

CART 315

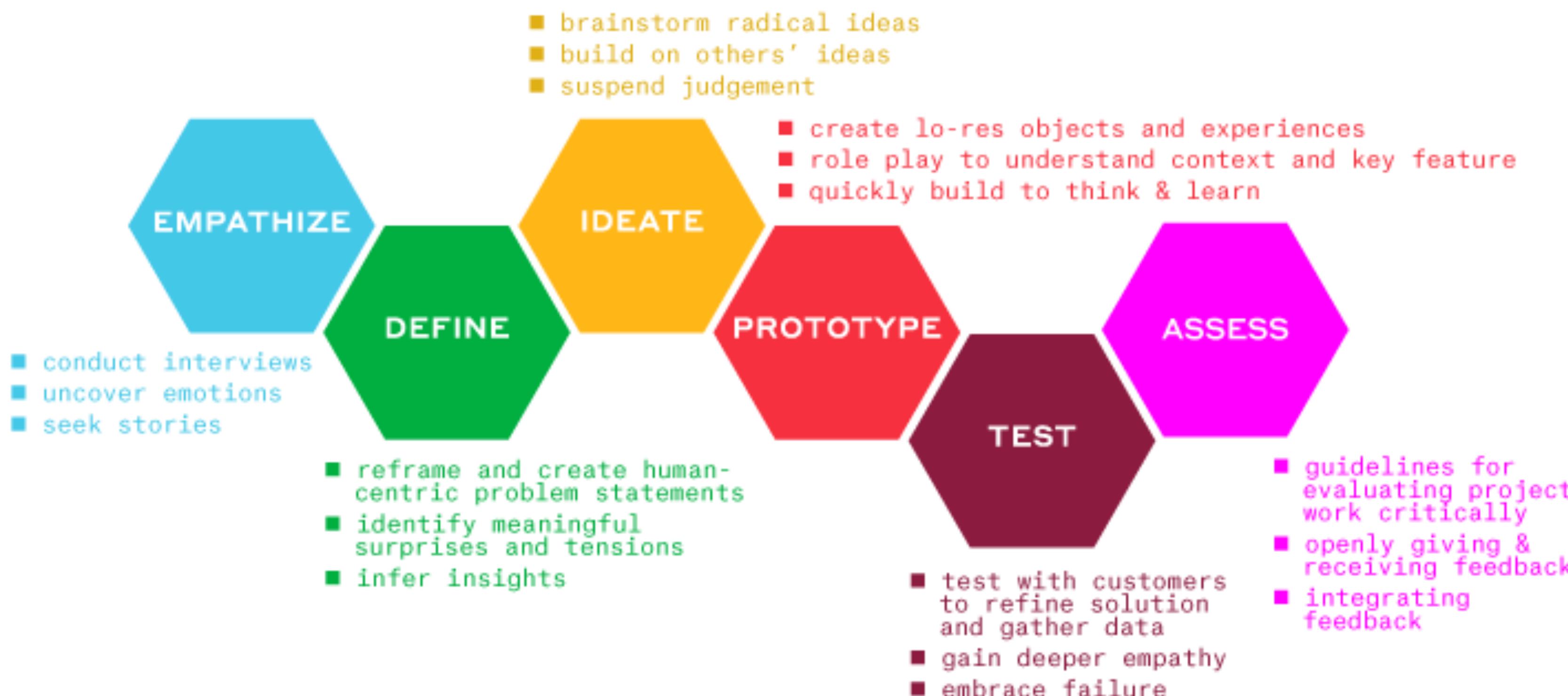
# GAME PROTOTYPING

M Bethancourt



# PROTOTYPING

# Design Thinking Process Diagram\*



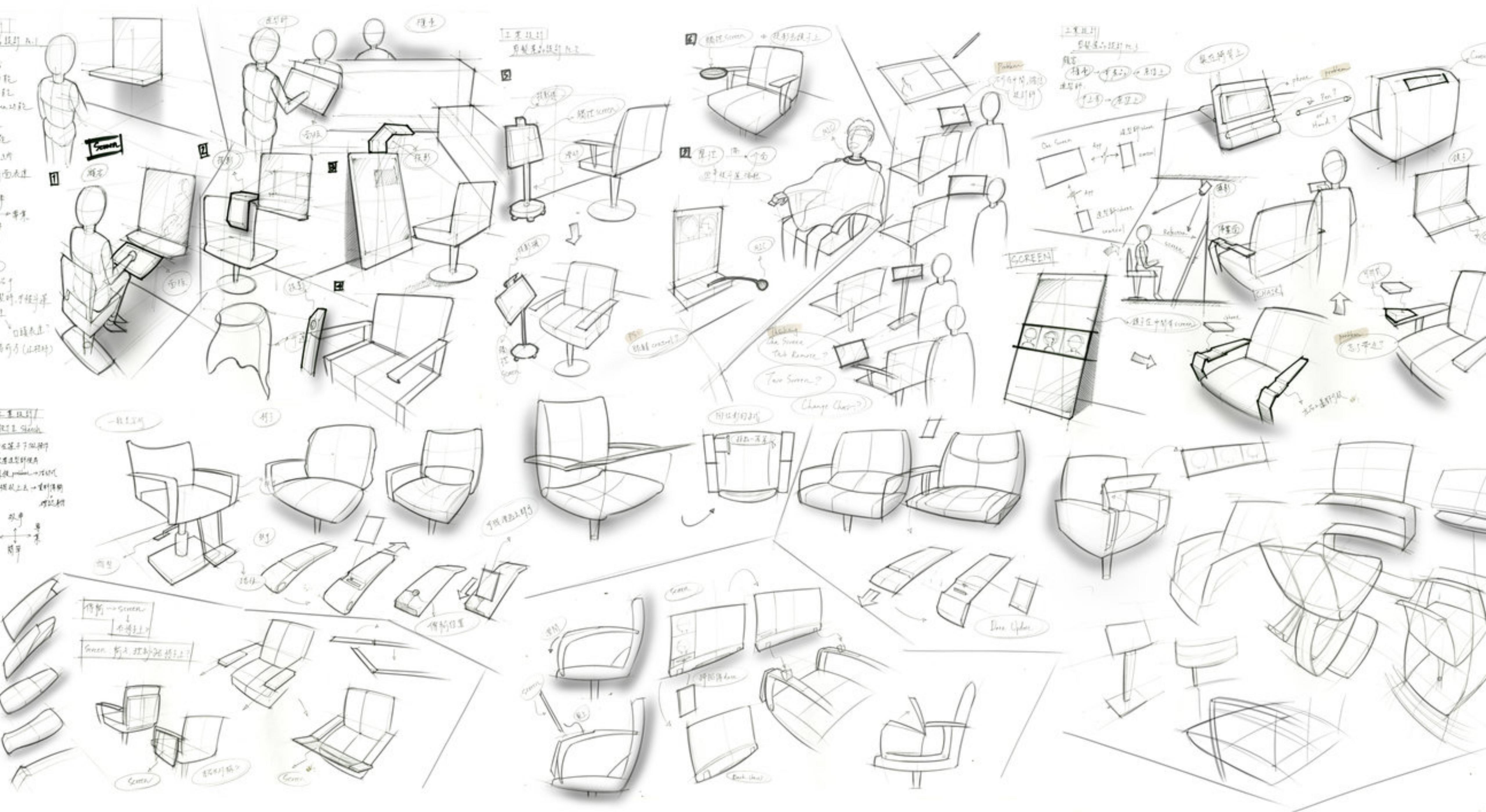
d.school Executive Education

Hasso Plattner Institute of Design at Stanford University

\*not necessarily linear, apply as needed ©2019

# PROTOTYPUS

“FIRST EXAMPLE”





# KINDS OF PROTOTYPES

# LOOK/FEEL





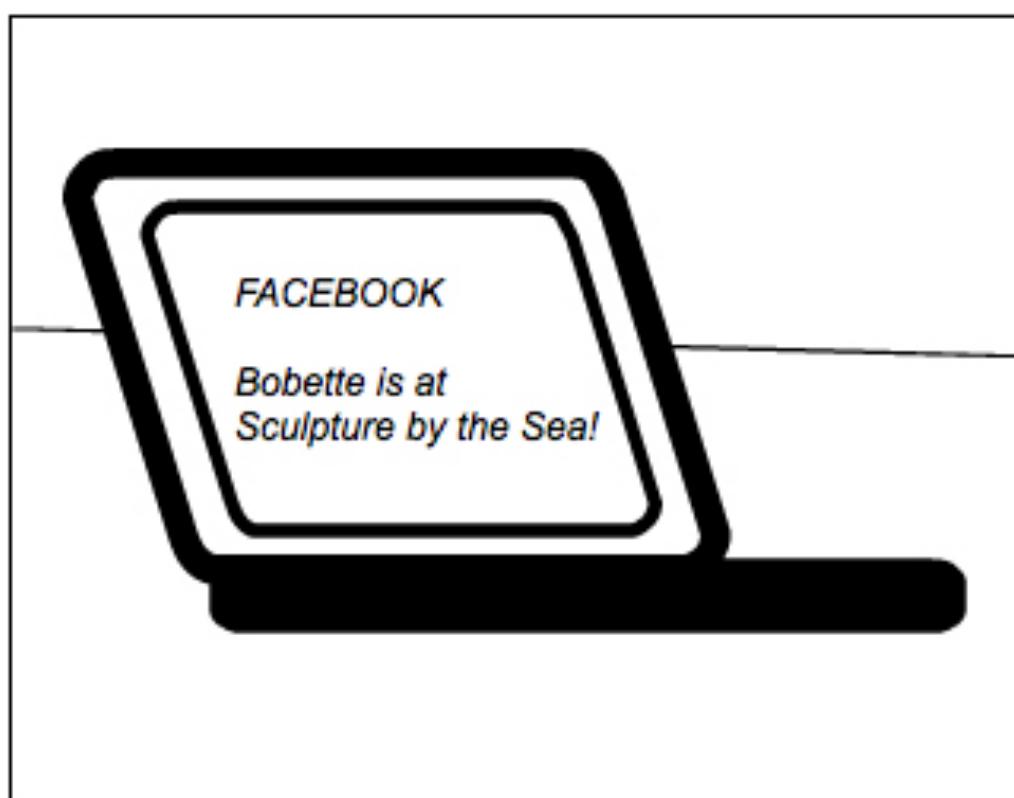




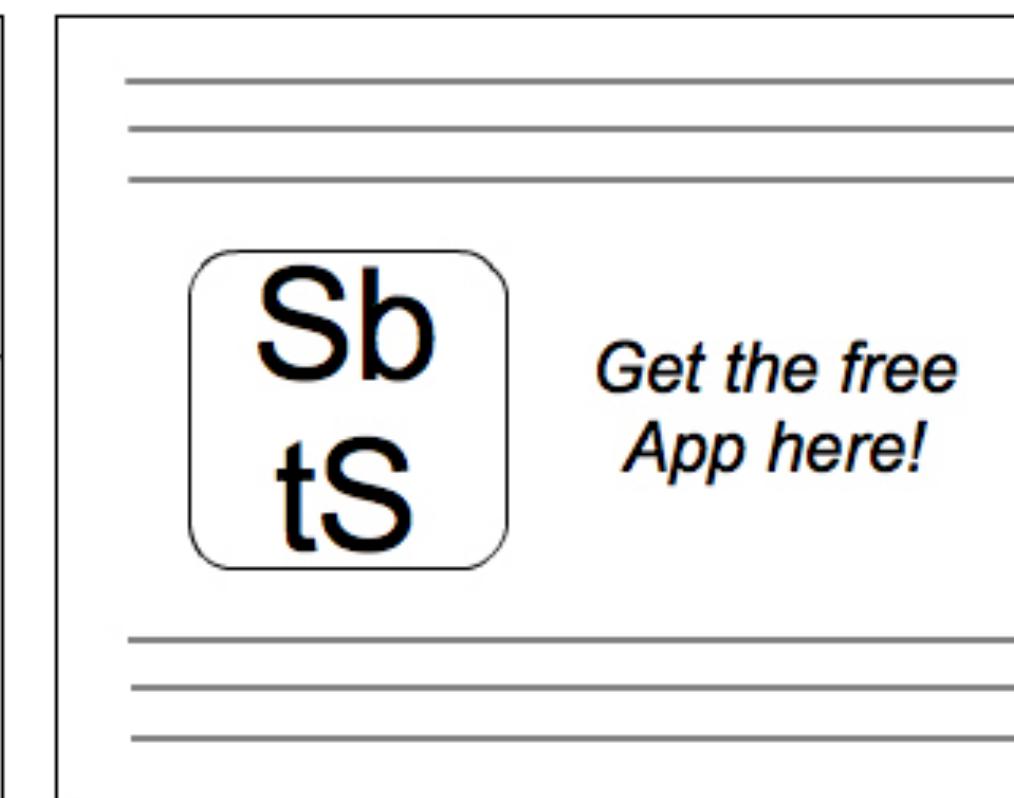
# ROLE



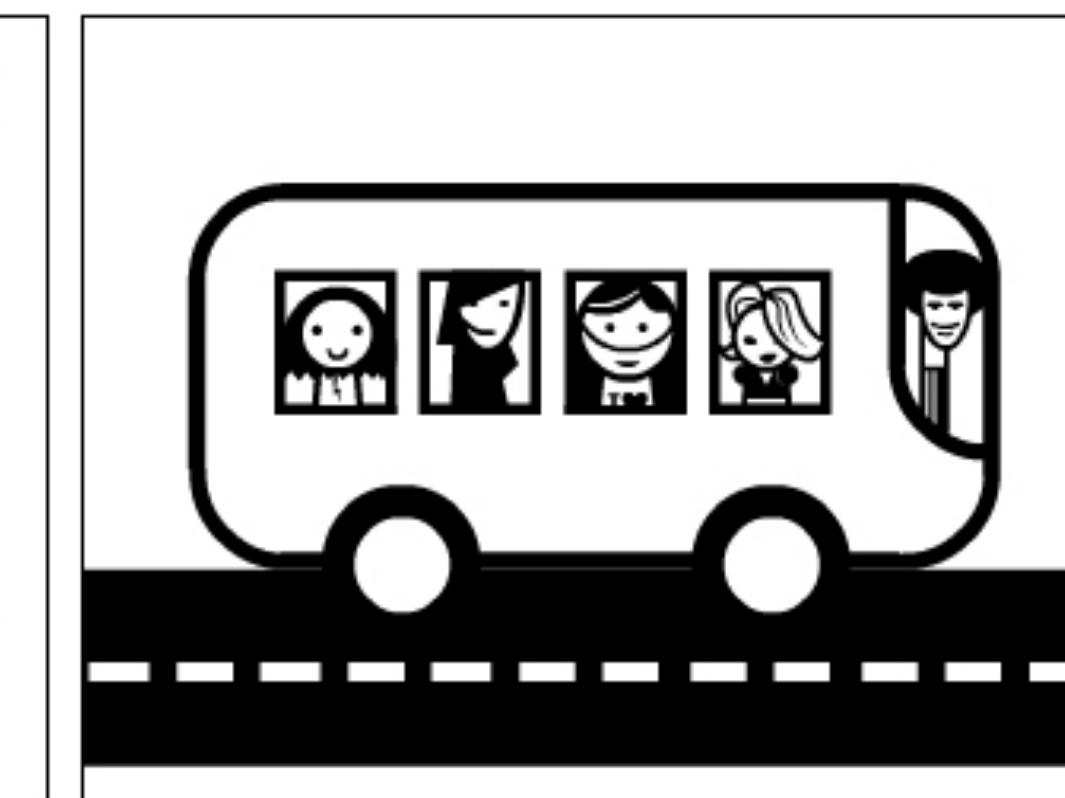
It's Saturday, and Sara, Kara, Lara and Zara are hanging out, trying to decide what to do. They decide to surf the internet for ideas.



