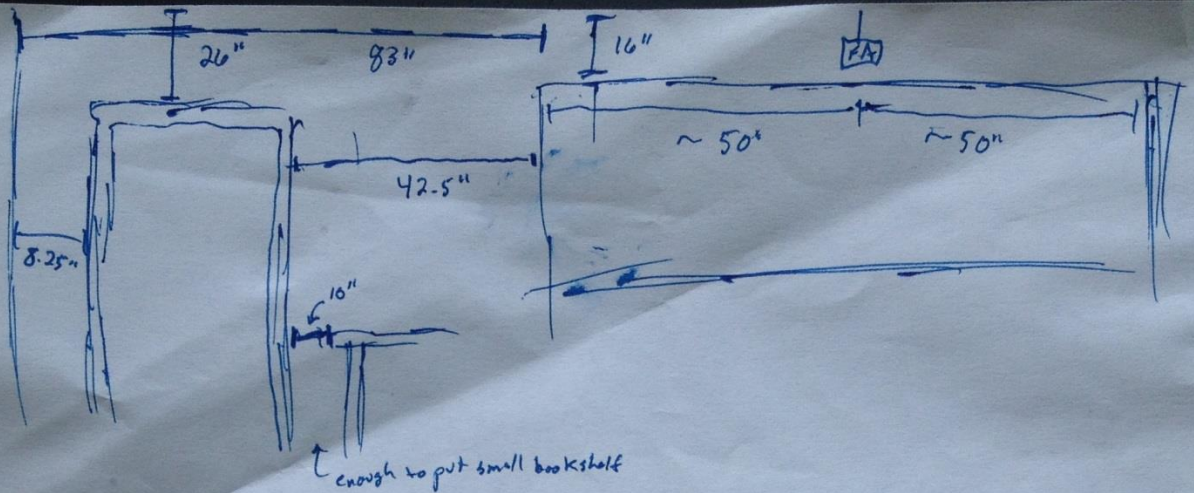
30.5"

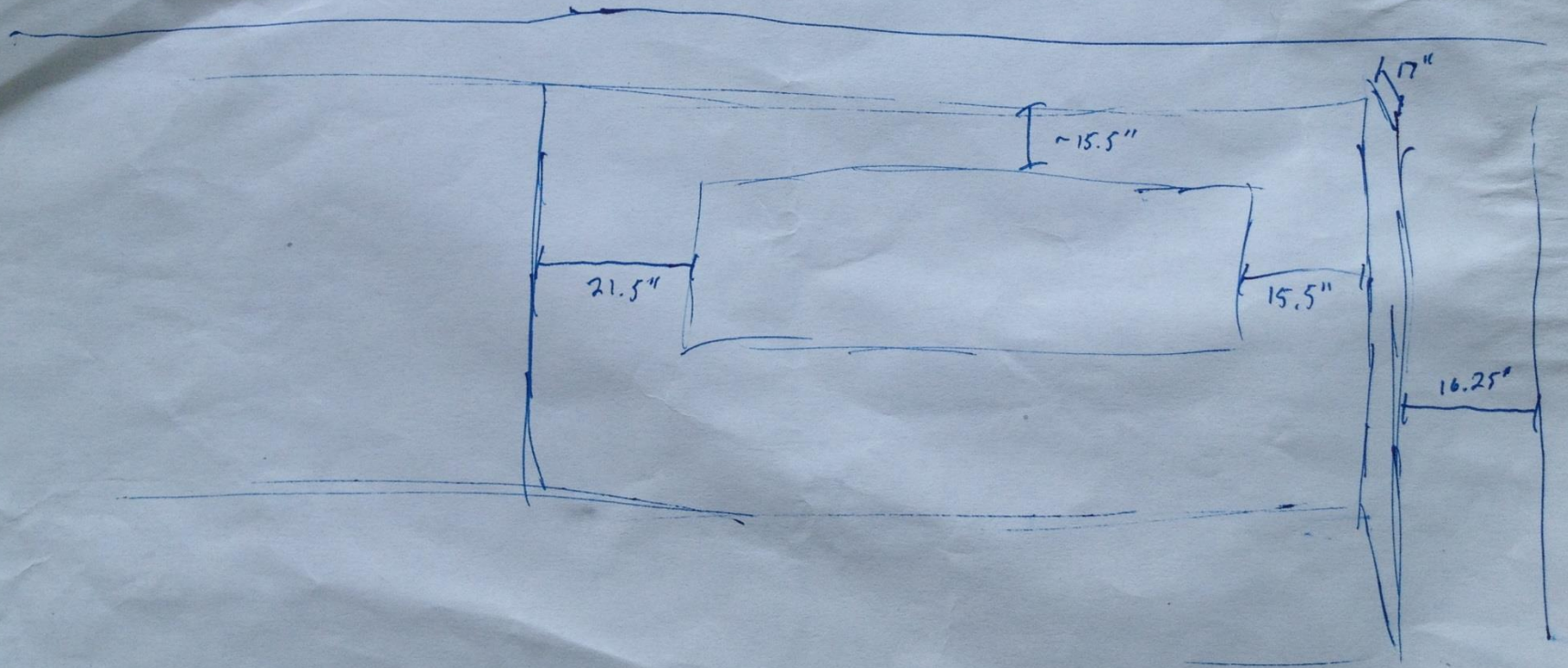
78.5"

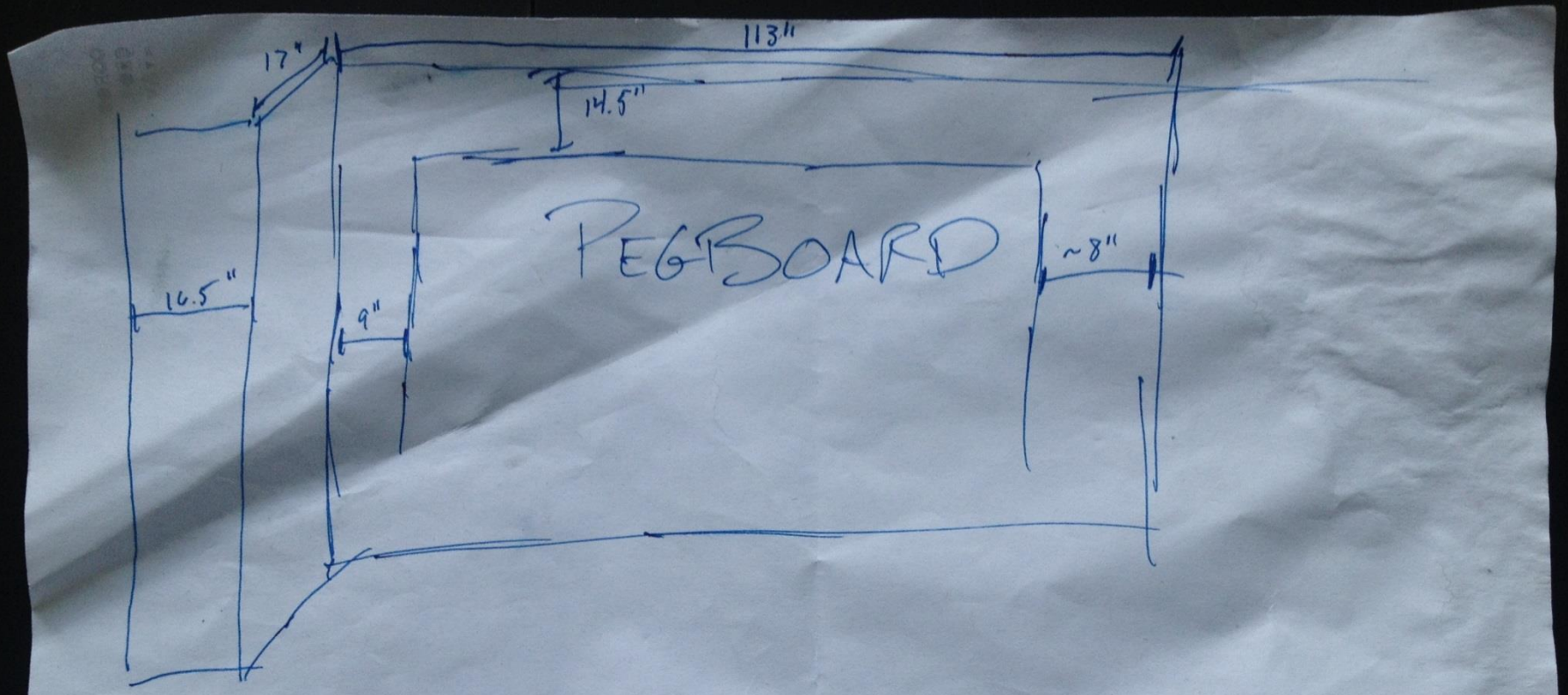
23.5'

282"




26"
83"
16"
FA
~ 50"
~ 50"
42.5"
8.25"
10"
enough to put small bookshelf


17"
~15.5"
21.5"
15.5"
16.25"



- [ ] whiteboard slot 39
- [ ] whiteboard slot 2 ~~41.5~~ 41.5"
- [ ] lots of gray stack boxes (HusKy)
- [ ] 113" black shelving above peg board
- [ ] 83" black shelving above doorway
- [x] Big gray boxes

- [ ] Big Drill bit?
- [x] longer screw tips for drill
- [ ] More storage Bins from that Storage Bin Place
- [ ] IKea colored carpet
- [ ] Whiteboard on wheels
- [ ] Pillow / lap laptop holder
- [ ] Pico Projector
- [x] More L ~~Brace~~ bars (long) for shelf

Drawers underneath 3D printer table?

- [x] Wood Glue Aisle 5

Thrifty White Pegboard
SKU 346-428

A manifesto & a plan

HCIL "Messy Closet" -> "Hardware Lab"

https://docs.google.com/document/d/1nFW0JNb2vvYbC0F1oe9qsayoi0f4dee1mLCp7XmW_qY/edit

File Edit View Insert Format Tools Table Help All changes saved in Drive

Jon Froehlich

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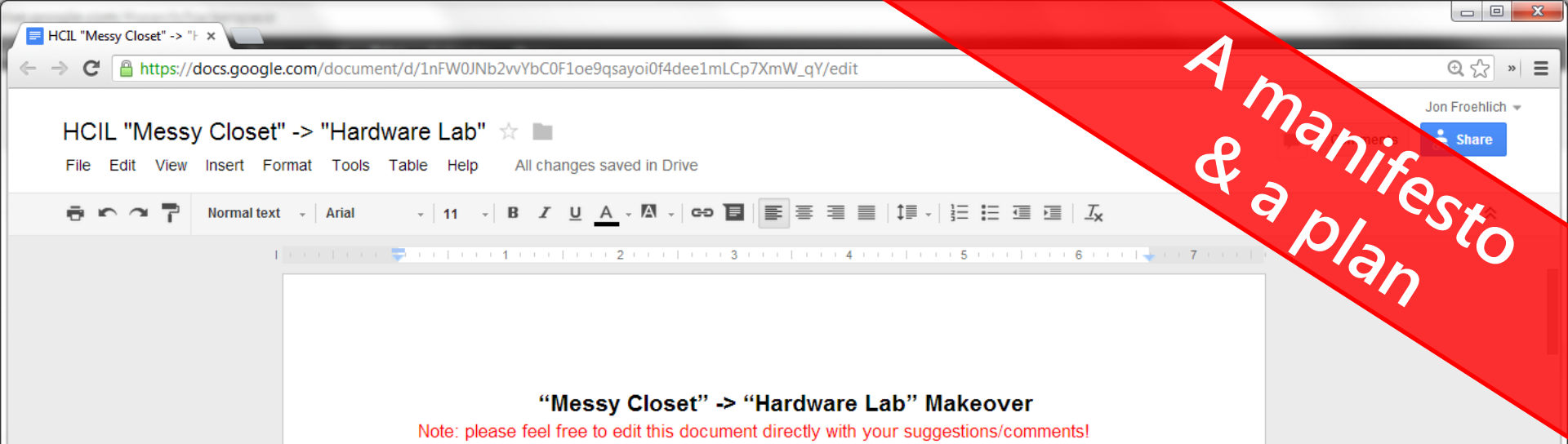
Normal text Arial 11



"Messy Closet" -> "Hardware Lab" Makeover

Note: please feel free to edit this document directly with your suggestions/comments!

- "Messy Lab" -> "Hardware Lab" Makeover
  - An Overview of the Plan
  - Layout
    - Windows
  - Timeline
  - Potential Issues
    - Security
    - Historical HCIL Records
    - Ventilation
  - Wish List

We are in the midst of planning the "Messy (Closet) Lab" makeover, which involves transforming this closet-like space to a nice, creative hardware workspace for students, faculty and staff alike! The HCIL will have a place to hack and build together. Fun, fun! Now, we are just in the planning stages for this. As such, we are seeking input from HCIL members on what they'd like to see from this space as well as to ensure that we accommodate everyone who currently relies on the "Messy Lab" for storage and other things. I'm hoping this can be largely a collaborative effort--though one that I am spearheading. This seems to follow the spirit of the HCIL culture.

An Overview of the Plan

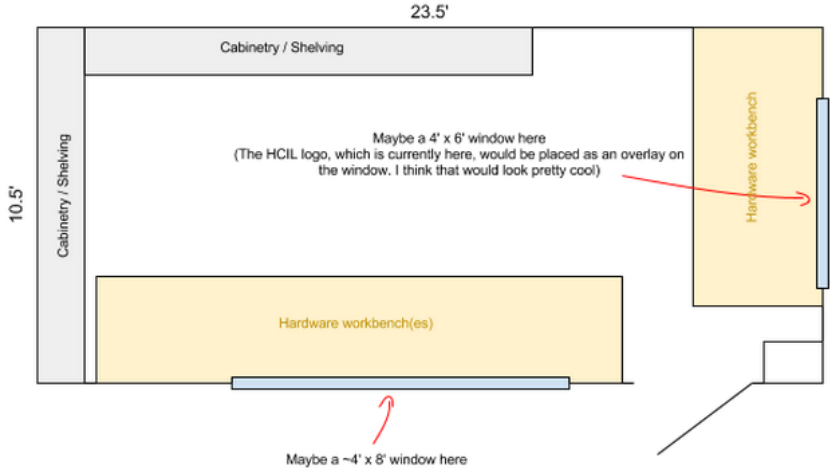
There are four parts to the plan:

1. **"Messy lab" cleanup**: This involves throwing out old and unnecessary items and organizing/categorizing important content. My guess is that, at the very least, Evan, Mona Leigh, Allison, Charley, people with old research materials in the messy lab, and maybe some graduate students would want to be involved in this.
2. **Layout and furniture purchasing:** In my mind, we can purchase cabinetry and shelving to move many of the items that are on tables and on the floor up to

Shared broadly & group edited

Layout and Decor

The layout below is only a sketch and not definitive. The overall goal here is to maximize workspace while still allowing for sufficient storage. The 4'x8' window, which looks into the larger HCIL space would be replacing, in part, the peg board. Evan notes that the peg board is useful, however, for quickly storing and accessing tools so we will have to come up with a plan here.



Windows

As part of this transition, we are likely going to be installing two windows: one largish 4'x8' window facing the HCIL and one smaller 4'x6' facing the hallway. This will be dependent on cost and feedback from fellow lab members. The goal here is to make the "closet" feel less cavernous and more like a part of the larger HCIL. The windows will also bring in more light and allow passerbys to briefly look in to see the activities in the lab.

Allison: I think the windows will be a great addition and Jon's idea of putting back the logo on the hallway window is inspired. Jon- you'll just need to let us know when we need to take down the shelf and pics on the lab wall that will get a window.

Krist: I think the windows will be great. A minor addition maybe a curtain that you can

HCIL "Messy Closet" -> "Hardware Lab"

https://docs.google.com/document/d/1nFW0JNb2vvYbC0F1oe9qsayoi0f4dee1mLCp7XmW_qY/edit

Jon Froehlich

HCIL "Messy Closet" -> "Hardware Lab"

File Edit View Insert Format Tools Table Help Last edit was yesterday at 10:26 PM

Comments Share

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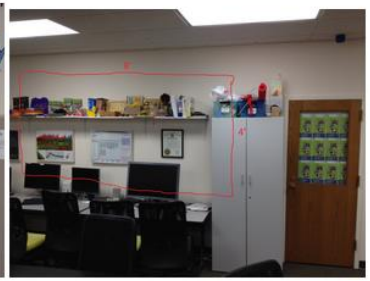
Windows

As part of this transition, we are likely going to be installing two windows: one largish 4'x8' window facing the HCIL and one smaller 4'x6' facing the hallway. This will be dependent on cost and feedback from fellow lab members. The goal here is to make the "closet" feel less cavernous and more like a part of the larger HCIL. The windows will also bring in more light and allow passerbys to briefly look in to see the activities in the lab.

