

Alle O'Neil's Portfolio
Spring 2012



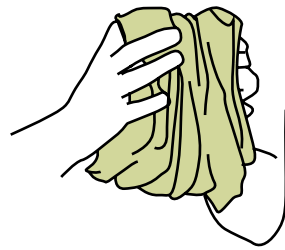
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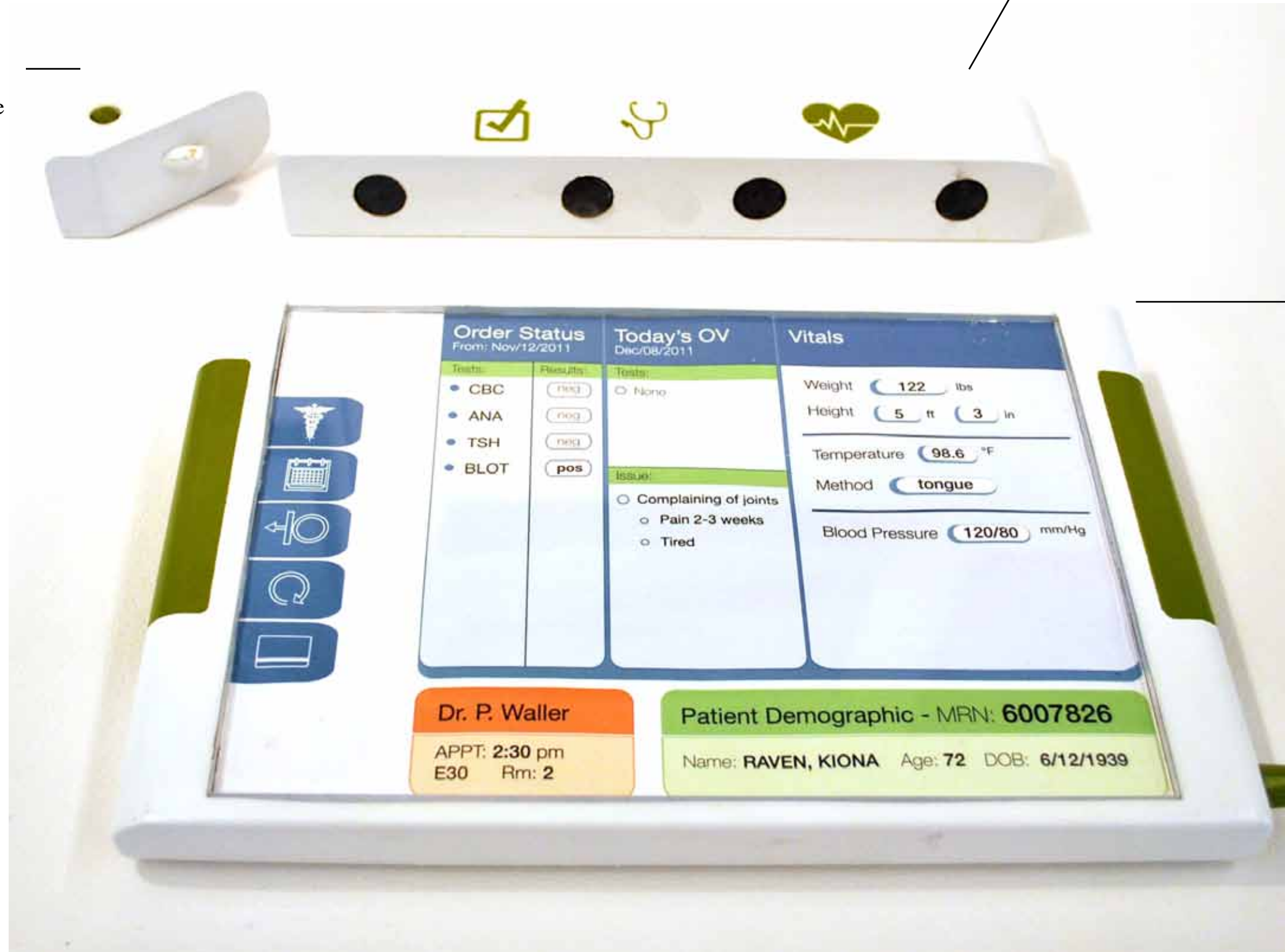


Things I've Made

Medical Communication Project

Provider's piece - activates dictation software to promote eye contact between provider and patient. This piece also relinquishes access to certain tasks such as, prescribing prescriptions.

Medical Assistant's Piece - connects tablet to EMR and thus, automatically updates visit information to the medical database.



Tablet - contains an interface that passes on from patient to MA to medical provider. The interface contains visual aids to guide MAs through the information collecting process.

Medical Communication Project: Design Goals and Research

Interviews

Communication is a tool to be designed.

The Goal of this project was to create a device that emphasized the importance of the various roles of medical staff and patients while strengthening their ability to communicate with one another.

A team of five people were assigned a 56 year old male physician and a 46 year old female medical assistant to focus on throughout the design process.

46 yr old female MA

Danbury Medical Group
October 2011

56 yr. old male physician #1

Danbury Medical Group
October 2011

56 yr. old male physician #2

Danbury Medical Group
October 2011

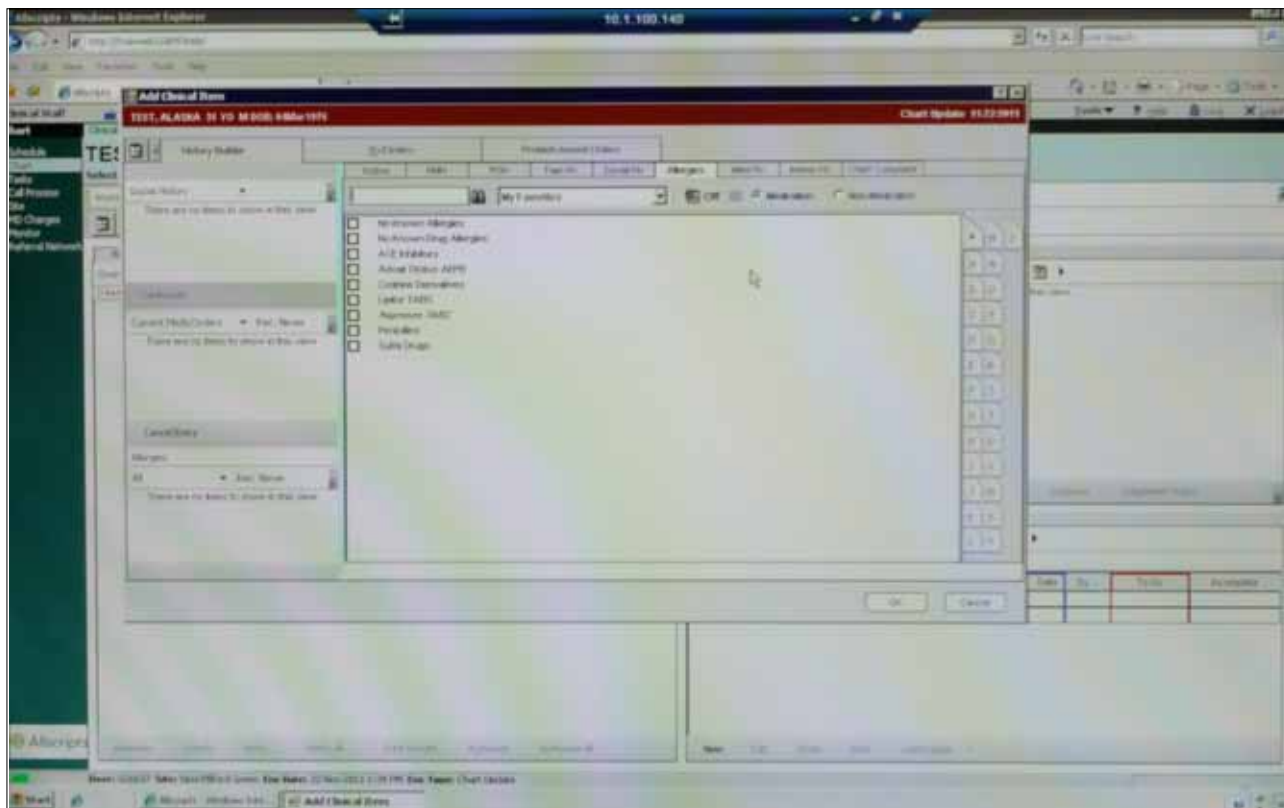
A screen acts as a barrier between the patient and the physician, which can prevent the patient from feeling comfortable enough to share information.

What are your responsibilities? What procedures are involved?

I treat depression, heart disease, asthma, emphysema, bipolar disorder, anxiety, and diabetes.

I would say an appointment consists of 70% listening and 10% explaining and talking.

