

The DESIGN

Storyboards and Speed Dating

THINGS

User Interface Development
EECS 493 - Winter 2025



Class progress

Building a toolbox for human-centered software design and development

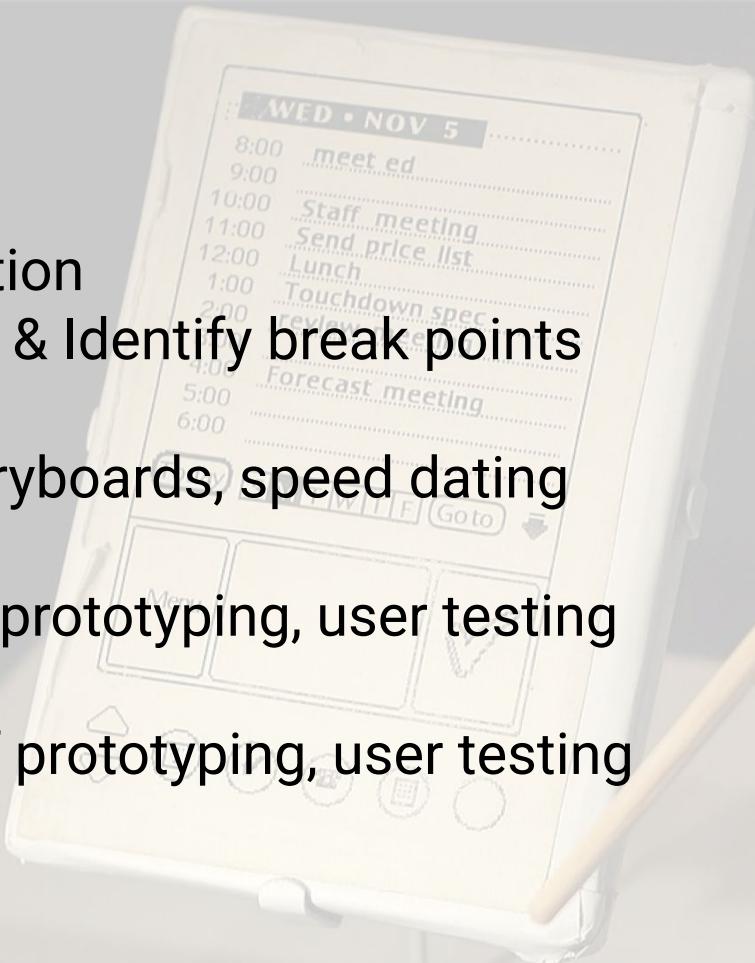


1. User research
 - a. Assignment 1, Final Project all milestones
2. Web programming
 - a. Assignment 2, 3, 5
3. Design and prototyping
 - a. Assignment 4, Final Project milestones 3-4