Allison: I think the windows will be a great addition and Jon's idea of putting back the logo on the hallway window is inspired. Jon- you'll just need to let us know when we need to take down the shelf and pics on the lab wall that will get a window.

Krist: I think the windows will be great. A minor addition maybe a curtain that you can cover the "hardware lab" windows during brown bag or a private meeting in the main lab.

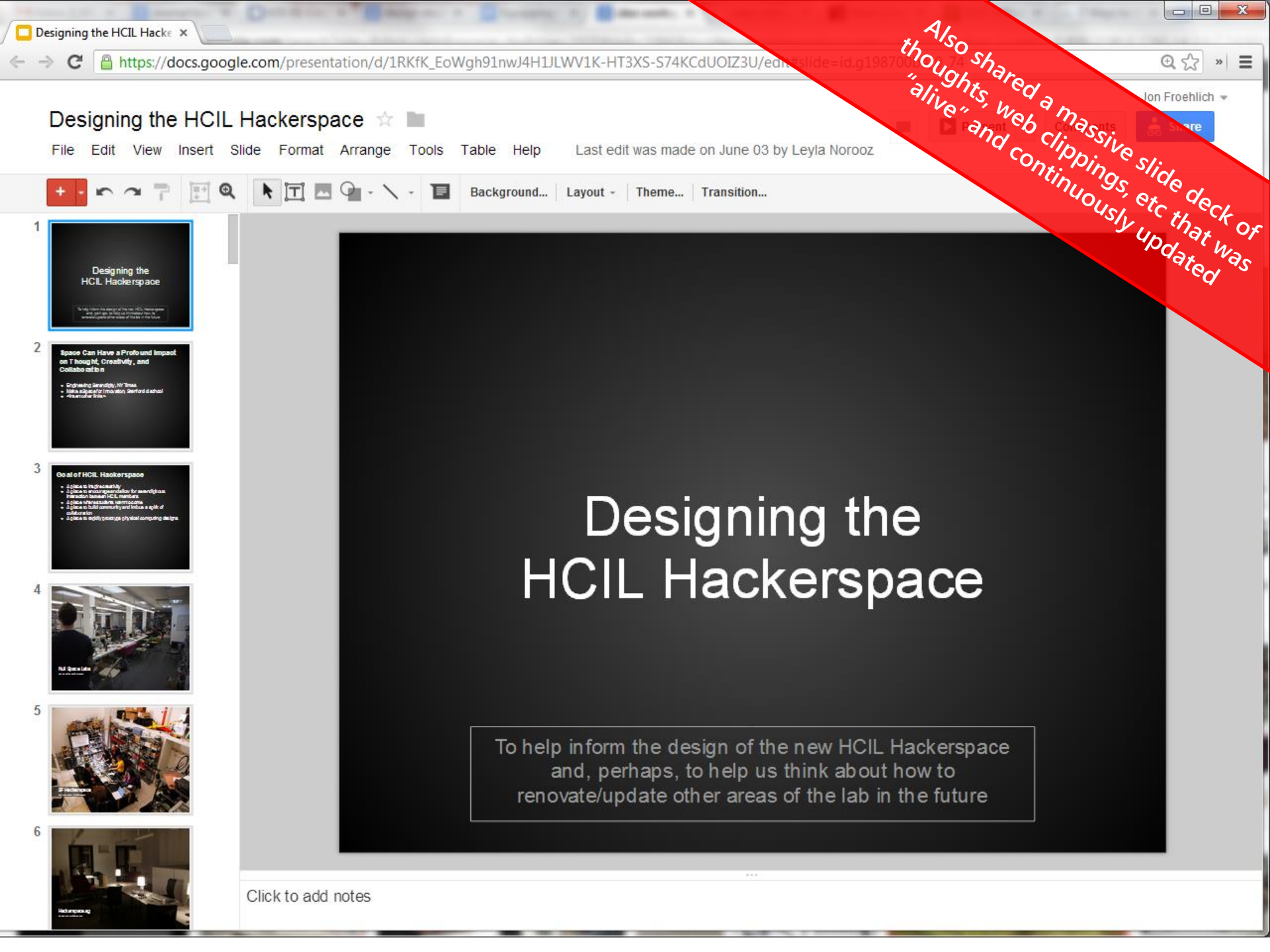
Tak : Adding windows is a great idea. How about a big twin glass door which can make the room feel much bigger? With a glass door the room may look like a part of the lab. But of course it will cost much more money.



Configuring the Space for Creative Work

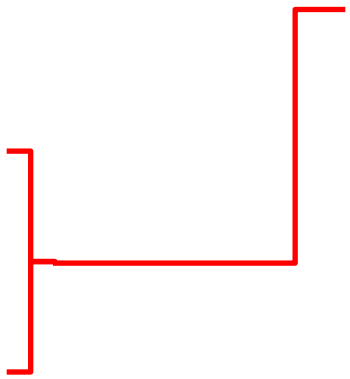
I'm a huge believer in how space, architecture, and the overall flavor of a place can influence creativity and thought. I want the hackerspace (and the HCIL area as a whole) to inspire creativity, free thinking, and imagination. I also want the space to be equipped with the tools necessary to support creative work

Google Docs enabled multiple parties to easily provide feedback and even make their own edits to the planning doc


Designing the HCIL Hacke
https://docs.google.com/presentation/d/1RKfK_EoWgh91nwJ4H1JLWV1K-HT3XS-S74KCdUOIZ3U/edit#slide=id.g198700
Designing the HCIL Hackerspace
File Edit View Insert Slide Format Arrange Tools Table Help
Last edit was made on June 03 by Leyla Norooz
Jon Froehlich
Background... Layout Theme... Transition...
Designing the HCIL Hackerspace
To help inform the design of the new HCIL Hackerspace and, perhaps, to help us think about how to renovate/update other areas of the lab in the future
Click to add notes
Also shared a massive slide deck of thoughts, web clippings, etc that was "alive" and continuously updated

My Approach

Read.
Learn.
Remix.
Design.
Sketch.
Communicate.
Get Feedback.
Revise.
Build.
Use.
Iterate.
Use.
Iterate.
...



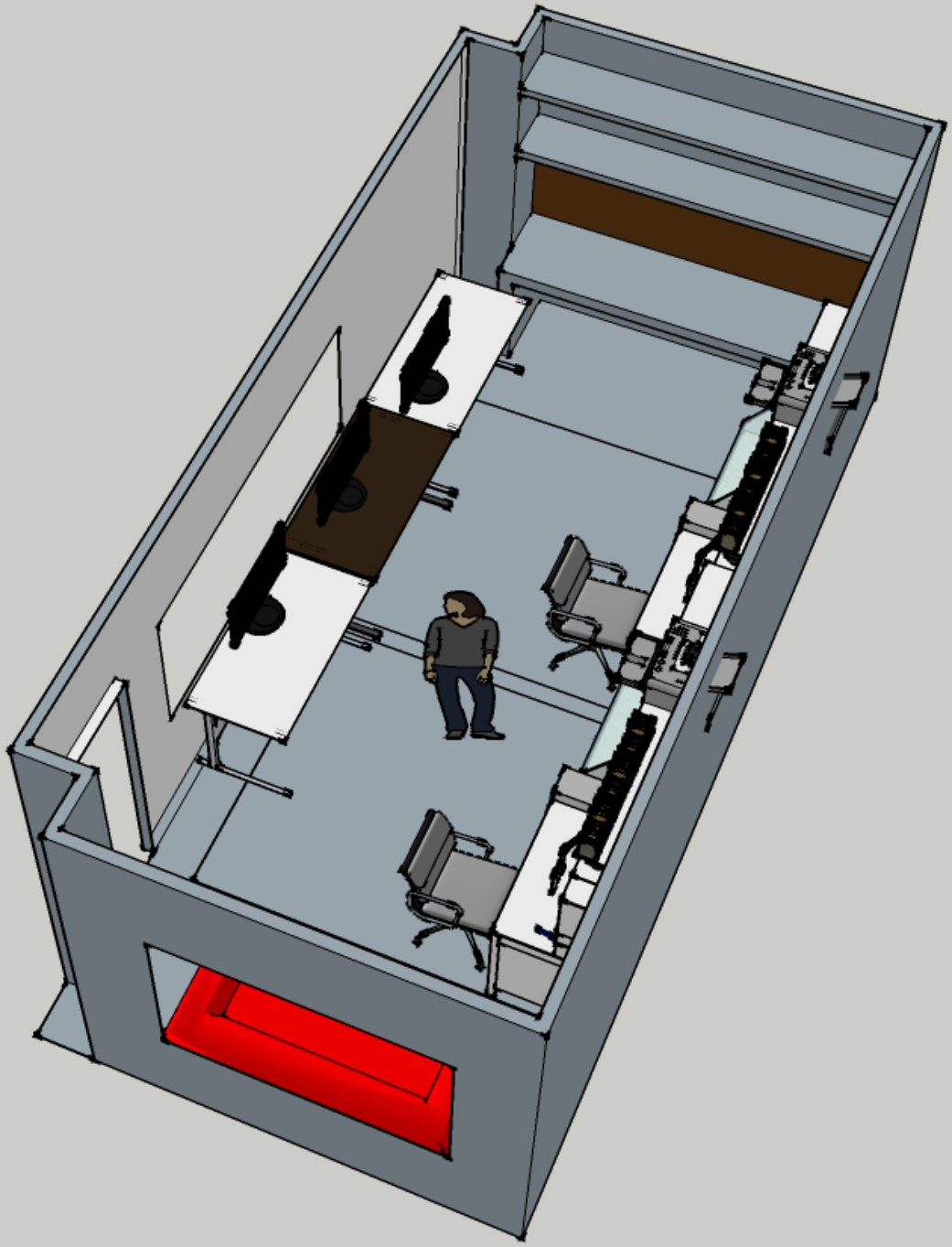
After sketches, sharing design docs, getting feedback, I made more "hi-fidelity" prototypes of the space

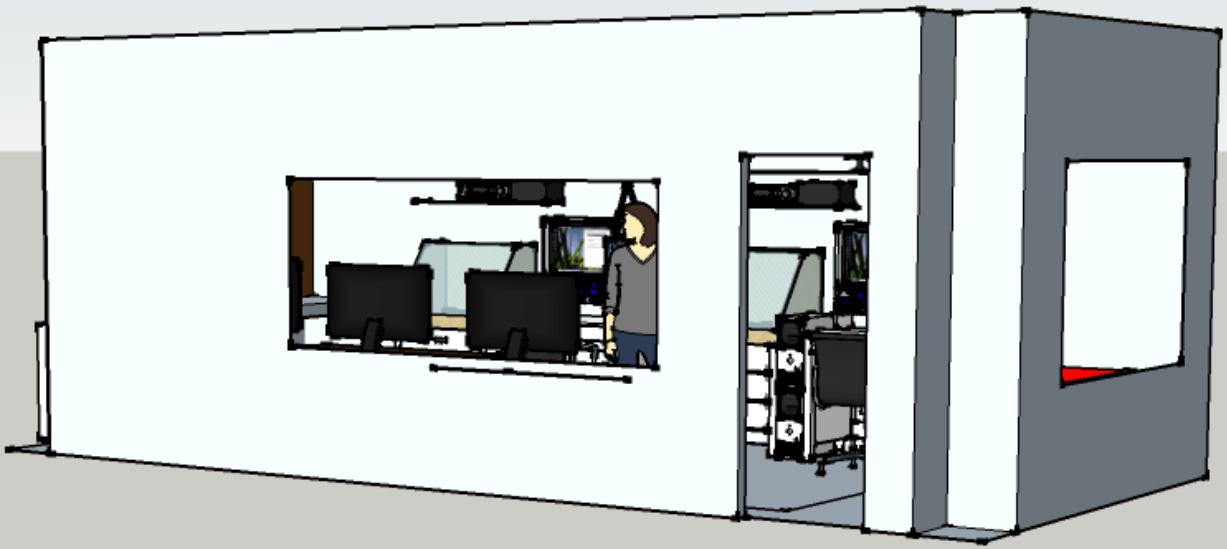
The easiest way to draw in 3D

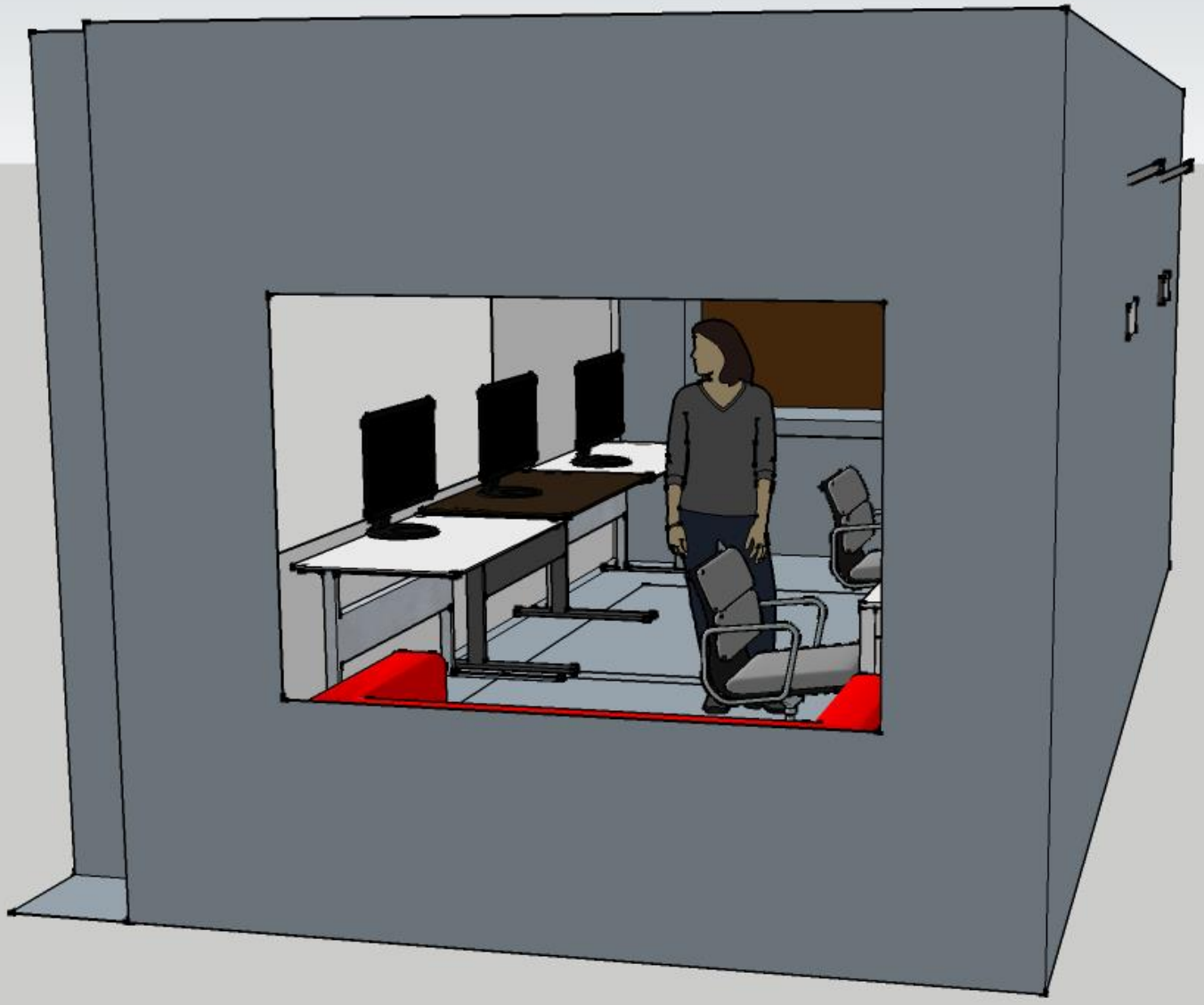
You love what you do. Now love how you do it.