Existing Technology



Electronic Medical Record (EMR)

- Contains charts
- Tasks for each office member to finish (communication tool)
- Scheduling
- MD Charges

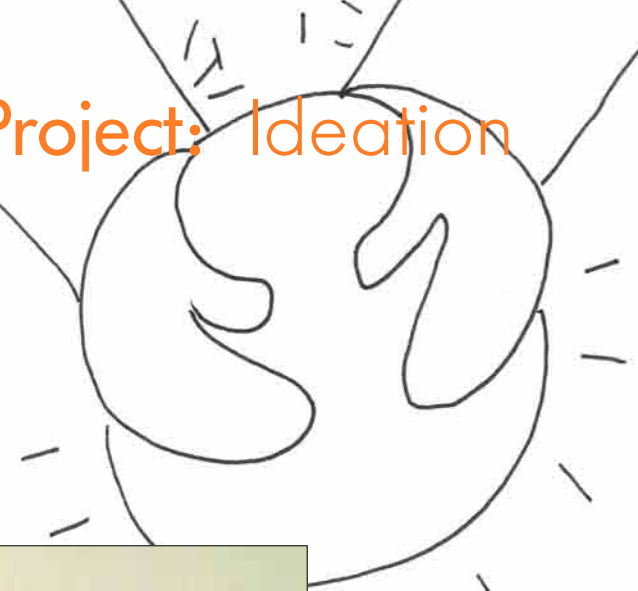
Athena (billing software)

- CPT Code (diagnosis code)
- does NOT contain medical information
- physician signs note electronically

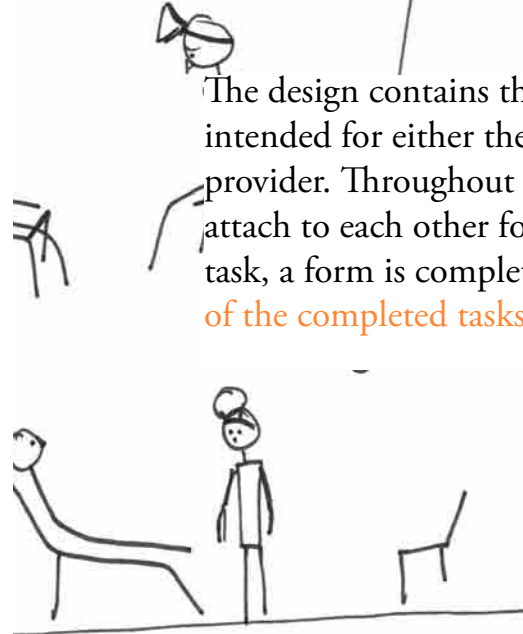
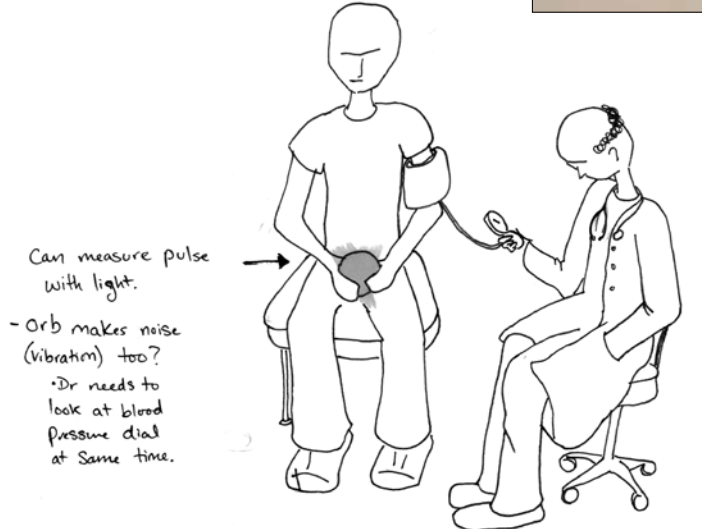
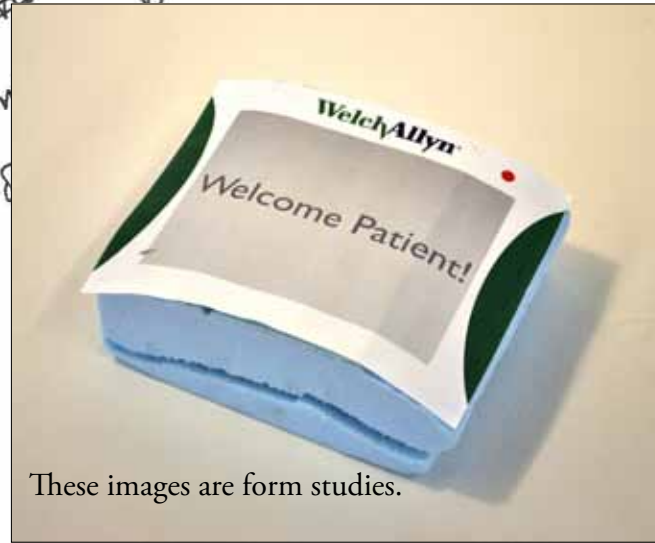
Dragon Dictation

- Used by physician post-appointment for extra notes
- recognizes voice over time (mistake prone)

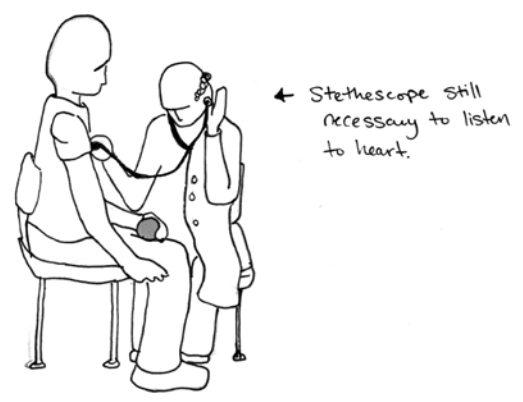
Medical Communication Project: Ideation and Prototyping



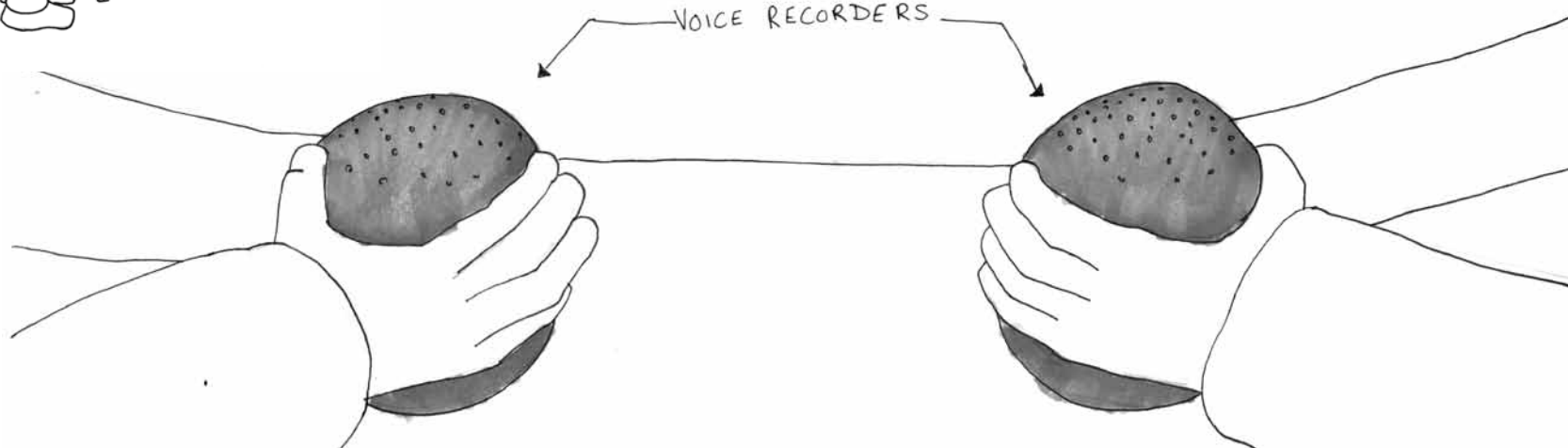
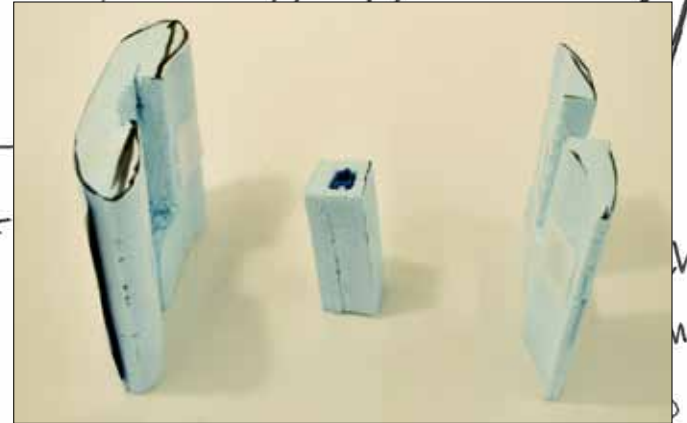
False matches brighter
clim



The design contains three parts, each with a function intended for either the patient, medical assistant, or medical provider. Throughout the appointment, the components attach to each other for the purpose of leading to the next task, a form is completed; thus, **the form is a manifestation of the completed tasks.**



glowing orb calms patient



interaga

hair
n no
exa

Medical Communication Project: Field Testing and Feedback

A visit to a doctors office revealed crucial flaws in the design of the prototype...



Medical Assistant's Piece

- use visual aids
- use to help manage tasks

Patient's piece

- consider geriatric patients
- use technology to aid patients with impairments

Provider's piece

- access to EMR (for medical history and updating information)
- incorporate billing tasks
- consider Dragon Dictation



Images from visiting the New Milford branch of Danbury Medical Group.

Medical Communication Project: Final Design

Patient uses tablet to enter information



MA adds piece and activates EMR to collect more info



Provider's piece activates dictation and lifts security features.



Medical Communication Project: Final Interface Design

Welcome Patient!