Final Project

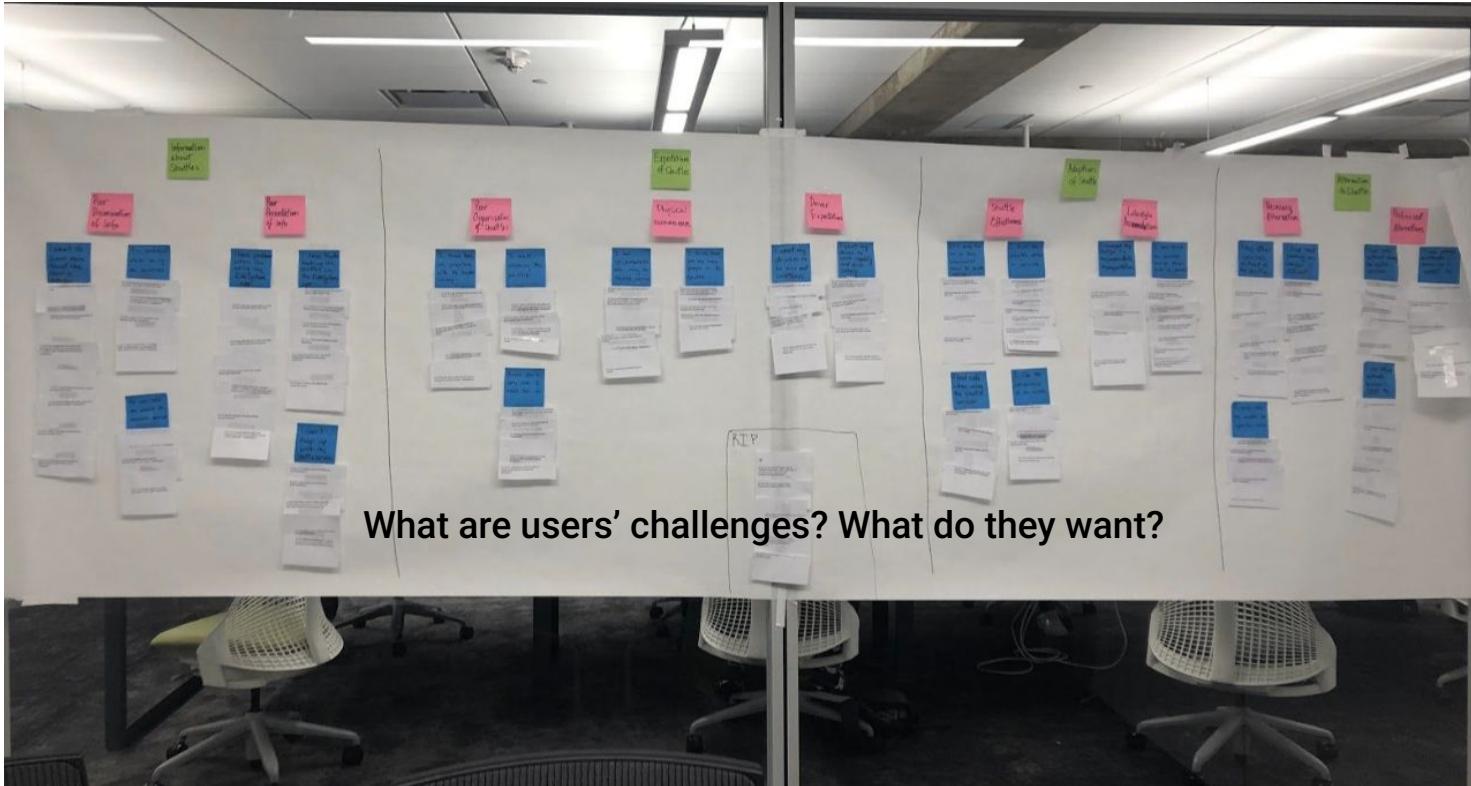
1. Milestone 1
 - a. Team formation
 - b. Need finding & Identify break points
2. Milestone 2
 - a. Ideation, storyboards, speed dating
3. Milestone 3
 - a. 1st round of prototyping, user testing
4. Milestone 4
 - a. 2nd round of prototyping, user testing
5. Milestone 5
 - a. Evaluation