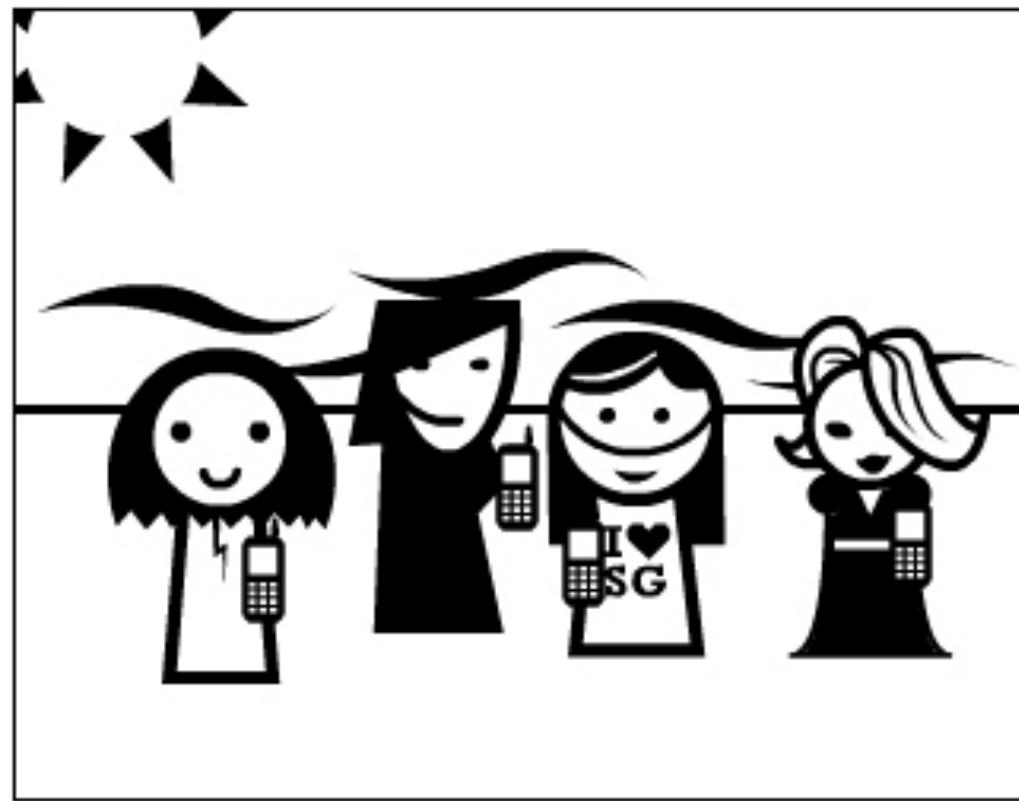
While on Facebook, Sara notices that their friend Bobette is at Sculpture by the Sea. They go to the website to find out more.



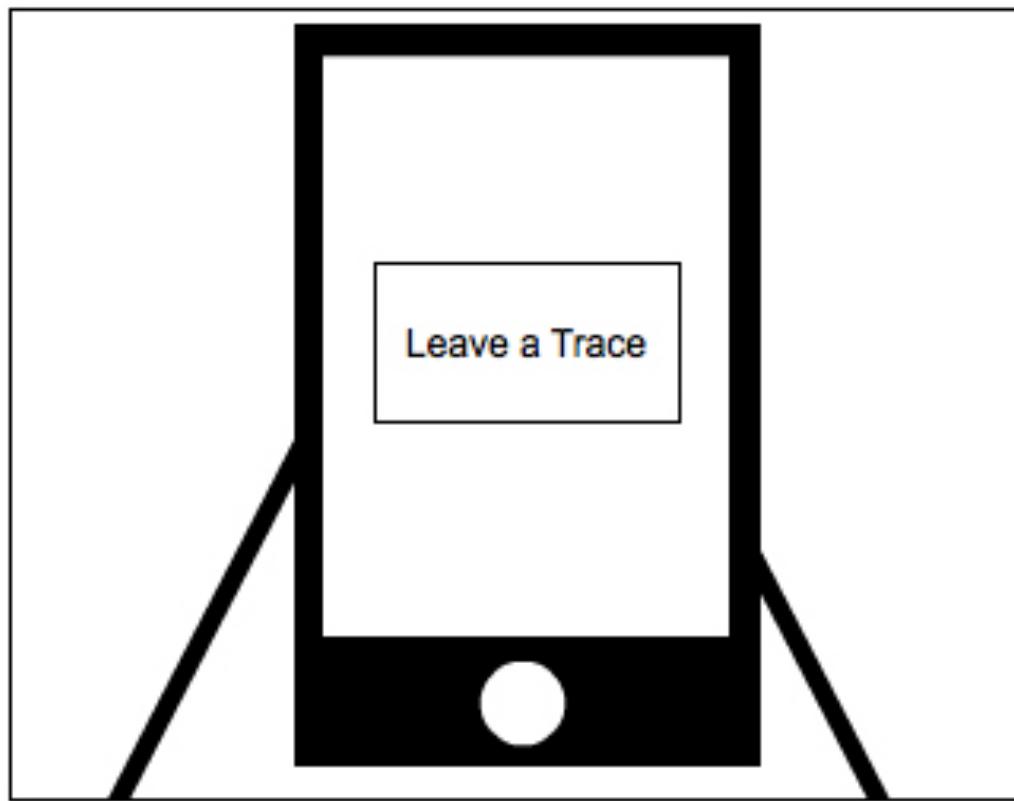
On the website they find out about information about when it is and how to get there, as well as a link to download the app. They do.



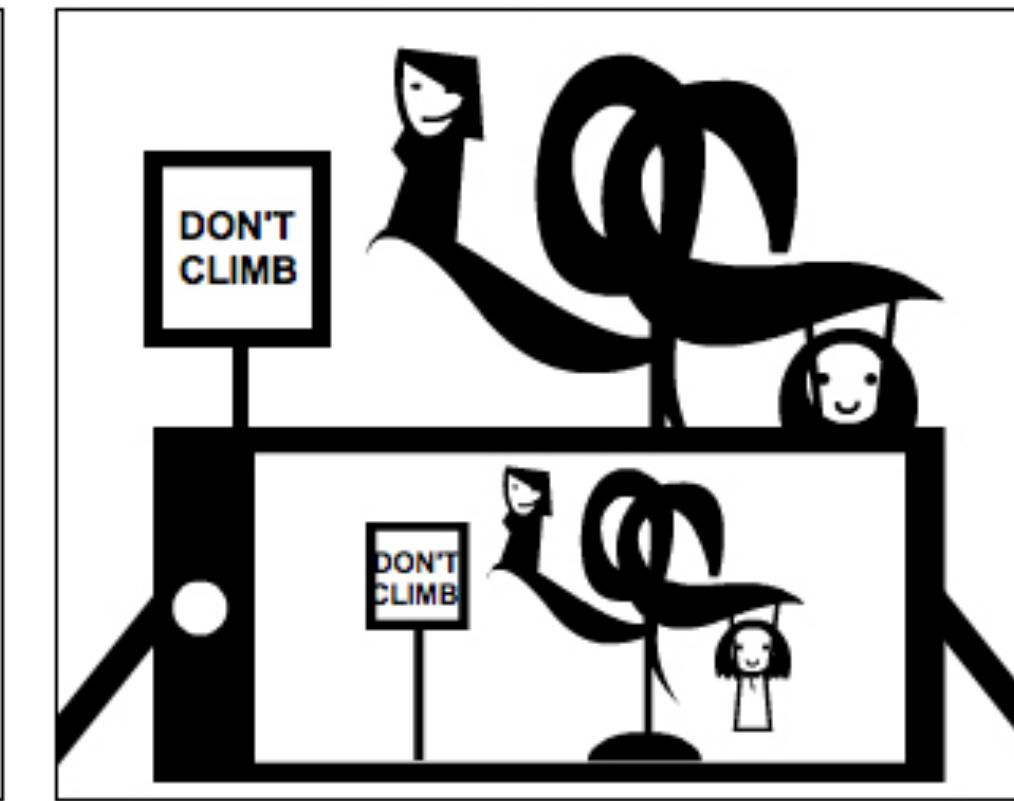
The girls catch public transport as per the instructions on the website to get to the exhibition.



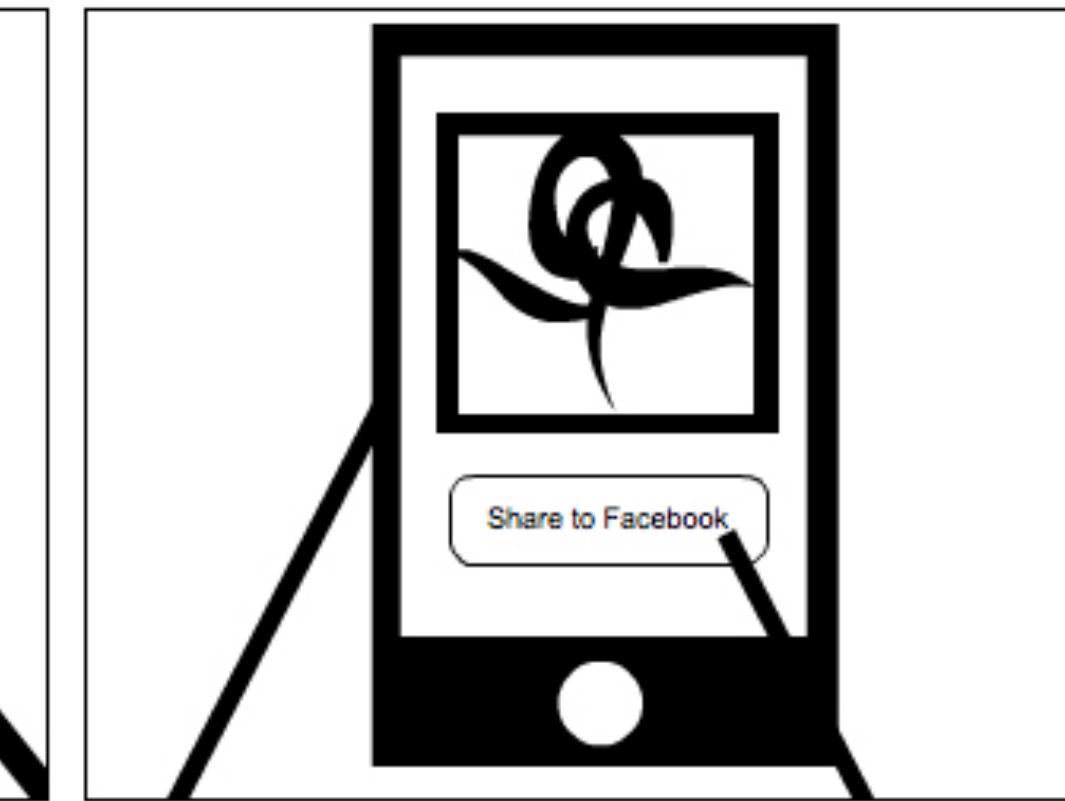
Once they get to the exhibit they all pull out their phones and look at the map on the app to decide where to start.



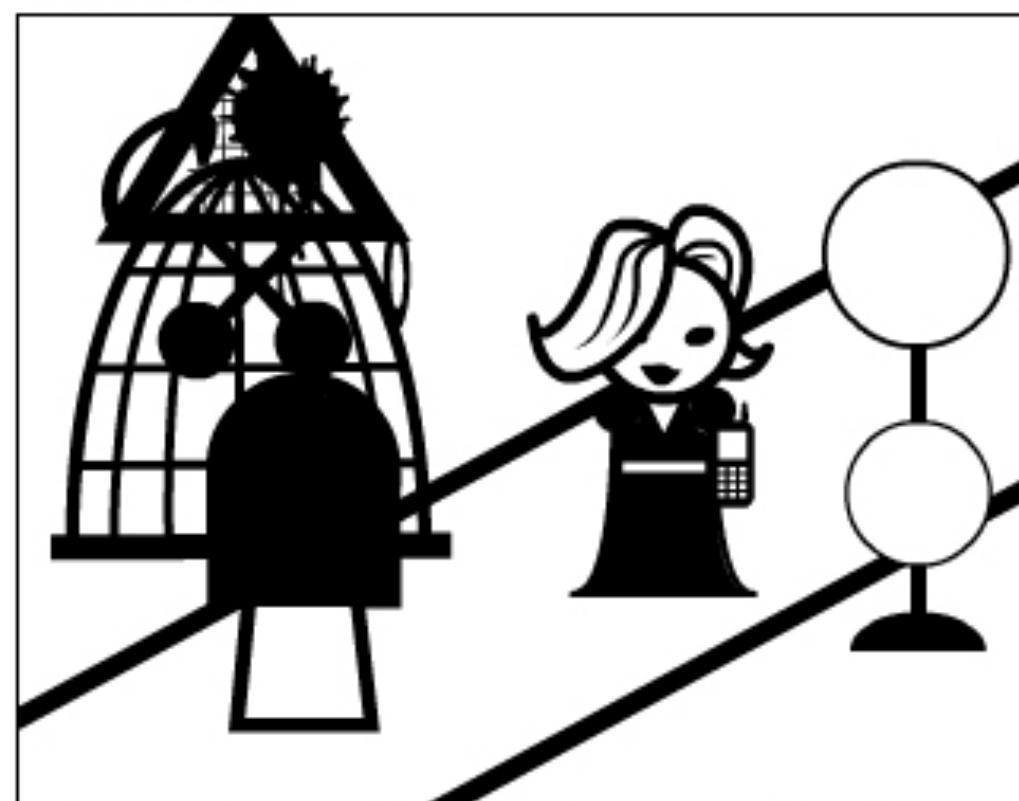
Kara discovers that you can leave a 'trace' of your visit in the form of pictures, text, audio and videos that other people can see later.



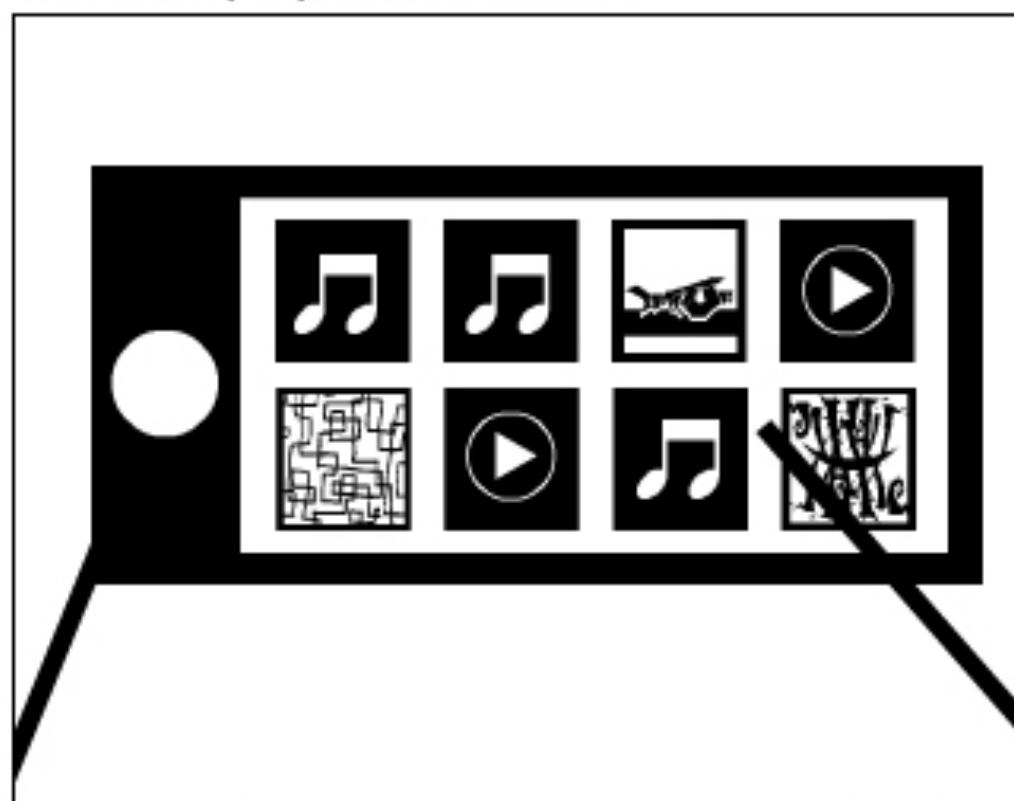
The girls find an interesting sculpture nearby and run to take a photo with it.



