

Prototyping

1. Why do you Prototype?
2. Early Prototypes of Everyday Things
3. Prototyping Tools On Campus
4. Ideas to Reality – IP and Patents
5. Today's Challenge

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1.

Why do you
need a
Prototype?



Function

Form

Decide on which side you will focus development.

Who will see and use the prototype?

What are you trying to convince them to do?

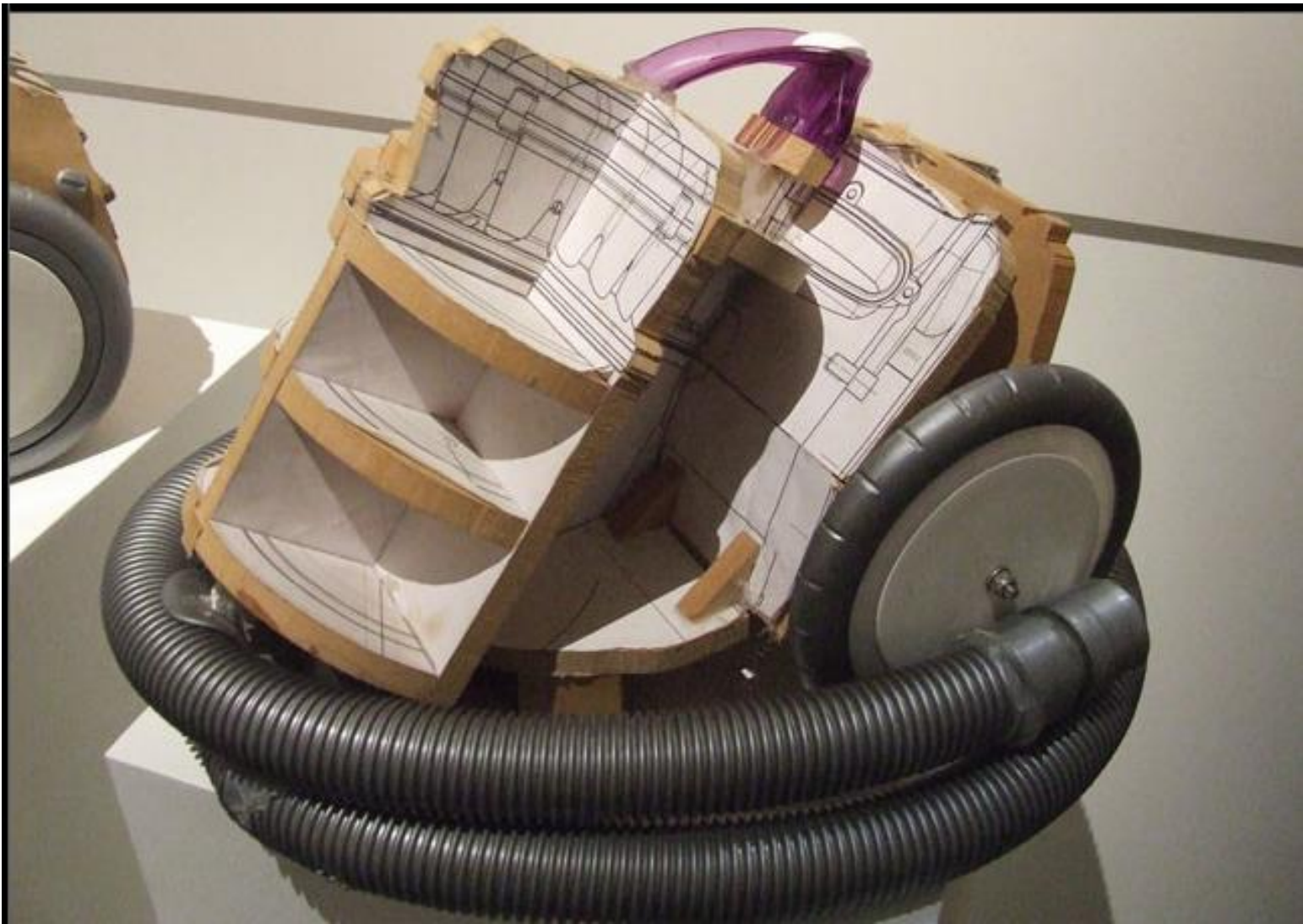
Is a prototype really the best way to convince them?

2.

Early Prototypes

of

Everyday Things



<http://www.core77.com/gallery/vienna-design-week-2010/26.asp>





<http://gizmodo.com/5991091/the-first-nike-fuelband-prototypes-looked-like-humongous-sweat-bands>