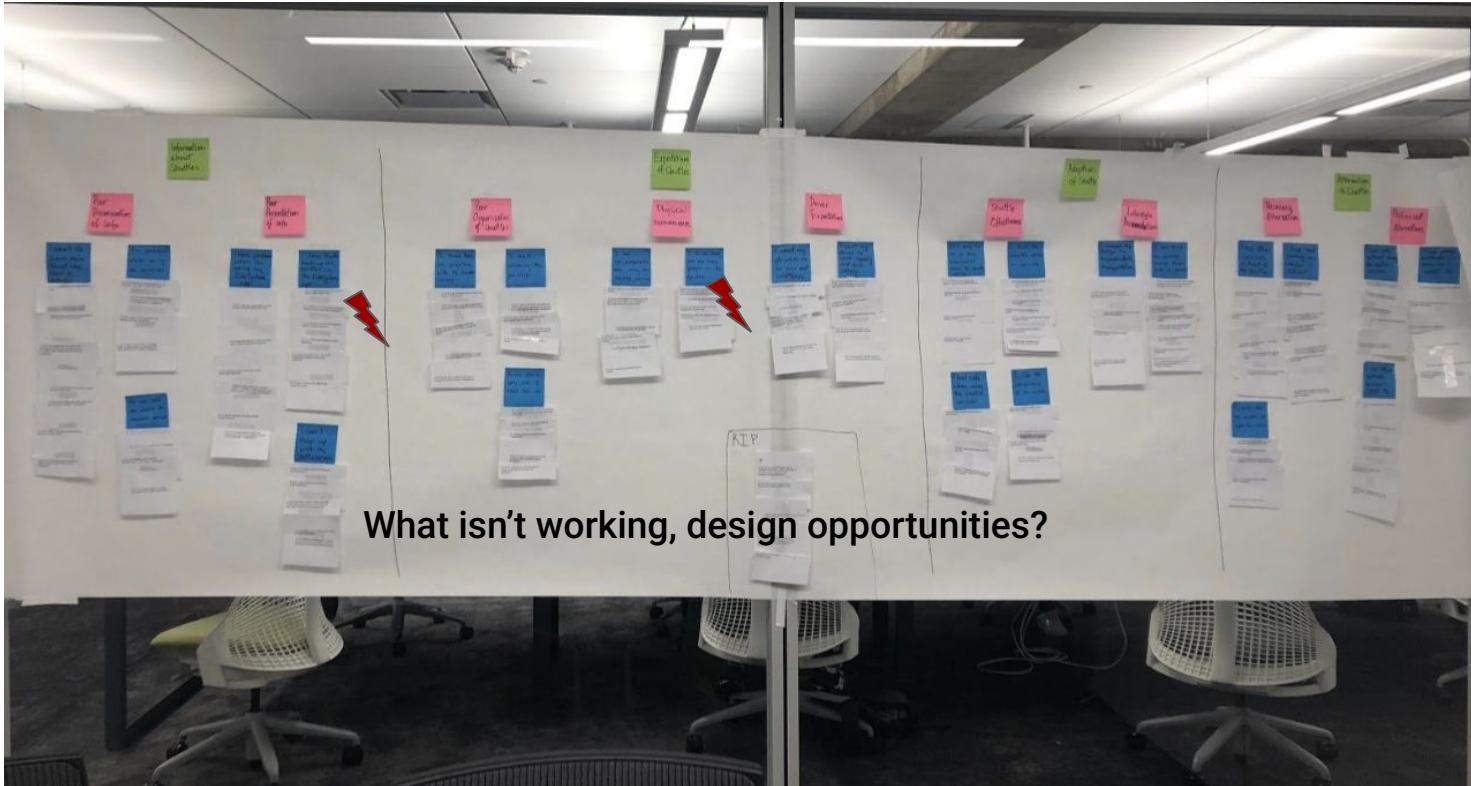
PalmPilot wooden model

Jeffrey

Final project milestone 1



Final project milestone 1



Questions?