1. Patient

WESTERN CONNECTICUT HEALTH NETWORK
DANBURY HOSPITAL - NEW MILFORD HOSPITAL

Contact Information:

Patient's Full Name: DOB:

Address: City: State: Zip:

Sex: Age: SS #: Marital Status:

Home Phone: Work: Cell:

2. MA

Order Status
From: Nov/12/2011

Tests:	Results:
• CBC	<input type="text" value="neg"/>
• ANA	<input type="text" value="neg"/>
• TSH	<input type="text" value="neg"/>
• BLOT	<input type="text" value="pos"/>

Today's OV
Dec/06/2011

None

Issues:

- Complaining of joints
 - Pain 2-3 weeks
 - Tired

Vitals

Weight: lbs

Height: ft in

Temperature: °F

Method:

Blood Pressure: mm/Hg

Dr. P. Waller
APPT: 2:30 pm
E30 Rm: 2

Patient Demographic - MRN: 6007826
Name: RAVEN, KIONA Age: 72 DOB: 6/12/1939

3. Provider

WESTERN CONNECTICUT HEALTH NETWORK
DANBURY HOSPITAL - NEW MILFORD HOSPITAL

Follow-Up

Tests:	Results:	Records:	Appointment:
• CBC	<input type="text" value="neg"/>	To: <input type="text" value="St. Joseph"/>	Appt: <input type="text" value="in 3 weeks"/>
• ANA	<input type="text" value="neg"/>	From: <input type="text" value="Danbury Hos"/>	Call: <input type="text" value="Jan/ 23/ 2012"/>
• TSH	<input type="text" value="neg"/>		
• BLOT	<input type="text" value="pos"/>		

Rx: DOXY 100- 2Dx30
Pharmacy: CVS

Signature:

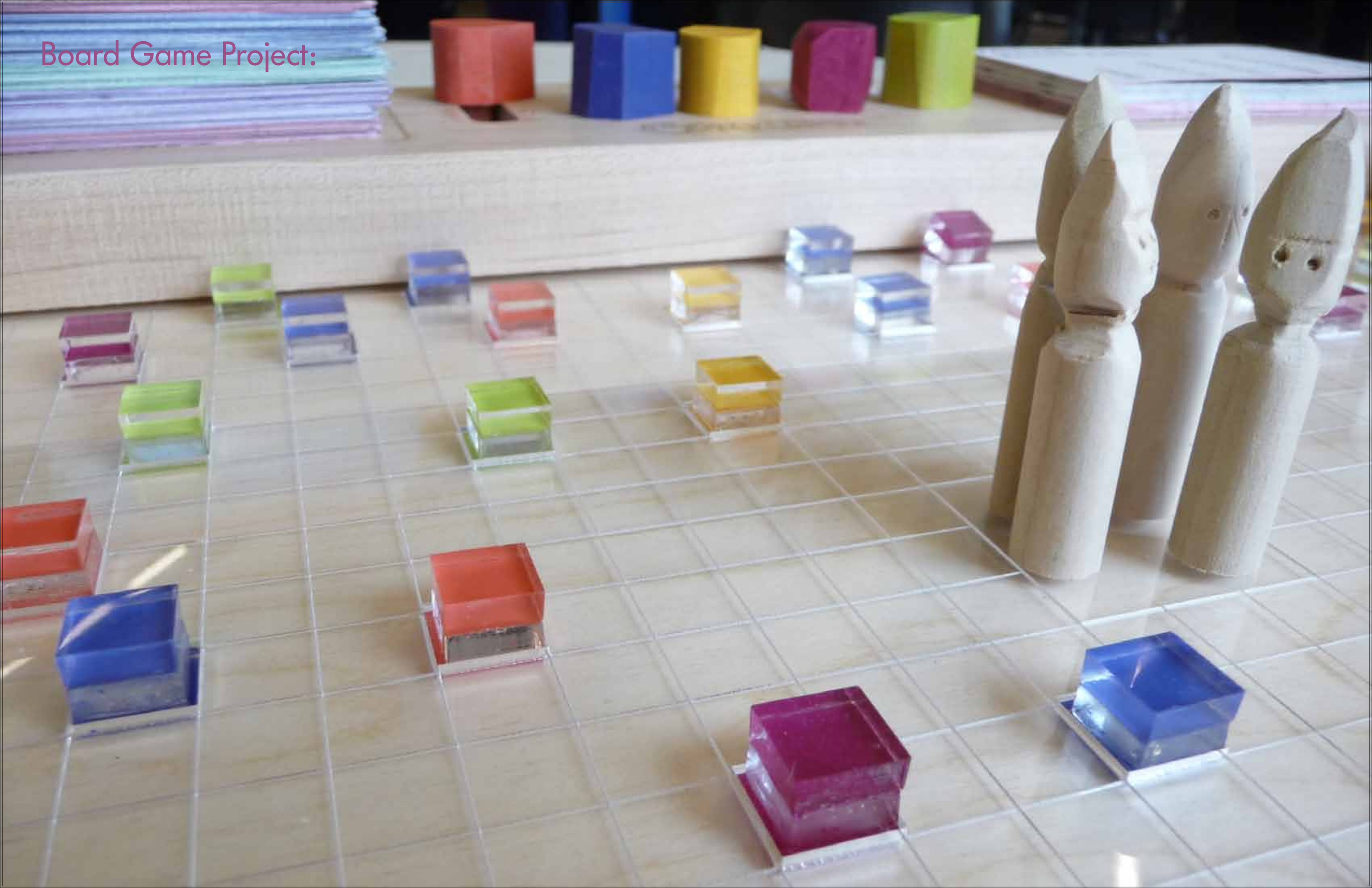
Dr. P. Waller
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E30 Rm: 2

Patient Demographic - MRN: 6007826
Name: RAVEN, KIONA Age: 72 DOB: 6/12/1939



touch to continue

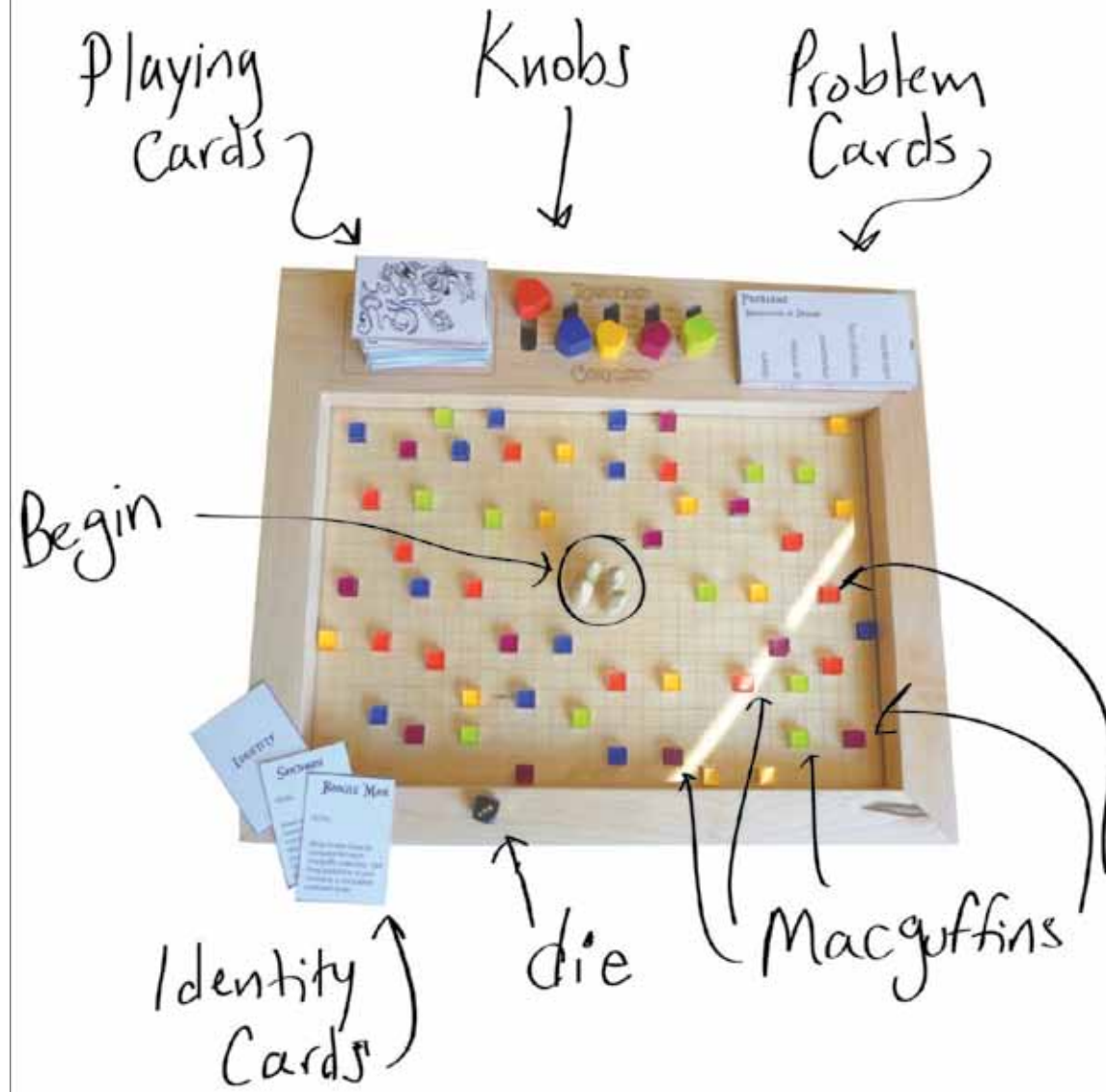
Board Game Project:



Board Game Project:

SLUMBER'S MIND FRAME

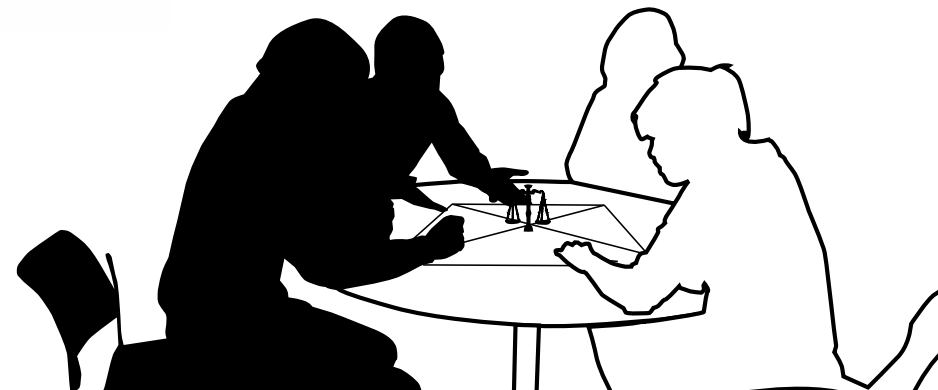
Four players - Ages 8+



While sleeping, people work many of their problems out within their dreams.