Braun Nizo S 8 Cine Film Camera

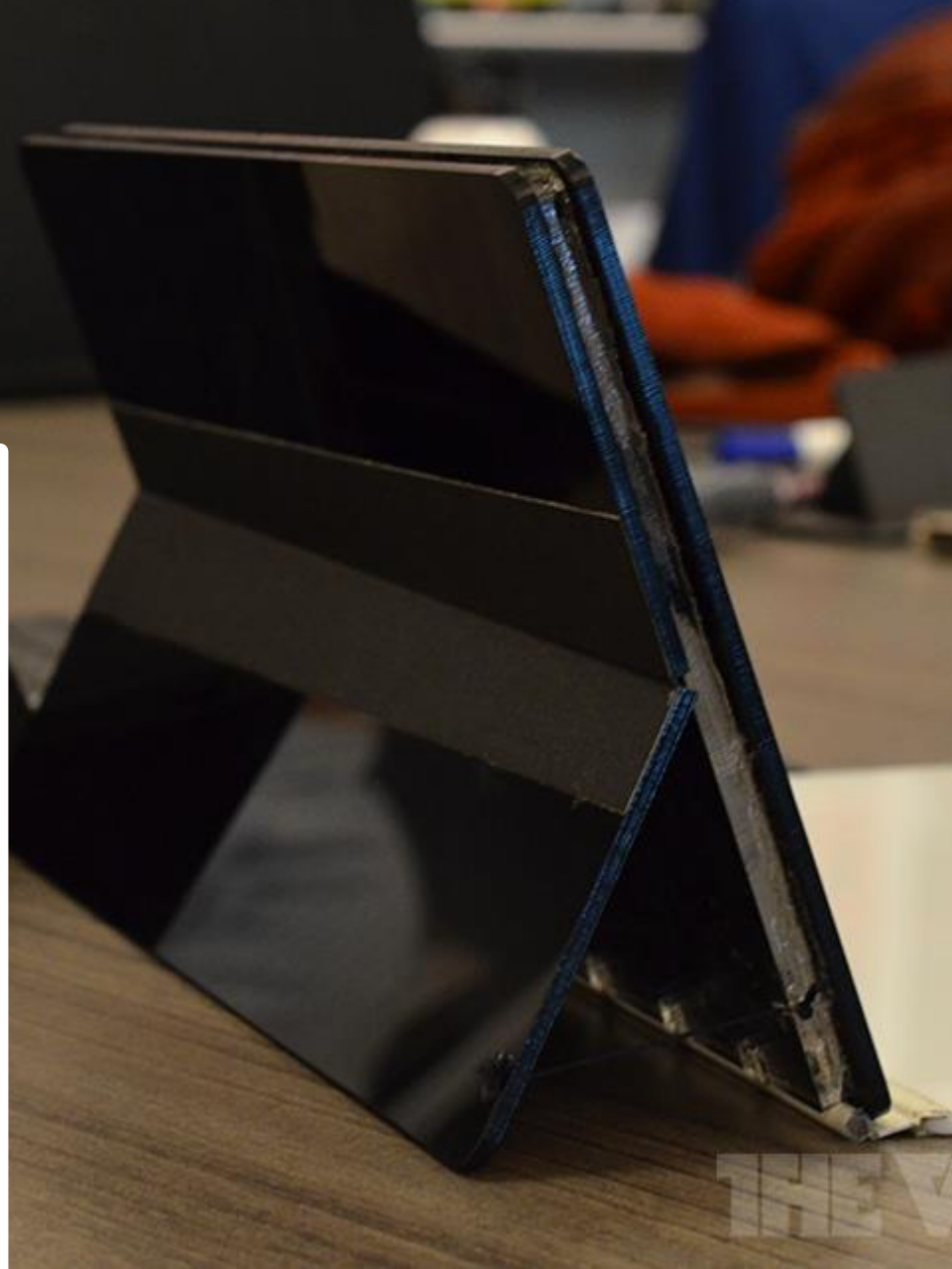
<http://www.flickr.com/photos/nickwade/4131751342/lightbox/>



iPod, early stealth prototype (2001)
Gift from the Hedrick collection

<http://www.boreme.com/posting.php?id=21374>







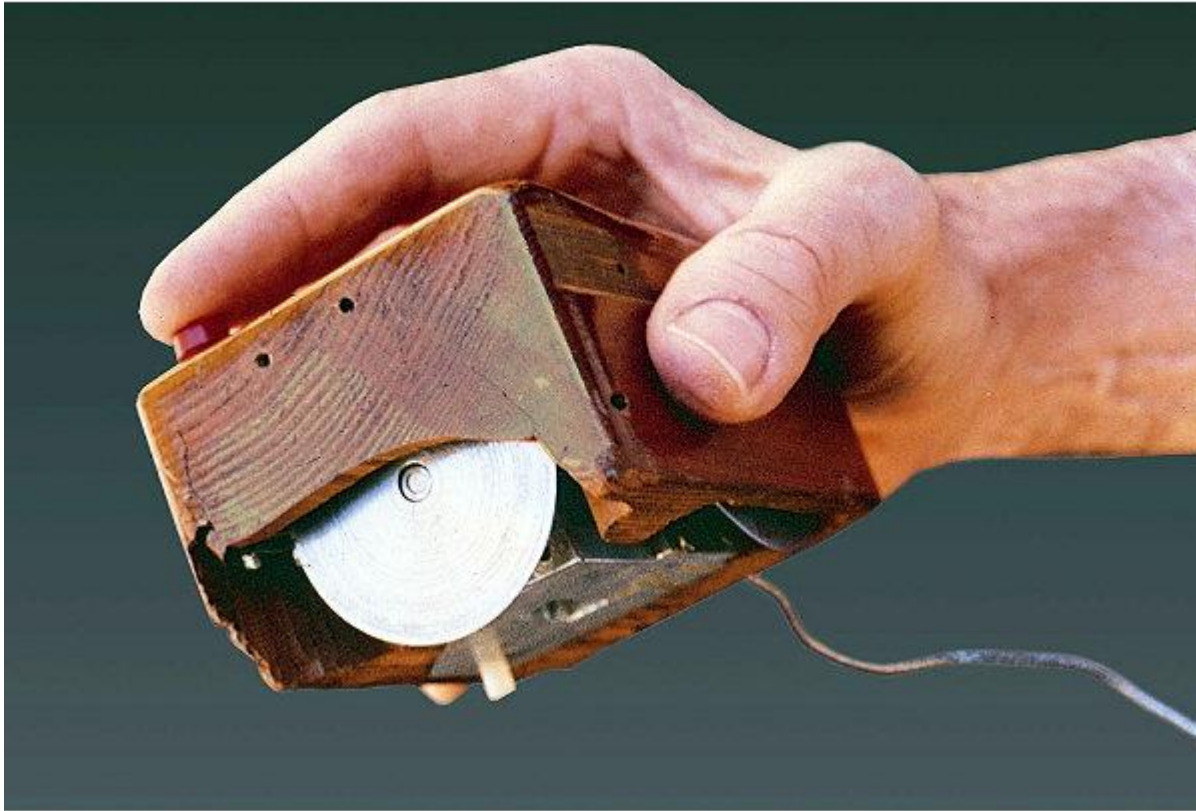
<http://www.howtogeek.com/trivia/the-first-google-server-was-built-from-what/>



Prototyping



<http://gizmodo.com/here-are-what-the-prototypes-of-google-glass-looked-lik-507193147>



The first prototype of a computer mouse, as designed by Bill English from Douglas Engelbart's sketches (ca. 1968)

(Engelbart passed away on July 2nd, 2013)

<http://www.computerhistory.org/revolution/input-output/14/intro/1876>



<http://smartdesignworldwide.com/work/oxo-good-grips/>

The first Doritos Locos Taco prototype



“To show executives how the companies could fuse the flavor of Doritos with taco shells, the dev teams “basically went out to Home Depot to buy a paint-spray gun, and then sprayed [Doritos] flavoring onto our existing yellow corn tacos,” recalls Creed, with a chuckle. “It was pretty funny watching people from behind glass spraying our tacos with a paint gun. But it was enough for us to know conceptually that we had a big idea.”