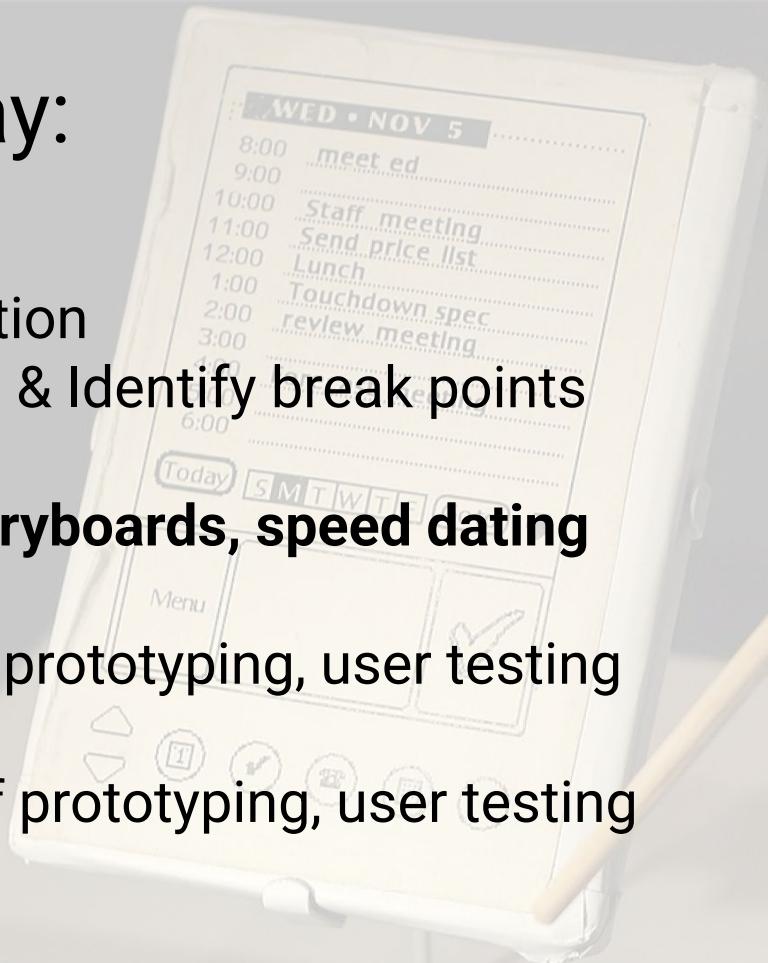


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Goals for today:

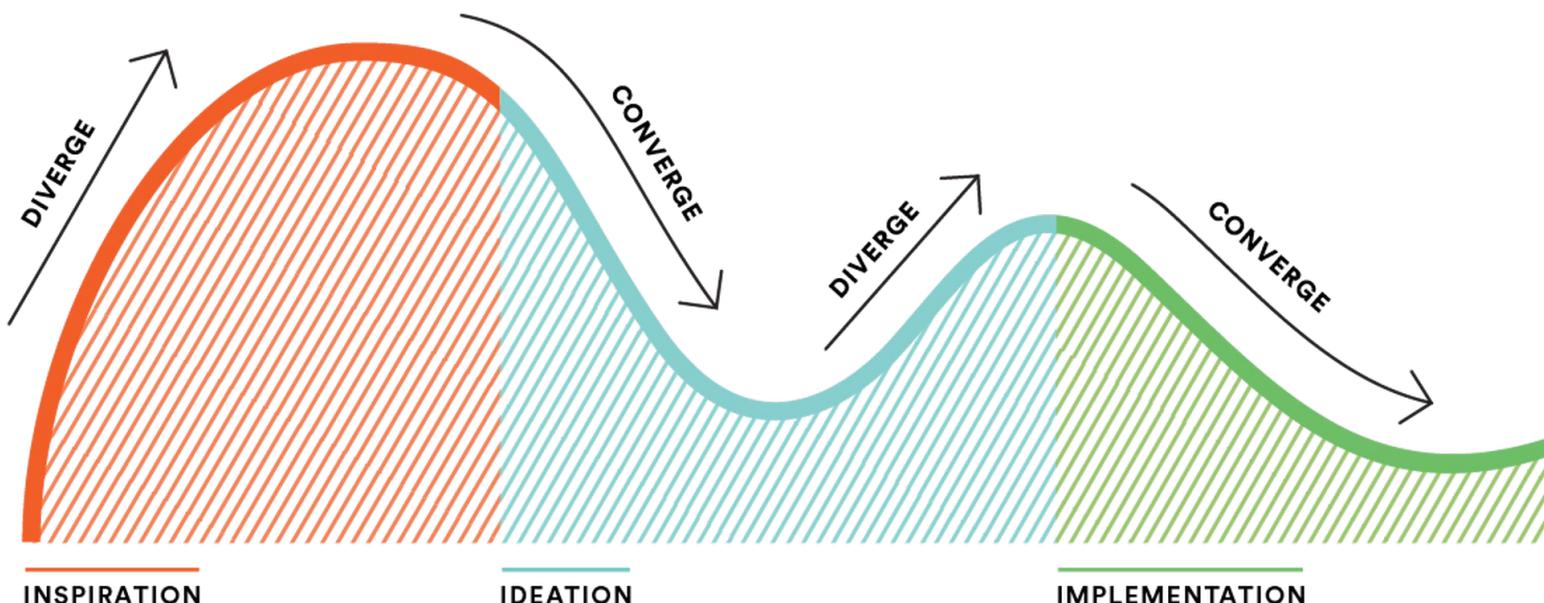
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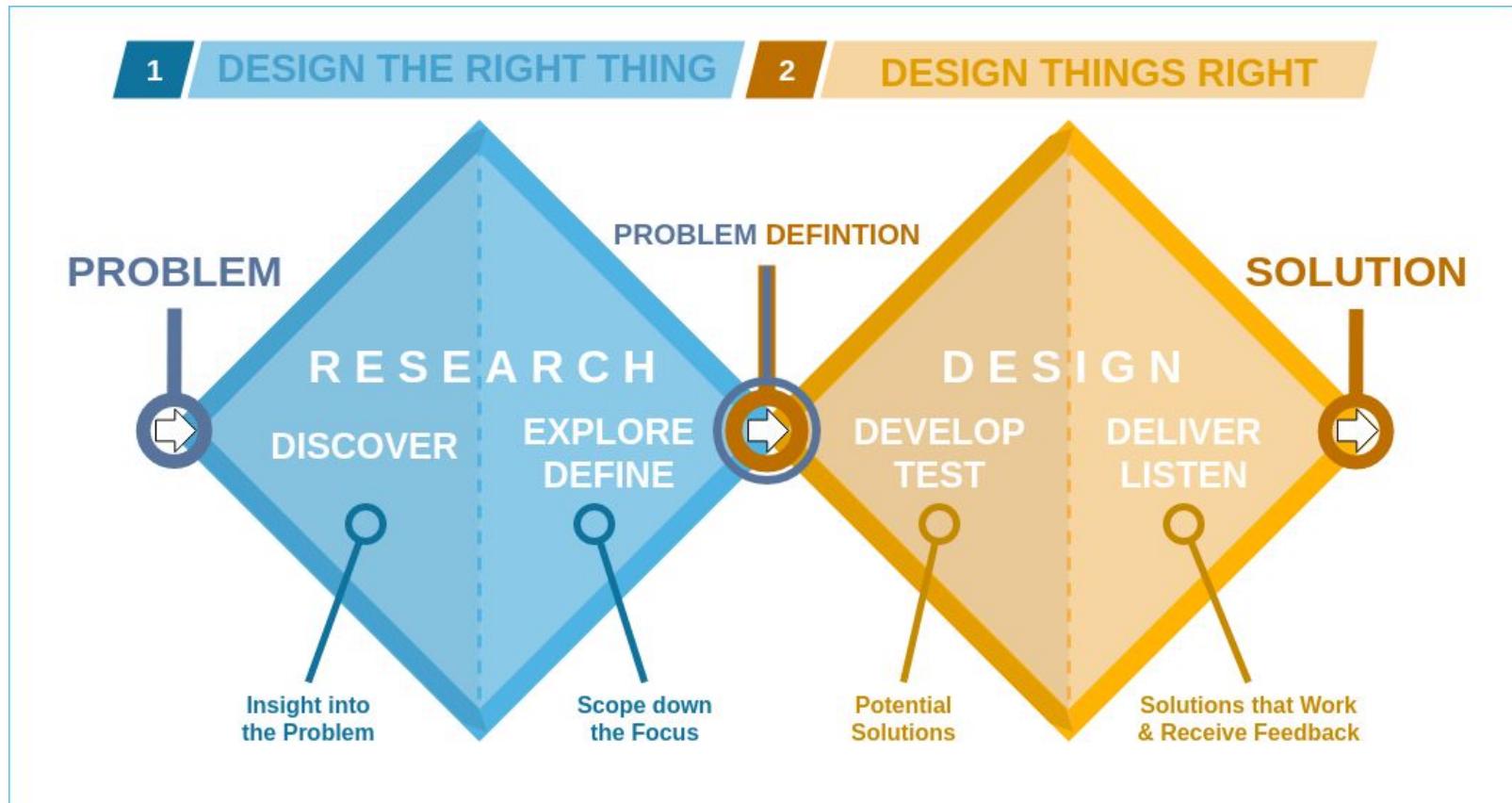
Ideation