The entirety of the game is set in one night's sleep. Sandmen and Boogie men compete to either resolve or confuse these different problems. To do this, mcguffins are collected, barriers are created and overcome, and identities are revealed.

The board is dry-erase; this enables the players to create the board and thus, create the dream world. It is a strategy-based game and therefore, there is a balance between structure and flexibility within the rules.

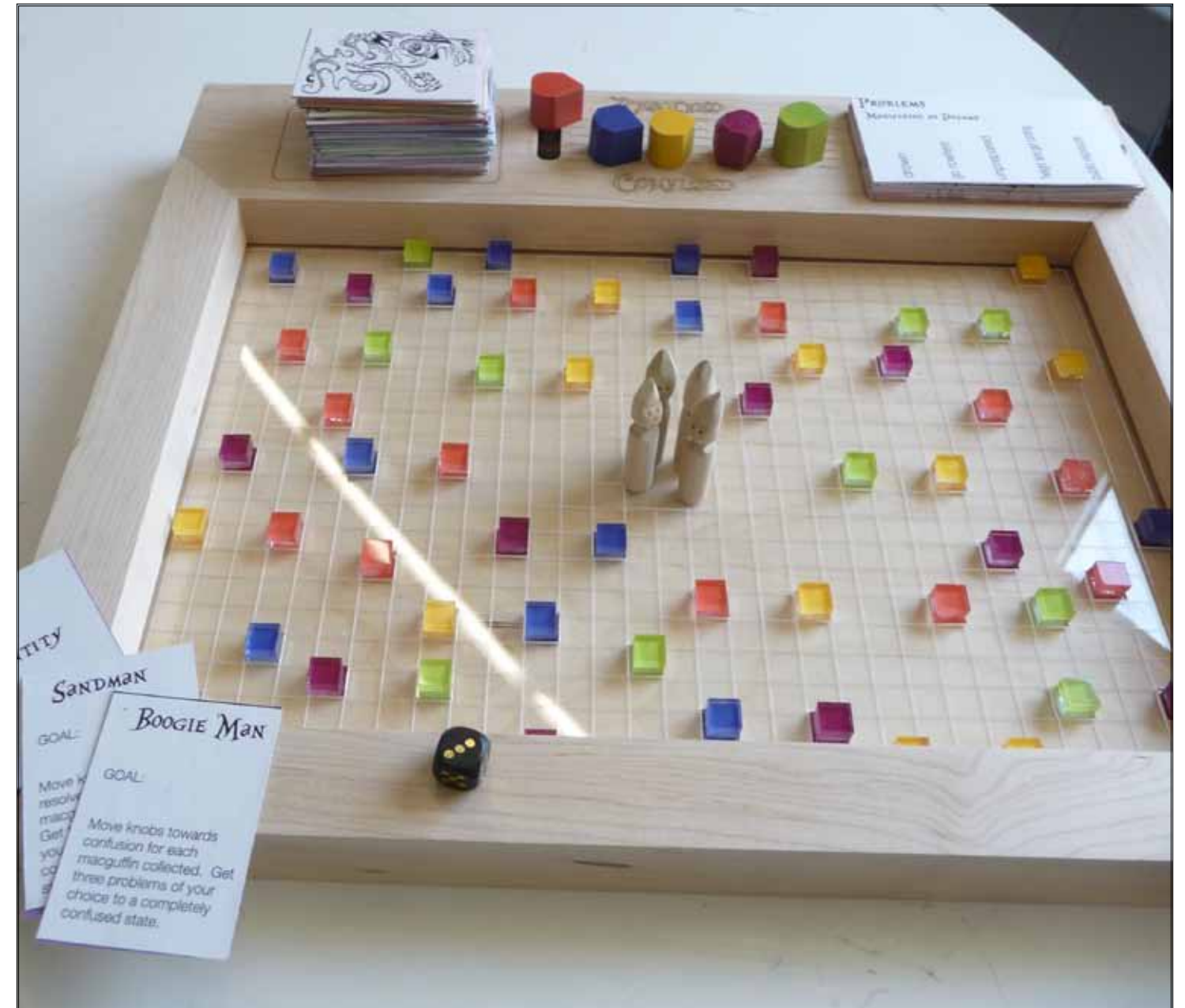


Board Game Project:



Four players - Ages 8+

The board game becomes the container when not in use (above). Below is an example of how the board looks when set up to play.



Board Game Project:

SLUMBER'S MIND FRAME



Four players - Ages 8+

To Begin:

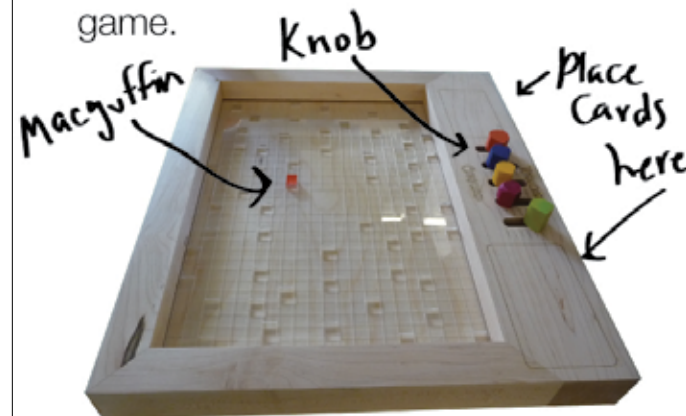
Place the large deck of cards on the left side of the board. Choose one problem card to place on the right side. Randomly position the macguffins in the cutouts on the board.

Each person chooses three problems to work towards. Also choose a Identity card. There are two options: Sandman or Boogie Man.

Sandman - collects macguffins to move knobs towards resolved.

Boogie Man - collects macguffins to move knobs towards confused.

Do not share your identity or the problems you chose with anyone. Write your favored problems on a piece of paper to keep with your identity card to be revealed at the remainder of the game.

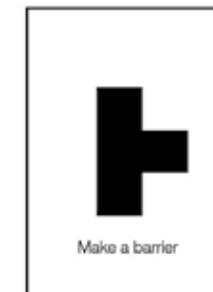


Each **Knob** represents a component of a dream. Throughout the game the knobs can be moved between confused and resolved.



Your Turn: Either choose a card and follow it's directions

EXAMPLE:



For this card, use the **dry-erase marker** provided to create a barrier anywhere on the board. Until an "open path" card is chosen, the barrier remains on the board.

OR
roll the die.

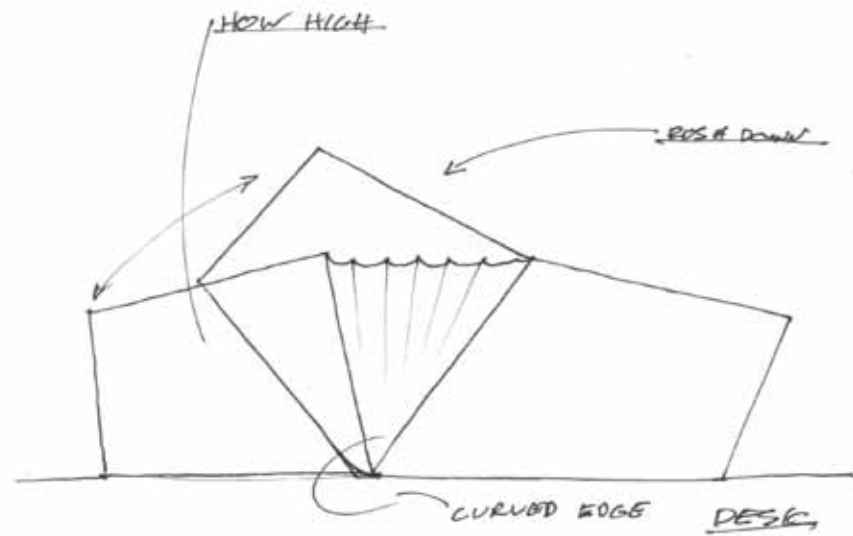
Win when the three problems you chose at the beginning of the game reach the resolution corresponding to your assigned role.

The Living Lantern designed for small-batch manufacturing:



The Living Lantern designed for small-batch manufacturing: Design Research and Budget

This project consisted of the collaborative effort of four people who were tasked with designing an electronic object as well as, the manufacturing process.