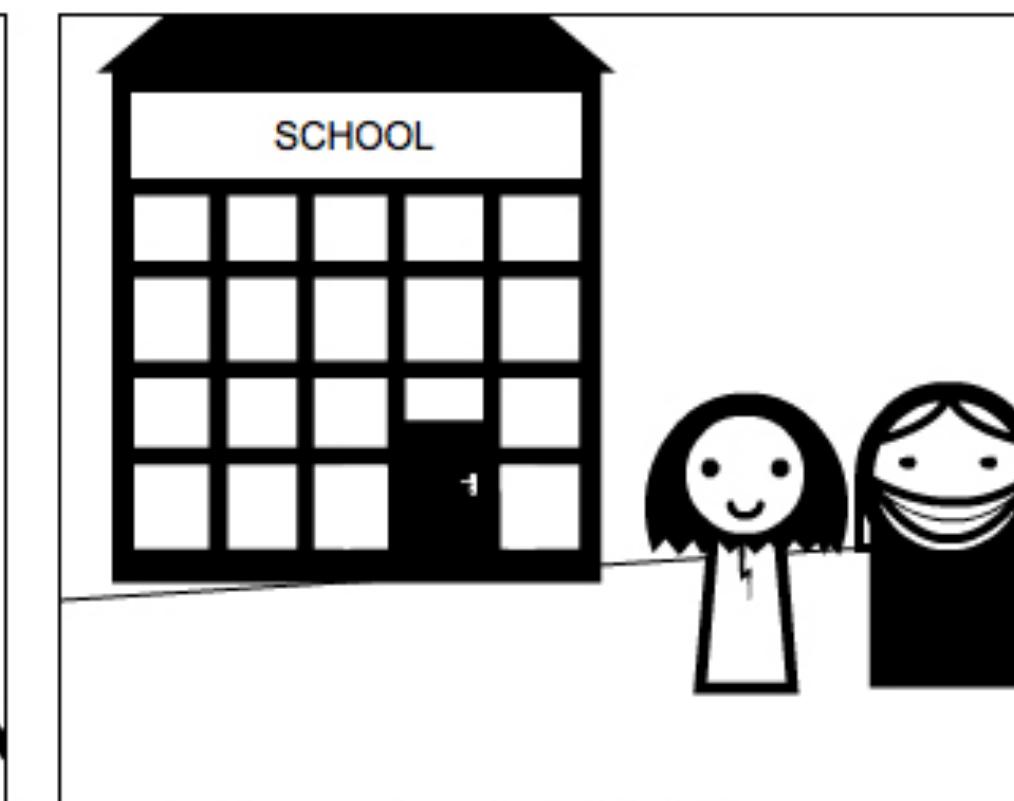
They post the photo as a trace, and share it on Facebook too.



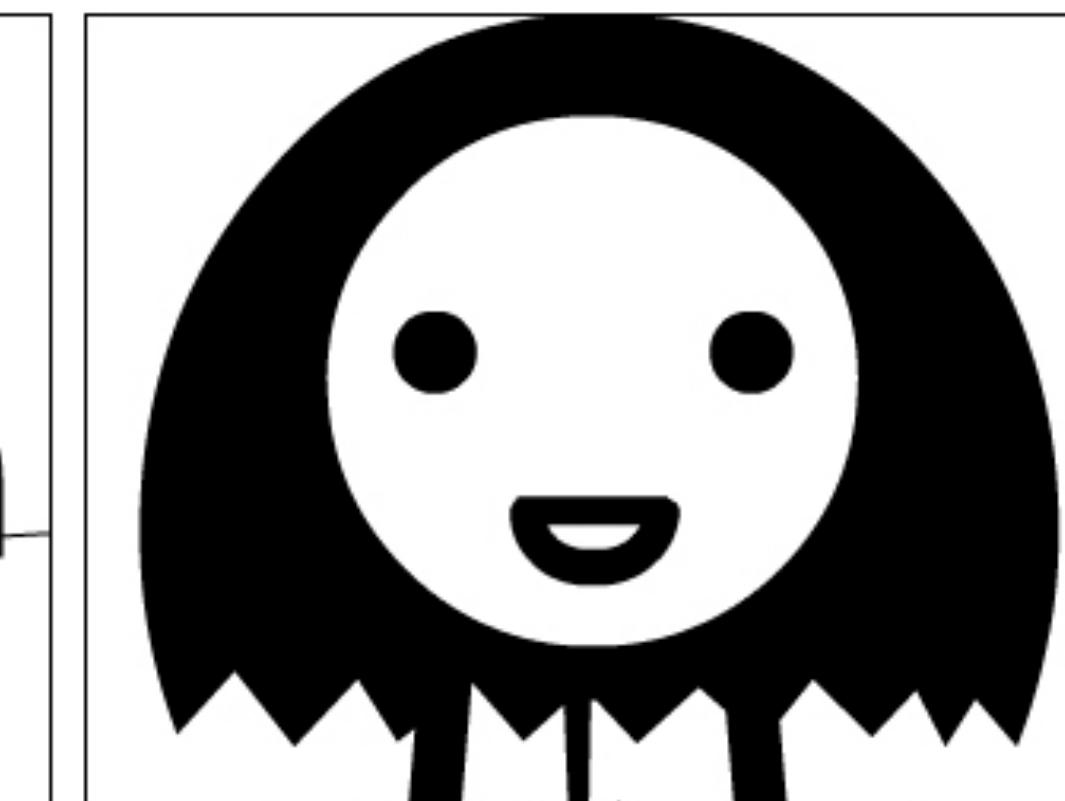
They continue seeing the exhibition and leaving a trail for the next few hours.



On the bus home they follow their own trail and look at all the traces they left for others.



At school on Monday, their friend Tina tells Zara that she went to the exhibition and had followed their trail.



How cool! Other people have seen the girls' traces!

# Issue: NO reception



Not sure:

- hardware issue?
- software issue?
- network issue?

This person would do that

Ask friends?

②

Call support?

- How does he  
explain the  
issue?

- A bit like going  
to the DOCTOR;  
What seems to  
be the problem? —

① ONLINE SUPPORT



① Go to online  
support?

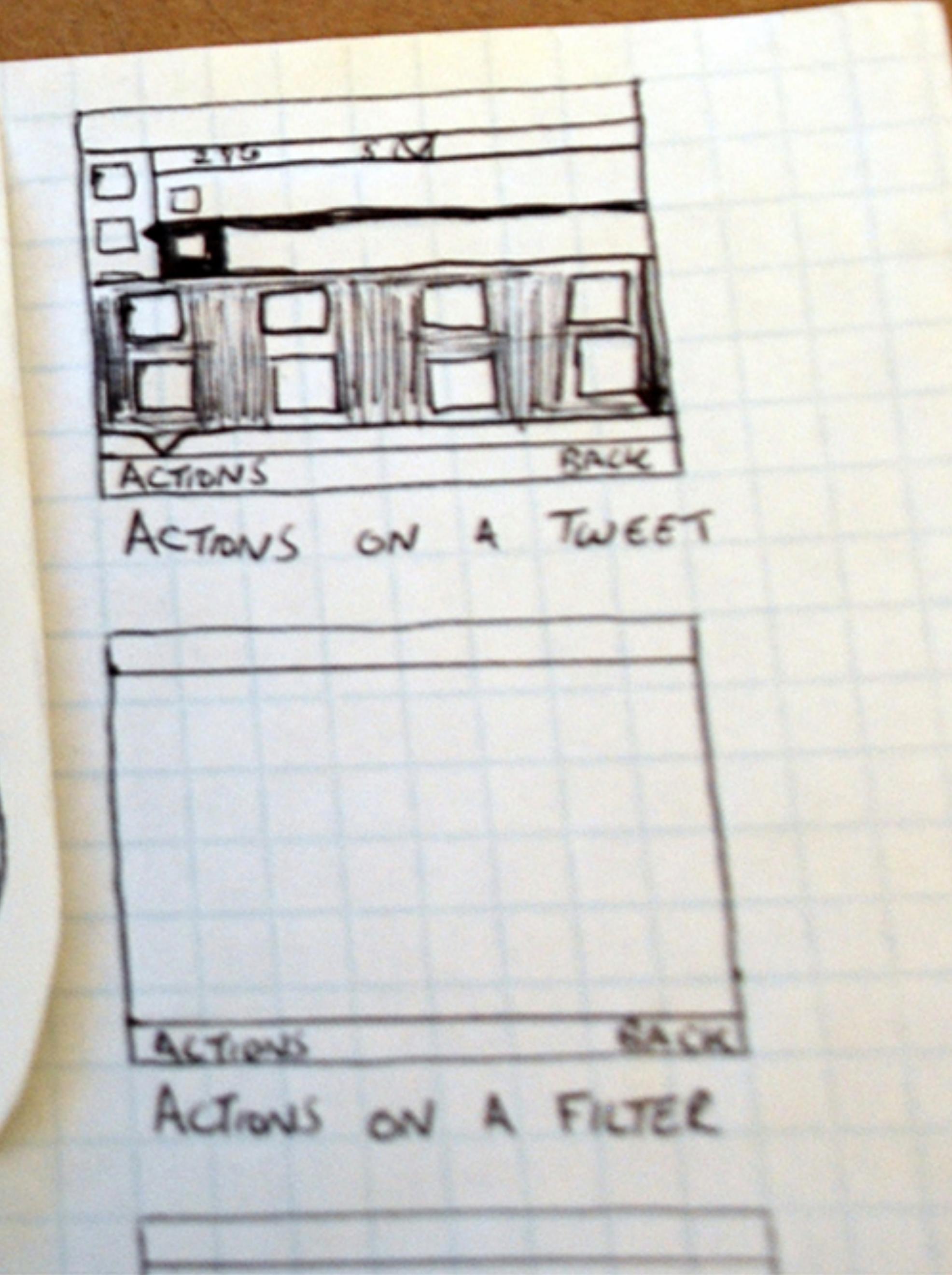
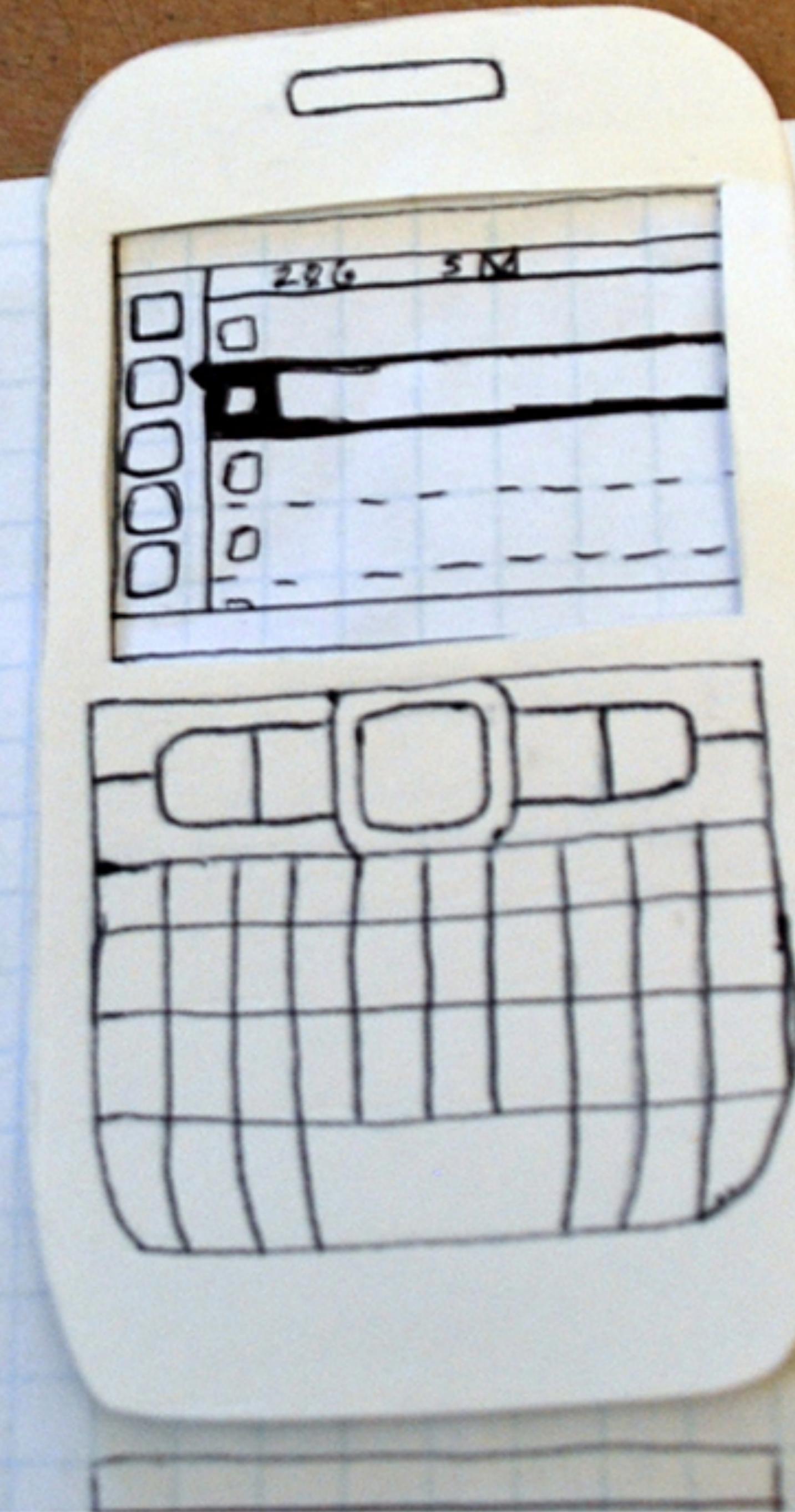
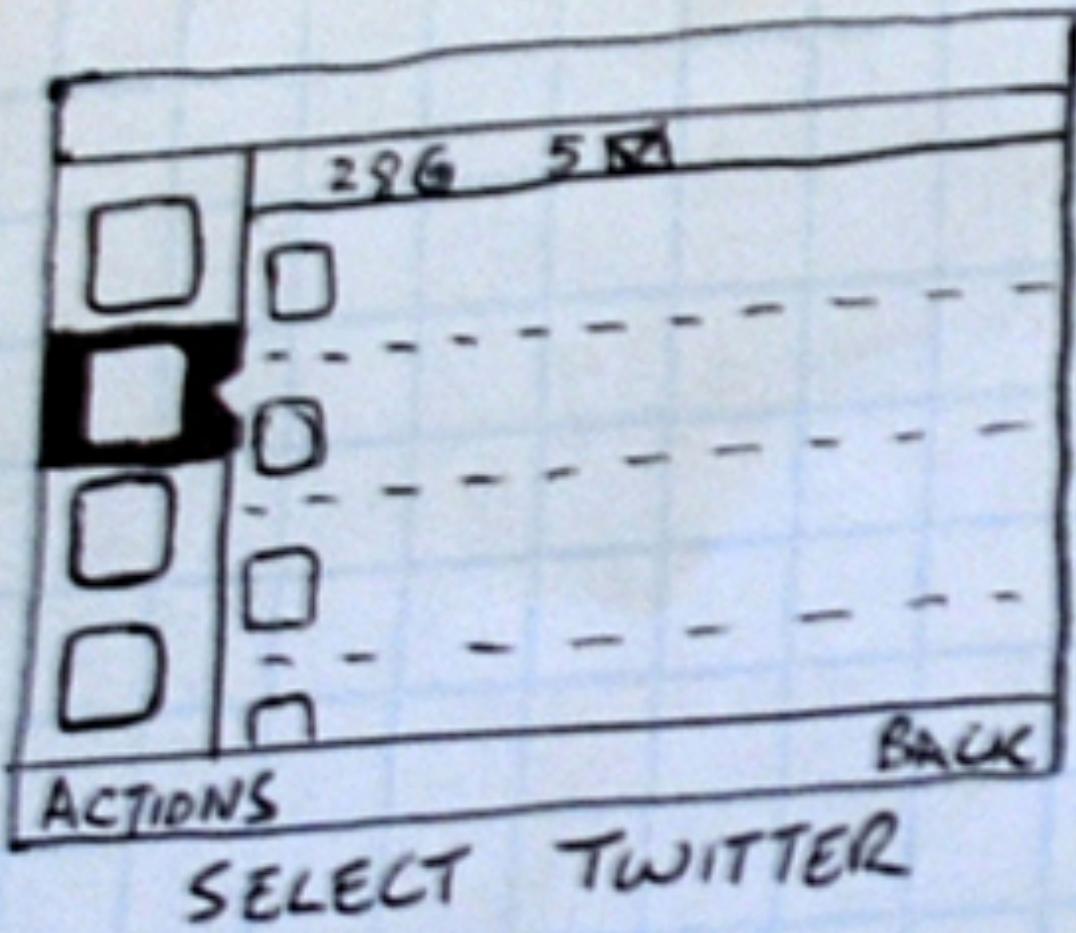
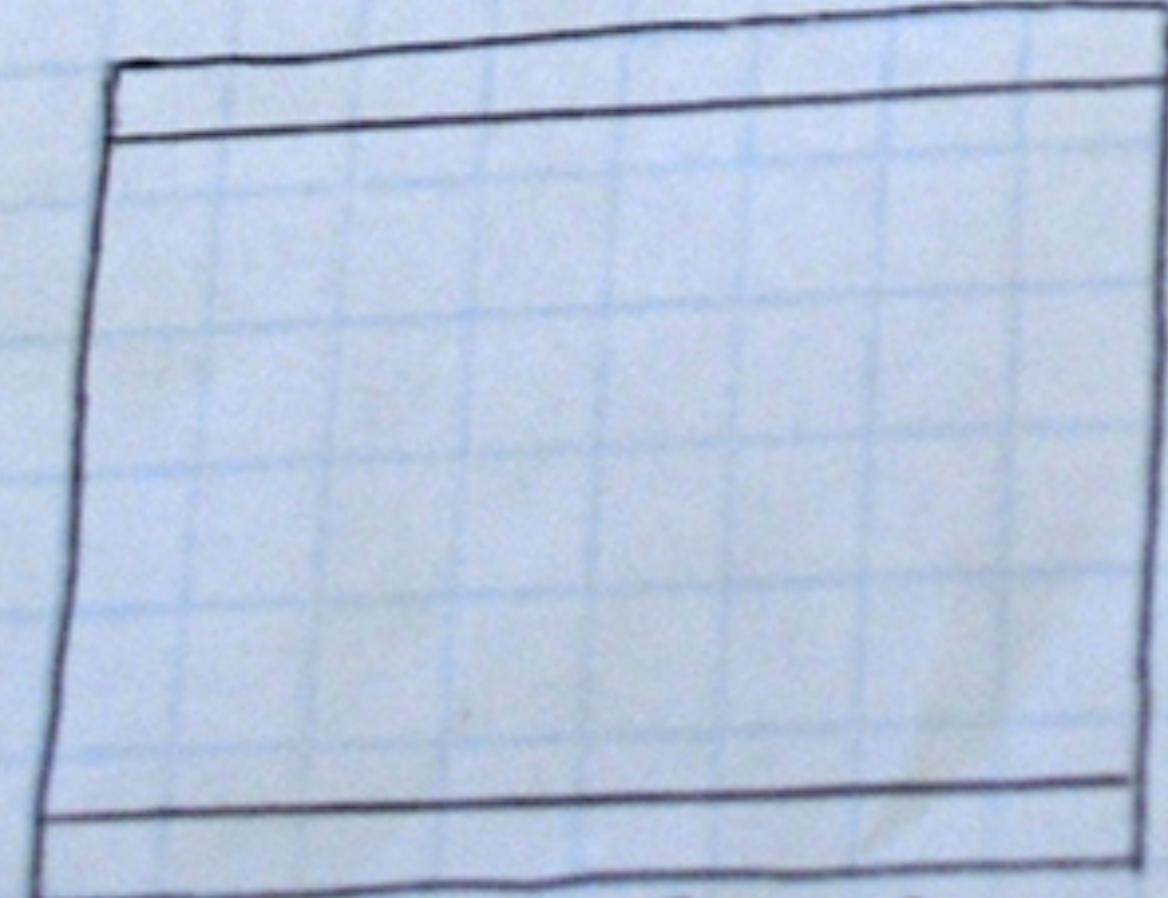
? ?  
NOT  
HELPING!