“Since it launched in early 2012, Taco Bell has sold more than 450 million Doritos Locos Tacos” [as of June 2013]

<http://www.fastcompany.com/3008346/deep-inside-taco-bells-doritos-locos-taco>

AMS New SUB
Kinetic Art Projects:

Runoff.





AMS New SUB Kinetic Art – TIMBER! Project



AMS New SUB Kinetic Art – TIMBER! Project

3.

Prototyping

Tools on

Campus



2:10

Block Stacking Robots

455 views | 1 month ago



4:18

assembly of the tape follower

103 views | 3 months ago



1:14

snapper to hold the TINAH b...

83 views | 3 months ago



2:26

caster - assembly with smal...

55 views | 3 months ago



1:33

caster

68 views | 3 months ago



0:57

QRD sensor holder part B

55 views | 3 months ago



1:24

QRD sensor holder part A

97 views | 3 months ago



0:53

disassembly of the tape foll...

26 views | 3 months ago



2:02

hinge A - making the right ha...

55 views | 3 months ago



2:17

making a spring

116 views | 3 months ago



2:08

how to use a battery drill

38 views | 3 months ago



2:07

knurling

109 views | 3 months ago



1:50

hinge B - making the left han...

47 views | 3 months ago



1:11

wheels - making wheels fro...

130 views | 3 months ago

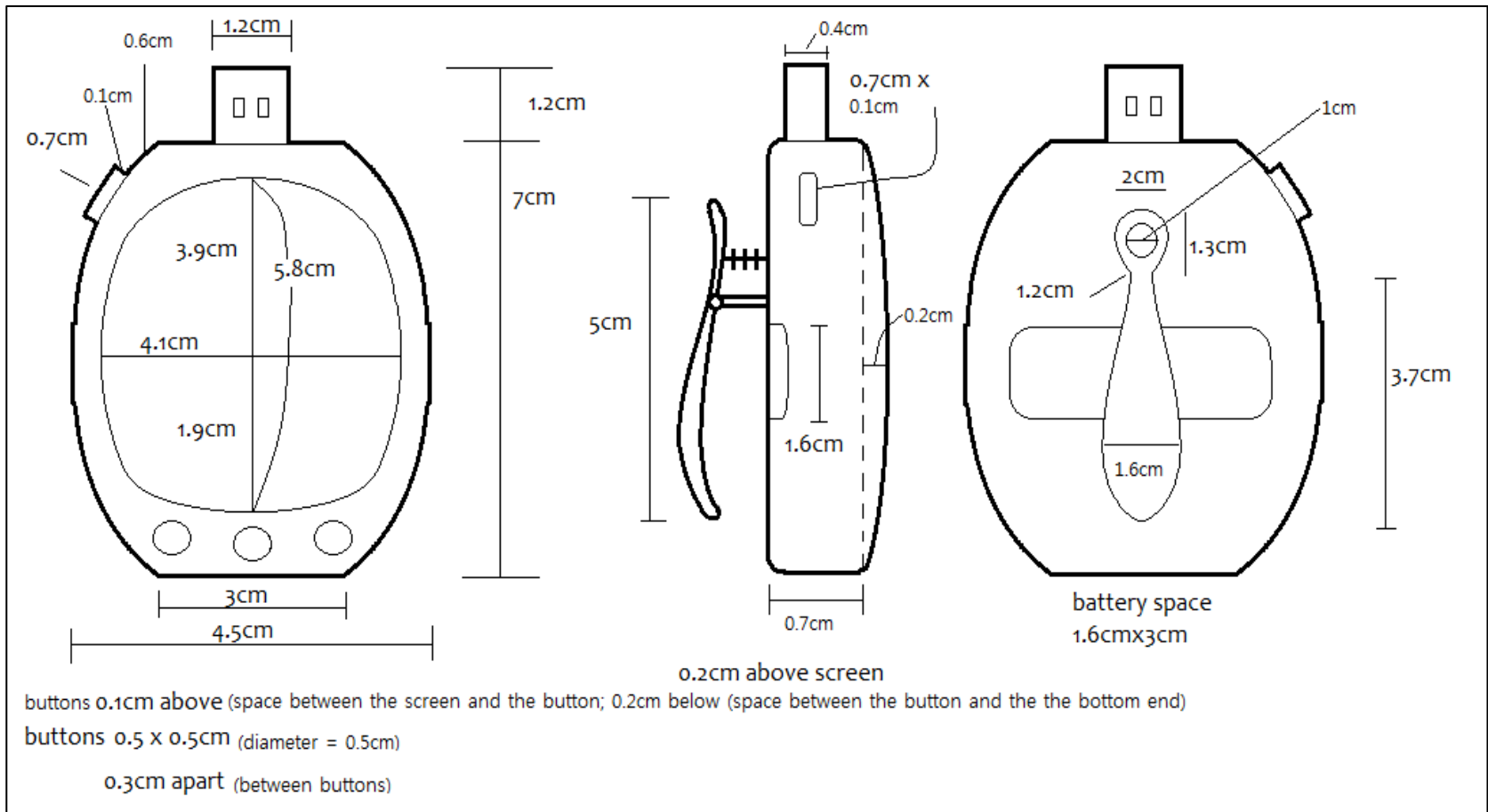


2:50

wheel - drilling and assembl...

74 views | 3 months ago

Hand Tools!

