

prototyping

BAEN 580b

prototyping and tools on campus

BAEN 580b March/April period 4

workshop – prototyping interactive devices

Jon Nakane, Bernhard Zender
UBC Engineering Physics Project Lab
BAEN 541 – 2014 Nov 19

Successful
prototyping
is

**Targeted
Prototyping**

Function

(does it work?)



Form

(does it impress?)

Successful prototyping needs a specific purpose.

1. Who will see and use it?
2. What is the most successful outcome with your prototype?



4inch

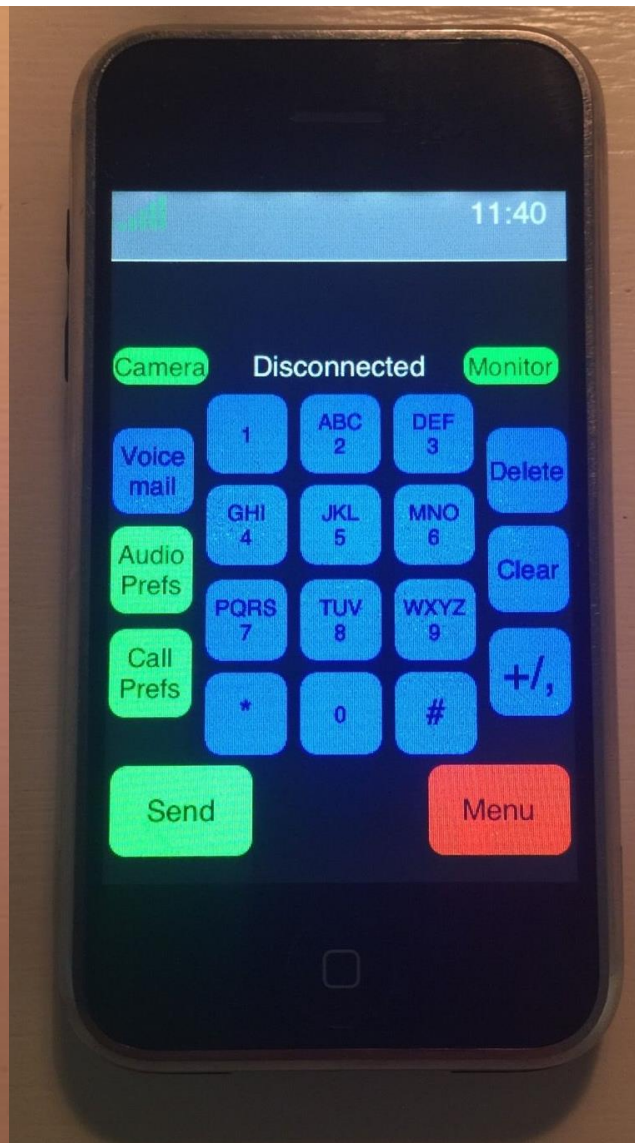
10inch
(estimate)