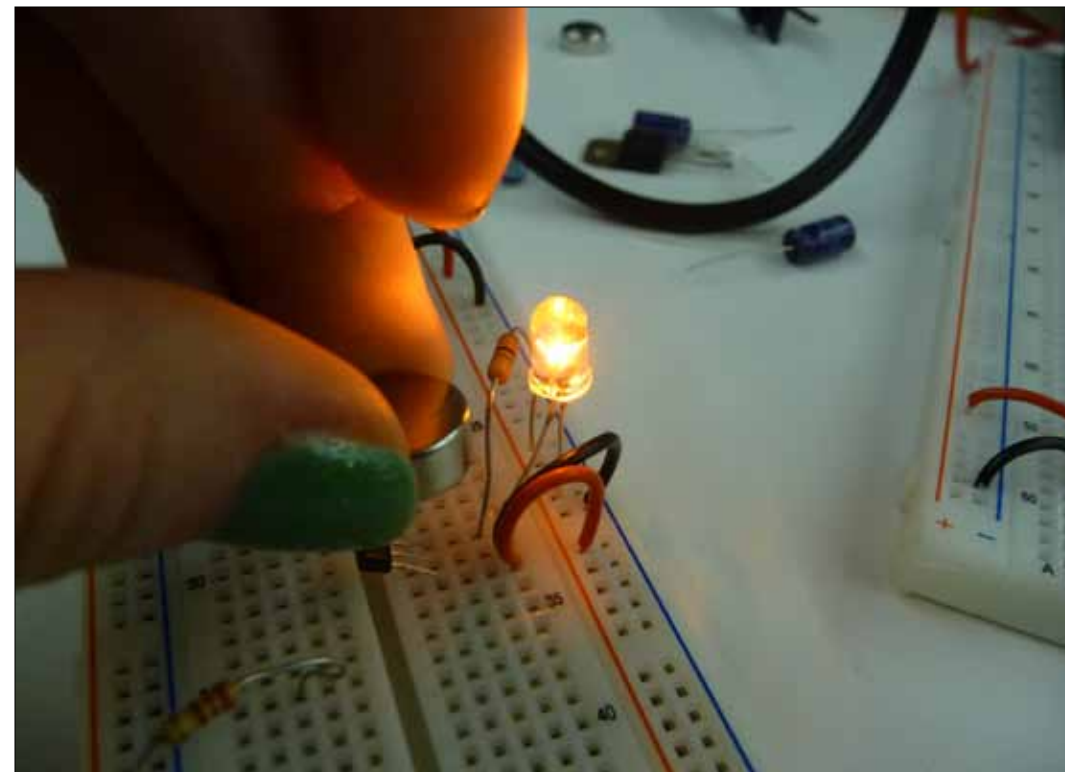
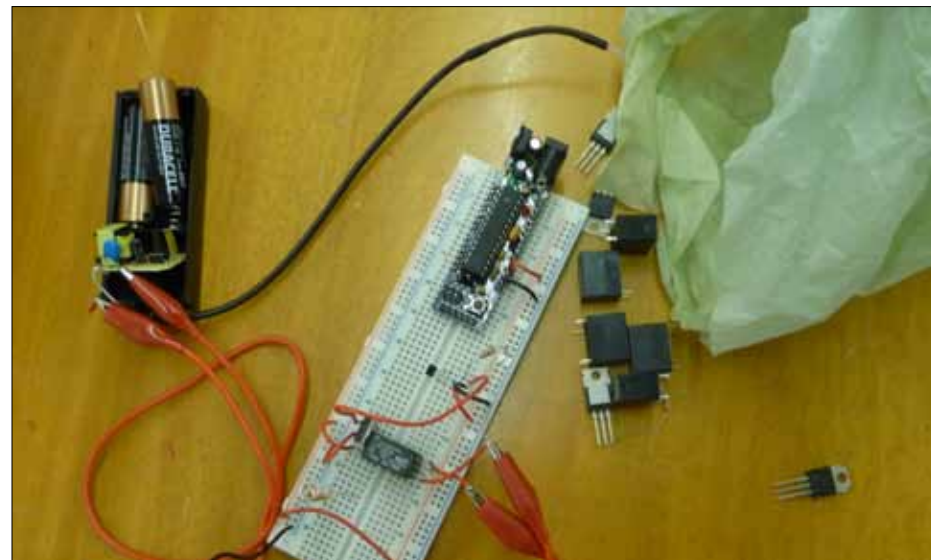
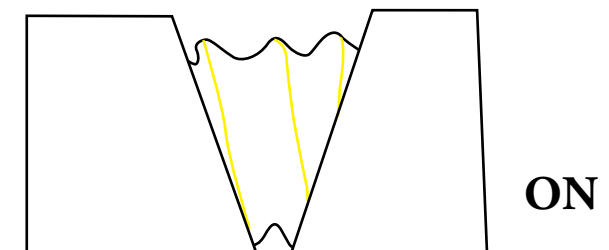
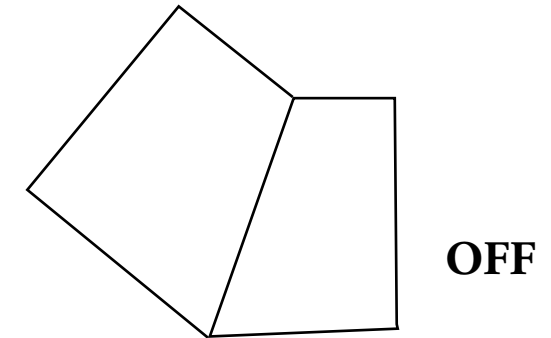


This sketch was done by a group member.



Tinkering

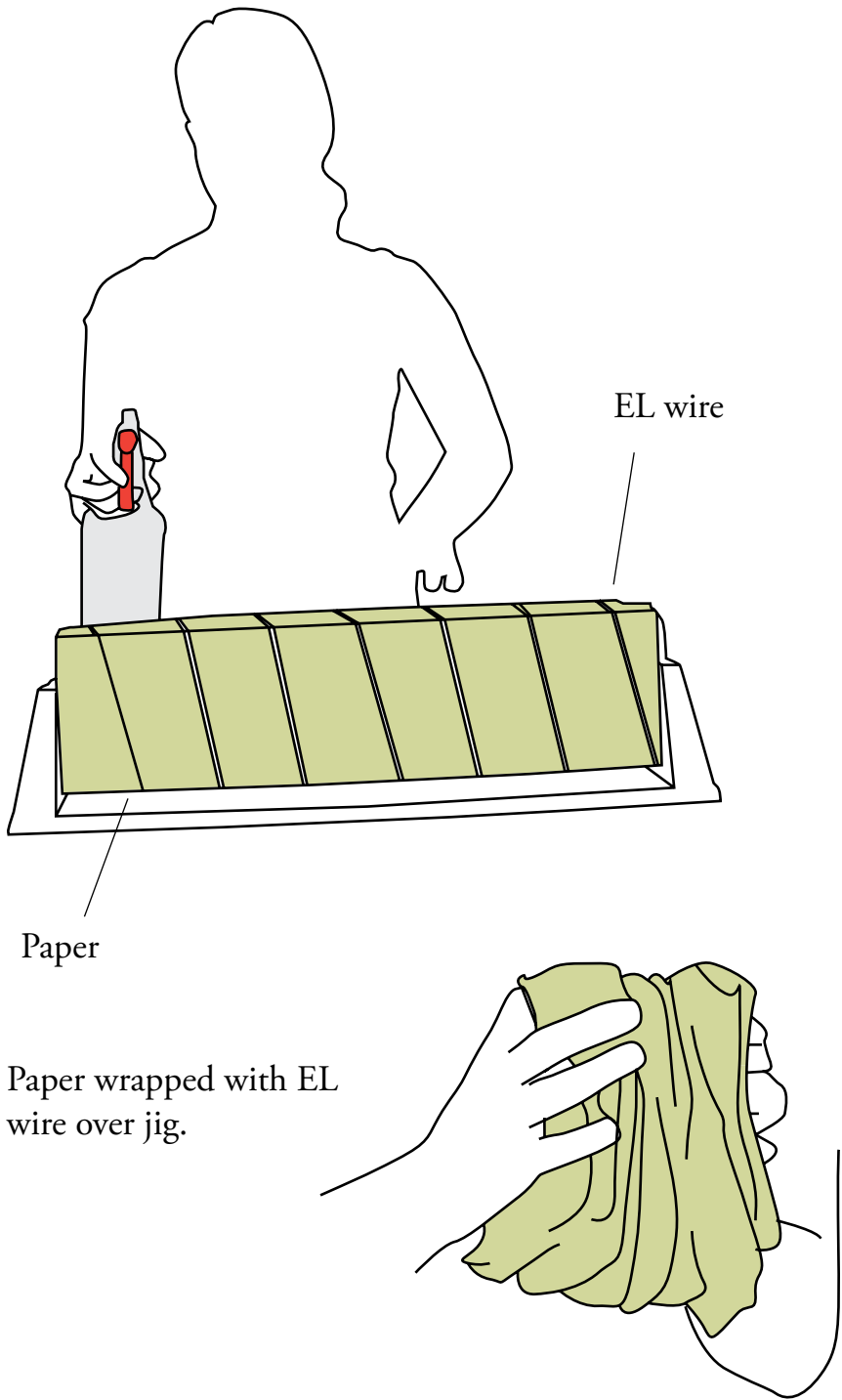
Thus, the Living Lantern was created. Inspired by caterpillars and lightning bugs, the lantern uses EL wire, magnets, and a hall effect sensor to turn on when opened and off when closed.