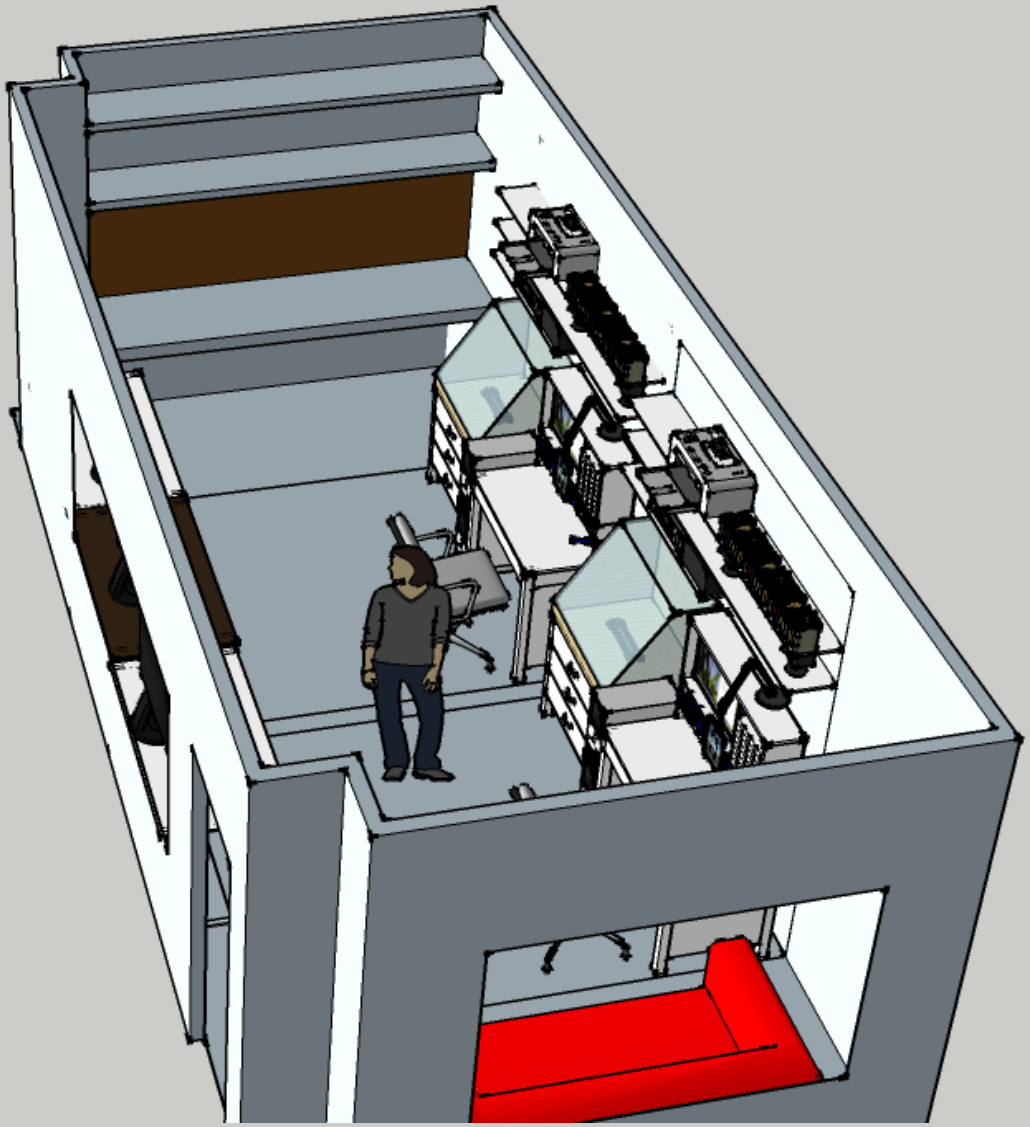
Download SketchUp

What's new in SketchUp 2013?









Implementation

Hard Work

Ingredient #1

Money

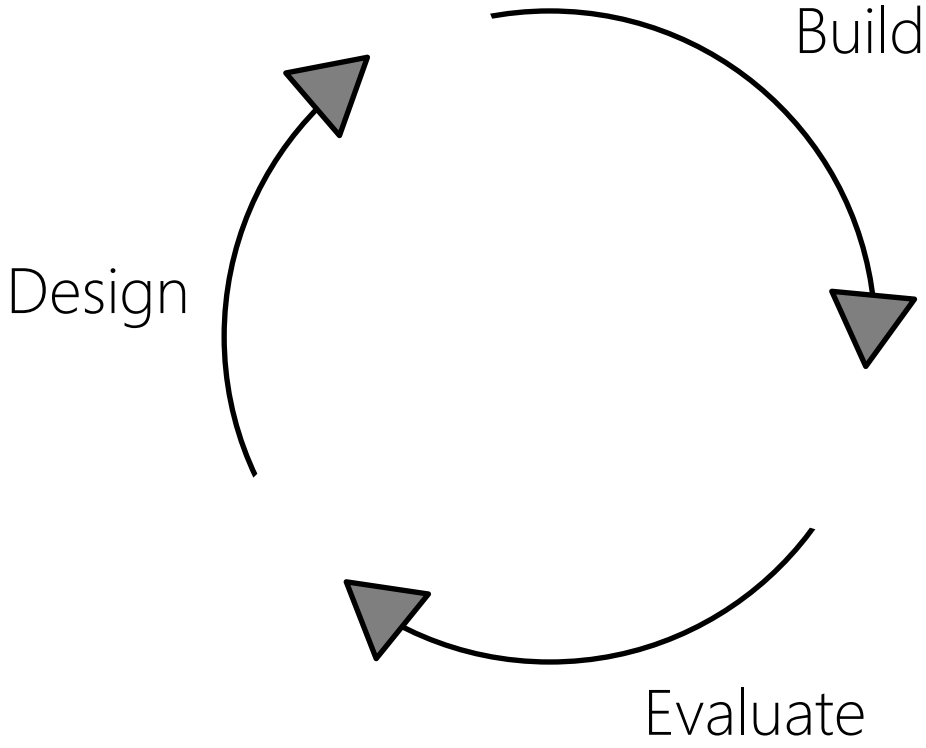
Ingredient #2

People

Ingredient #3

Iteration

Ingredient #4

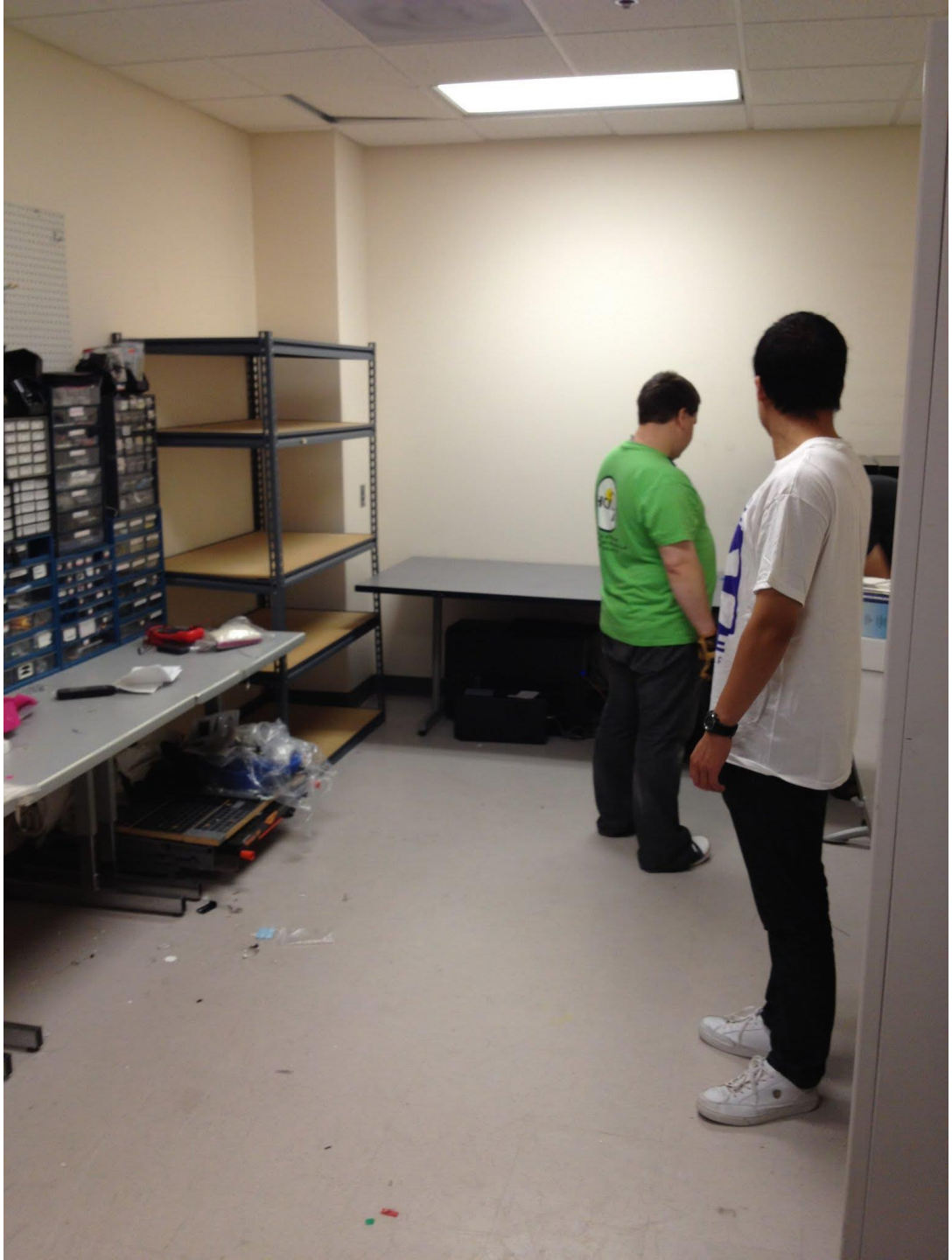


Transforming the Space

Deloitte
MARSHM
homelife

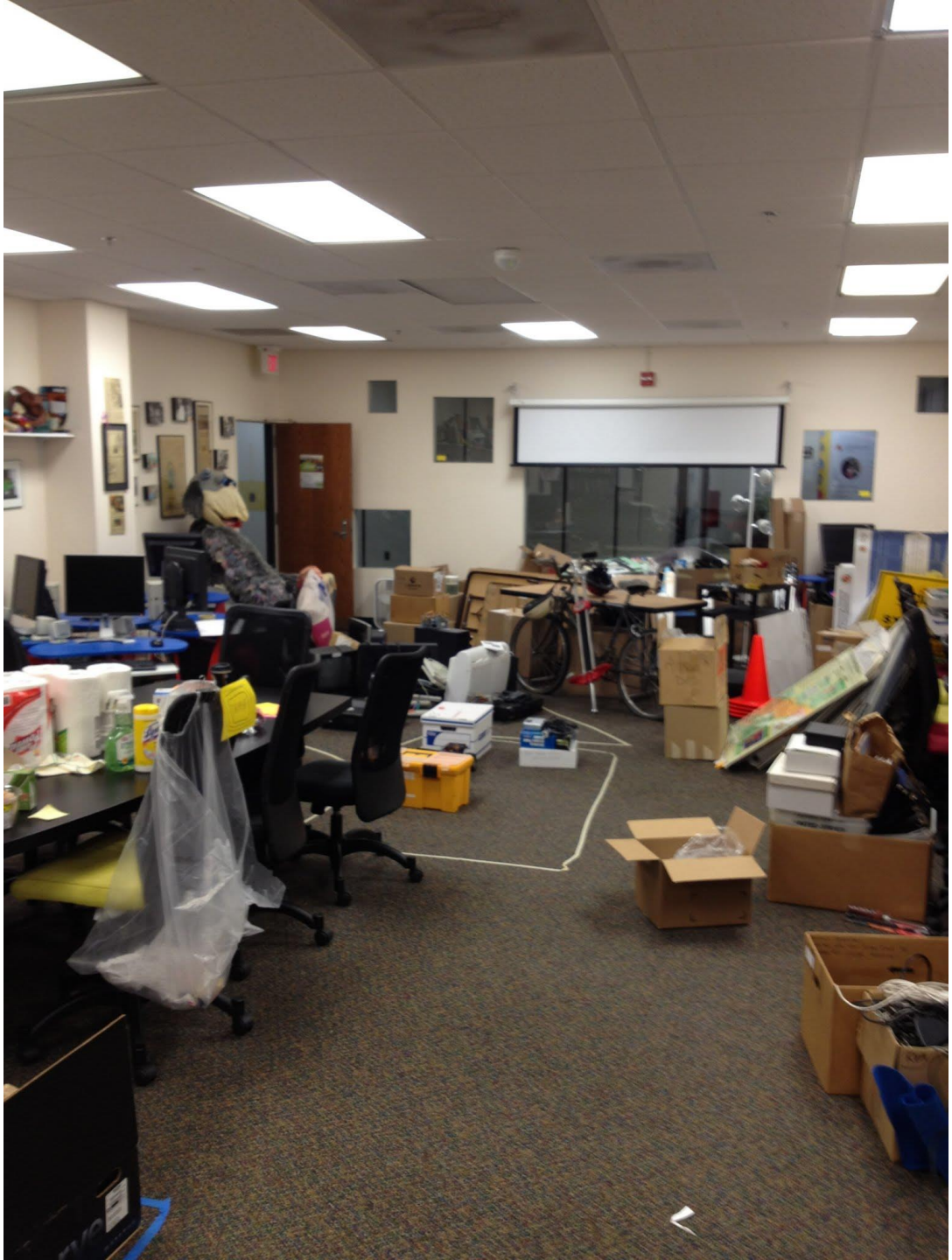
Deloitte

CHANGE



Where did all that stuff go?

KOSEM
ONLY
DELL



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CAT5 / Ethernet

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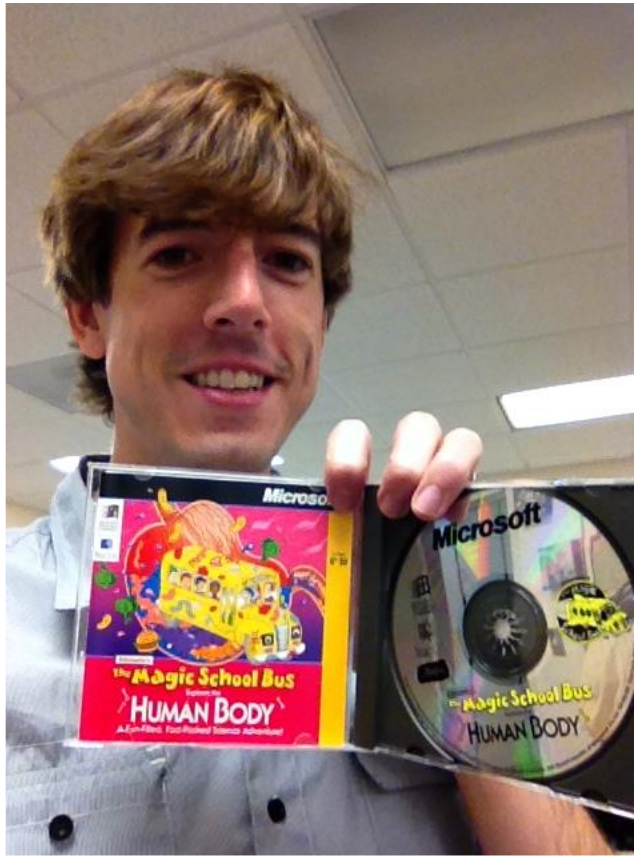
XEROX
Xerox 4024 DP Paper

Nintendo


Microsoft
The Magic School Bus
HUMAN BODY
Microsoft
The Magic School Bus
HUMAN BODY

HCIL TOTE BAGS
HCIL TOTE BAGS
Kid Tech
Bounty

The Windows

HCIL
HCIL
Google

6'
Glass window
HCIL
4'
Logo will be shrunk and
reprinted to fit window.
Should look awesome! ☺
Google

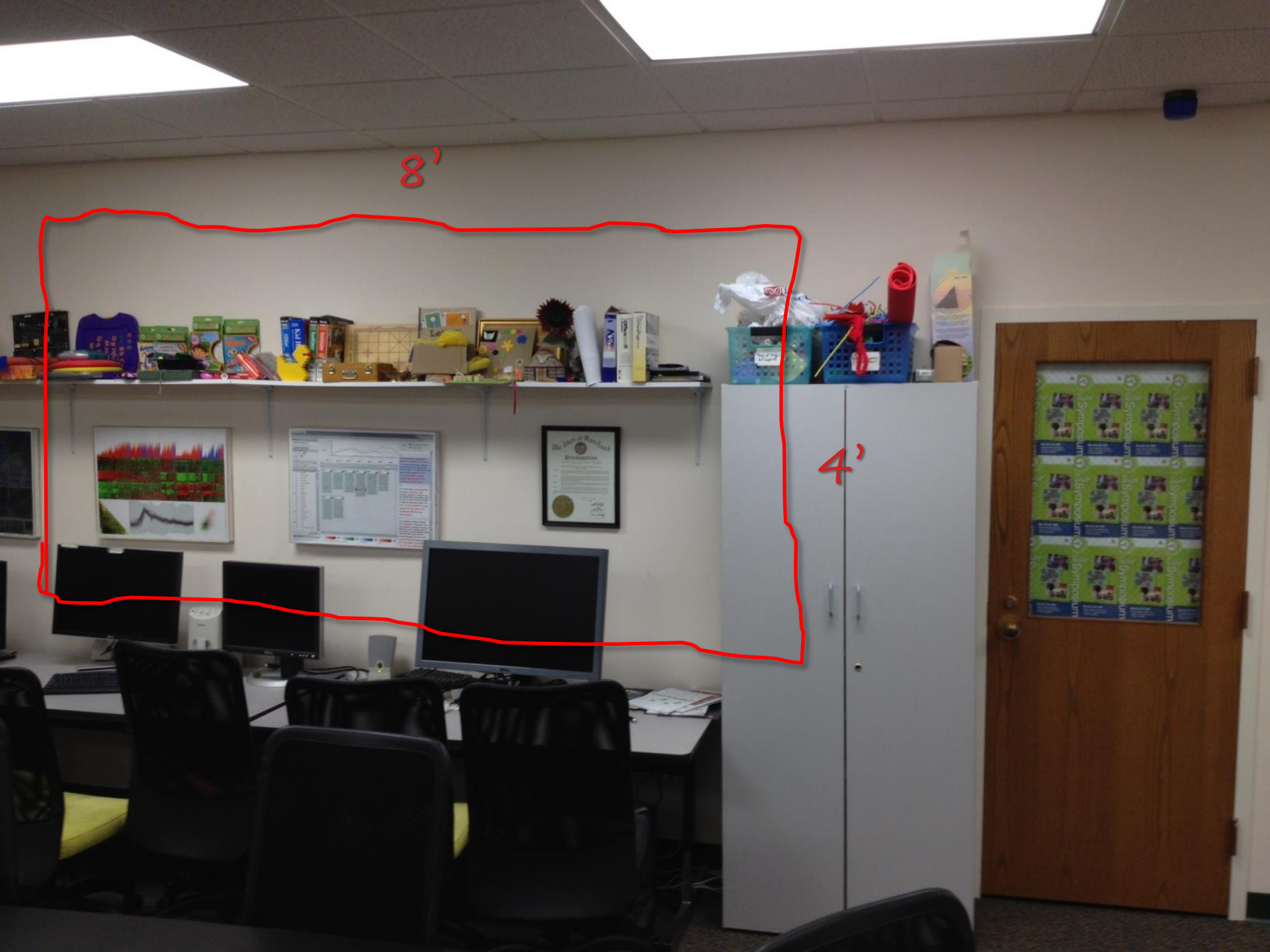
HCIL
2105

HCIL

HCIL

HCIL

HCIL
FREE TO
GOOD HOME!