# Posting a blog entry

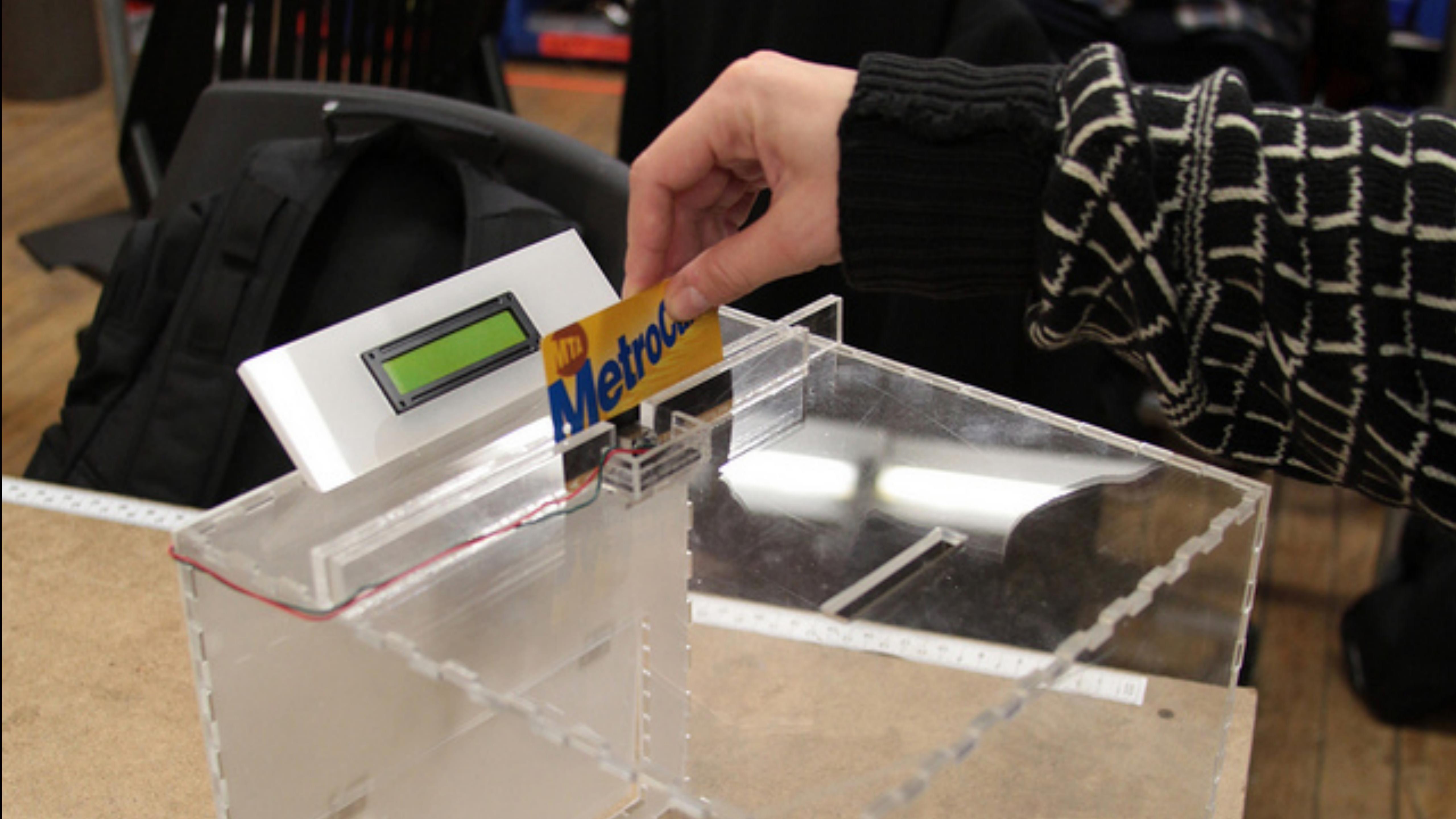


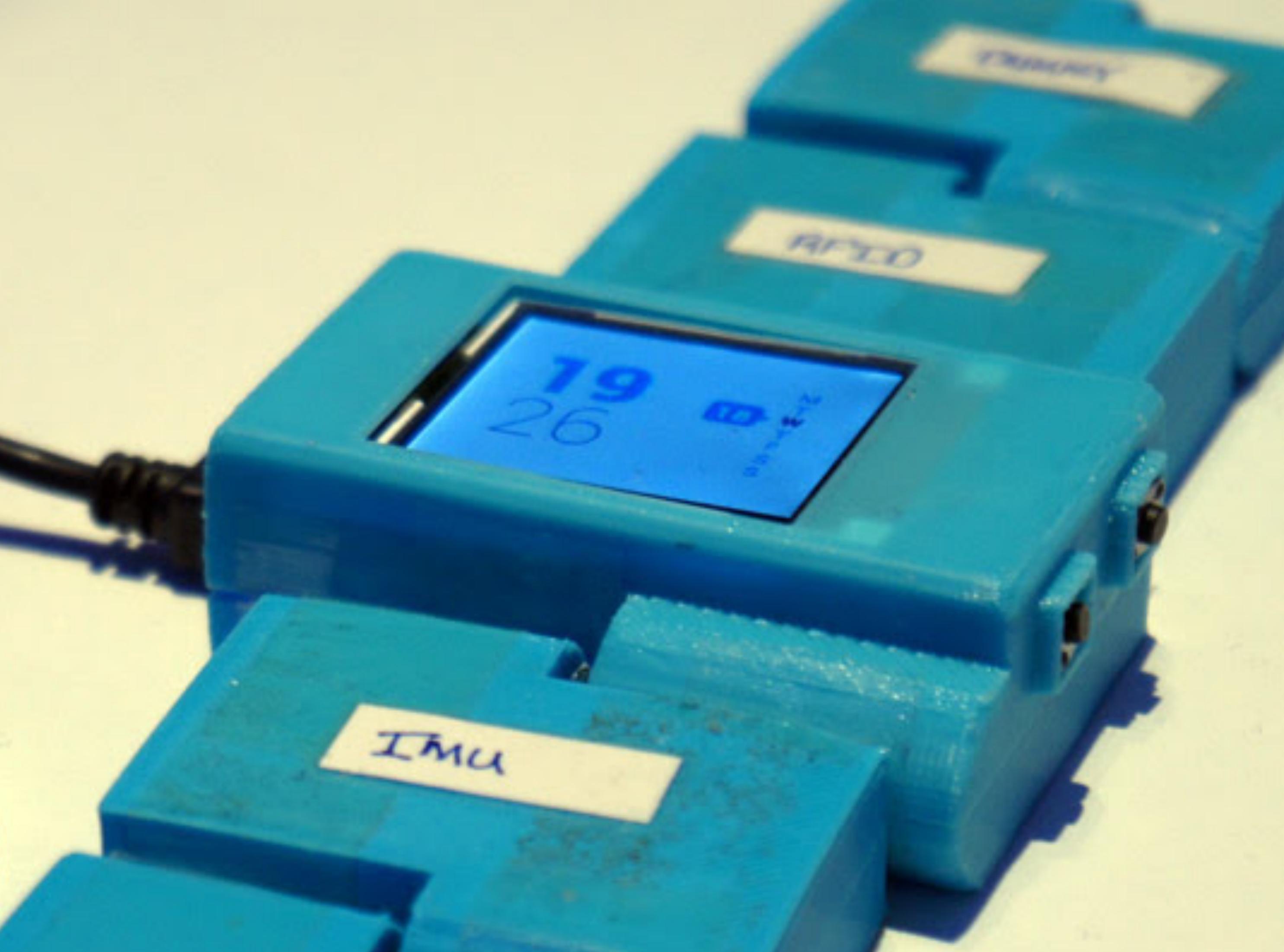
A



ACTIONS ON A FILTER

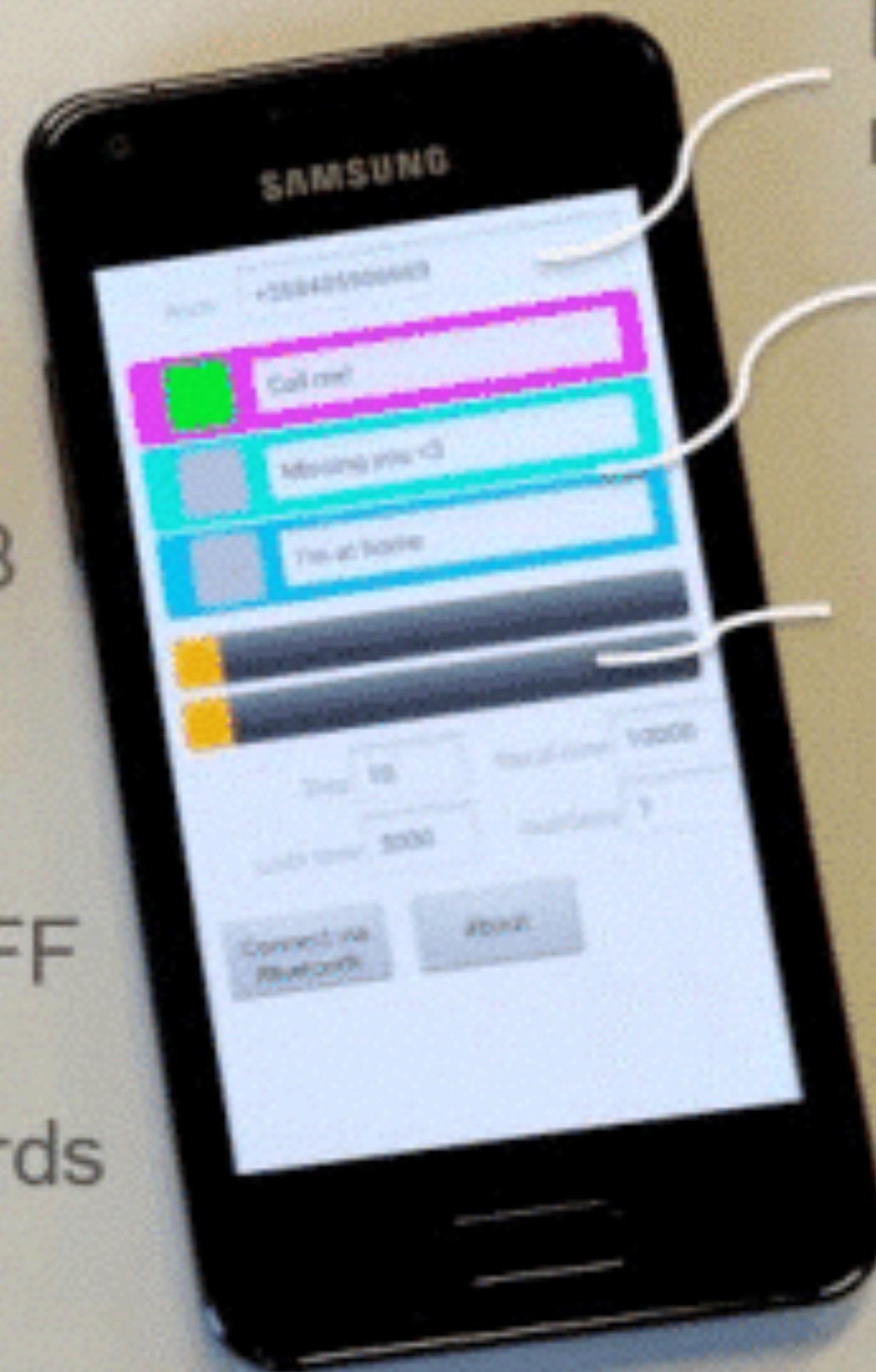
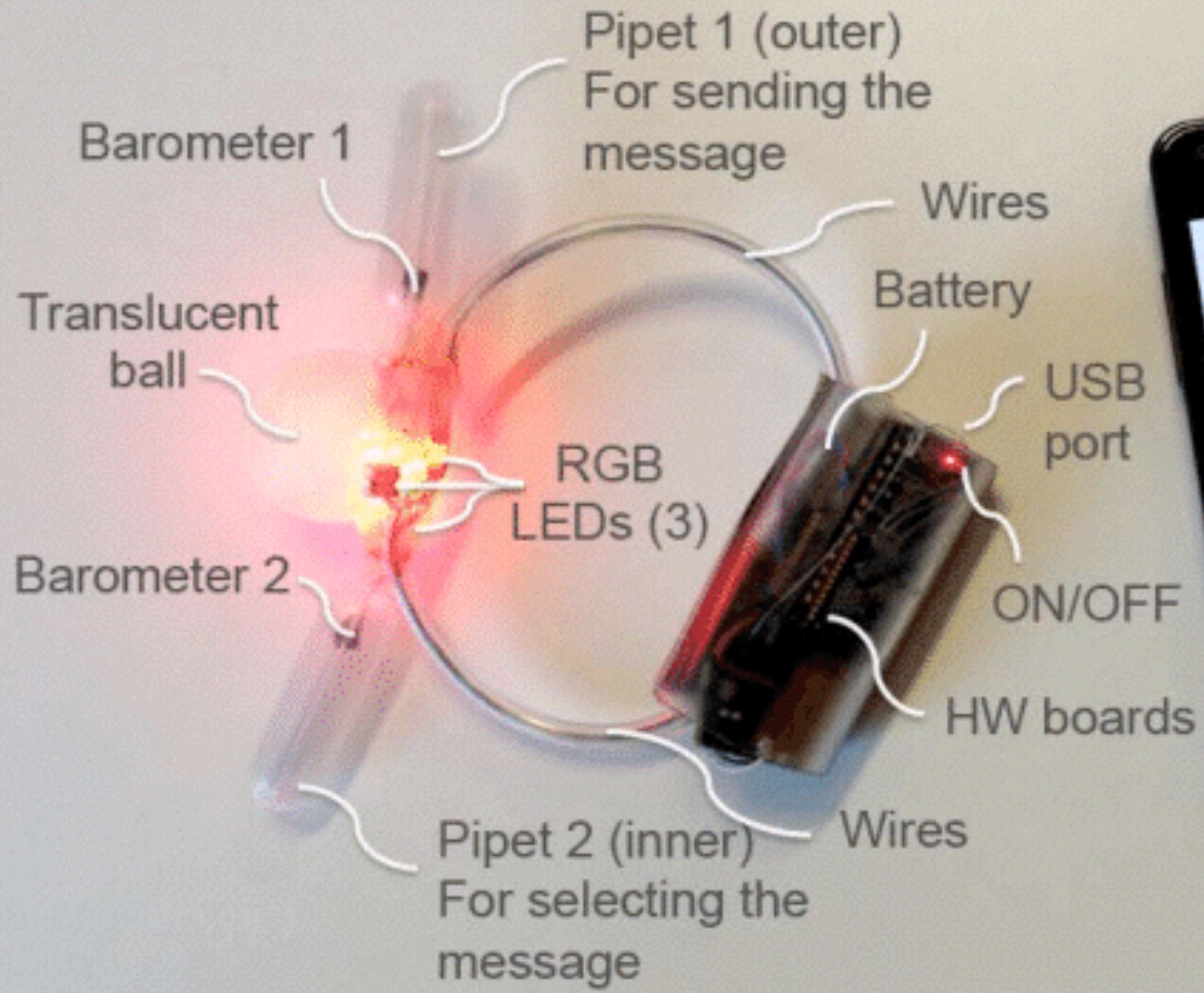
# **IMPLEMENTATION**