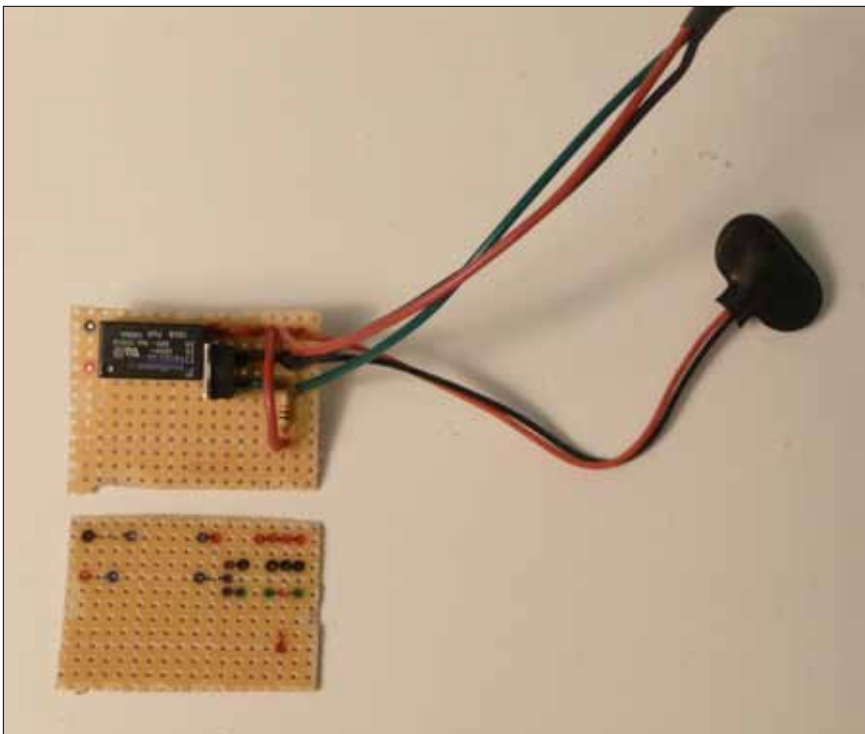
Component	Price per lantern	Total Price
Sensor	\$2	\$12
Magnets	\$2	\$12
El Wire	\$5.96	\$35.76
Paper	\$4	\$24
Wood (for housing)	\$7	\$42
MDF	\$6	\$36
Batteries	\$2	\$12
Battery clips	\$1	\$6
Circuit Board	\$5.50	\$3
Relay, transistor, wire, resistors	free	free
Adhesives	\$3	\$18
		Total per Batch: \$200.76
		Unit Price: \$33.46

The hall effect sensor deactivates the relay (thus deactivating the el wire) when the north side of the magnet is in proximity of the sensor. (Left)

The Living Lantern designed for small-batch manufacturing: Lantern Production



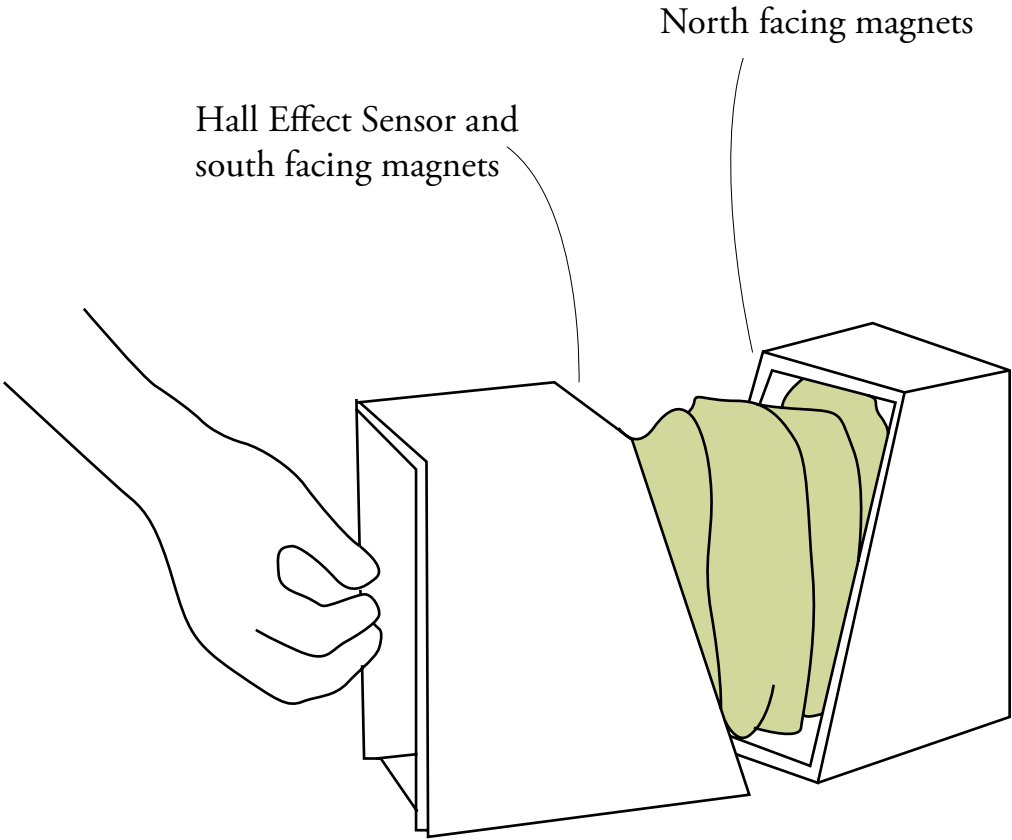
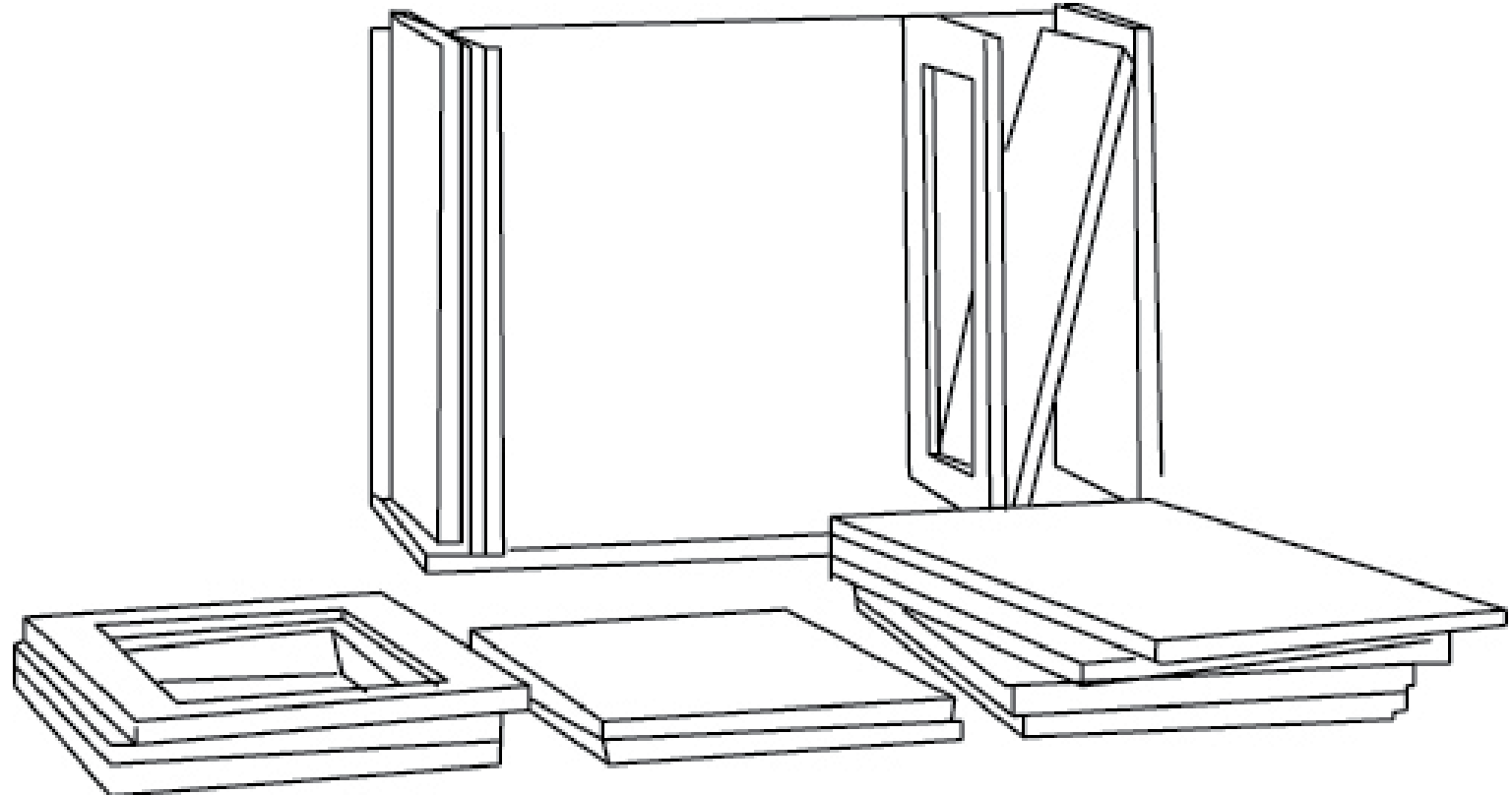
The Living Lantern designed for small-batch manufacturing: Production Process



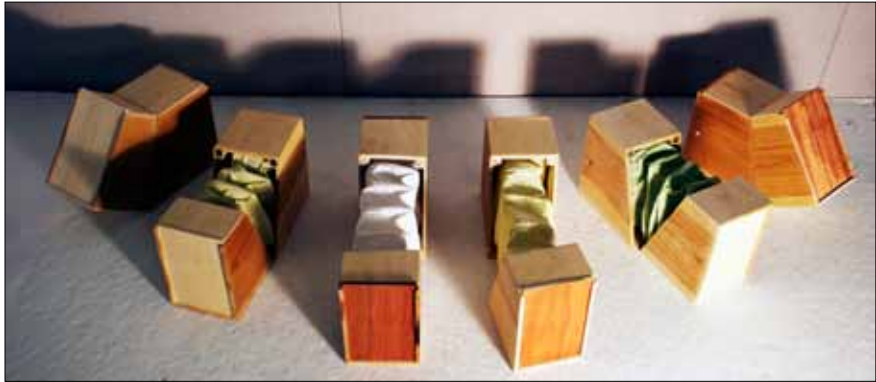
Wood and electrical component assembly.

Circuit board is color coded to streamline process.

Frames are laser cut and hold lantern in place.