8'
4'

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2023
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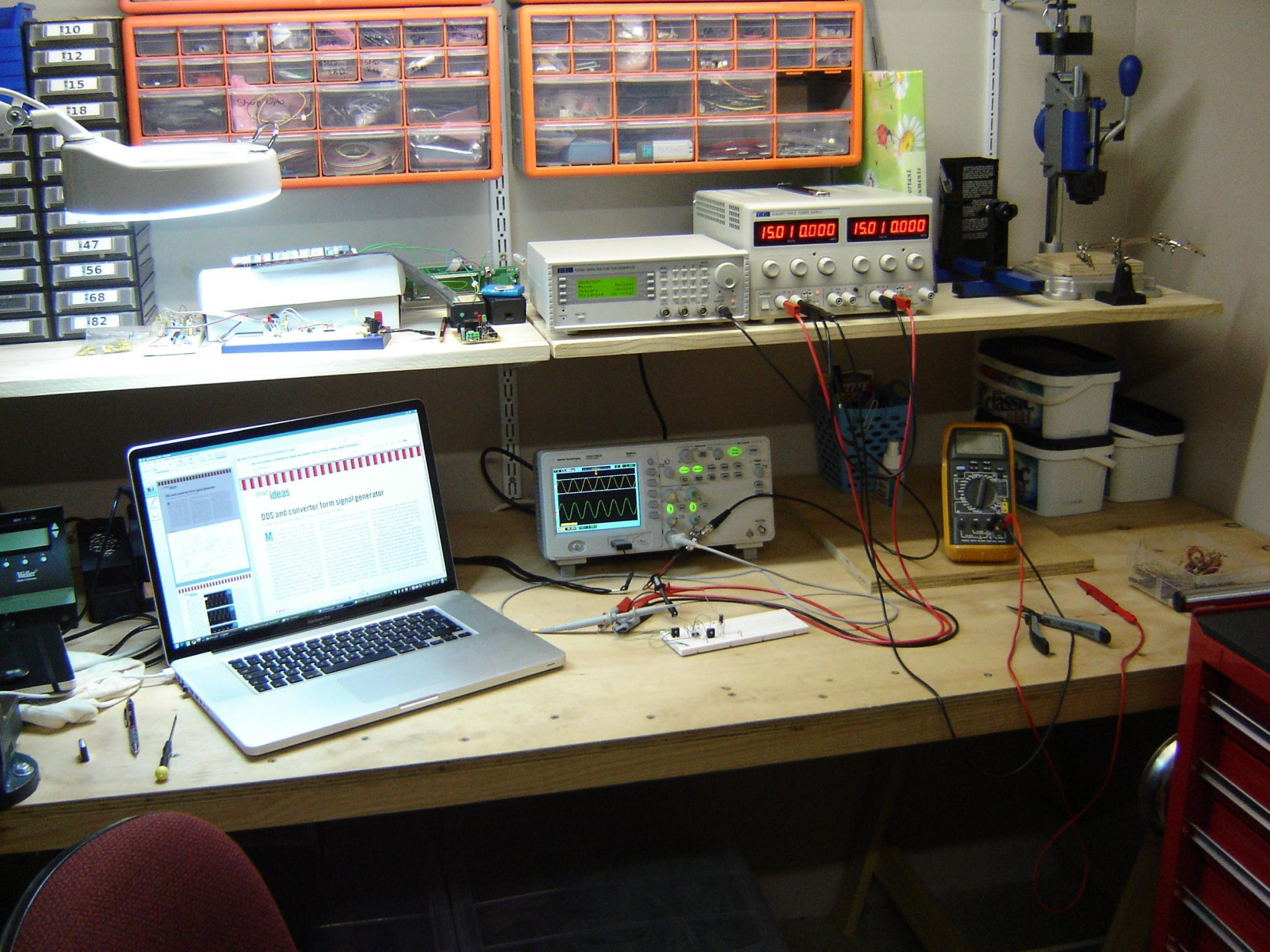
Designing, Building, & Installing the Workbench

VOLT
VOLT
VOLT
VOLT

HANDBOOK

RIGOL
12 x 750ml
Weller
element14
DONAU
OKI


ideas
DDS and converter form signal generator

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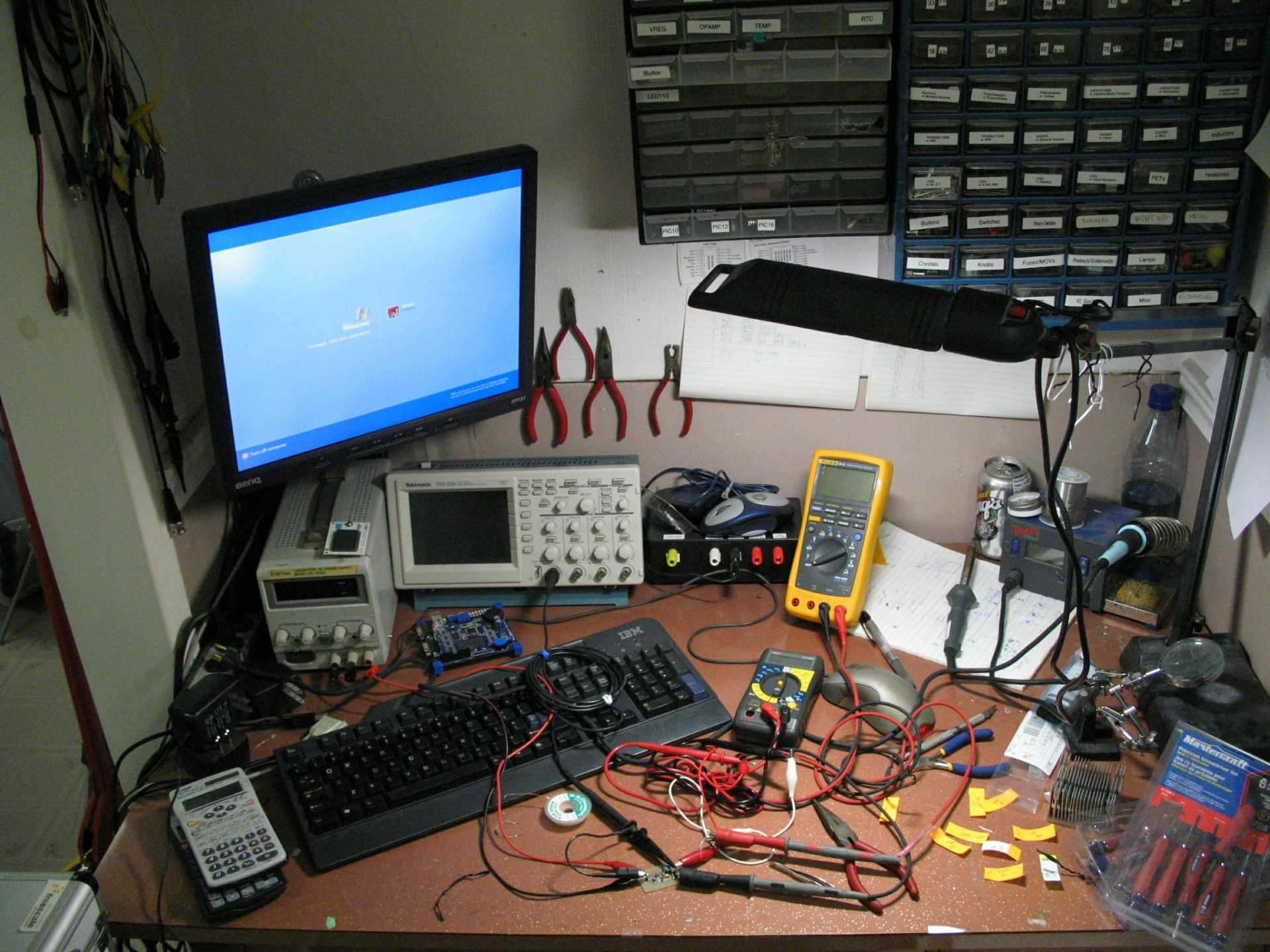
Guardian Angels.
K3TEN
K3TEN
SPECTRUM ANALYZER

PERONI
NASTRO AZZURRO
MODEL RAILWAYS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PIC10
PIC12
PIC16
Inductors
FETs
heatsinks
Buttons
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Knobs
Fuses/MOVs
Relays/Solenoids
Lamps
Misc
BenQ
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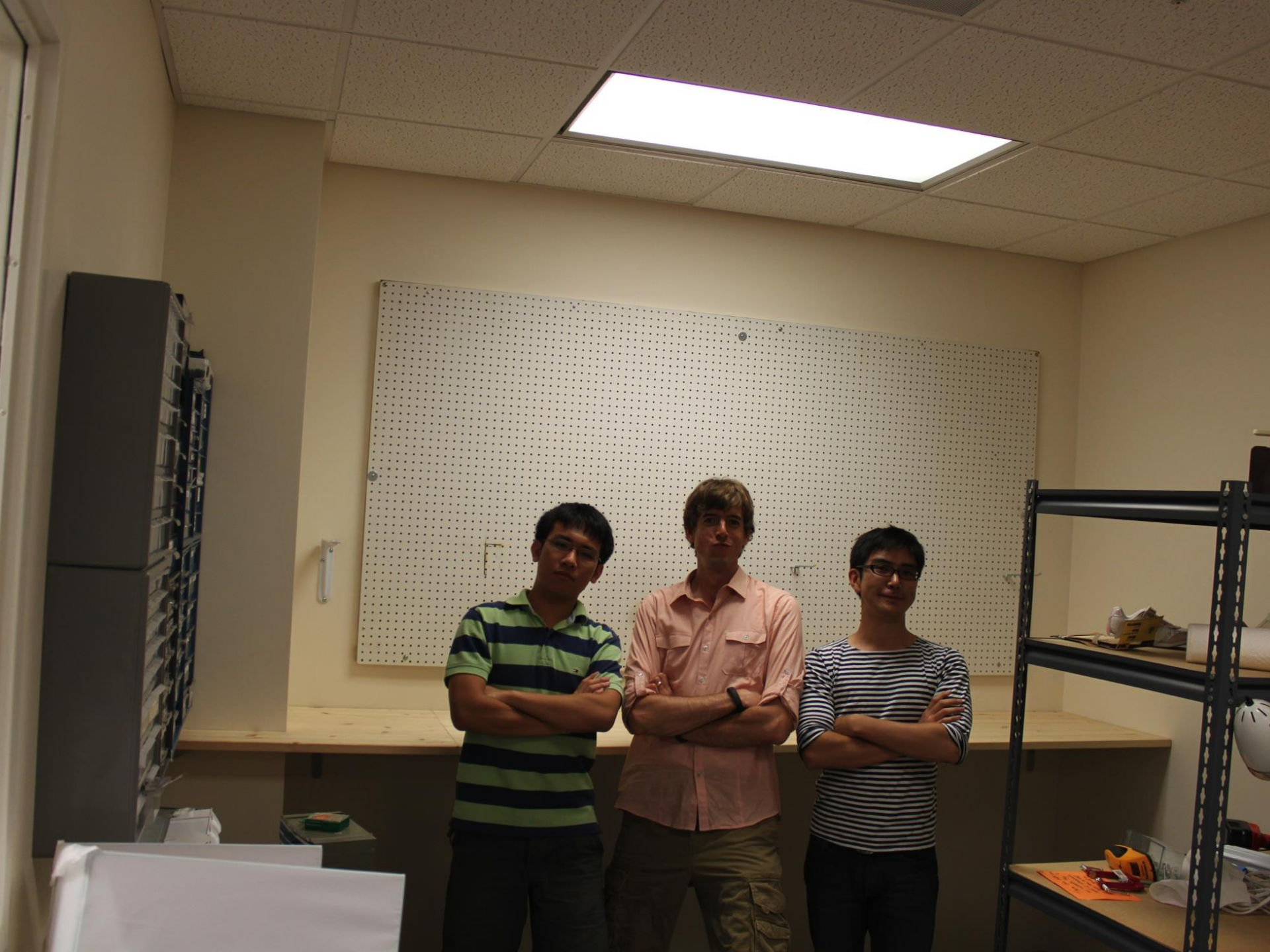
IBM
freescale