#chooseblocks

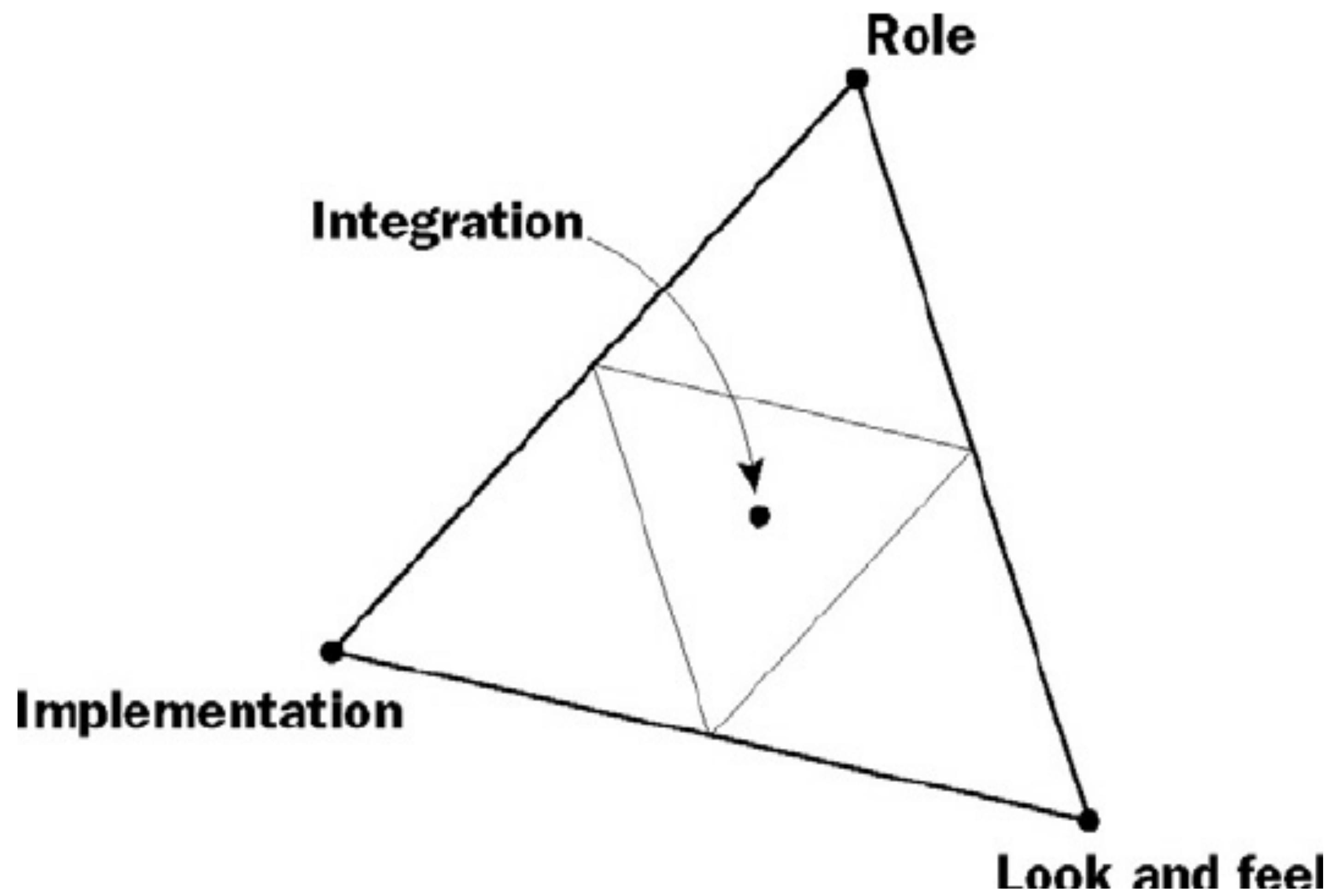




Receivers phone number

Predefined messages (3)

Barometer bars



# PROTOTYPE GOALS

O'REILLY



# Prototyping for Designers

DEVELOPING THE BEST DIGITAL & PHYSICAL PRODUCTS

Kathryn McElroy  
Foreword by Allan Chochinov

**TO UNDERSTAND  
THE PROBLEM, YOUR AUDIENCE, YOUR SOLUTION**



# TO COMMUNICATE





**TO TEST / IMPROVE**

# The Control

A

Converted at **6.6%** with 197 of 3000 visits

The screenshot shows a product page for the 'Spin for Perfect Skin!'. The main image is a purple and white electric facial and body brush. The title is 'Spin for Perfect Skin!', the price is \$30.00 (reduced from \$100.00), and it has a 4.5-star rating based on 1220 reviews. A dropdown menu shows 'Lavender' as the color option. The 'Add to Cart' button is highlighted with a black border. Below the product details, there is a descriptive text block and four small thumbnail images. At the bottom, there are sections for 'ABOUT THE PRODUCT', 'HOW TO USE', 'INCLUDES', and 'ADDITIONAL INFORMATION | FAQ'. A purple circle with a white target icon is overlaid in the center of the page.

# The Variation with Social Proof

B

Converted at **8.1% (+23%)** with 243 of 3000 visits

The screenshot shows the same product page for the 'Spin for Perfect Skin!' as the control version, but with several changes. The main image is larger and more prominent. The 'Add to Cart' button is also larger and has a black border. To the right of the main image, there is a section titled 'More in this Collection' with three smaller product images. Below the main image, there is a larger descriptive text block and five small thumbnail images. At the bottom, there are sections for 'ABOUT THE PRODUCT', 'HOW TO USE', 'INCLUDES', and 'ADDITIONAL INFORMATION | FAQ'. A purple circle with a white target icon is overlaid in the center of the page. At the very bottom, there is a row of nine smaller images showing various uses of the product and a call-to-action: 'To be featured here be sure to hashtag #VPBeauty'.

# PROTOTYPE FIDELITY

# **LOW**

**test basic assumptions**

paper prototypes  
circuit building  
storyboards  
wireframes  
personas  
moodboards  
etc.

# MID

more refined assumptions

clickable prototypes  
style guide  
coded prototypes  
InVision / XD  
include some form-factor

**HIGH**  
**small details**

high-polish object  
coded app  
full website  
game demo

	<b>LOW FIDELITY</b>	<b>MID-FIDELITY</b>	<b>HIGH FIDELITY</b>
Pros	Fast, low-skill, cheap, made with materials available around you	More interactive, easier to test, good balance of time and quality	Complete design, including visuals, content, and interactions; can test very detailed interactions
Cons	Limited interactions, harder to test details and full flows, little context for users	More time-intensive, but not fully functional	Very time-intensive, requires skills with software or coding, hard to test large concepts
Use	Exploring and testing high-level concepts like user flows and information architecture; best for making lots of different versions and testing them against each other	User testing specific interactions and guided flows; also better for stakeholder presentations, as these prototypes have more context	User testing very specific interactions and details, final testing of user flows, and presenting final design work to stakeholder

# **TYPES OF FIDELITY**

# **TYPES OF FIDELITY**

**visual**

**breadth**

**depth**

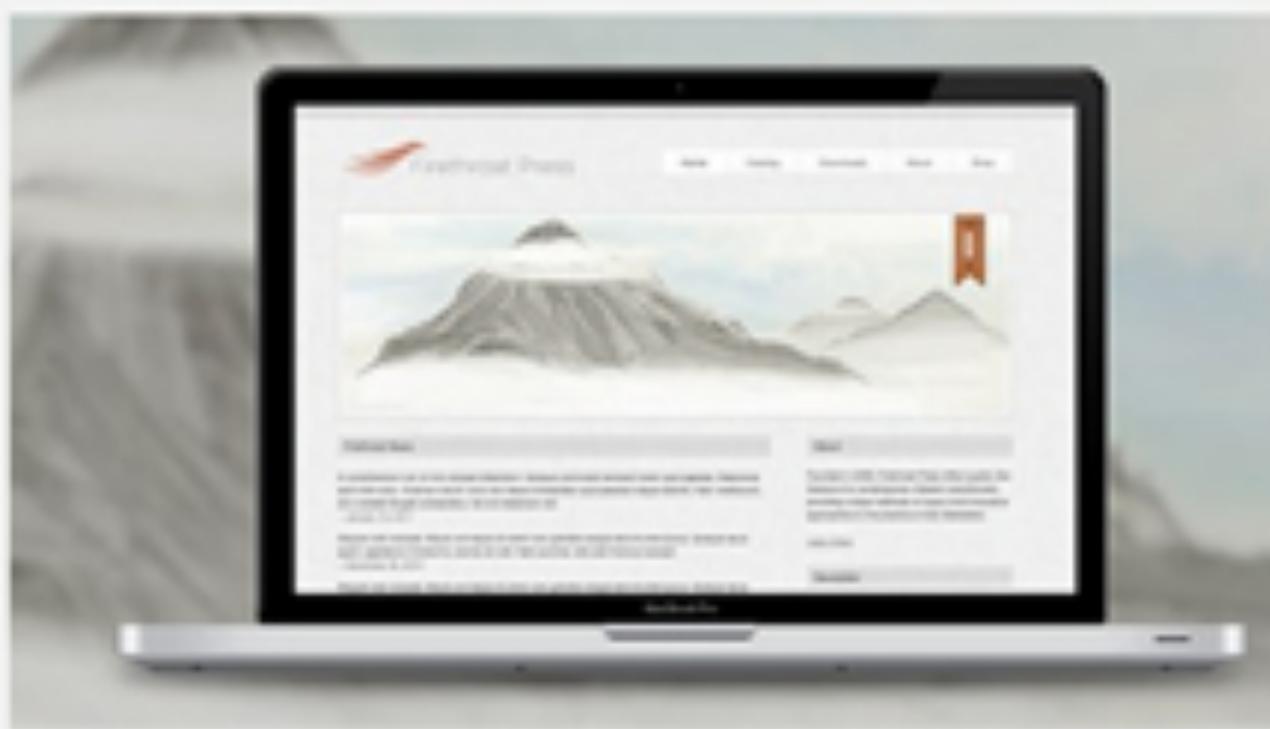
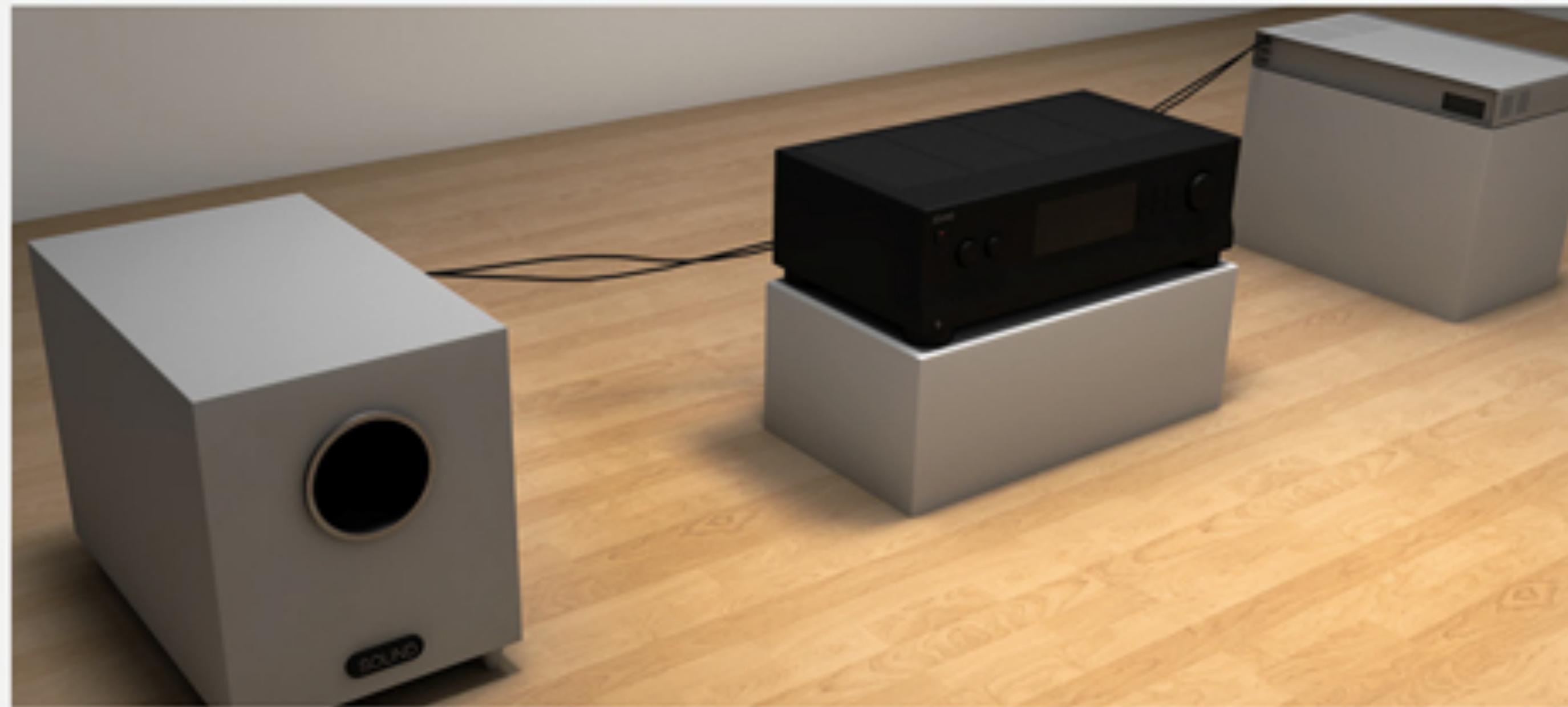
**interactivity**

**data model (content)**

# EXAMPLES

# **EXAMPLES: WEB**





This wireframe sketch illustrates a landing page for a Disney show. The top navigation bar includes a logo placeholder ('World of Color Logo'), and menu items: ABOUT THE SHOW, PHOTOS & VIDEOS, SHOWTIMES, and TICKETS. Below the navigation is a large central content area featuring a promotional video thumbnail ('Promo Title / Video Link') and a video thumbnail ('Video / Large Screen / Animation'). The main content area is divided into three sections: 'ABOUT THE SHOW' (with placeholder text and a 'Learn more' link), 'PHOTOS & VIDEOS' (with a photo gallery and a 'Experience the show' link), and 'SHOWTIMES' (listing four showtimes with ticket booking links). The footer contains links to Disney services and policies, and a 'Purchase Tickets' button.