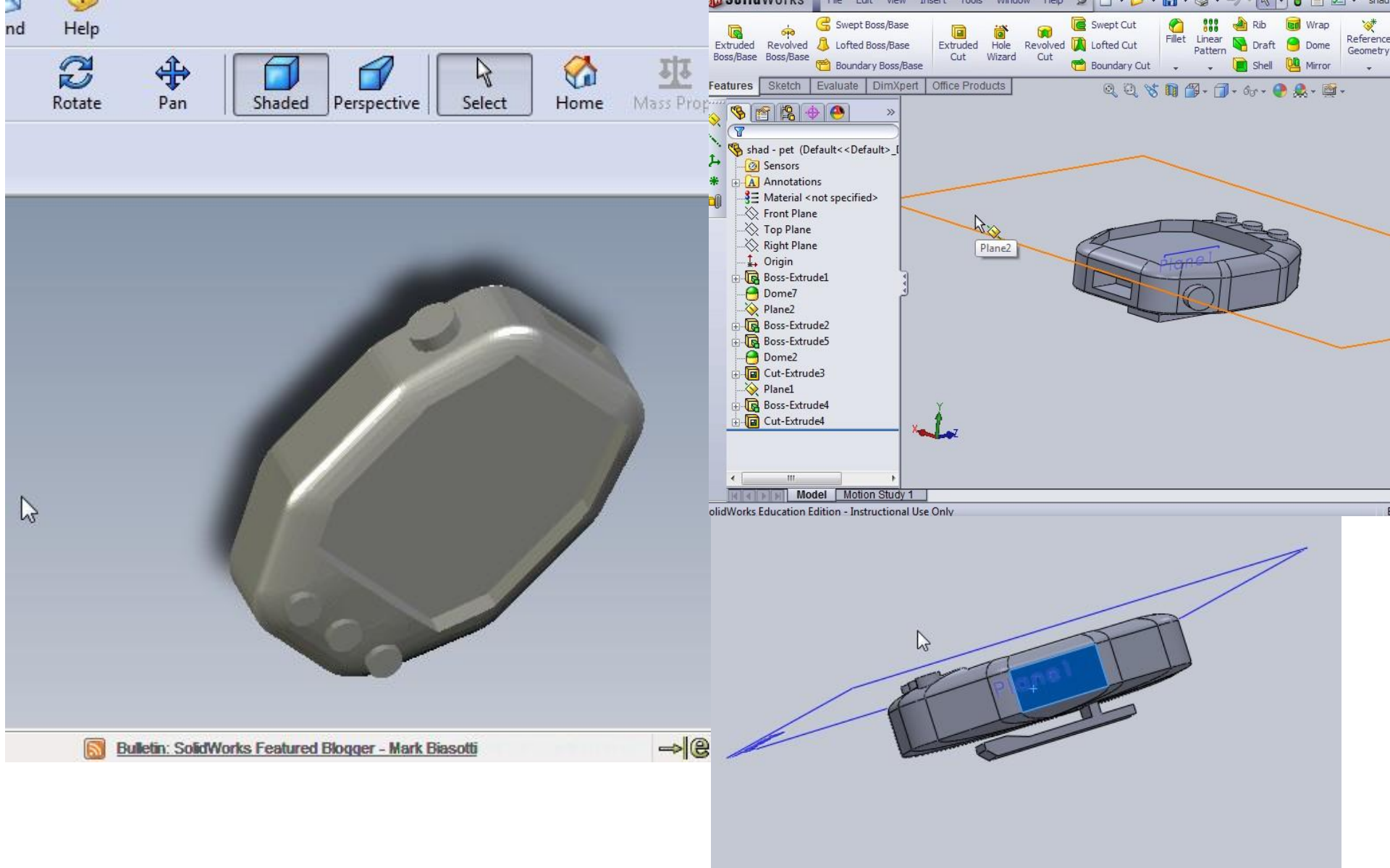


Example – Shad 2012

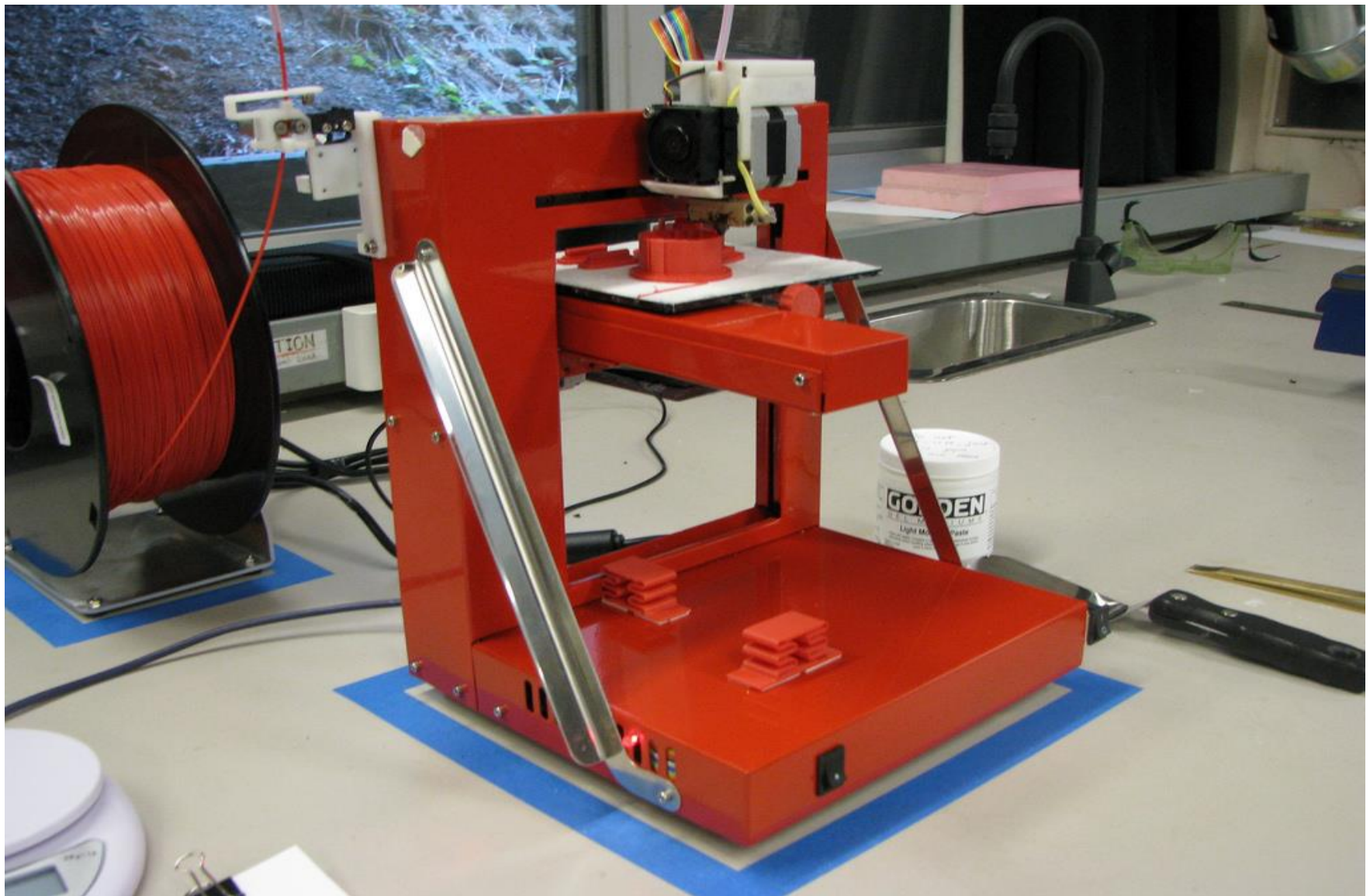
Handheld interactive “pet” to encourage kids to be active.