FLUX-OFF
TUNER

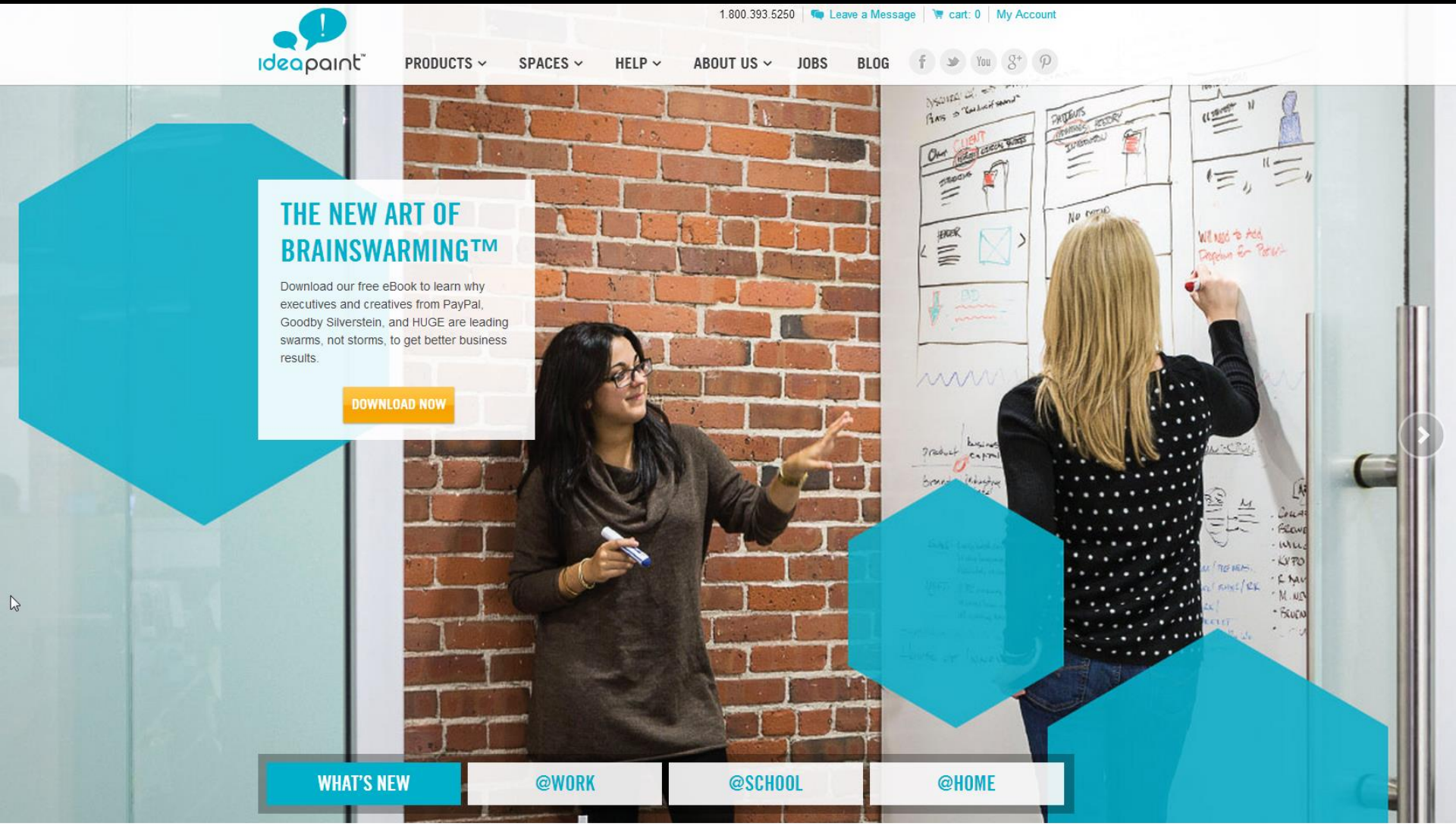
FELIX RUSU
C++
CALCULUS

IKEA

EXIT



Building & Installing the Whiteboards



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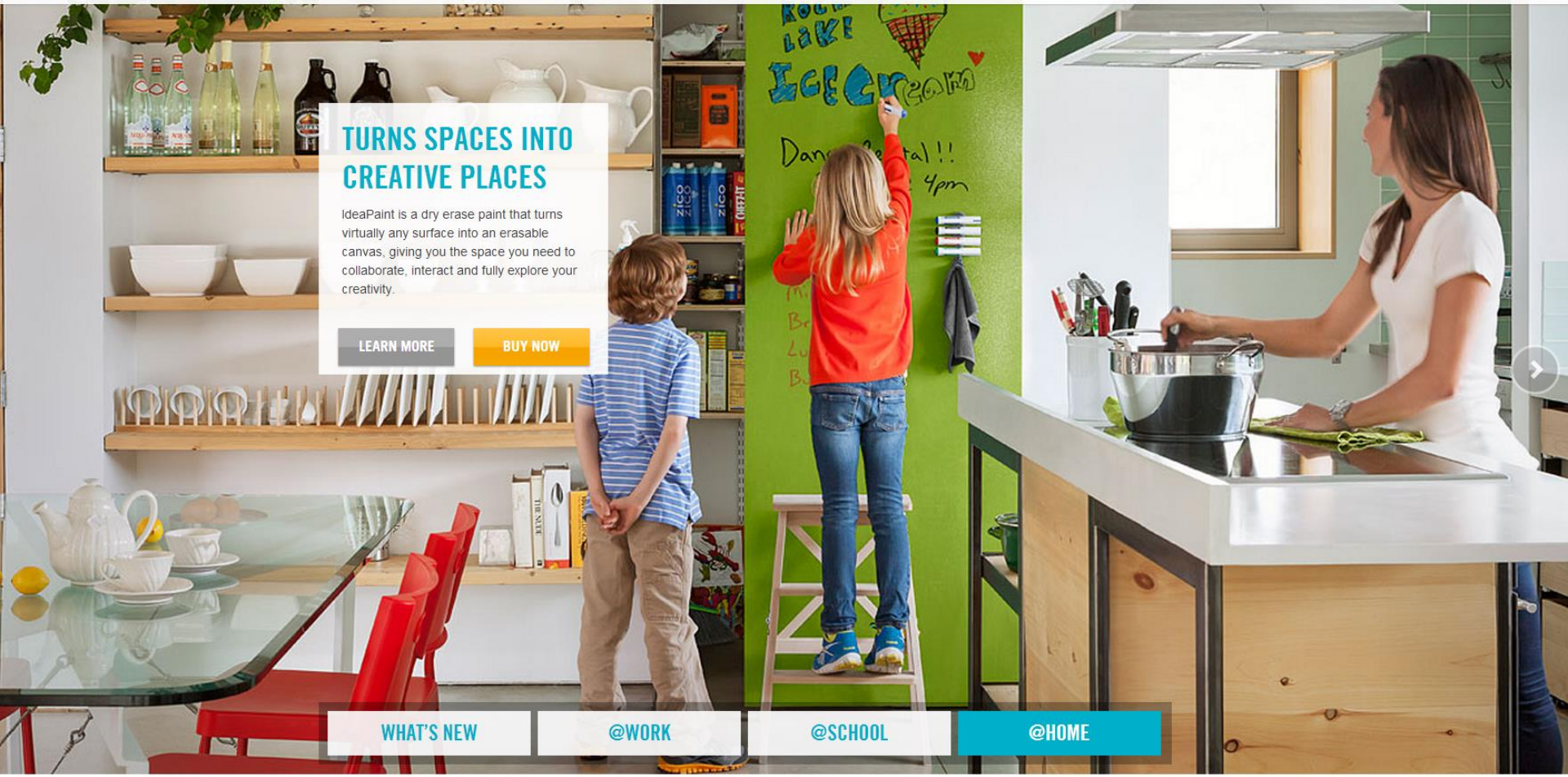
READ OUR COLLABORATION eBOOK



BIG IDEAS BLOG

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IdeaPaint Marketing Video, 2011

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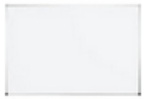
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How to Make a Custom Dry Erase Board or **White Board** for under ...

www.youtube.com/watch?v=EgqrQqhghw4
Sep 7, 2009 - Uploaded by Whiteboardsorg
This video shows you how I made a **4'x'8'** dry erase **white board** for $35. It shows the parts to get at ...

4x8 Whiteboard | eBay
www.ebay.com › ... › Presentation, A/V & Projectors › Dry Erase Boards
$248.61 - In stock
5+ items - Find great deals on eBay for **4x8 Whiteboard** in Office Dry Erase ...
NEW Claridge 4'x8' LCS Deluxe Whiteboard LCS2048R. $399.00.
Lorell Aluminum Frame Dry Erase Board - 4' x 8' - White Board. $239.11.

Thrifty White 32 sq. ft. Har ×
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Item must be picked up in store

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+ ADD TO MY LIST

Product Overview | Specifications | Customer Reviews | Shipping Options

PRODUCT OVERVIEW

The Thrifty White 32 sq. ft. MDF Panel Board can be used to add style to more functional spaces in your home, such as laundry rooms, utility rooms and mud rooms. The acrylic coating resists staining, fading and mildew for long-lasting use.

California residents: seeProposition 65 information

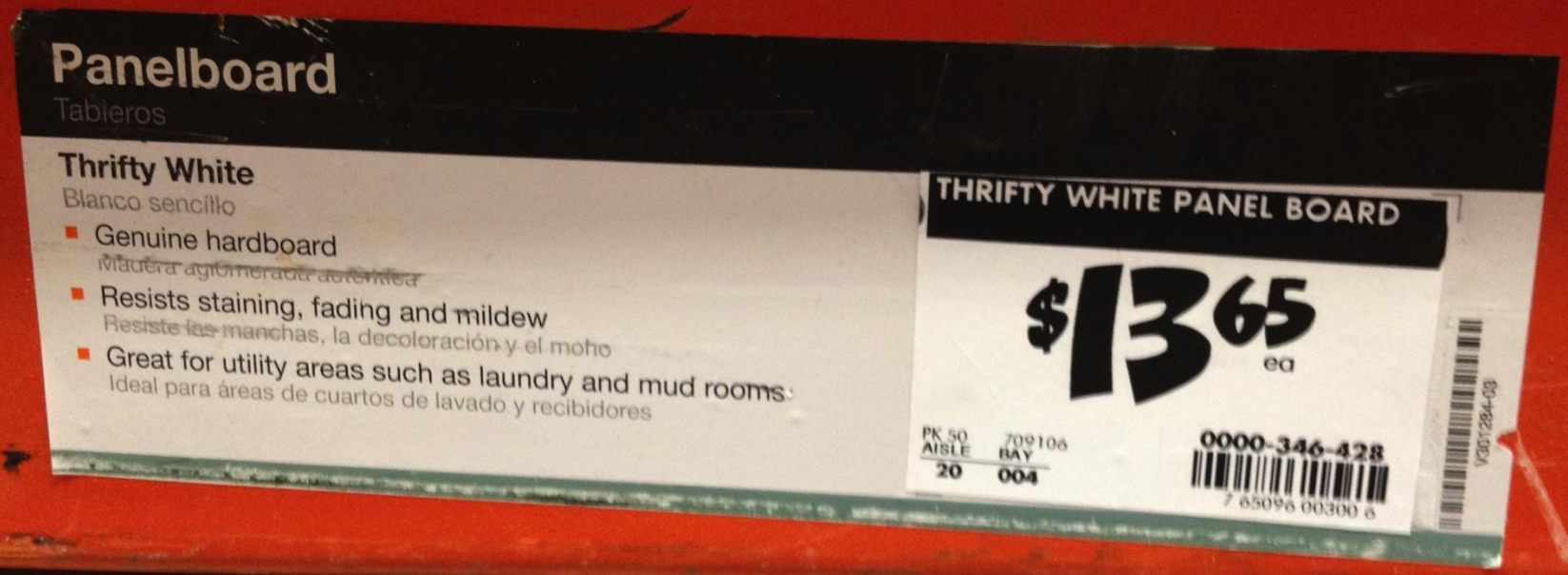
- MDF construction
- Acrylic coating resists staining, fading and mildew
- Smooth white finish
- Use in utility rooms, laundry area and mud rooms

CUSTOMERS WHO VIEWED THIS ITEM PURCHASED...

$24.97

PRO-SERIES Combination Wrench Set (22-Piece)

★★★★☆ (58)


Panelboard
Tableros
Thrifty White
Blanco sencillo
Genuine hardboard
Madera aglomerada auténtica
Resists staining, fading and mildew
Resiste las manchas, la decoloración y el moho
Great for utility areas such as laundry and mud rooms
Ideal para áreas de cuartos de lavado y recibidores
THRIFTY WHITE PANEL BOARD
$13 65 ea
PK 50
AISLE 20
709106
BAY 004
0000-346-428
7 65096 00300 6
V3G1284-03

SPACE
Things to get
- Double sided copper tape
- small magnets
- velcro
V=IR
Smart Shoe
ADC
Our piezo
2.2kΩ
V=IR
Free Arm Sewing Machine
brother
BAD BATTERIES
1A3
HCII

Dremel tool with
Mini Saw attachment

Wood glue

Long arms

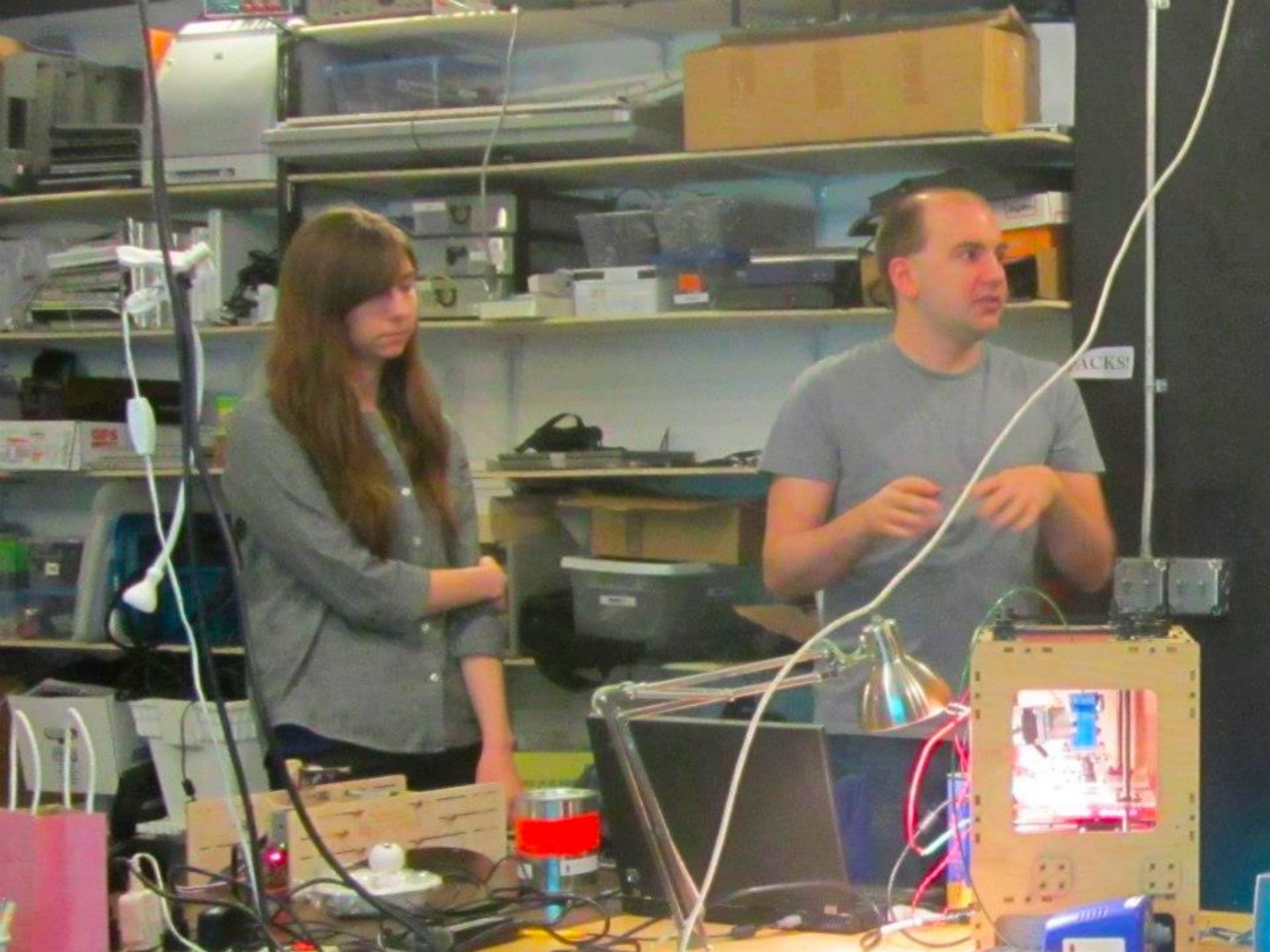
Long arms

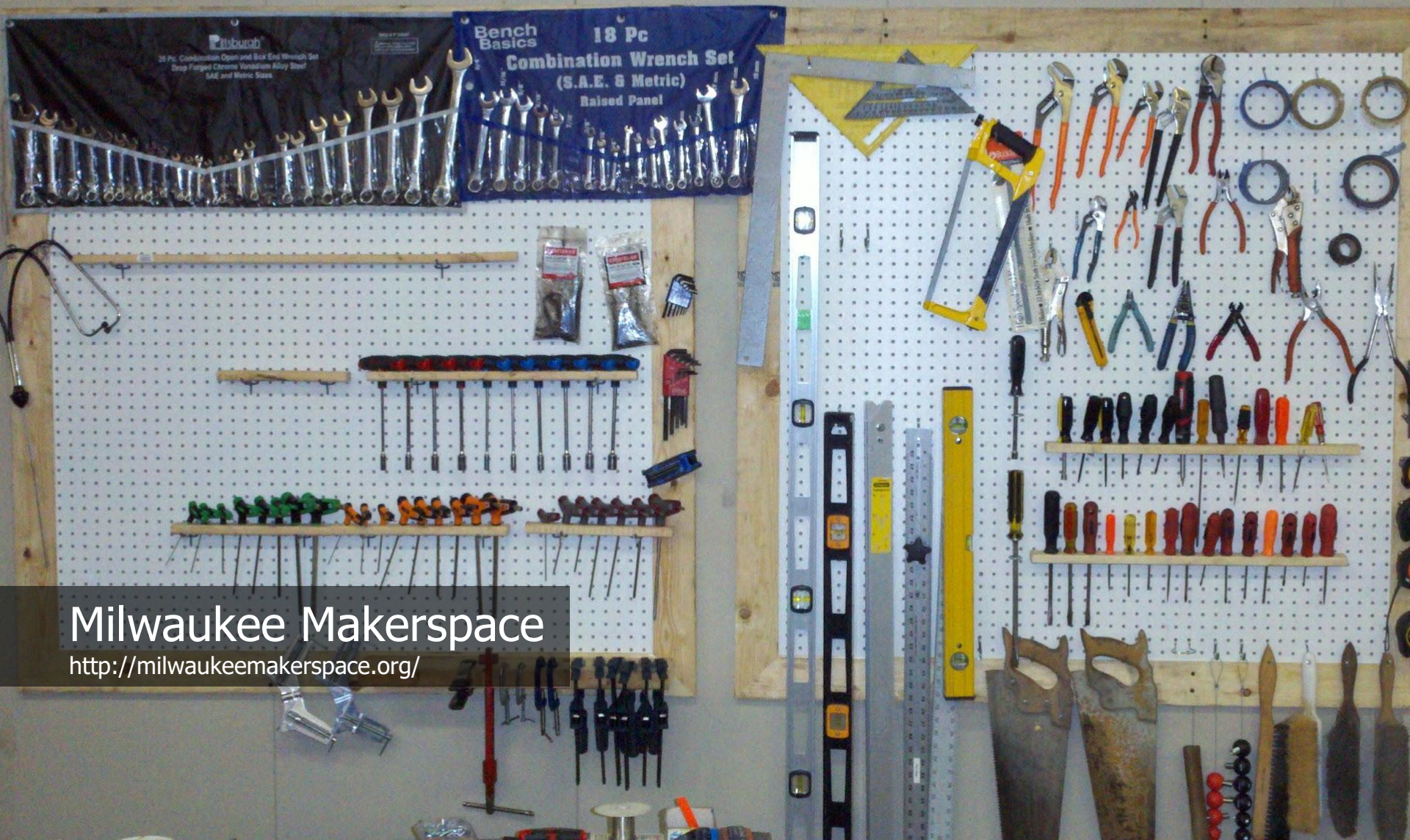
Storage & Tools Ready At Hand

Making things visible but not overwhelming...