World of Color Logo

ABOUT THE SHOW PHOTOS & VIDEOS SHOWTIMES TICKETS

Promo Title / Video Link

Video / Large Screen / Animation

ABOUT THE SHOW

PHOTOS & VIDEOS

SHOWTIMES

Oct 5th 8:00pm Book Today

Oct 6th 8:15pm Book Today

Oct 7th 8:30pm Book Today

Oct 8th 8:45pm Book Today

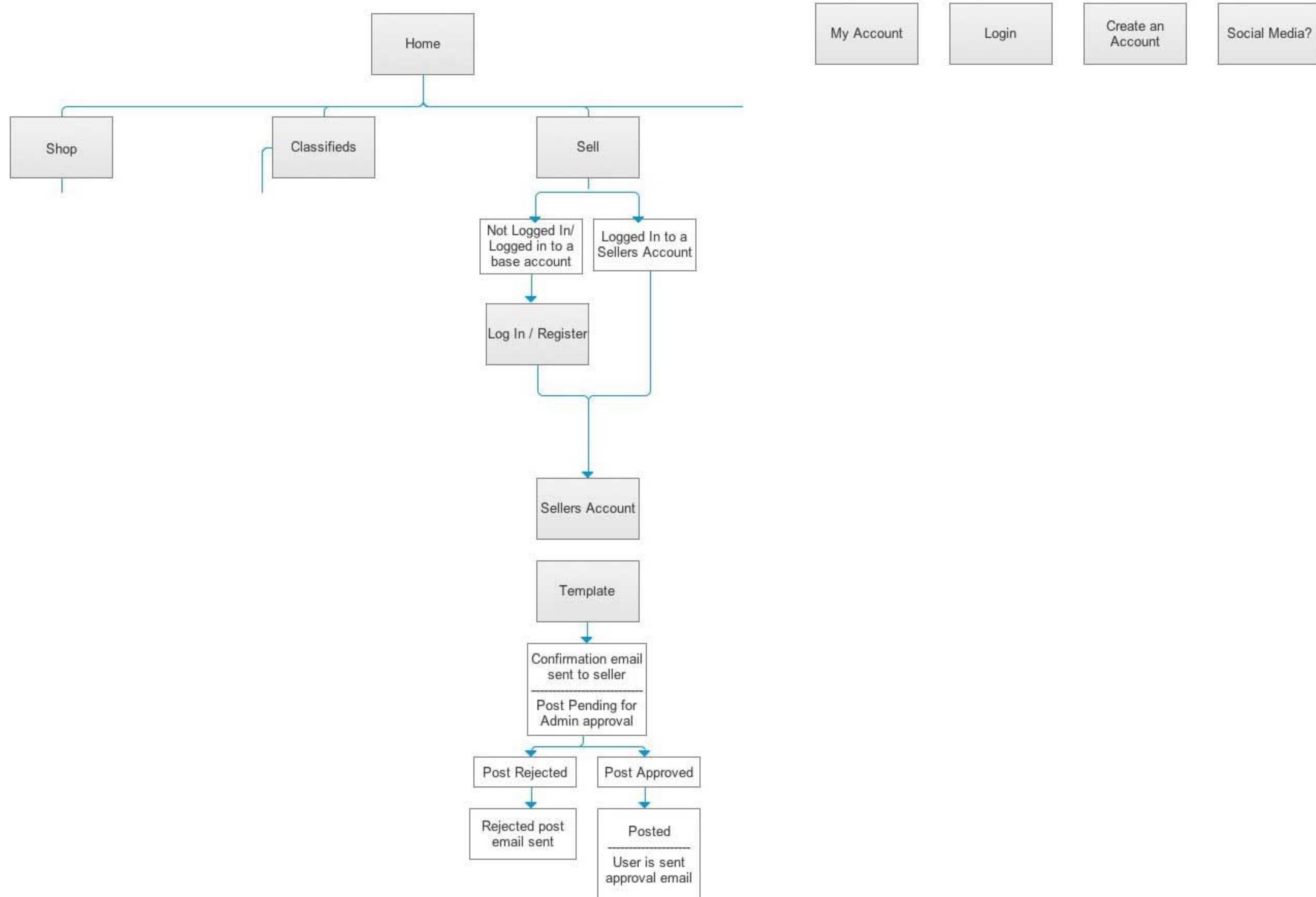
See Month View

Disney Logo

Help & Guest Services | Site Map | Internet Safety | Terms of Use | Legal Notices | Privacy Policy | Interest-Based Ads | About Disney  
©Disney. All rights reserved.

Purchase Tickets





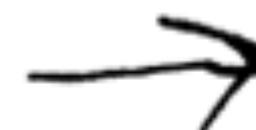
点石成金

POINT  
TO MAKE  
ME THINK

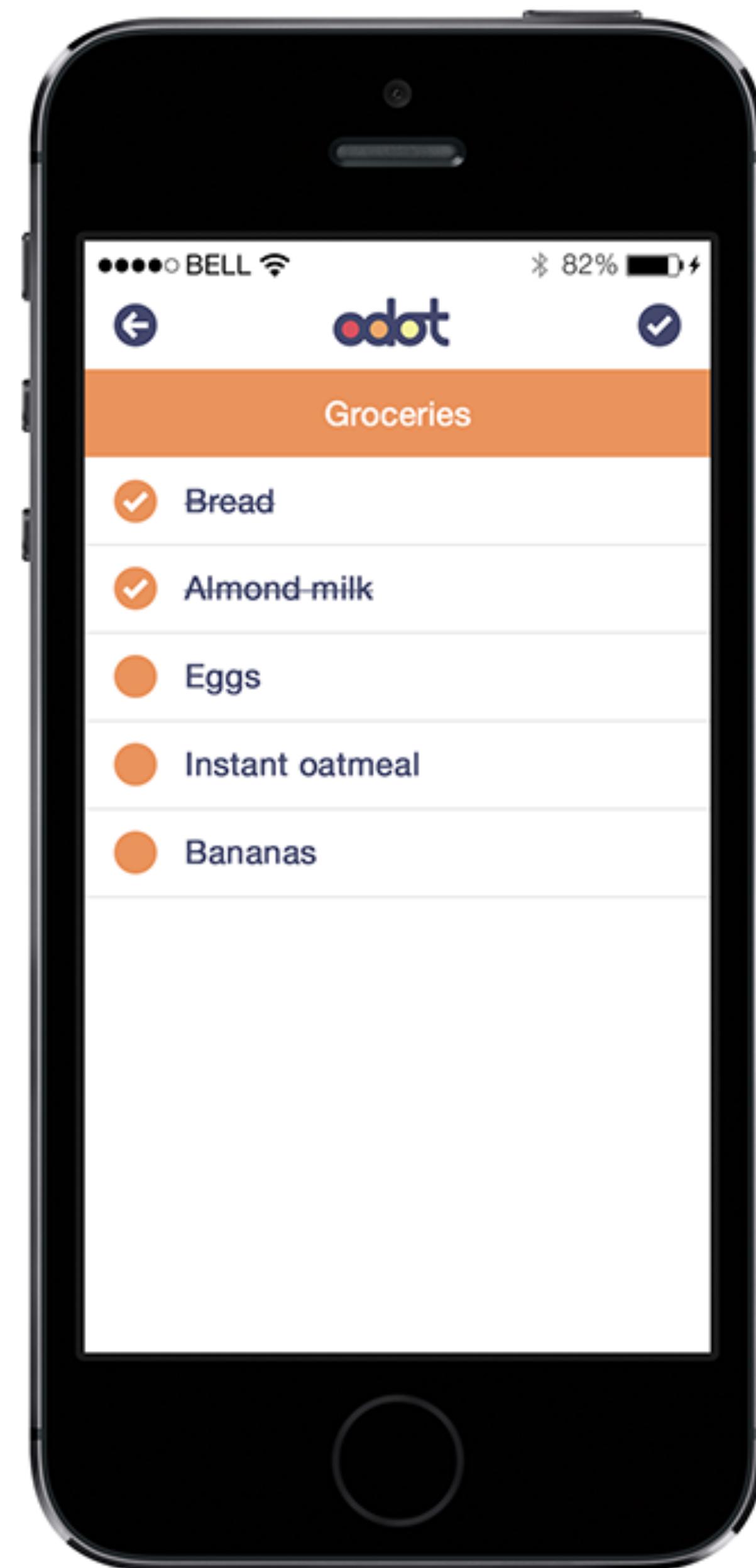
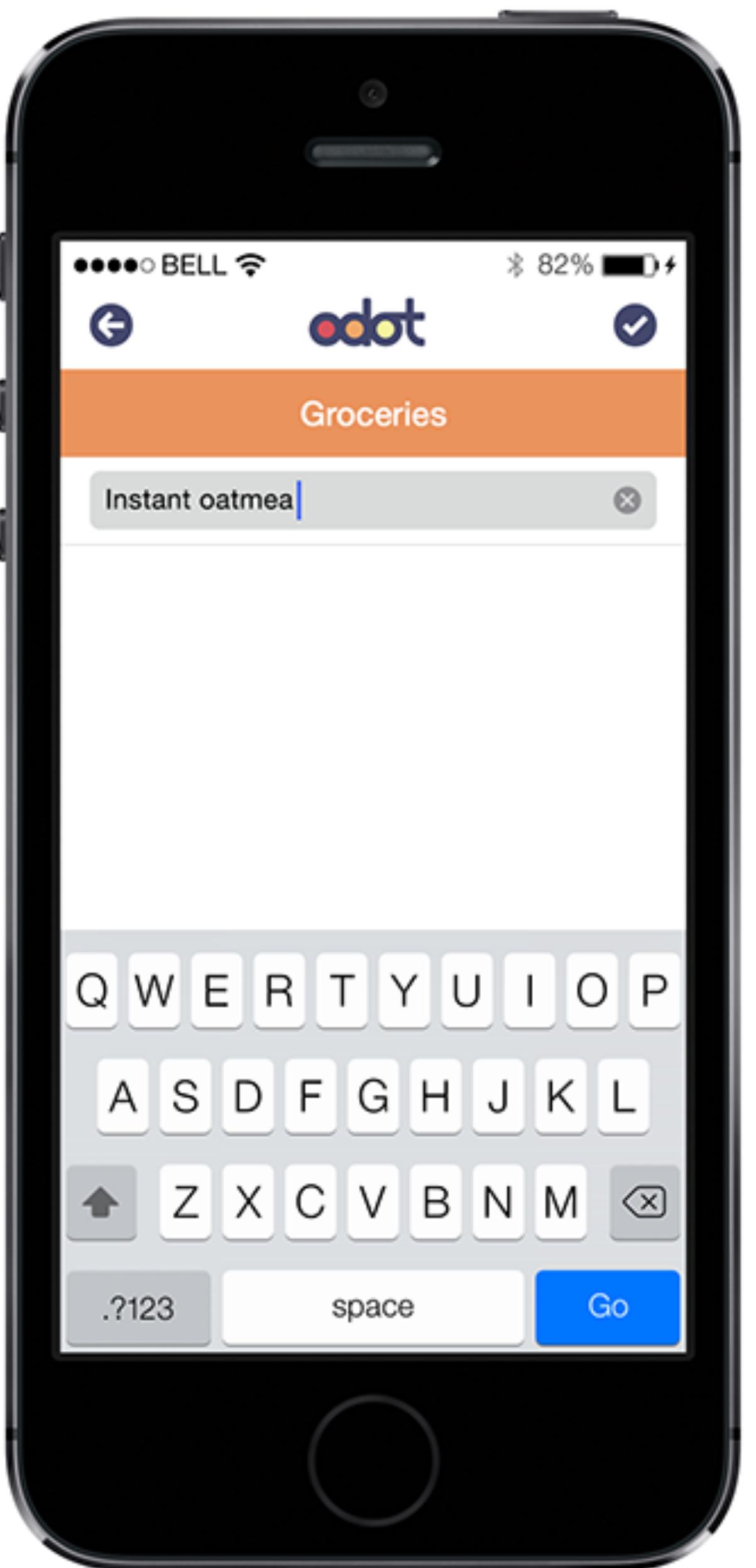
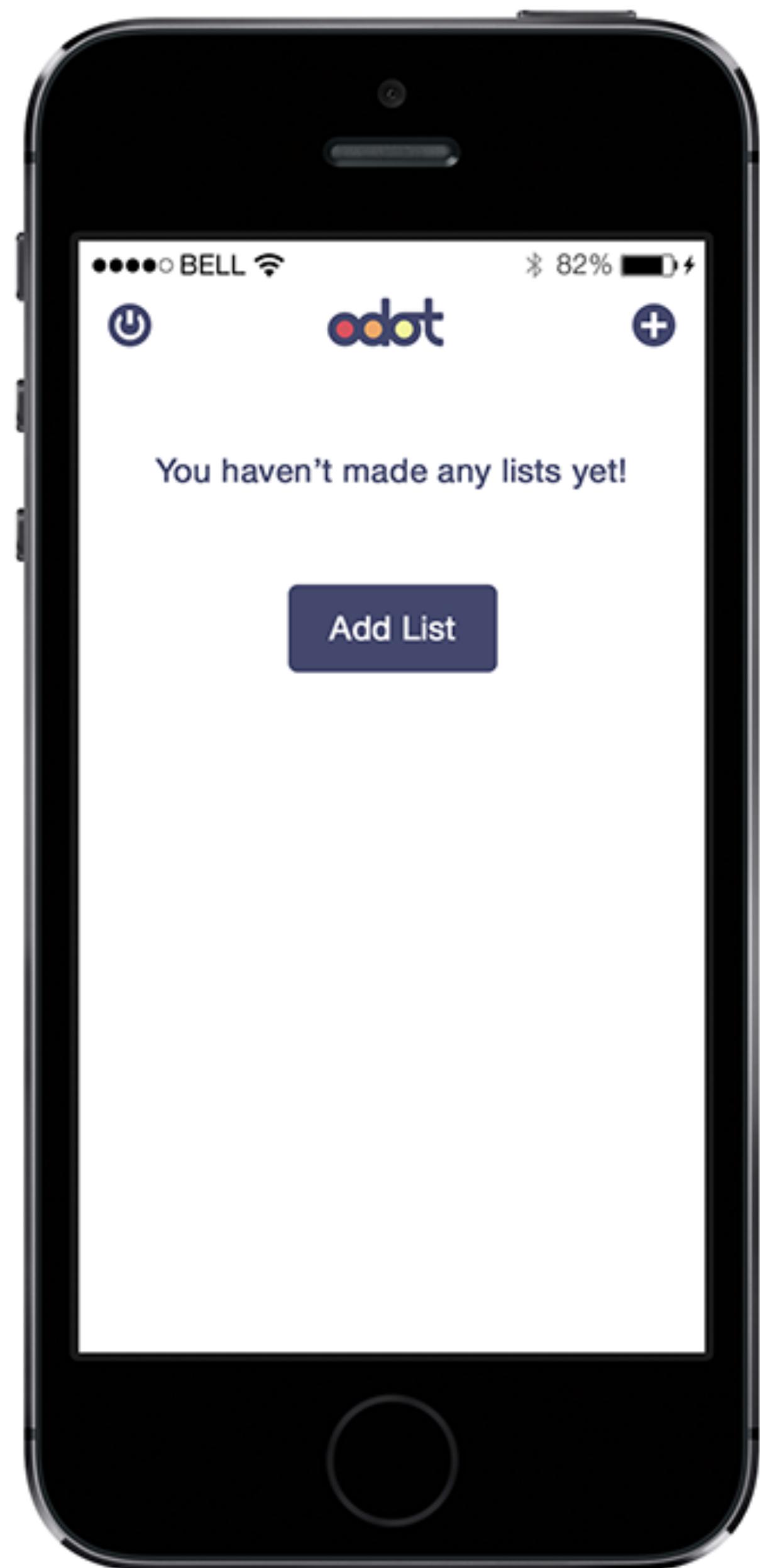


