design

aesthetic
Estimation

need baselines

order of magnitude or range of values

117.152 seconds

units

show your work!

does this seem right?
Estimation Game

How many people on bicycles would it take to comfortably toast bread with a human powered toaster?

$1000\text{W}/100\text{W}$

10 people
Estimation Game

Mechanical Bull in House?

power requirement for mechanical bull?

120V x 15A

= 1800W

most are 7500W!
Estimation Game

Tooth Tunes Battery weight?

how often should you change toothbrushes? how often and long should you brush

how much power does it require?

energy density of alkaline battery? (500 kJ/kg)

~ 20-40g (1-2 AA batteries)
Estimation Game

Hot dog in the Easy Bake?

\[ Q = m \cdot C_p \Delta T \]

50-200 g and 20-60 deg

Power of Easy Bake

1-10 min without losses

36 minutes?

.2 seconds?
Sketch Model Feedback

50+ Reviewers

“this model is taking the idea in a good direction”
“this sketch model was well constructed”

5 - agree strongly agree, 0 - strongly disagree
Grades!

sketch mode grade - 5 points (only uses the “well constructed” scores) (average score of your Model 1 + your Model 2 + Entire Team Score)

sketch model lab participation grade - 5 points*
(Based on peer + lab instructor scores)
*in the future, you will not get any of these points if your peer review is late

grades returned Thursday
peer review text returned Thursday anonymous w/ only avg team score
instructors will provide some general advice in lab
Budget! $1000
average to date = $215
for 6 models
only 3 more prototypes left

Budget Chart
average sketch model score from reviewers

- good models seem like good ideas
- bad models seem like bad ideas

R² = 0.5712

this sketch model was well constructed

this prototype is taking the idea in a good direction
Average sketch model score from reviewers

- This sketch model was well constructed.
- This prototype is taking the idea in a good direction.

\[ R^2 = 0.71 \]
average hours spent
from self report

12 hr/wk = 36 hrs

avg = 24.5
average hours spent
from self report

where you should be at (36 hrs)
top sketch models
“this sketch model was well constructed”

All of these actually functioned as intended.
You can use them and get real feedback.
peer review

Please score this person's level of contribution during this round of prototyping. (include yourself)

Your comments are extremely important for adjusting team member behavior, so please spend some time and be constructive. Making thoughtful, honest comments is a very important contribution to your team's performance.

“keep up the good work”

“5 5 5 5 5”

“lake wobegon effect” “everything is awesome”

Even if you did not work directly with this person, please still provide feedback based on your observations. 1 = did not contribute at all or was detrimental to the project, 5 = contributed exceptionally and beyond expectations
peer review
average contribution score for your teammates
peer review
average contribution score for partners
peer review
average contribution score for yourself
peer review

- Rating of self is higher than teammates
- Rating of team higher than self
Sketch Model Feedback

“this model is taking the idea in a good direction”

5 - agree strongly agree, 0 - strongly disagree

50+ Reviewers
read the feedback notes

next step: make two high level prototypes as a team

Nothing is more dangerous than an idea, when it’s the only one we have. - Emile Chartier
Sketch Model Feedback

give the client what they want and also something different.

this is the class average bar

grey bars are normalized scores
magenta
red
coral
orange

combine elements
amber
yellow
chartreuse
green
cyan
blue
client has some suggestions on this
purple
Aesthetic

Sensory Perception

Is this subjective?
Aesthetics for Survival

Symmetry and ratios

Smell/Taste Danger
Power of Aesthetics

Aesthetically pleasing objects enable you to work better. Products and systems that make you feel good are easier to deal with and produce more harmonious results.

- Norman
Which do you prefer?

Norio Ohga (Sony Chairman) - “At Sony, we assume that all products of our competitors have basically the same technology, price, performance, and features. Design is the only thing that differentiates one product from another in the marketplace”
Which do you prefer?
Which do you prefer?
People will buy what looks better as long as they believe it meets the basic functional requirements.
People will buy what looks better as long as they believe it meets the basic functional requirements.

and if it looks really good, it doesn’t even need to “function”
Product Aesthetic

aesthetics are important in product design

self image

purely aesthetic products

first impressions

Hasbro distributors

The typical person uses a toaster at most 15 minutes per day. The remaining 1,425 minutes of the day the toaster is on display. In other words, 1 percent of the toaster’s time is devoted to utility, while 99 percent is devoted to significance. Why shouldn’t it be beautiful? - Pink
Symmetry
it is natural to find symmetry aesthetically pleasing

poor man’s design tool
Golden Rectangle
1: 1.618
Simplicity
Maximum Gain with Minimal Effort
Complexity
Complexity

Aesthetic Value

laymen

experts

Value of V
Before you leave the house, look in the mirror and remove one accessory.
- coco chanel

More is more and less is a bore
- iris apfel
feature creep
MAYA Most Advanced Yet Acceptable

Typicality

Novelty
Color Pairing

Analogous

Complementary
Color Branding

- analogous
  - John Deere

- complementary
  - IKEA
  - bp
  - Sprite
Next Milestone

Design Consulting: Wed April 10… Only 2 weeks!

As a team, making a **two high level prototypes**

Refining these two models to make them closer to a real product

Prototypes should start to both *look and work* more like a real product

This next one is a team grade - the entire team gets the same grade

Wednesday’s class is for planning and team contracts

- problem definition
- user/market research
- ideation
- prototype
- refine
- user testing/feedback
Before Wednesday

carefully read the feedback for both concepts on your team (someone should consolidate the feedback from forms and notes from the review and email to team)

do user testing with prototypes and email notes (with appropriate end users!)

start to plan for next models

document notes in your notebook

clean/organize team shelves
# Logistics

Final PLAYsentations are May 9th, 6pm, Coffman Theatre

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<td>concept dev. &amp; team contract</td>
<td>lab</td>
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*note the time*

(results, gantt, roles)
design
aesthetic