HACK
SHELF
BANKERS BOX

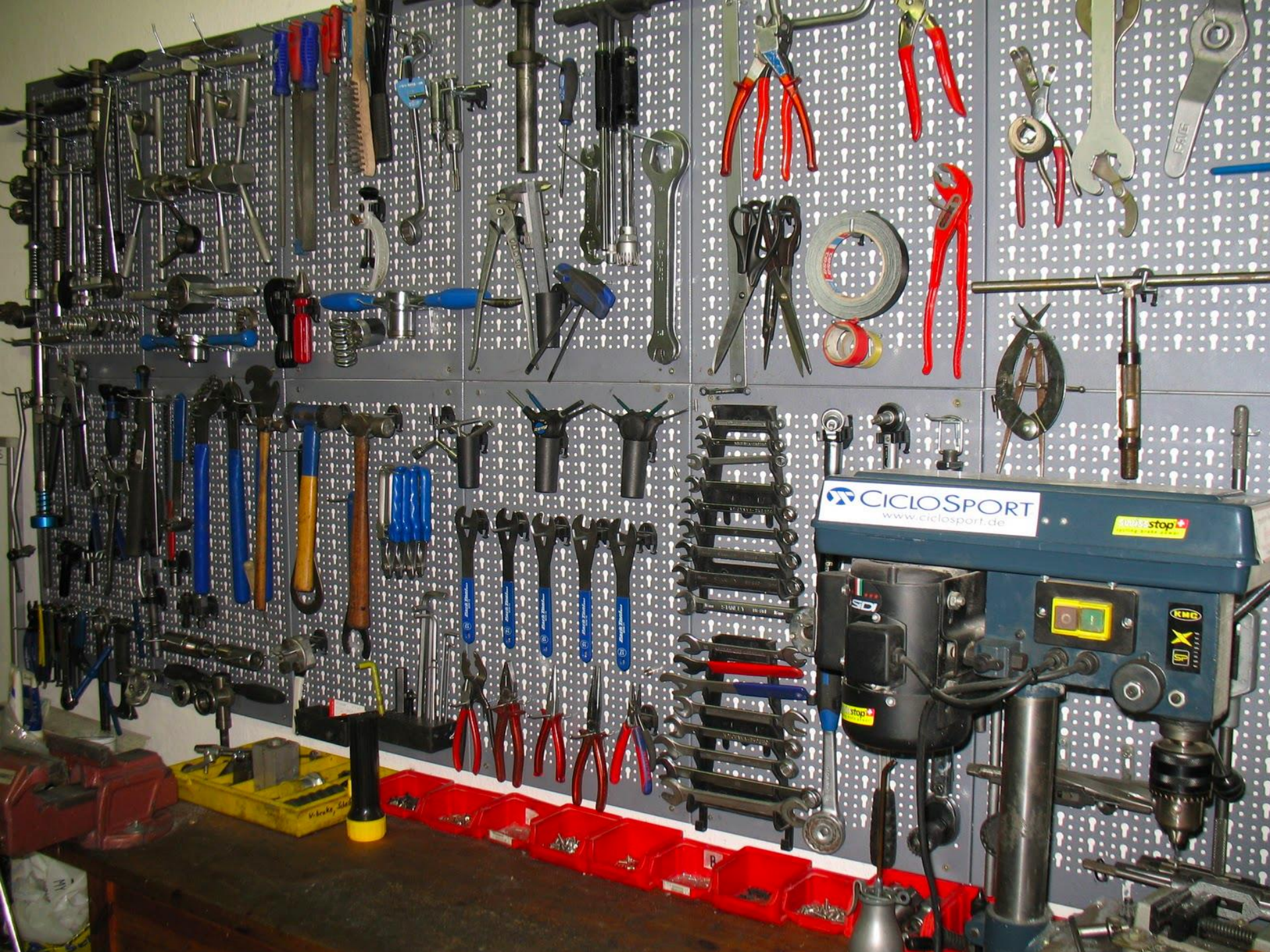
Dupli-Color
GAMBLIN





Milwaukee Makerspace

http://milwaukeemakerspace.org/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3 9

SMC
GRUNDIG

Stanford d.School

http://goo.gl/PKLwt8

Equipment

Tags

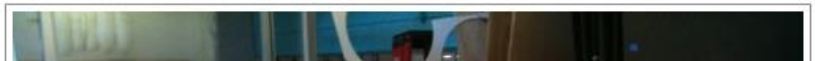
Edited Aug 2, 2011 6:11 PM by Adam RoyaltyÖ

Materials List

At the d.school

Here are some supplies that we keep handy.

Click for full-size image



The idea is to use low-resolution nimble materials that can be manipulated quickly.

We use this with the Wallet, Gift Giving, Mechanic and other 1 hour design challenges.

Closures

Velcro

zip ties

Magnets

snaps

masking tape

duct tape (color would be ideal)

scotch tape

glue sticks

paper clips, (asst colors ideal)

decorative brads (square, crystal)

Tools

hole punch

scissors

stapler (with staples)

hot glue/glue guns

rulers

Base Material

assorted fabric swatches

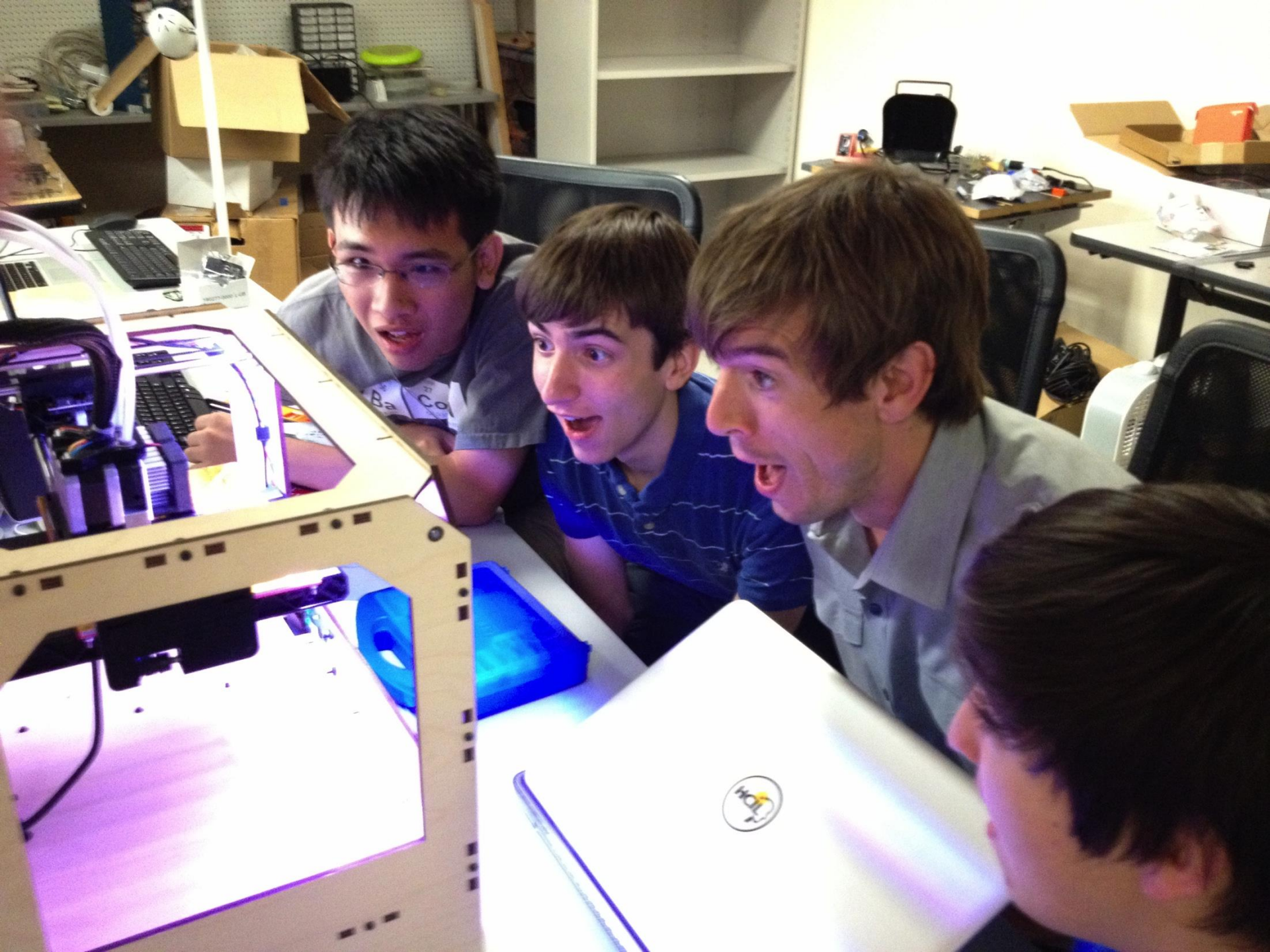
plastic

textured cardstock

Equipment

3 soldering stations with carbon filter
High quality oscilliscope
4 digital multimeters
2 AR Drones
E-textile station w/2 mannequins, sewing machine, & materials
12 Kinects
Multiple Arduino platforms
Beaglebone, Raspberry Pi, .NET Gadgeteer
3D-Printer
Multiple tablets, smartphones
Various electronic equipment (sensors, actuators, etc.)

MakerBot
FRAGILE
MakerBot



ARM CORTEX-M0

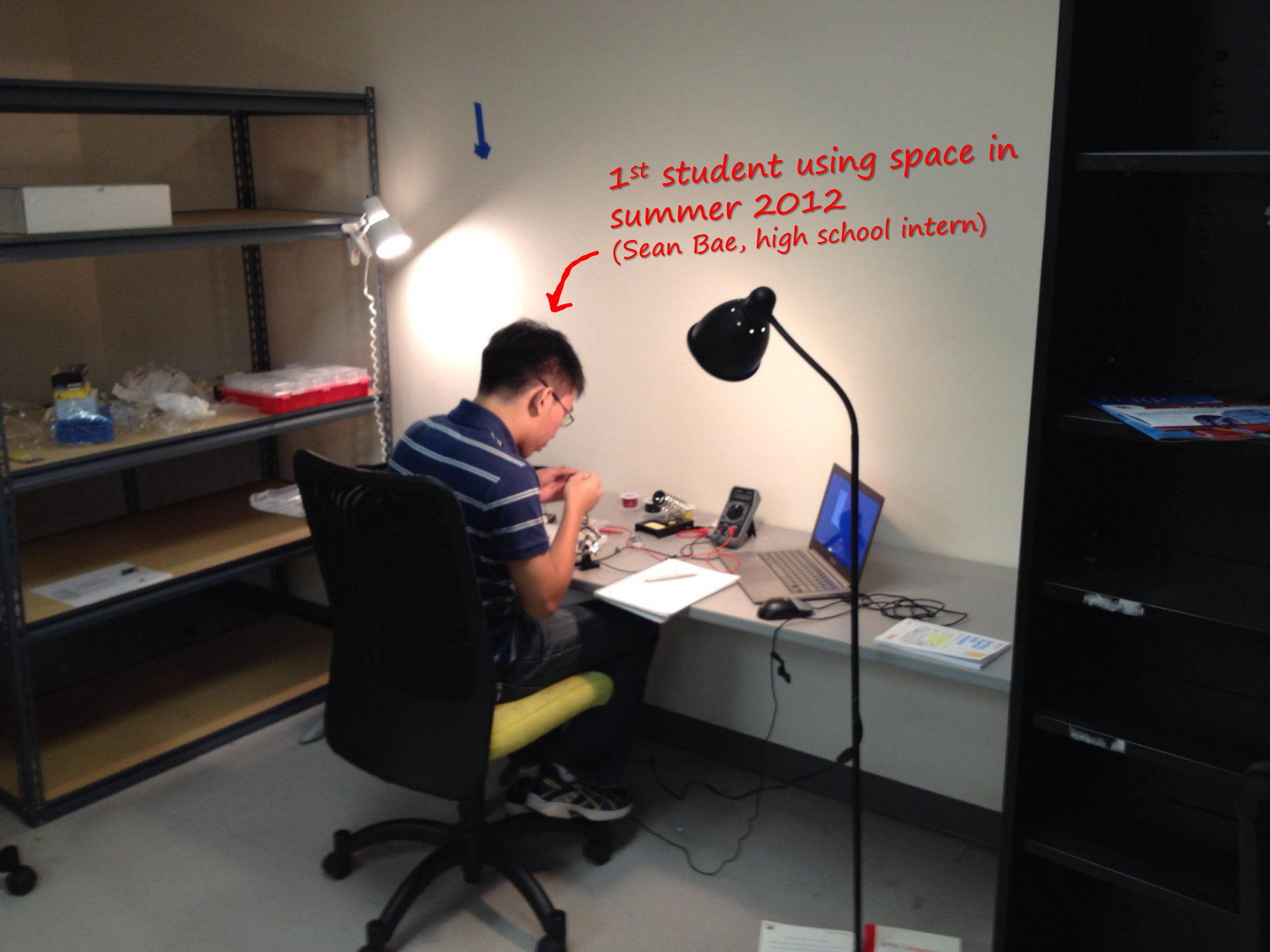
My Approach

Read.
Learn.
Remix.
Design.
Sketch.
Communicate.
Get Feedback.
Revise.
Build.
Use.
Iterate.
Use.
Iterate.
...

My Approach

Read.
Learn.
Remix.
Design.
Sketch.
Communicate.
Get Feedback.
Revise.
Build.
Use.
Iterate.
Use.
Iterate.
...

Hackerspace 0.1 Completed


1st student using space in summer 2012
(Sean Bae, high school intern)

Hackerspace 1.0 Completed

HCiL
hackerspace

HCIL
FREE TO
GOOD HOME!