The Living Lantern designed for small-batch manufacturing: Design

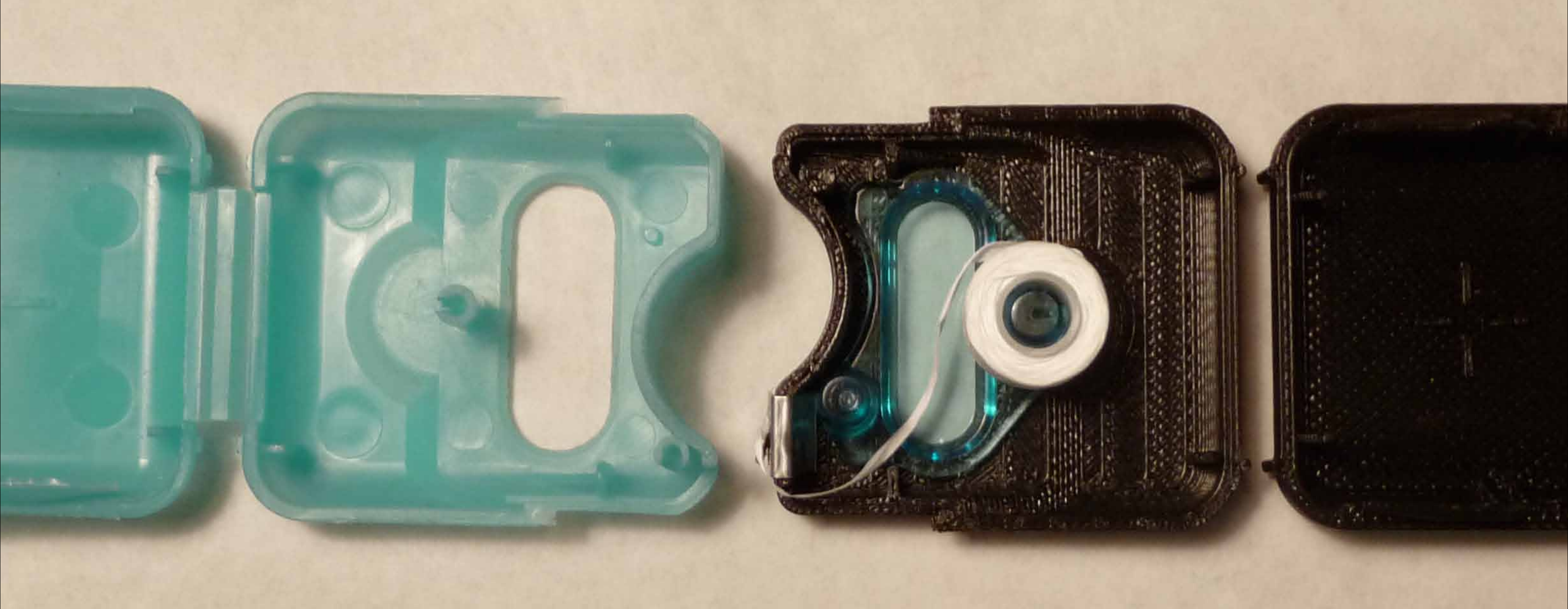


This process was used to make a batch of six lanterns.



Lantern is *off* when closed (left) and *on* when open (above).

Floss Container: Renderings and Printed Model



Floss Container: Renderings and Printed Model



The purpose of this project was to demonstrate Solid Works modeling skills and Key Shot rendering abilities by modeling a pre-existing object.

The floss container was intended to perfectly match Oral-B's "Glide" (upper left). The 3D printed version modeled in Solid Works is the black floss container (upper right and below).

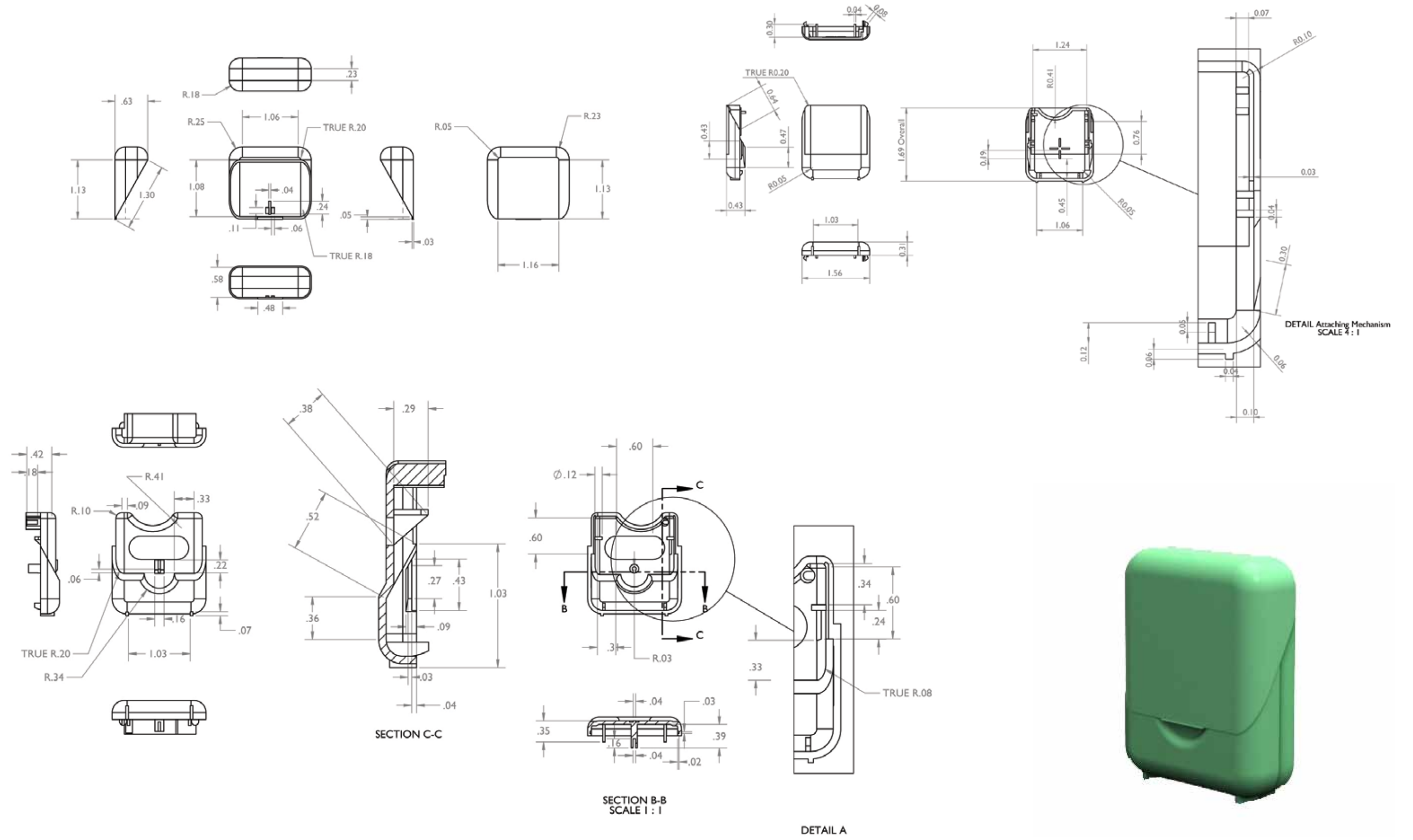


The original object was PET and the printed model is ABS, but the parts still snap together (right).