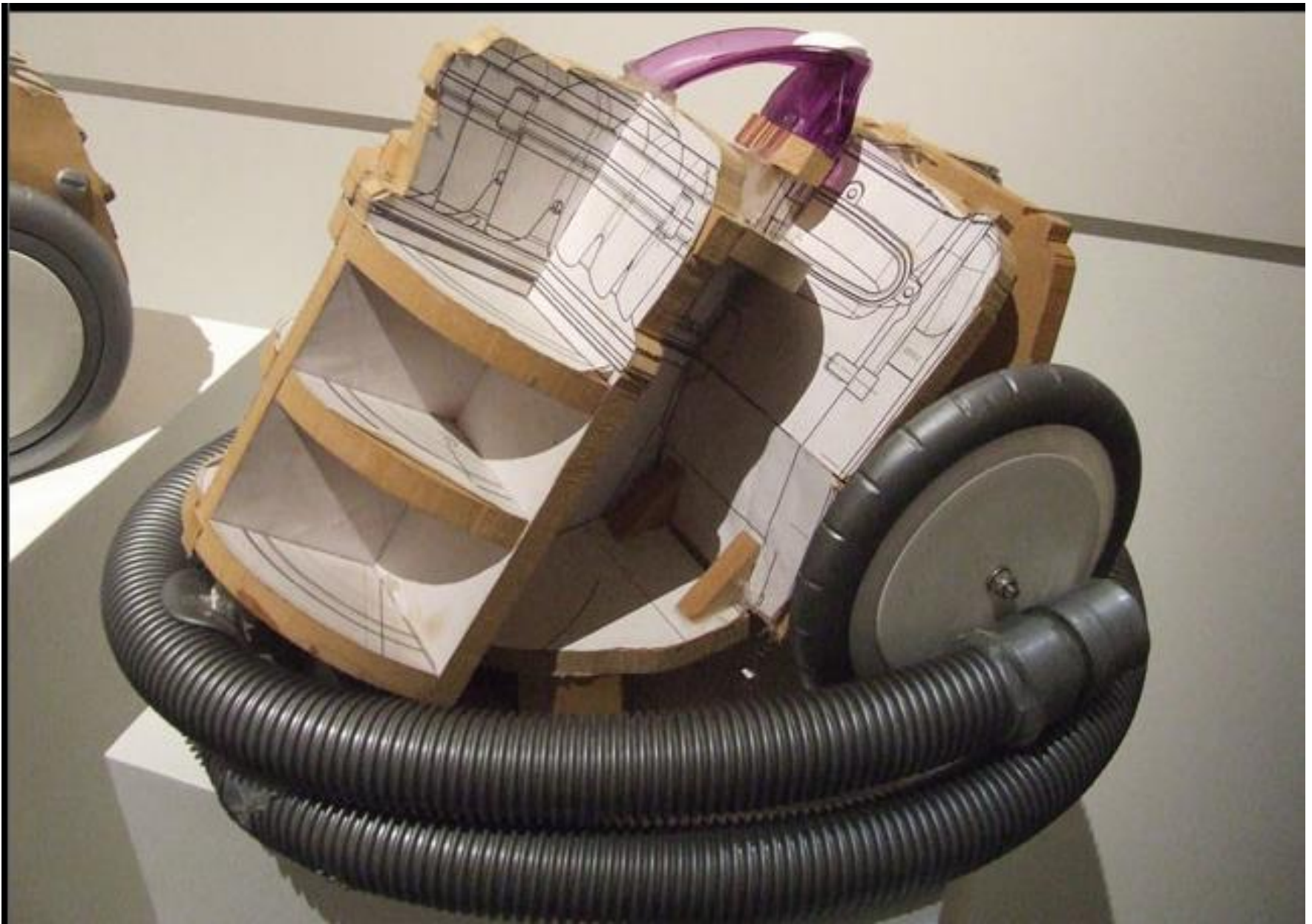
<http://www.boreme.com/posting.php?id=21374>





<http://arstechnica.com/apple/2013/03/exclusive-super-early-iphone-prototype-had-5x7-screen-serial-port/#image-3>





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

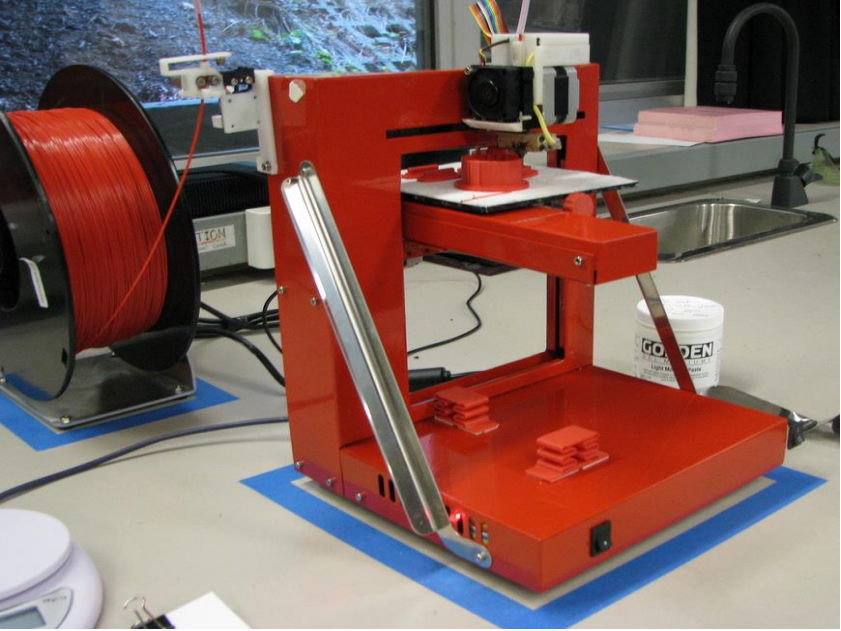
Kinetic Art Project Competition for the UBC Student Union Building