(五)

业出版  
china







# EXAMPLES: GAMES





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|| ▶ 🔊 0:00 / 2:24



# RUNNER<sup>3</sup>



MECHIKNIGHT

<http://www.runner3.game/devlog/>

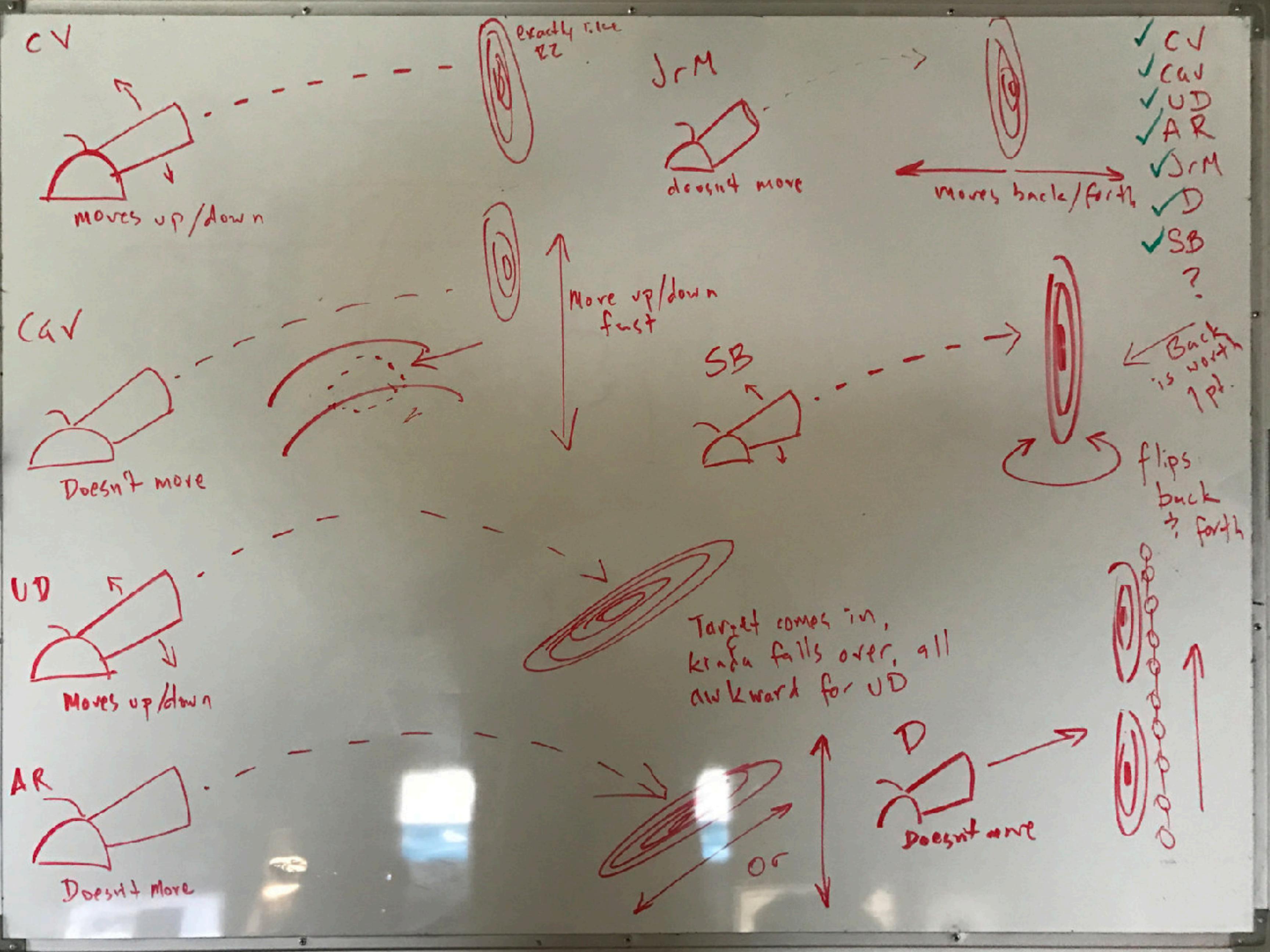
CHOICE PROVISIONS



## FEATURES TO PROTOTYPE:

- SIDE SCROLLING
- MULTIPLE LANES, SAME PATH
- CONTROLLED EVENT**
- VARIABLE SPEED GAMEPLAY
- STOPPING / FETCH QUEST / DIALOGUE
- SMALL BRANCHING PATHS
- CANNED EVENT**
- MULTIPLE LANES, CAMERA BEHIND CHARACTER







RUNNER 2

CV POS: (498.75, 4.25, 0.00)

**CHALLENGE 1-5**  
**BCAT 0.00**  
**CAMERA X 46.21**  
**0.00 FPS**

**HYP3R**

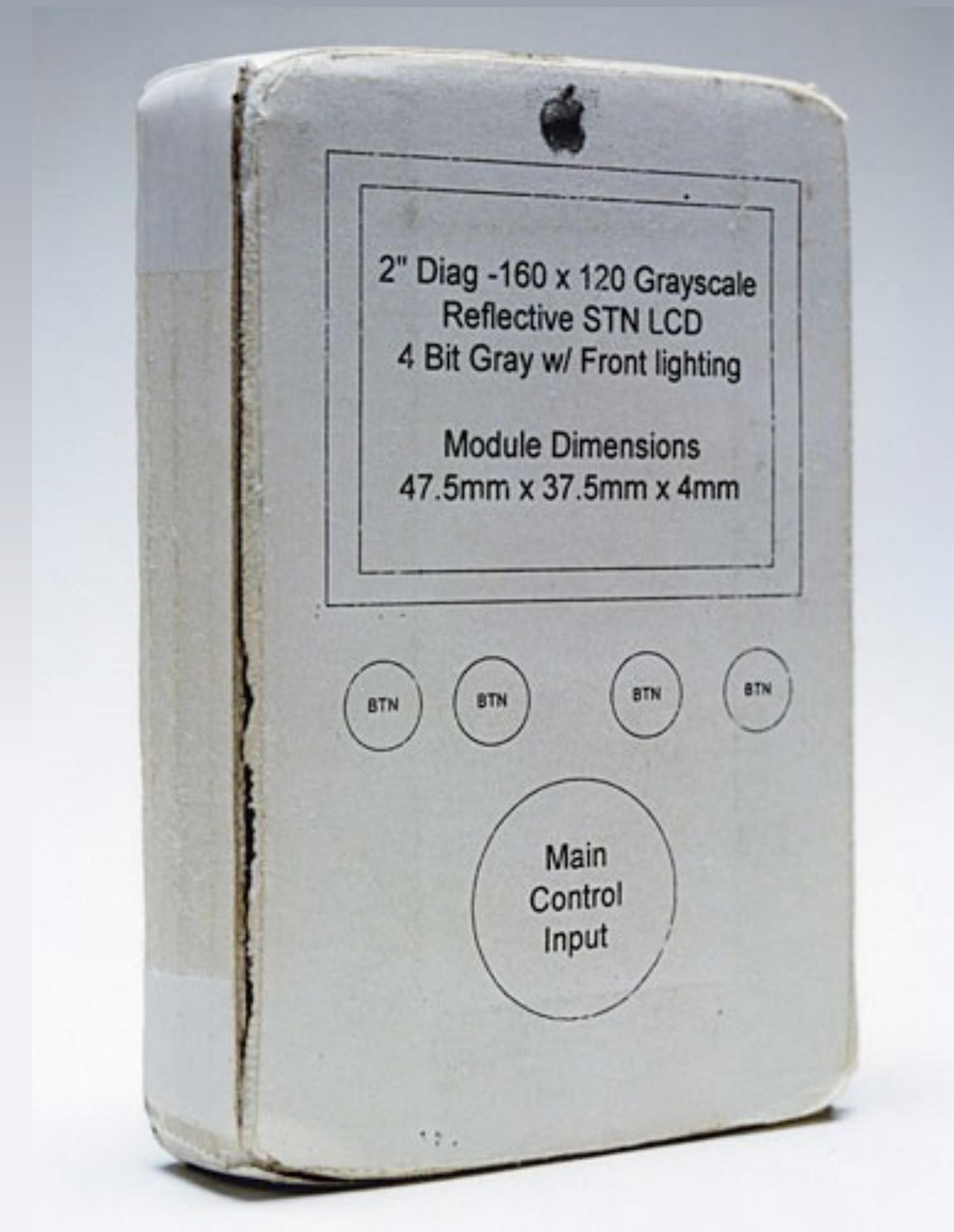
Resource  
 BuildP  
 /Gamep  
 resourc  
 AvoidL  
 BuildP  
 /Gamep  
 resourc  
 Collec  
 BuildP  
 /Gamep  
 resourc  
 Robotic  
 resourc  
 Resign  
 system  
 score  
 editor  
 editor  
 editor  
 /Level  
 resourc  
 /chatt  
 resourc



	Value
Button	checked
Button	
Gravity - Glide Coeff	0.2000000029802322
Gravity - Normal	-85.3352972949219
Gravity - Superjump	-28.44440078735352
Player - JumpVelocityY	16
Player - SlideJumpVelocityY	17.5
Player - StartX	-15
Player - StartY	4
Player - StartZ	0
Rumble - FramesBlock	0.0750000029802322
Rumble - FramesCollision	0.1000000014901161
Rumble - FramesKick	0.0750000029802322
Rumble - FramesLand	0.0500000007450580
Timing - FinishDelay	0
Timing - LevelBPM	160
Timing - LevelSpeedX	4
Timing - LevelSpeedY	0
xScore - BonusAbsorb	5000
xScore - BonusBlock	1000
xScore - BonusChallengeEnd	1000000
xScore - BonusGold	10000
xScore - BonusGoomba	275
xScore - BonusKick	1.25
xScore - BonusModelUp	50000
xScore - BonusSuperjump	450
xScore - MultiplierExtra	100
xScore - MultiplierHyper	10
xScore - MultiplierMega	10
xScore - MultiplierNether	100
xScore - MultiplierSuper	20
xScore - MultiplierUltra	50