Physical model desired (non-functional ok).

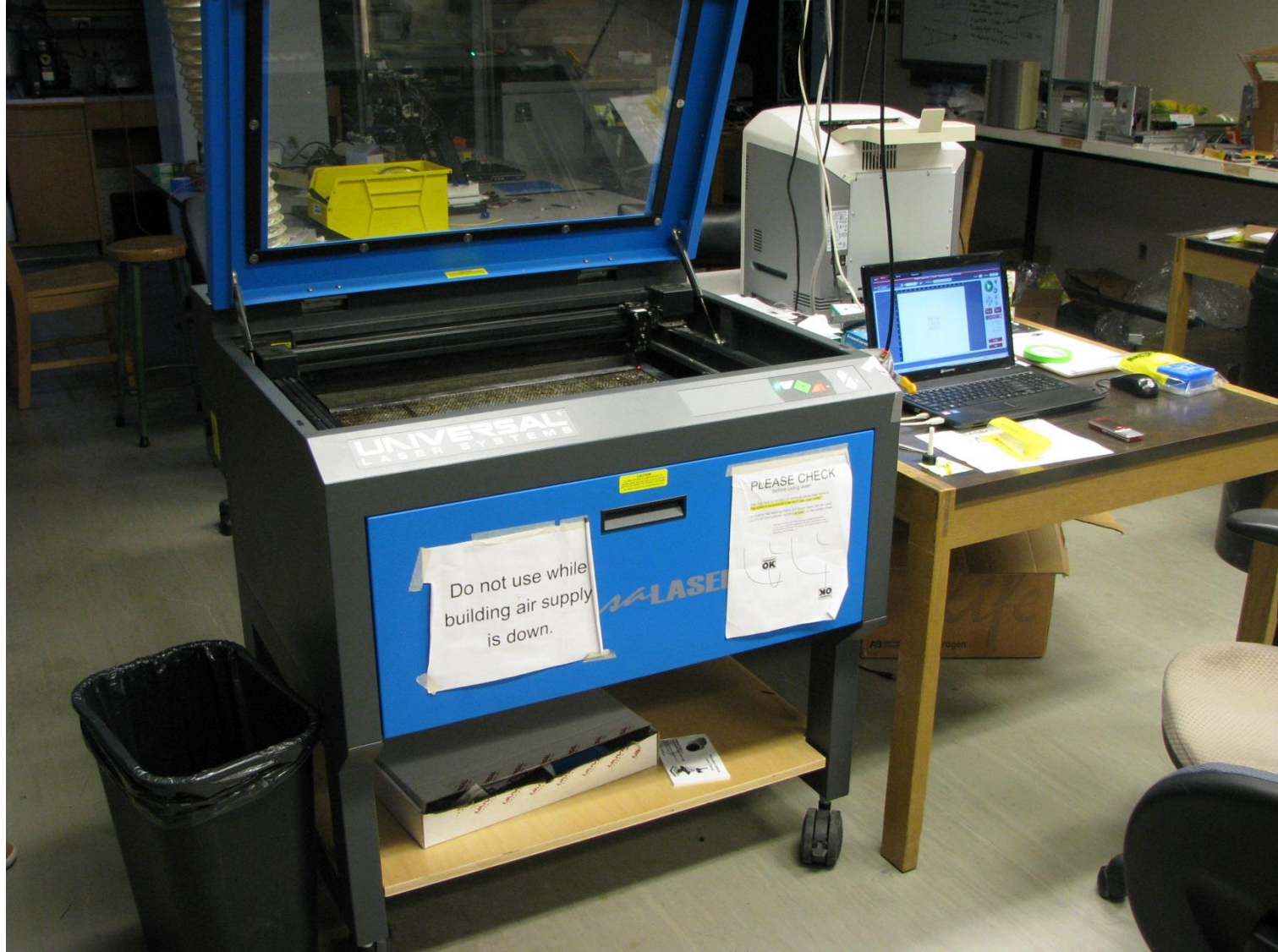
Students supplied drawings (I think it’s MS Paint?)