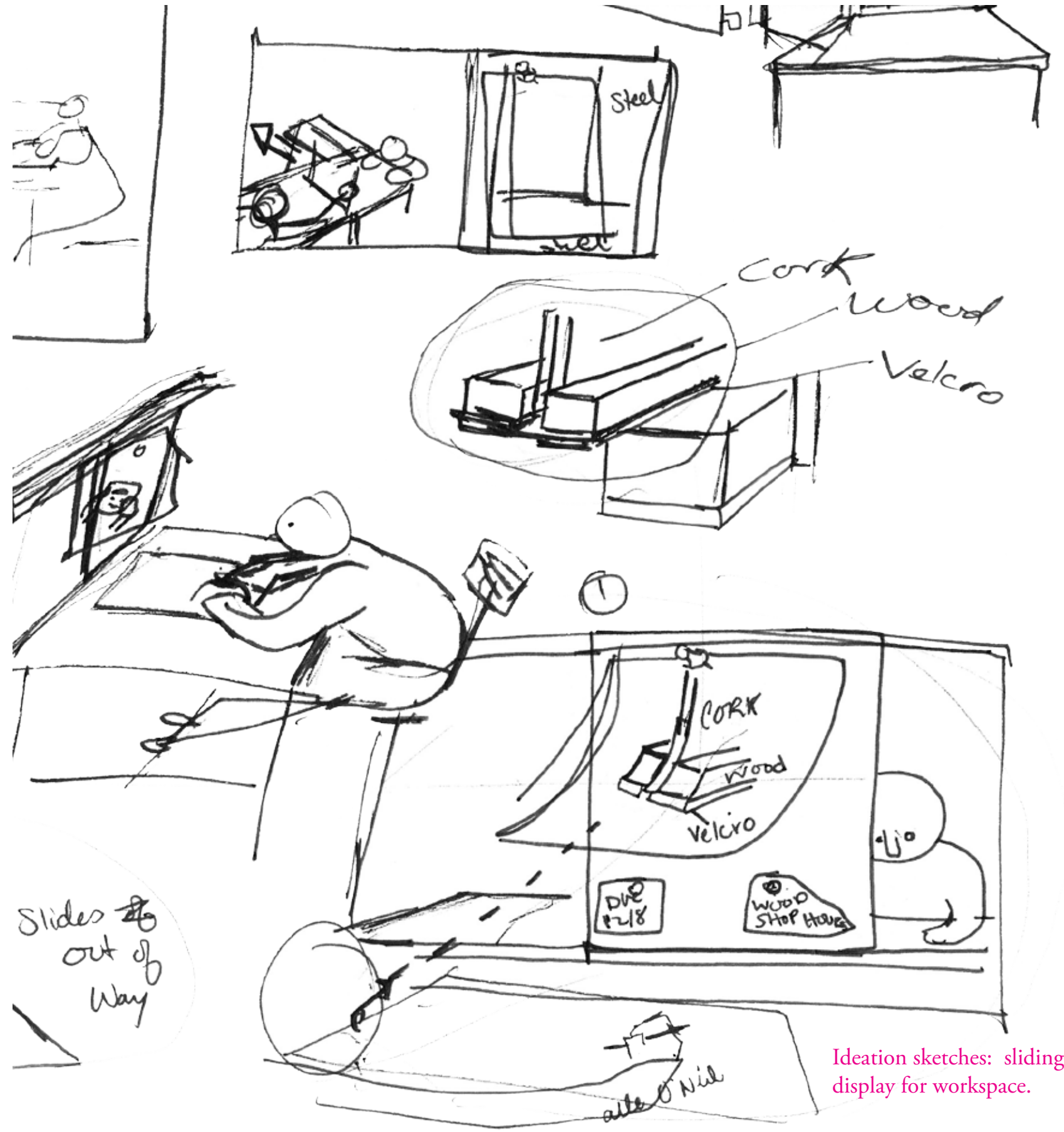
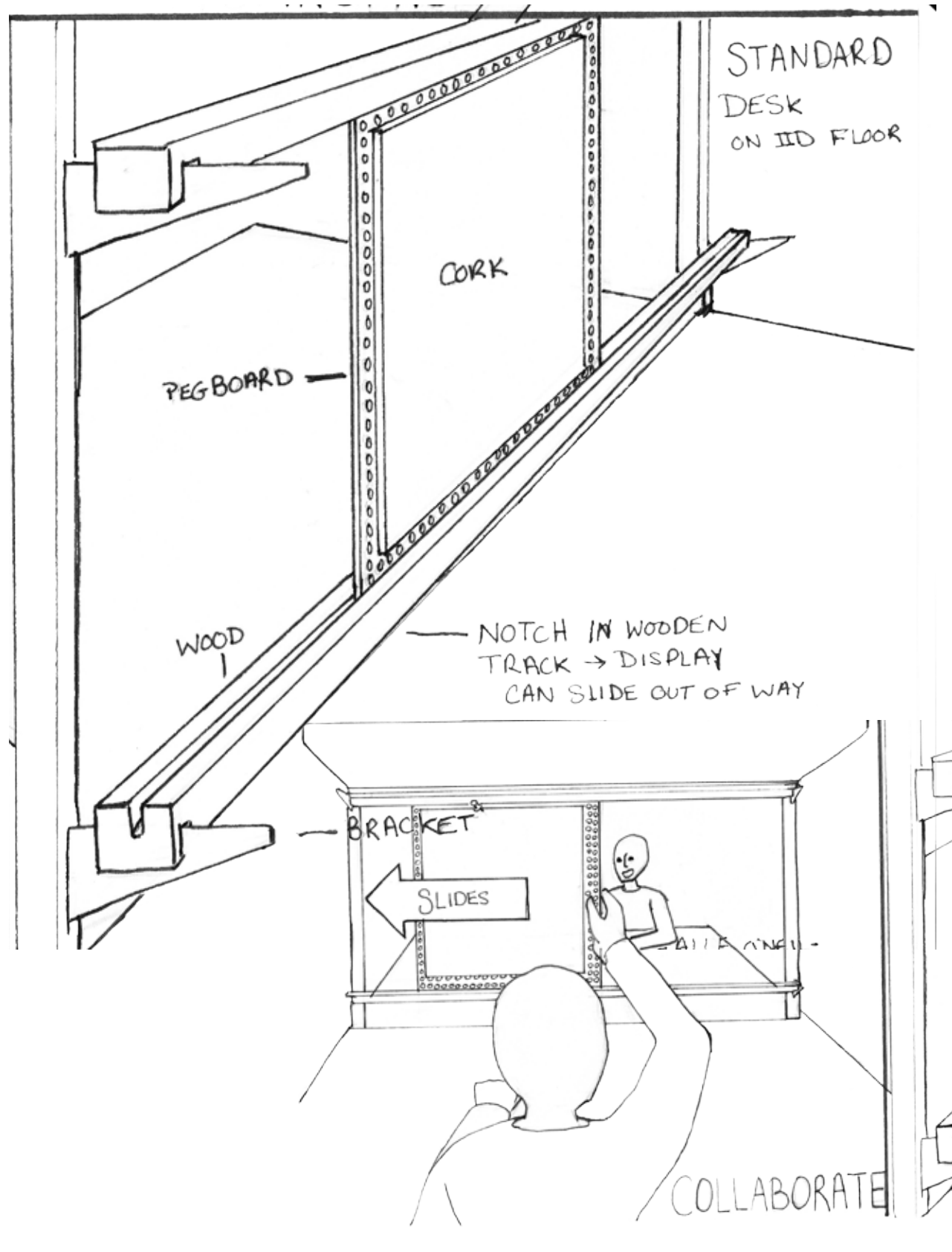
The renderings of the floss container (below) were created in Key Shot.



Floss Container: Design Schematics



Things I've Made: Sketching



Ideation sketches: sliding display for workspace.

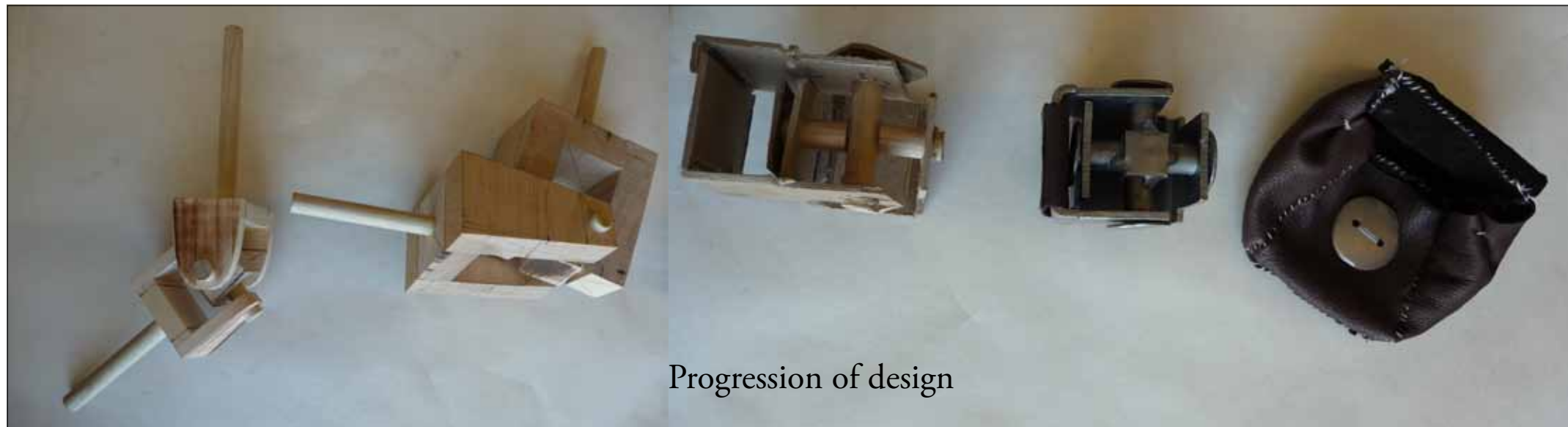
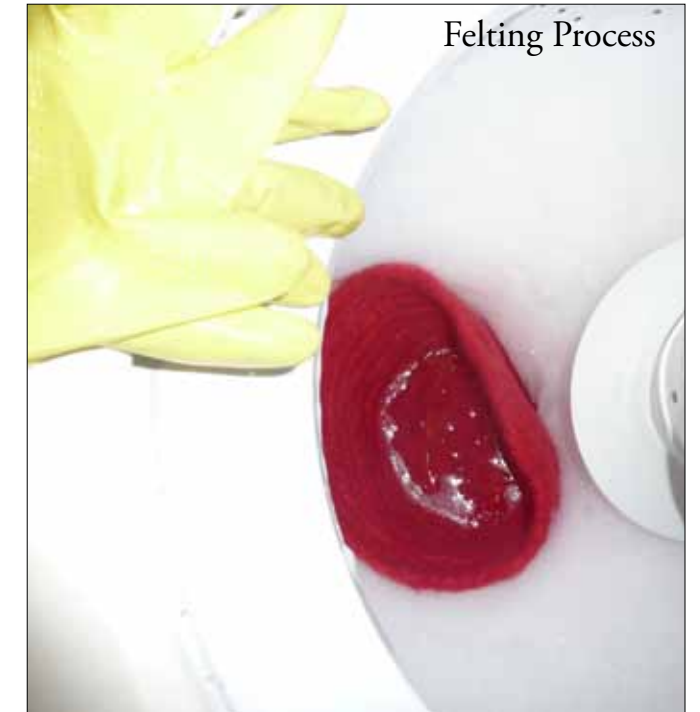
Things I've Made: Welded Hinge and Felting



The final hinge was made of steel and leather. It is about 2 x 2 x 3 inches.



The finished bowl was made with Cascade 220.



Progression of design

Things I've Made: Molds and Plastics



This project is a work in progress. The process involves making a blanket mold to cast an object that has been altered in some way. Aluminum foil was placed in a teacup to give the finished cup the appearance of shattered glass.

The assignment was to create a sculptural assemblage from petroleum-based wax. This is a mutant dinosaur chess set.



Things I've Made: Molds and Plastics