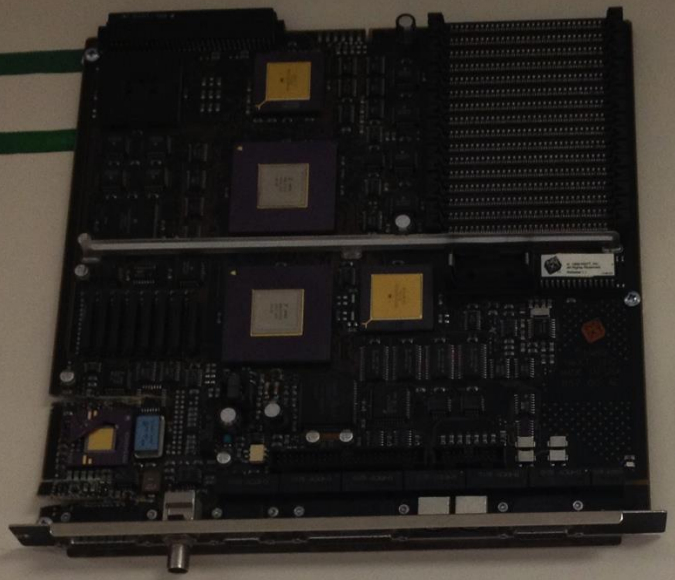
Hackerspace 2.0 Completed

SLACKER

CHI 2014
SLACKER
2 in → .914 w
3 in → 1.372 w
5 in → 2.286 w ×4
6 in → 2.743 w ×3
19.659 w
matt
mike

2018
2023

2018
2023



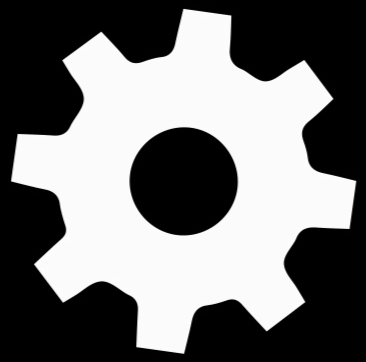
NeXT MOTHERBOARD (1989)

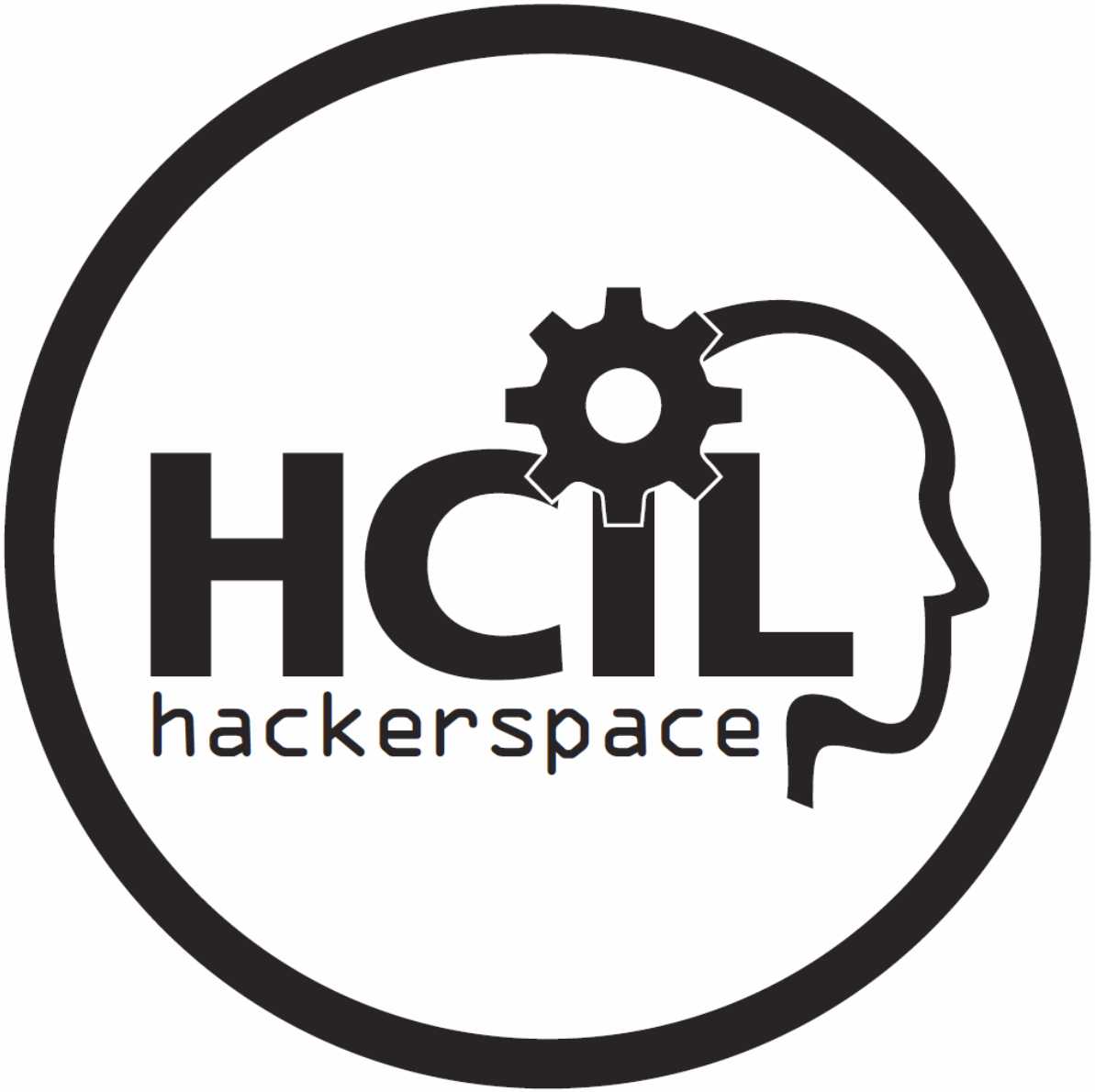
TI BEAGLEBONE (2012)