Computer Aided Design (CAD) software
(solidworks)



3D Printer – makes physical models from ABS plastic



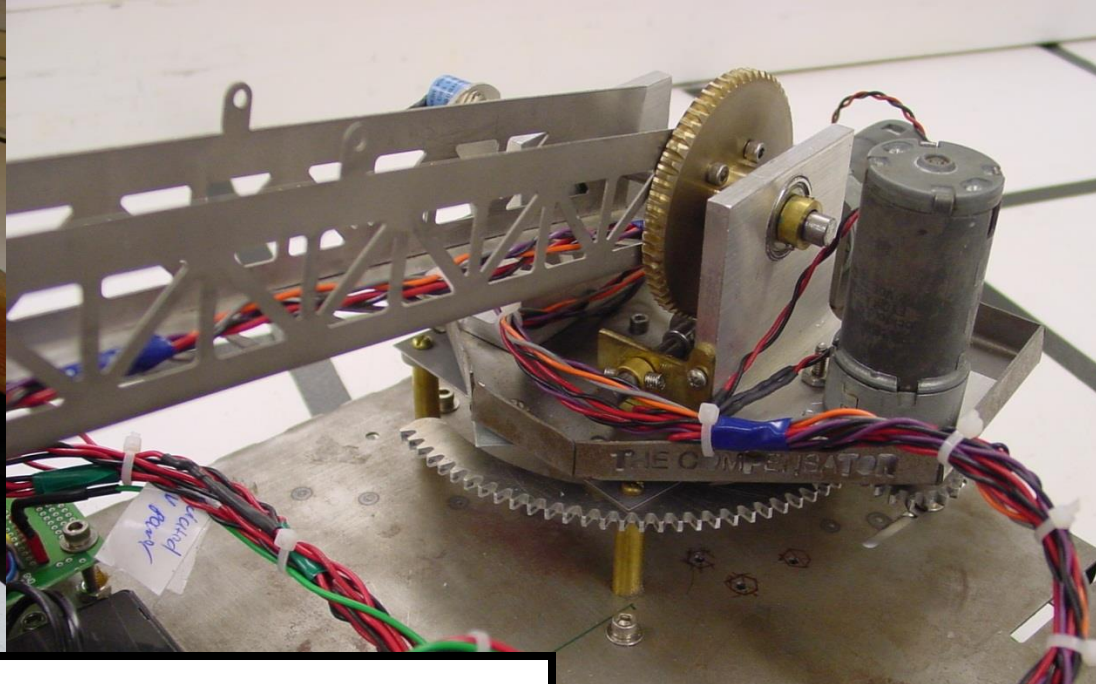
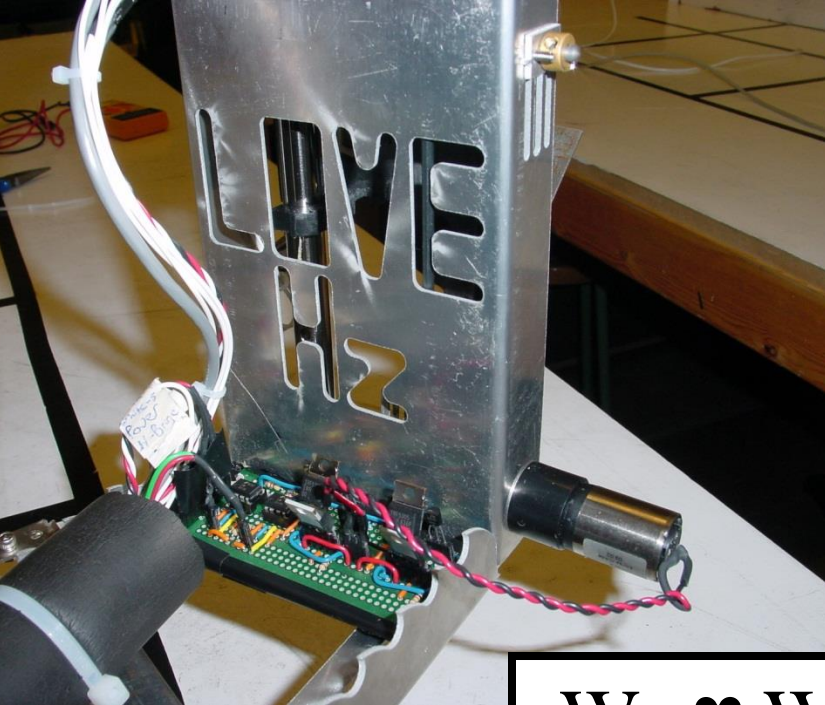
Laser Cutter/Engraver – can cut cardboard, wood, some plastics.