Kinetic Art Competition – TIMBER!

Prototyping Tools on Campus



3D Printer – prints layer by layer in plastic



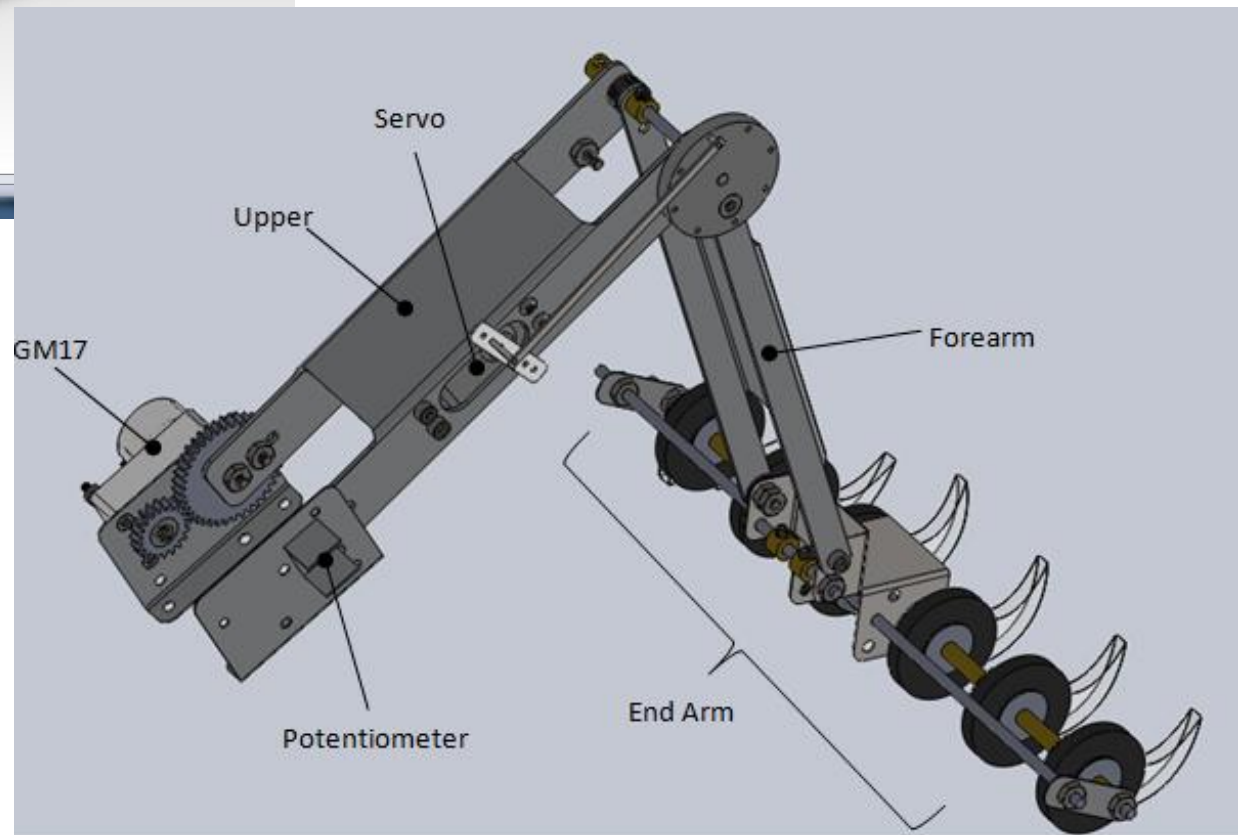
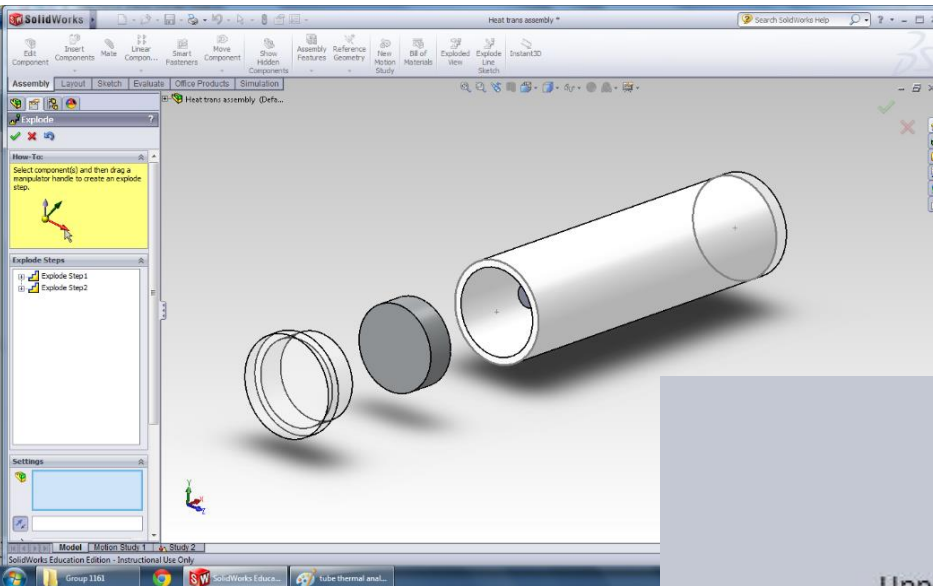
Laser Cutter/Engraver – cardboard, wood, plastics.