Hackerspace Branding

HCIL
hackerspace

HCIL
hackerspace




HCIL
hackerspace

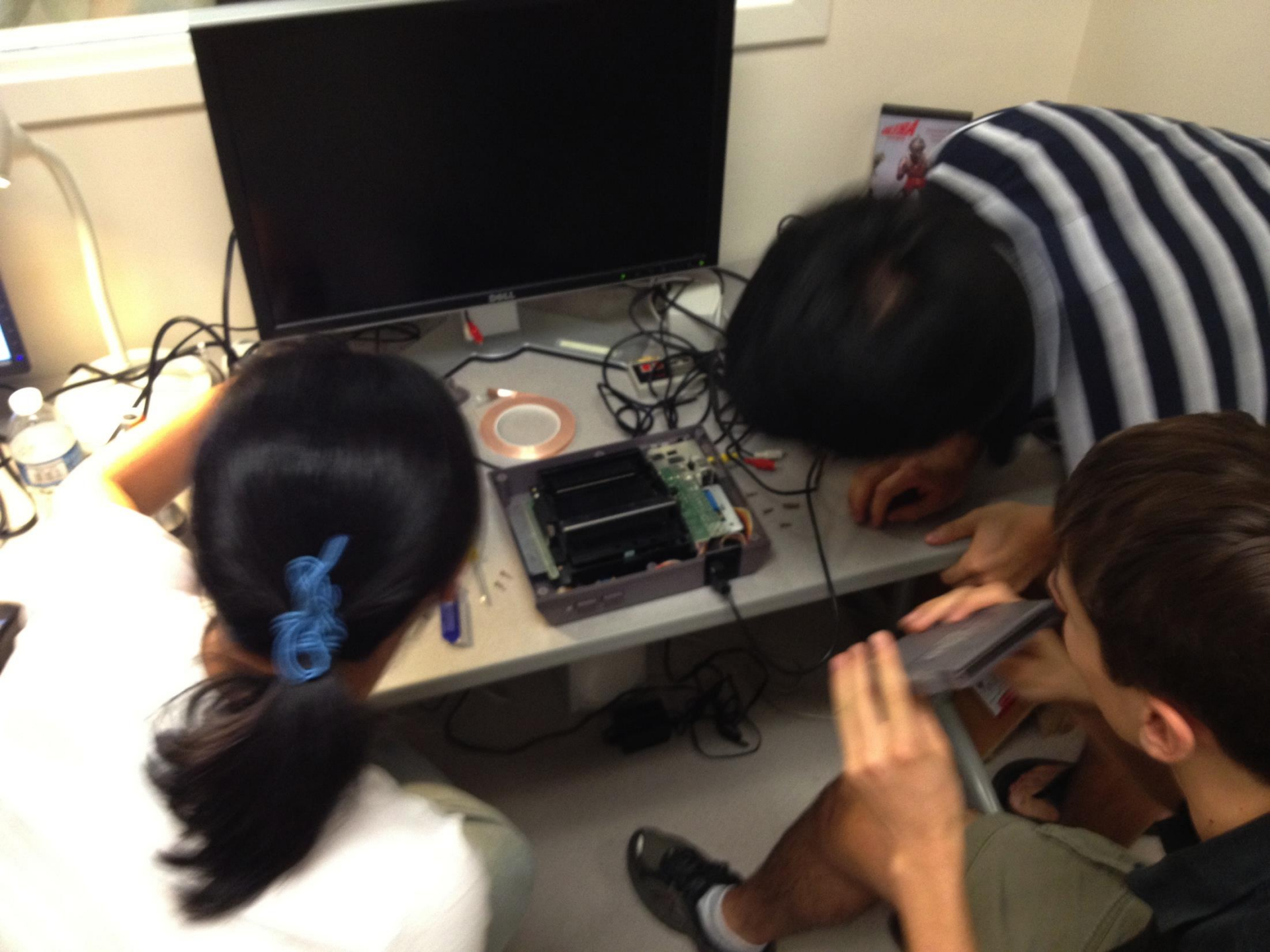
HCIL
snackerspace

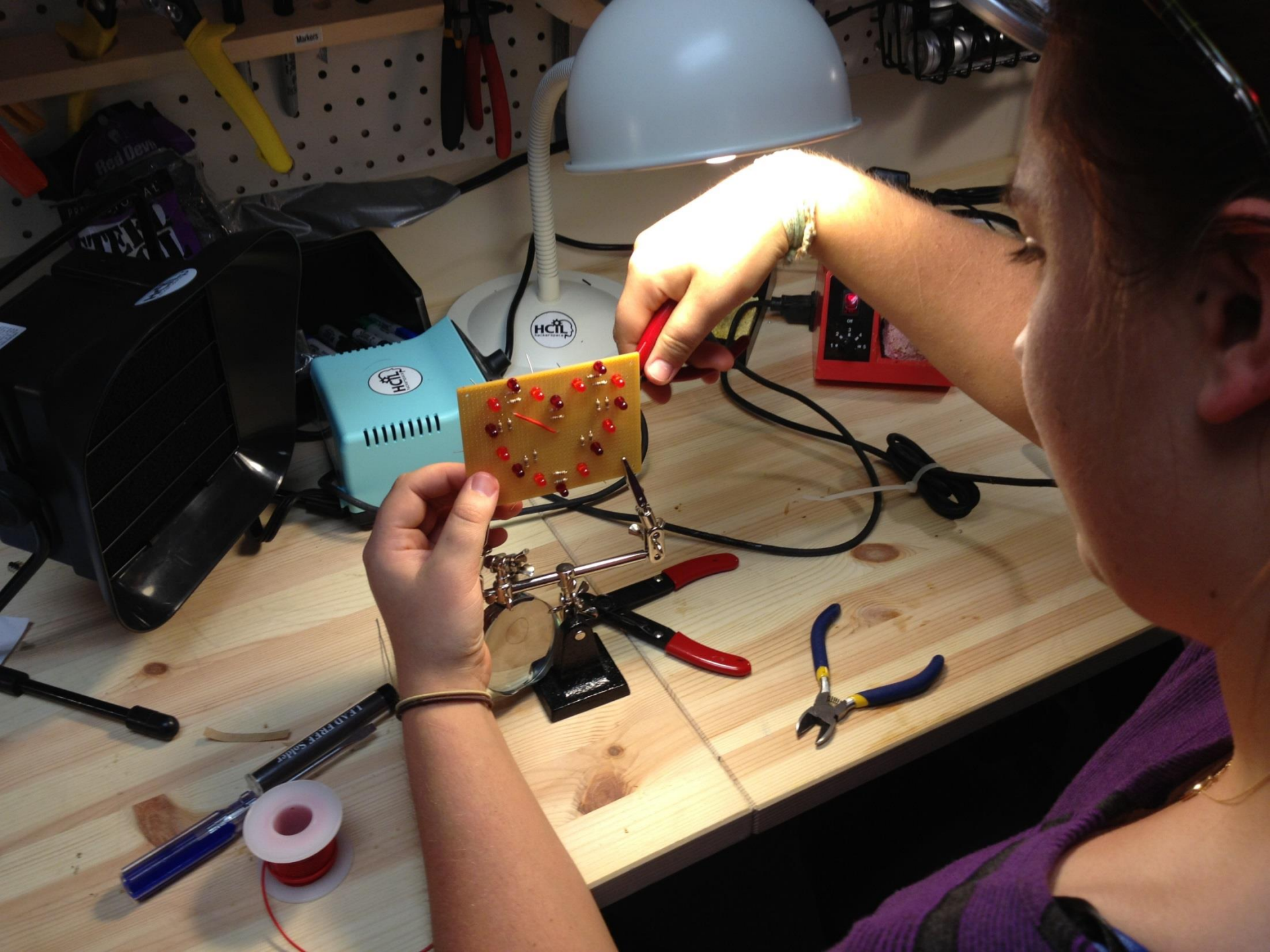
HCIL
snackerspace

Hackerspace Students & Projects

PLANET

HACKER
SPACE
2013
DELL





End-User Design & Customization

Leah Buechley, CRAFT Meets Tech at MIT, http://youtu.be/XrNz9deYlJU

Sparkfun Wall

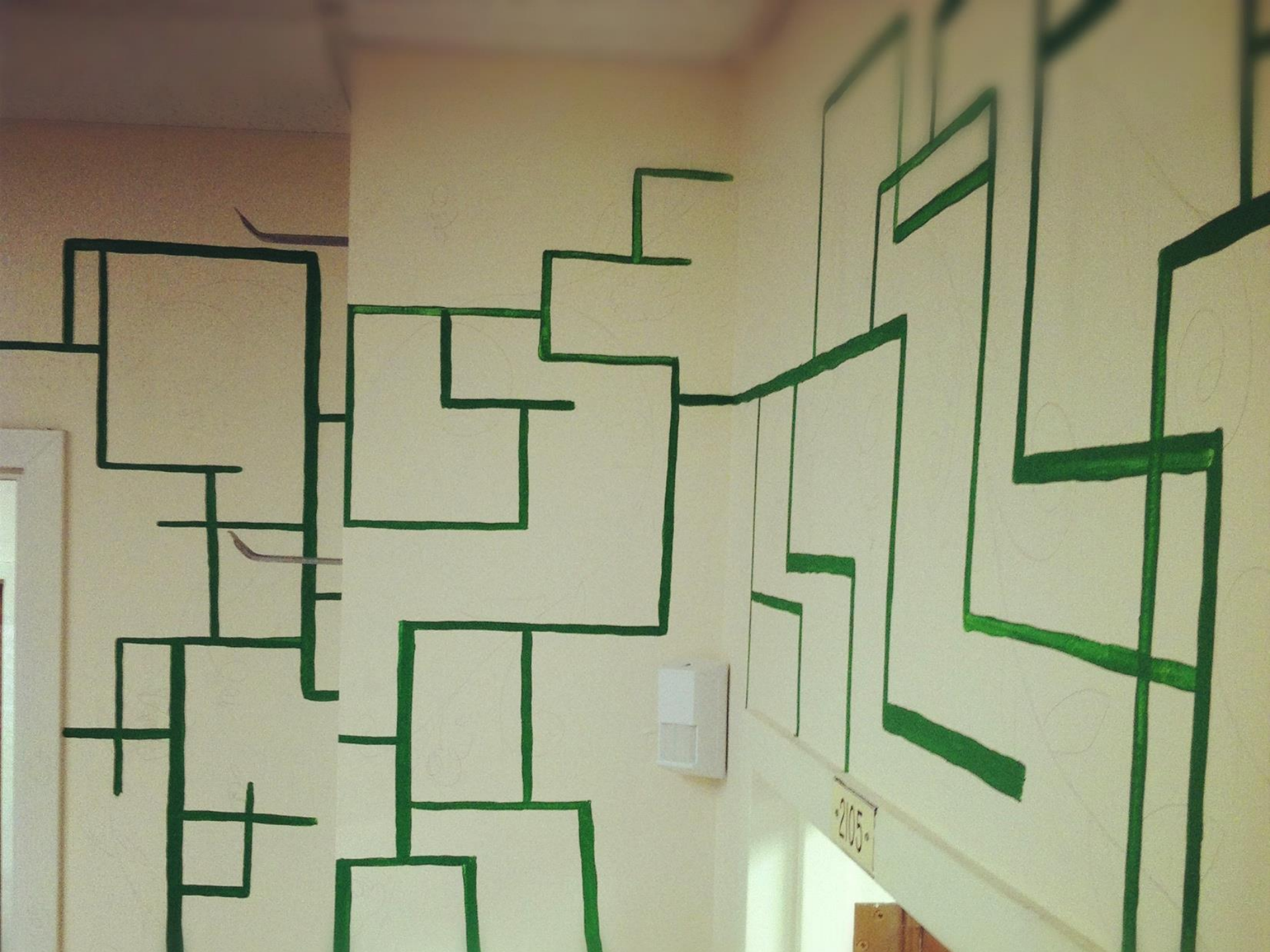
By Dia Campbell

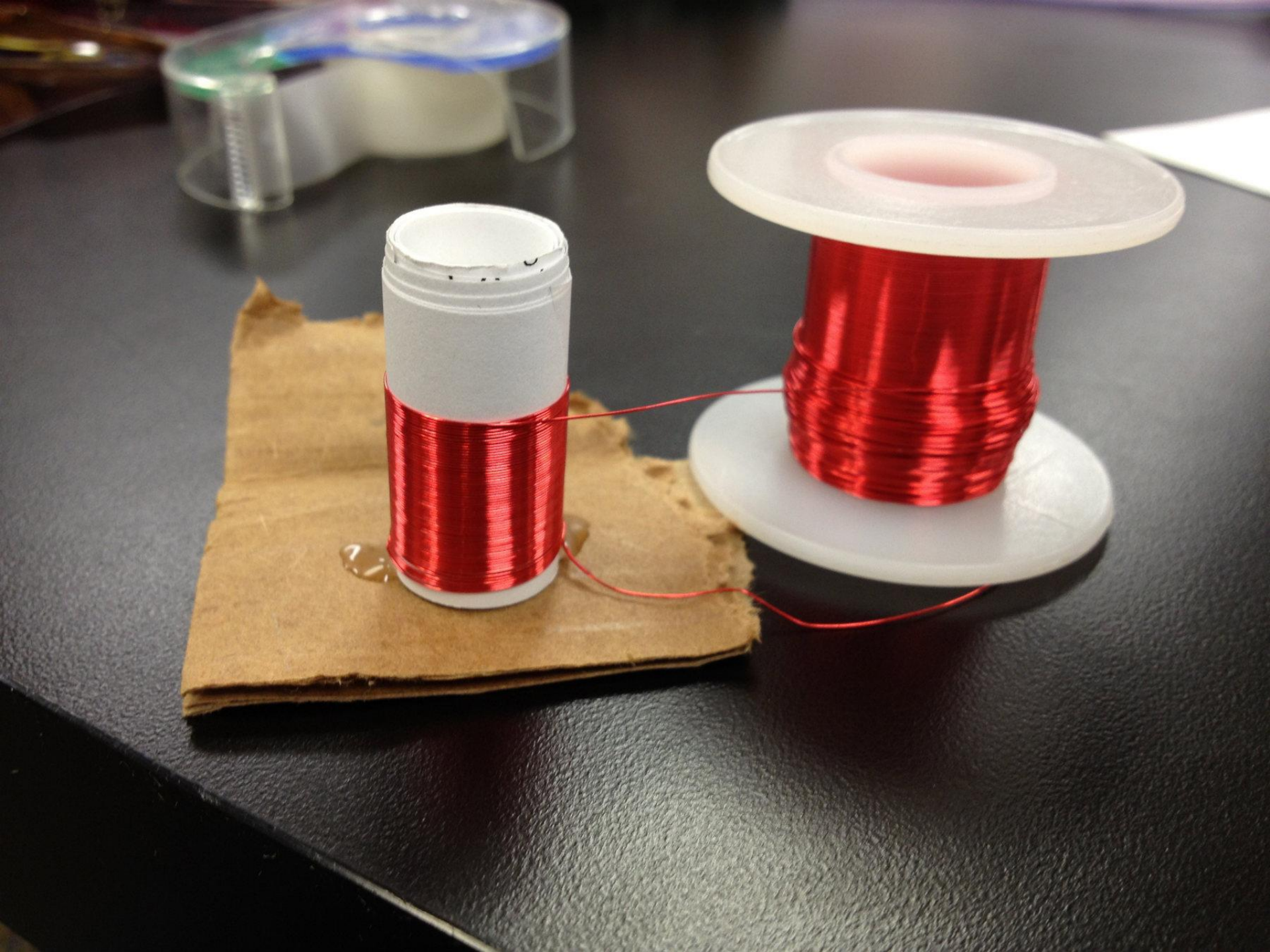
Sparkfun Wall

By Dia Campbell

Sparkfun Wall

By Dia Campbell

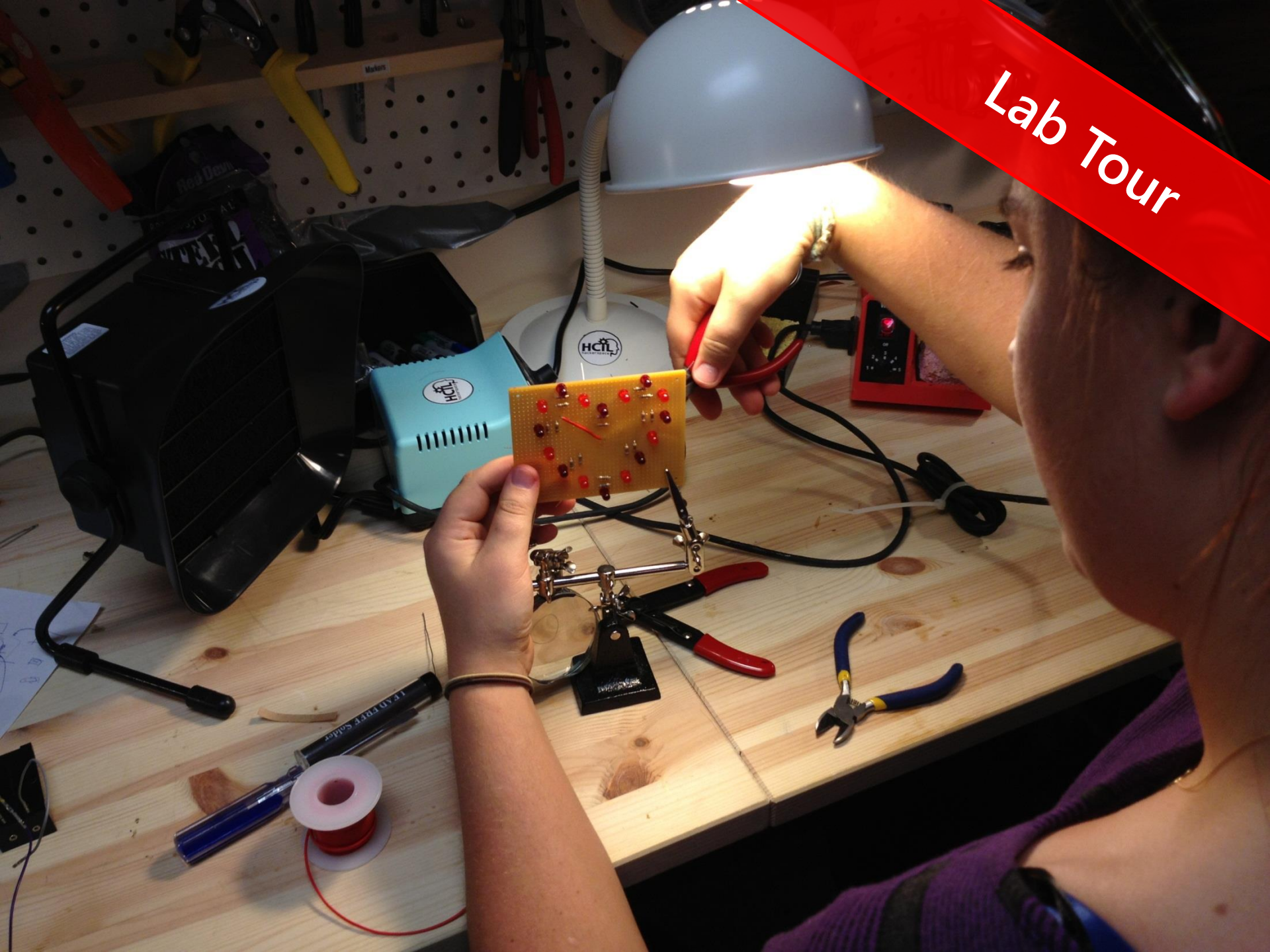

205



SELECT
Garlic
PASTA SAUCE

EXIT
2105
HCIL

2105
HCTL


Lab Tour

PRODUCTS

New Products [99]

Android (6)
▼Arduino (63)
Boards & Packs [17]
Shields [34]
Accessories [12]
BeagleBone (23)
Bunnie Studios (9)
FLORA (25)
FPGA (1)
mbed (12)
NETduino (14)
▶Raspberry Pi (84)
XBee (9)
▶More Dev Boards (30)

BoArduino (8)
Brain Machine (1)
Clocks & Watches (18)
Drawdio (4)
Game of Life (1)
Microtouch (5)
MiniPOV (3)
MintyBoost (2)
SIM reader (3)
SpokePOV (4)
TV-B-Gone (2)
▶More DIY Kits (16)

Discover Electronics (2)
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▶Cables (67)
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▶EL Wire/Tape/Panel (76)

HOME ⇒ Blog

How To Start A Hackerspace: Part 2 – A Place To Hack All The Things

Photo by Tomi Knuutila

Now that you have a concrete idea of who your hackers are, you also know what kind of space needs they'll have. Next, narrow down what will be done in the space. Don't forget: there's plenty of room to grow your space to include many different kinds of hackers as your Hackerspace matures (covered in later sections of this "How To").

Talk to the people you're starting the space with and make the most detailed list in a shared spreadsheet of what different hackers need to do their hacking (and keep in mind that you'll probably be adding to this list as you get into your space).

Here's an example of physical needs you may have on your list:

- 220 power
- Running water
- Ventilation
- Concrete floor
- Natural light
- Darkroom and darkroom supplies (have your photo hacker make a list)
- Air conditioned room for servers
- Area for physical hack projects
- Sound proof room for audio/video recording/editing
- 24/7 Access
- Spray paint booth
- Place to put a car lift
- Etc, Etc, Etc...

Once you have your list now you'll need to go to the next step: **How To Start A Hackerspace: Part 3 – A Home For Your Hackerspace** Stop back tomorrow!

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On iTunes
On Twitter (adafruit)
On Twitter (ladyada)
On Twitter (ptorrone)
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adafruit learning system
WebIDE
adafruit learning technologies
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gpsshield
motorshield
protoshield
waveshield
arm development
art
ask-an-engineer
atoz
avr development
batteries & power

Lighthouse: Roadblocks and reflection

By Aaron Vanderwerff On May 11th, 2013 ⟩ Add Comment

A couple months back, Cynthia and Flavio were very frustrated. As a matter of fact, they were about ready to give up. A key element of their ìPapapa Party Shirtî (a shirt that will blink to the beat of the music) was a light organ kit, but it was incredibly glitchy and the [...]

Read Full Article →

Pilot Profile: Piner High School Makers

By Stephanie Chang On May 3rd, 2013 ⟩ Add Comment

Dante DePaola is a biology teacher at Piner High School in Santa Rosa, California, and part of our initial group of Makerspace schools. He also happens to run a successful motorcycle business on the side. His interest in making ñ especially with regards to the rich, relevant experiences it provides for his students ñ is [...]

Read Full Article →

Three Transformative Tools: From Old Tech to New at Analy HS (part 1)

On April 19th, 2013 By Stephanie Chang

Editorís Note: This post comes from Casey Shea, who teaches math and a

WikiSeat: Standing Up for Education

On April 15th, 2013 By moolombo

The WikiSeat website About a month ago, I took the time to chat with WikiSeat co-founder Nicolas Weidinger, as a

Search

Want to make a makerspace?

Check out our playbook. It covers many of the challenges involved in creating a space.

Makerspace News

Kamal Jain: What Integrity Means in Massachusetts - GoLocal Worcester

Entrepreneur aims to set up Makerspace project - Salisbury Journal

At Dallas Makerspace, All the Tools (and Friends) You Need to Make the Stuff ... - Dallas Observer (blog)

ArtFire Looks to Break the Mold Again with Makerspace RocketHub Campaign - Virtual-Strategy Magazine (press release)

d.
HASSO PLATTNER
Institute of Design at Stanford
make space
How to Set the Stage for Creative Collaboration
Scott Doorley and Scott Witthoft
with a foreword by David Kelley

Desired Outcomes For Today

1. Stimulate reflection and share ideas on how to lead a group & imbue a culture of innovation

2. Discuss the role of space in creative work and collaboration & share our mutual experiences

3. Even if you don't have access or (full) control over a space, I think there is value in thinking about small things that one can do to make it feel more creative, welcoming, and supportive

Reflections…

If You Build It, They Will Come

Reflecting on the Successes (and Failures) of Building a Collaborative Workspace to Support Creativity, Experimentation, and Making

Human Computer Interaction Laboratory

@jonfroehlich

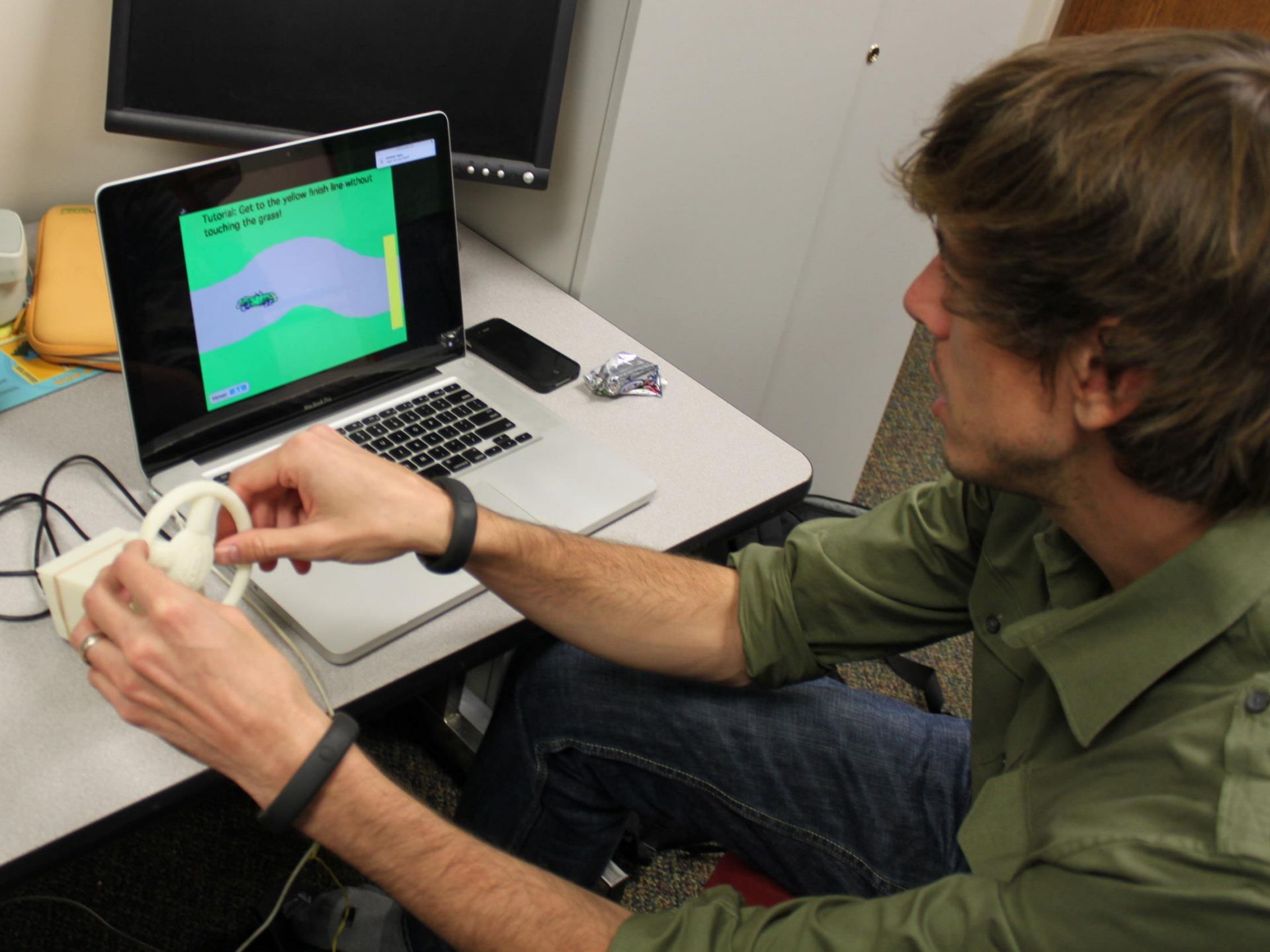
Assistant Professor Computer Science

University of Maryland

Could have movie and story of ARDrone: 00007.MTS

EXIT

Replicator
Copy of r8 steering wheel
Save & Close
Help
Print 3D
Import
Helpers
Workplane
Ruler
Geometric
Box
Cylinder
Pyramid
Cone
Round Roof
Sphere
R8


Tutorial: Get to the yellow finish line without touching the grass!