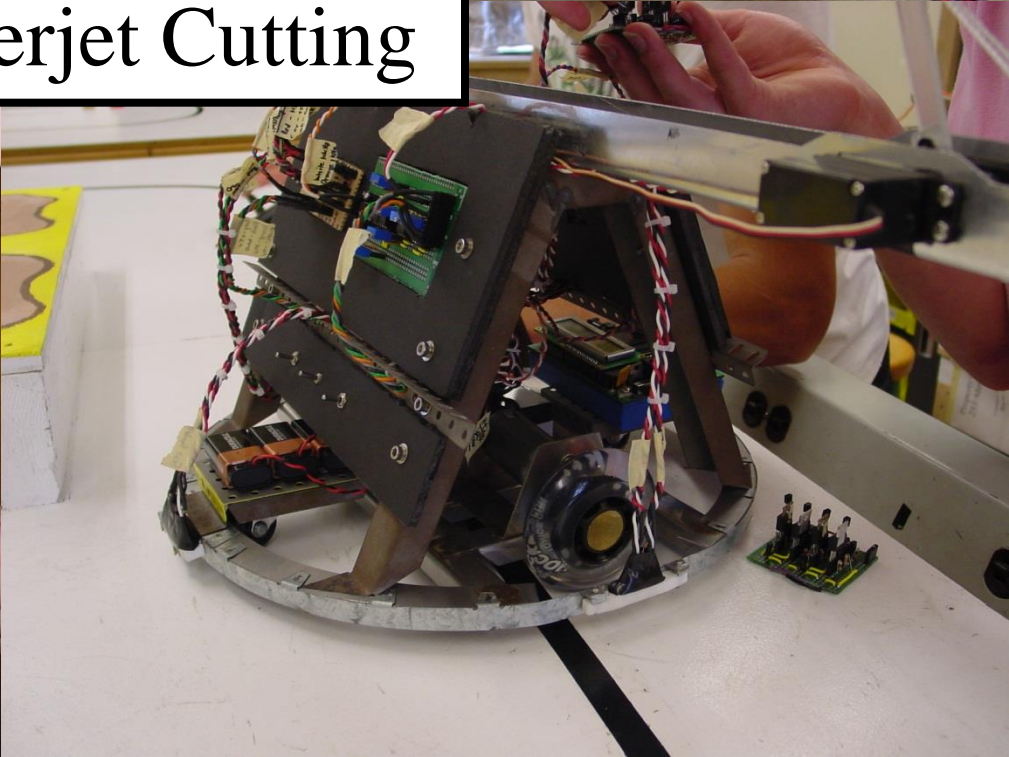
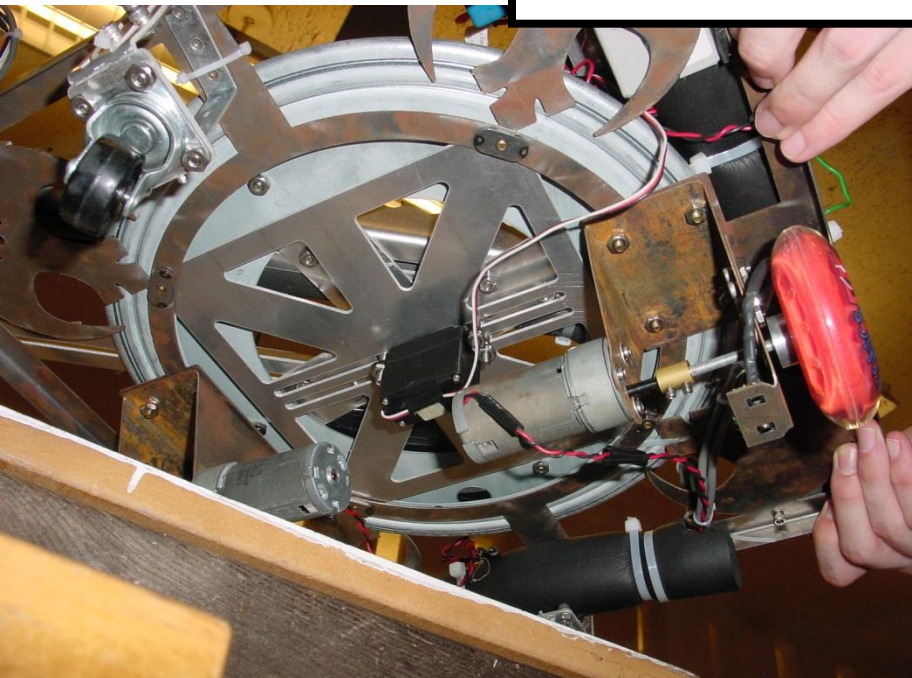
Finished – idea on Thurs night, completed on Sun night.

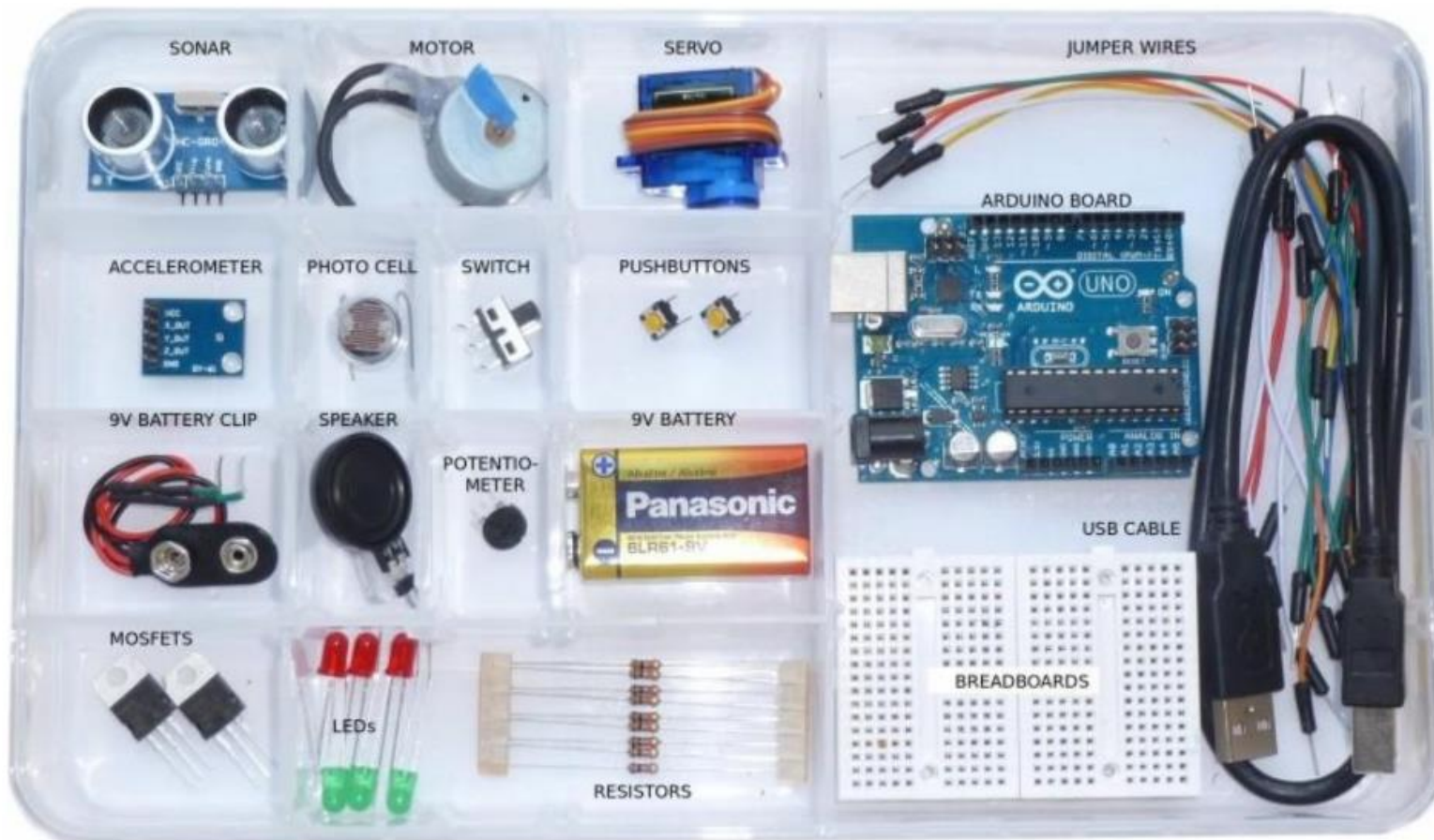


WaterJet cutter Our most versatile prototyping machine. Cuts everything



We ♥ Waterjet Cutting





Your kit contains:

1x Arduino Uno
 1x USB cable
 9x resistors
 1x knob (potentiometer)
 2x small breadboards
 2x MOSFET transistors

1x 9V battery
 1x 9V battery clip
 1x small servo motor
 1x small DC motor (with blue flag)
 6x LEDs, assorted colours & sizes
 1x photocell

1x sonar
 1x accelerometer
 1x switch
 2x pushbuttons
 A set of jumper wires

If items are missing, we do have some spares at the front.

Rapid Prototyping for Electronics – Arduino microcontroller

4.

Ideas to

Reality – IP

and Patents

Patents are exclusive rights granted to the inventors of an idea or method, in exchange for making the idea public knowledge.

Can be expensive (\$10,000 +)

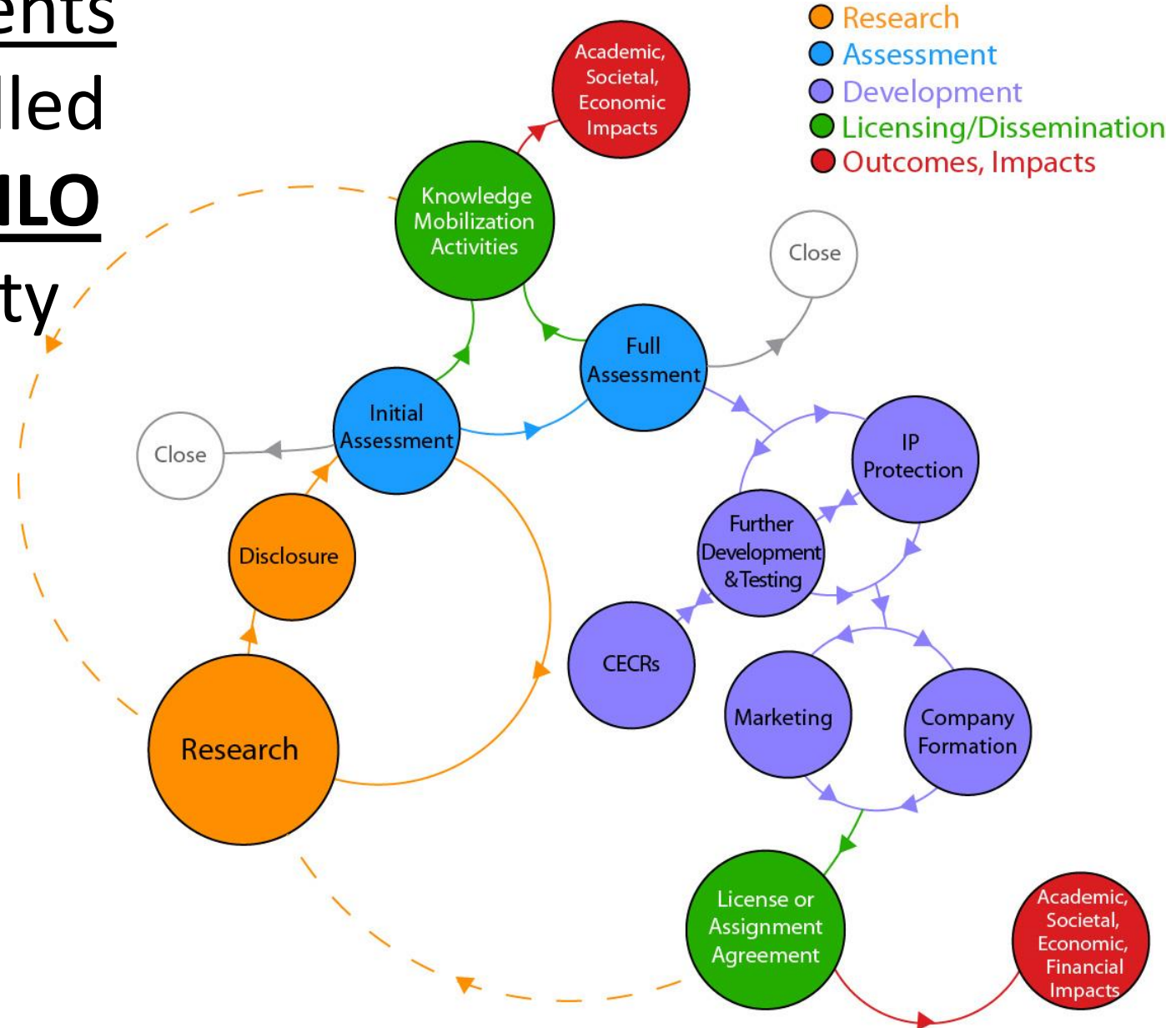
You can make money 3 ways:

Licensing and allowing another group to use your patent for a fee.

Selling your patent (aka assignment).

Using your patent for your own business.

UBC Patents
are handled
by the UILO
(university
industry
liaison
office).



5.

Today's

Challenge





VW Beetle



The Challenge:

Bring plants and flowers somewhere unexpected.

This Can Mean:

- Commercial Partner (McD, Starbucks, LuluLemon, etc),
- Packaging format,
- Something Interactive and Tactile,
- etc...

The Rules:

- Work in groups of ~4.

Materials

- Printer (send file to jnakane@physics.ubc.ca)
- Paper, Cardboard
- Foamboard and pink insulation
- Modeling clay
- Adhesives (hot glue, clear/duct tape)
- Some sheet metal
- Scissors and knives

Jon Nakane

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Thanks!