WaterJet cutter Our most versatile prototyping machine. Cuts everything

Computer Aided Design (CAD)

software used for 3d / laser / waterjet





Remote controlled syringe pump for regional anaesthesia (Nov 2014, Project Lab)

BAEN 580b

Period 4

Tues Thurs 2-4pm

1.5 credits

BAEN 580b - Goals for the course

1. **Deconstruct** product or service ideas into component parts which can be prototyped and tested.
2. **Use** software tools to create 2D and 3D, static and moving prototype models, and web/mobile app prototypes.
3. **Create** physical and software prototypes using all of our fabrication facilities.

BAEN 580B – Schedule

Modeling and CAD Software

Progressing from Idea to Hand Sketch to 3D Model
3D capture with laser scanner and multiple photos.

Fabrication

Design for Waterjet / Laser /3d Printer
Hand Tools

Outsourcing

Mass Manufacturing - examining commercial parts
Casting, molding, stamping (hands-on)
Machining tolerances - fit and manufacturing technique, surface finishes

Software

Wireframing and working demos for mobile and web applications

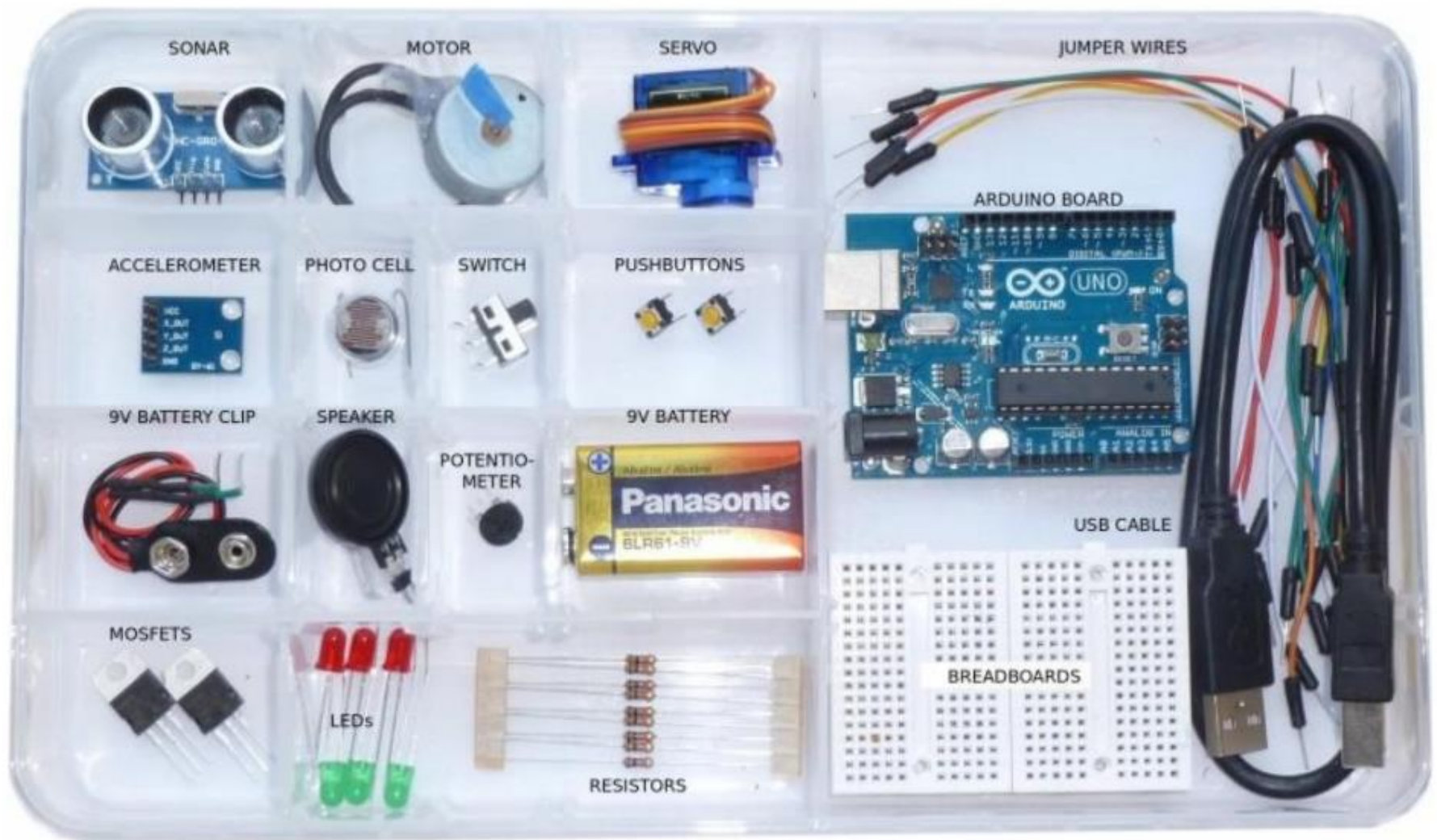
Electronics

Sensors, actuators, parts selection

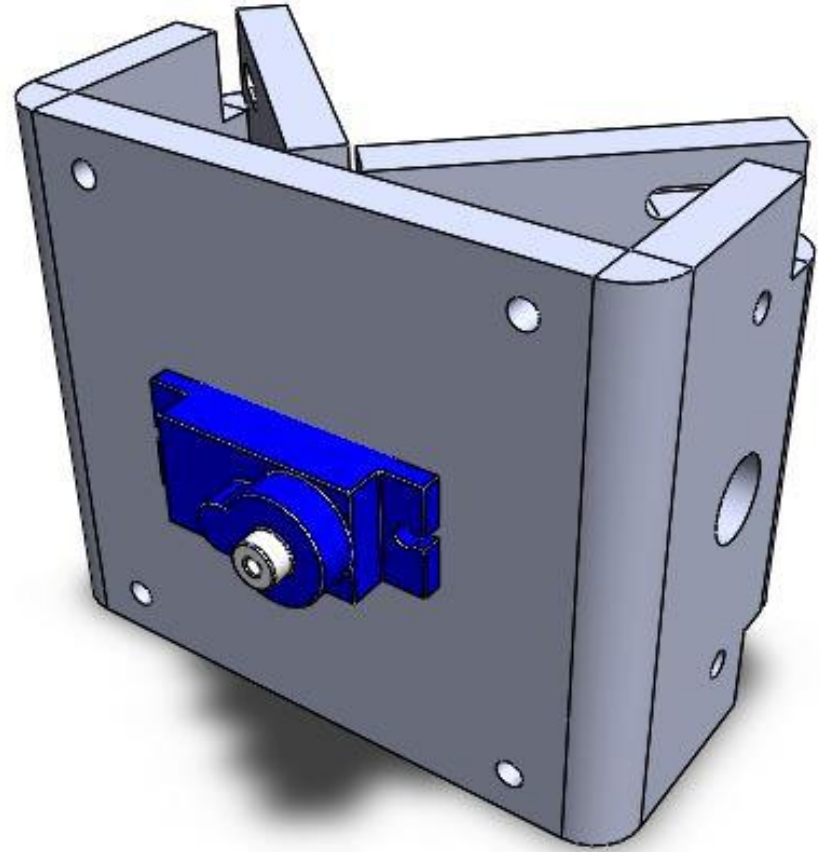
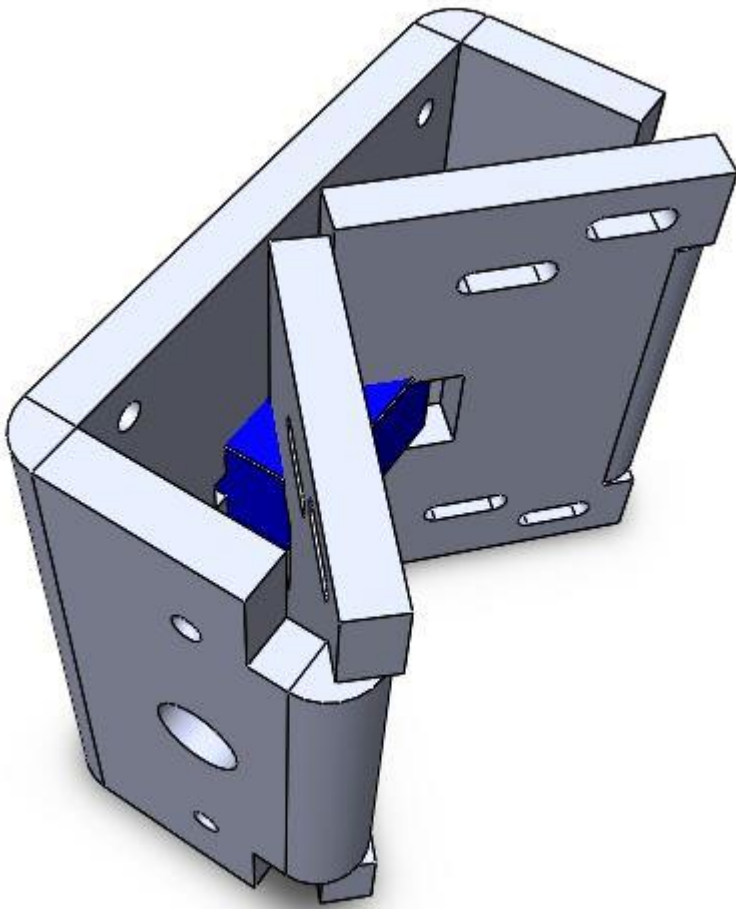
Critical Evaluation of Existing Prototypes

Today's
Workshop –

Prototyping
Interactive Devices



**Today's Goal:
Combine 1 sensor with 1 motor**



Hand cut from cardboard 2 weeks ago
Trials with foam core last week
Cut on Laser Cutter yesterday
Used today!

Jon Nakane

jnakane@physics.ubc.ca

Bernhard Zender

bzender@phas.ubc.ca