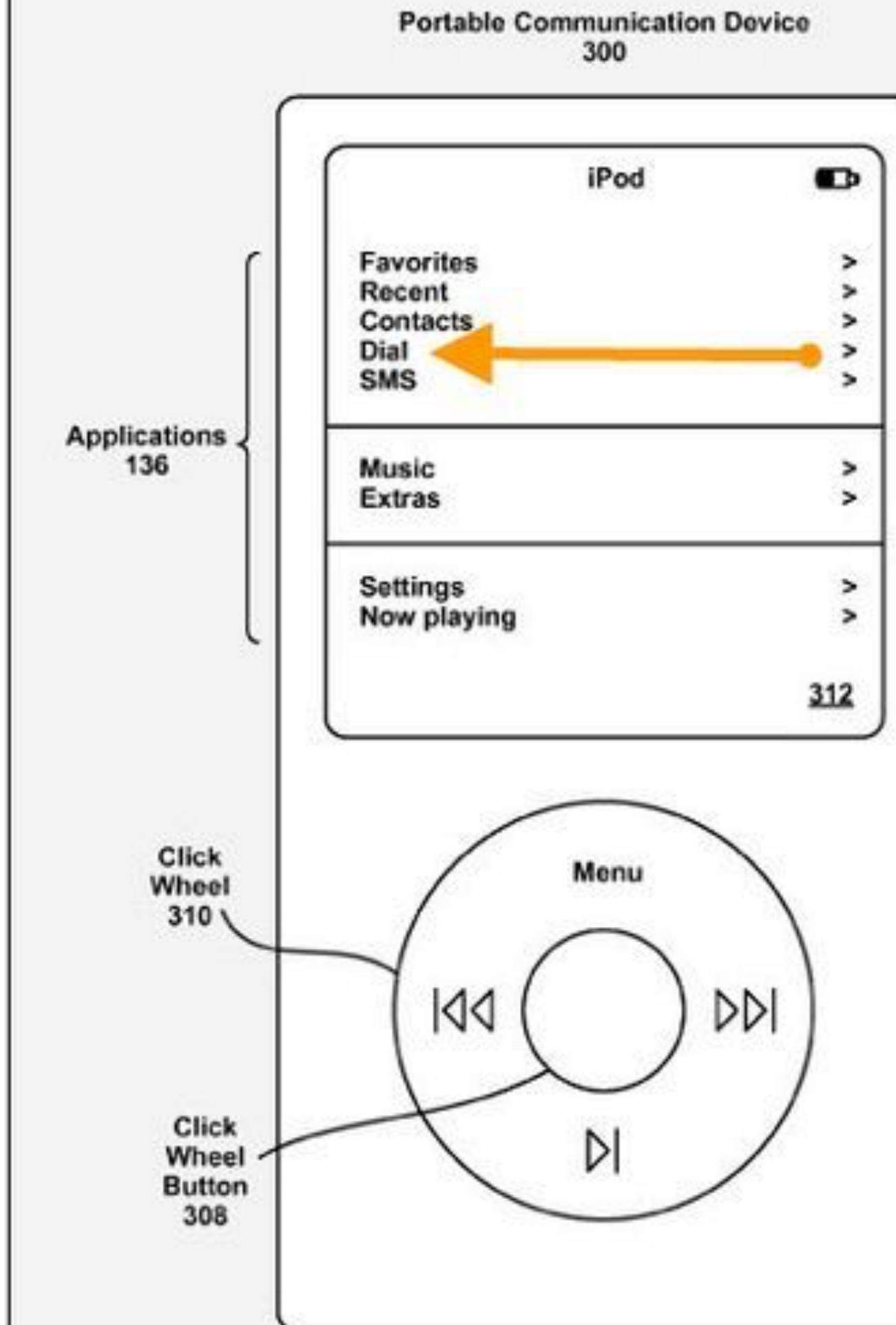


# EXAMPLES: OBJECTS

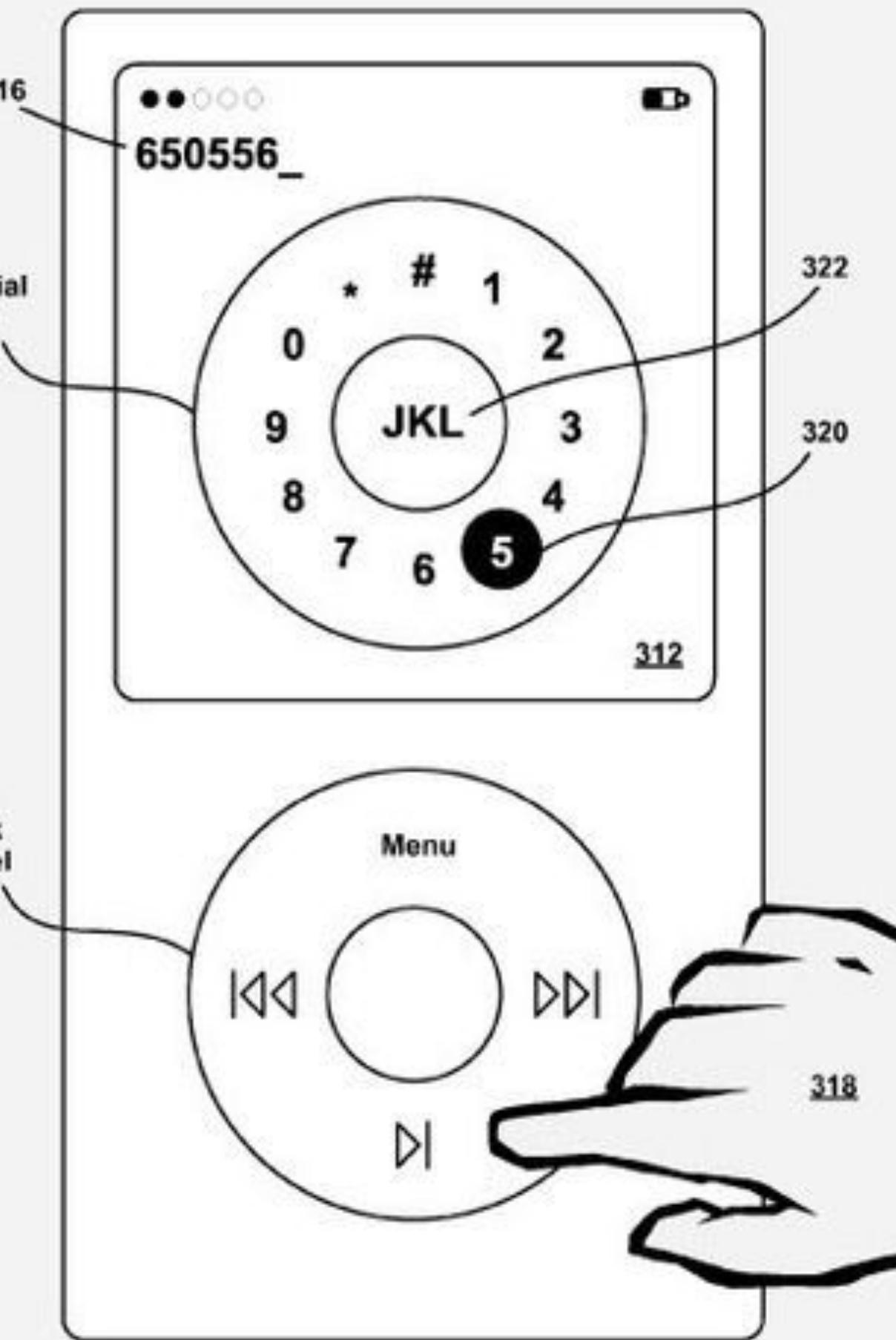




## 1 - In 2005, Steve Jobs Seriously Considered an iPod-Smartphone UI



**Figure 2**



**Figure 3C**

Patently Apple

Patently Apple





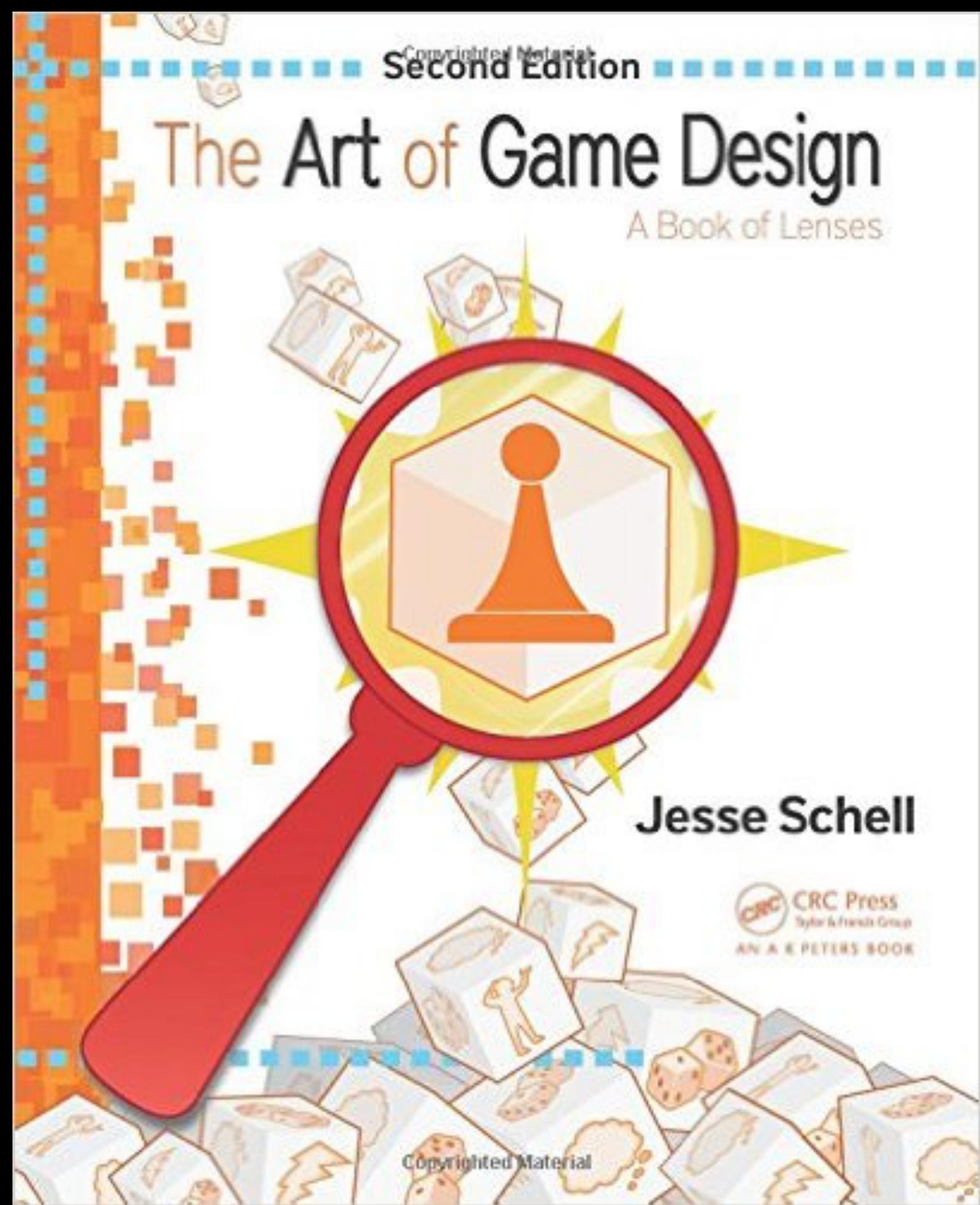
# AUDIENCE

# TESTING / ITERATION

Copyrighted Material  
Second Edition

# The Art of Game Design

A Book of Lenses



Jesse Schell

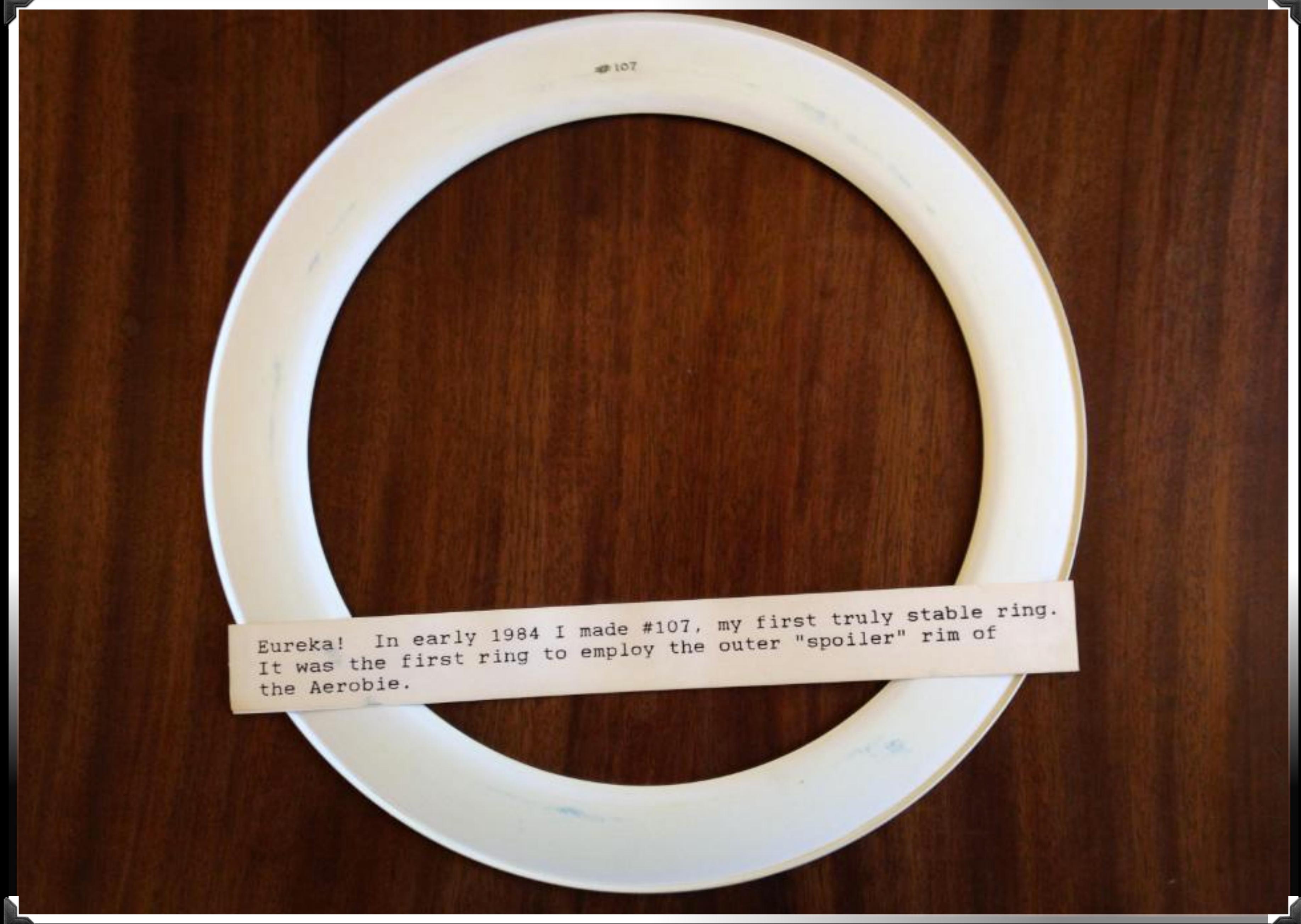
 CRC Press  
Taylor & Francis Group  
AN A K PETERS BOOK

Copyrighted Material

# THE RULE OF THE LOOP

**The more times you test and improve your design,  
the better your design will be.**





**Q1? HOW CAN I MAKE EVERY LOOP COUNT?** *Assess your risks and mitigate them*

**Q2? HOW CAN I LOOP AS FAST AS POSSIBLE?** *Build many rough prototypes*

# TIPS FOR PRODUCTIVE PROTOTYPING

**#1 Answer a Question**

**#2 Forget Quality**

**#3 Don't Get Attached**

**#4 Prioritize Your Prototypes**

**#5 Parallelize Prototypes Productively**

**#6 It Doesn't Have to be Digital**

# EXAMPLE ITERATION

# LOOP 1

“New Racing Game”

**Problem:** Come up with a new kind racing game

**Solution:** Underwater submarine races (with torpedoes!)

# LOOP 1

“New Racing Game”

- Risks:**
- How should underwater racetracks look?
  - This might not feel innovative enough
  - Can technology handle the water effects?

# LOOP 1

## “New Racing Game”

- Prototypes:**
- Artist sketches of underwater racetracks
  - Designers prototyping (with paper and by hacking existing racing game) novel new effects (subs that can rise out of water, etc)
  - Programmers testing simple water effects

# LOOP 1

## “New Racing Game”

**Risk:** ■ How should underwater racetracks look?

**Prototype:** ■ Artist sketches of underwater racetracks

**Result:** ■ Looks okay, but only if there is a “glowing path” in the water. Underwater tunnels!

Flying submarine tracks that rise in and out of the water are awesome!

# LOOP 1

## “New Racing Game”

**Risk:** ■ This might not feel innovative enough

**Prototype:** ■ Designers prototyping (with paper and by hacking existing racing game)

**Result:** ■ More fun with fast / maneuverable subs. Mix of swimming and flying feels very novel. Will need to figure out a way to limit flight time. Playtest shows we must support networked multiplayer.

# LOOP 1

## “New Racing Game”

**Risk:** ■ Can technology handle the water effects?

**Prototype:** ■ Programmers testing simple water effects

**Result:** ■ Some water effects easier than others.  
Splashes look good, so do underwater bubbles. Making the entire screen waver takes far too much CPU, and is kind of distracting anyway.

# LOOP 2

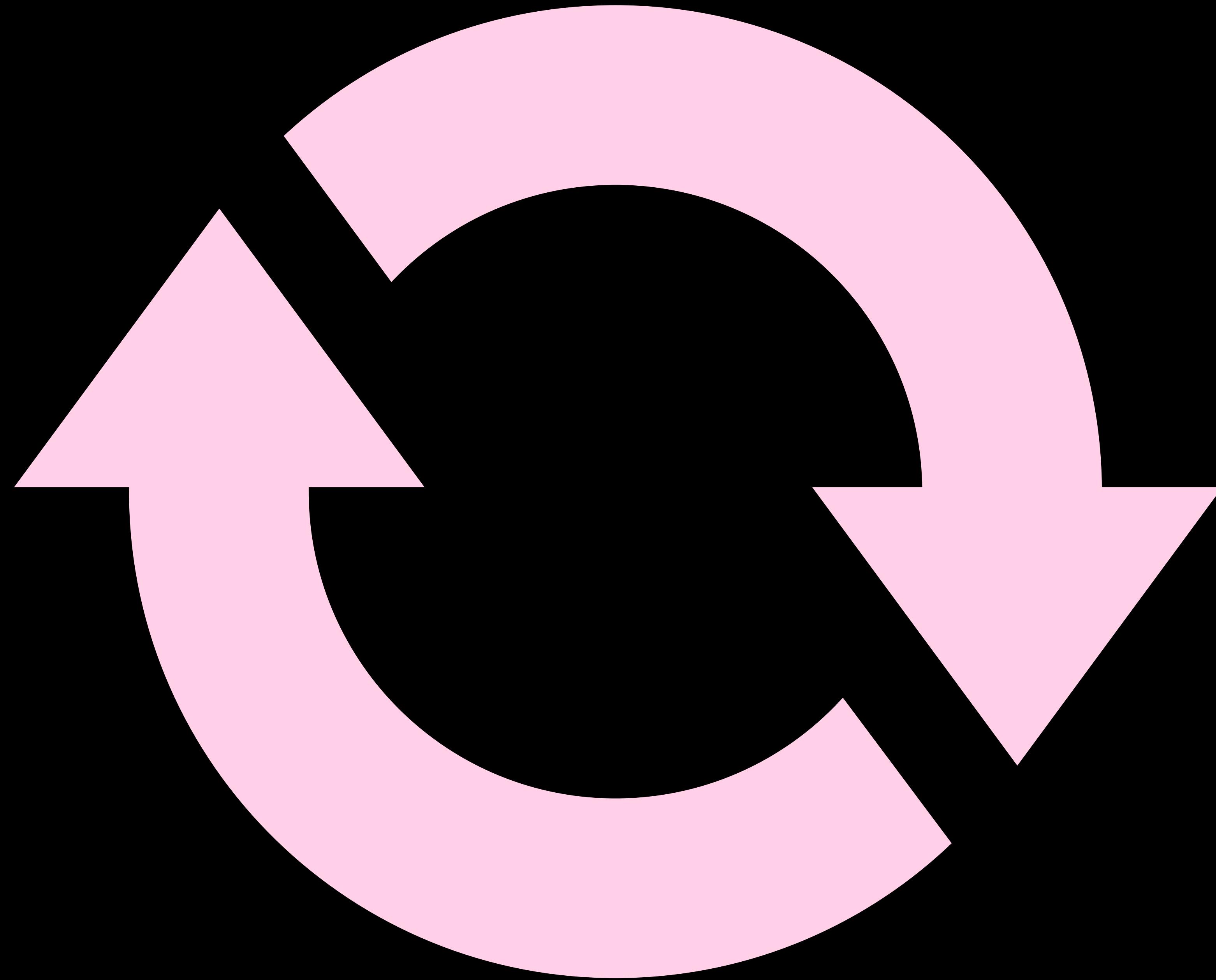
“New Racing Game”

**New Problem:** Develop a “racing sub” game, where subs can fly

# LOOP 1

## “New Racing Game”

- Risks:**
- How should the subs look? Cartoony might turn off older players. Too realistic, they might seem silly with this kind of gameplay.
  - Until we know how much time we are spending in and out of water, it is impossible to design levels, or do the artwork for the landscapes
  - The team has never done networked multiplay for a racing game.



**FAIL FAST, FAIL OFTEN**

HERE'S THE MOST  
IMPORTANT THING:

ANSWER A  
QUESTION