IDEO



Double Diamond (design process)



4 Phases of Human-Centered Design

- **Need finding** → Conduct research about customers who will use the product being developed/improved
- **Ideation** → Generate potential solutions
- **Prototyping** → Build a mockup of each potential solution
- **Testing** → Have sample of individuals from target population use prototype in order to test design suitability

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IDEO-Style Brainstorming

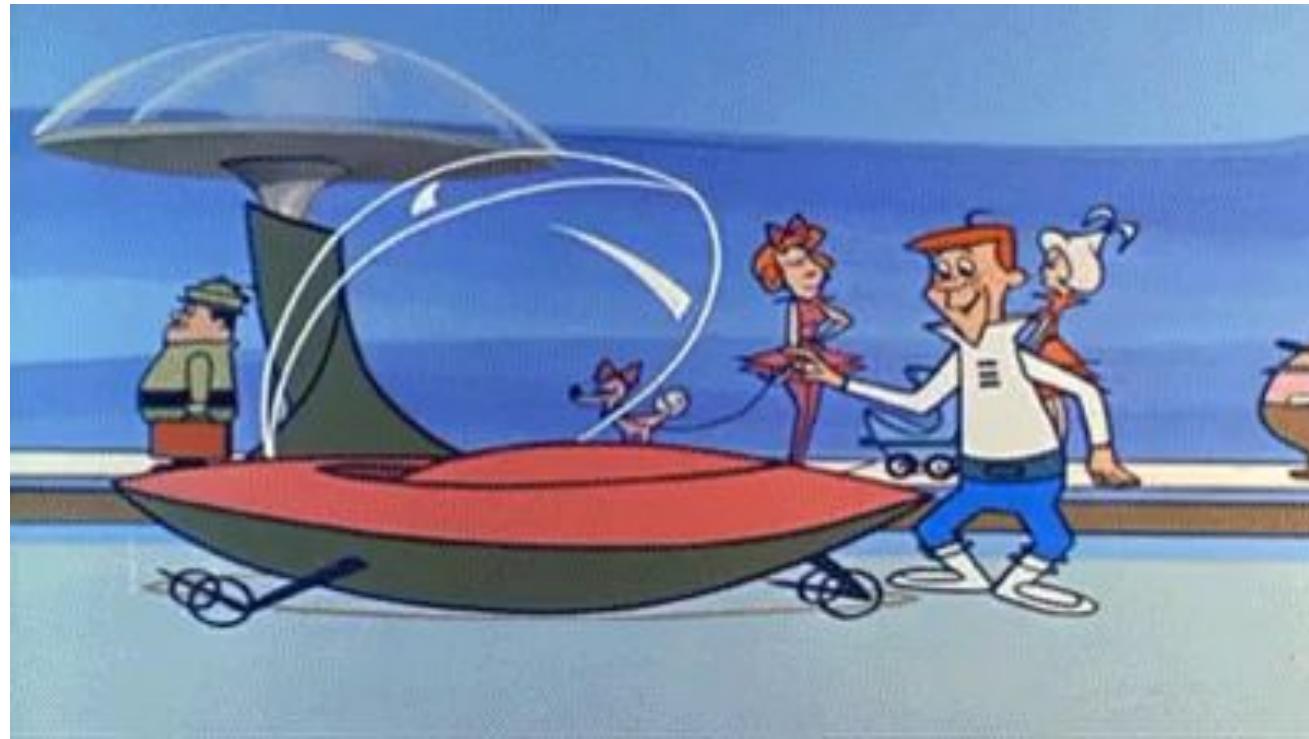
- Goal: come up with lots of ideas
- Strategy: 7 rules to guide the action



Rule 1: Defer Judgement



Rule 2: Encourage Wild Ideas

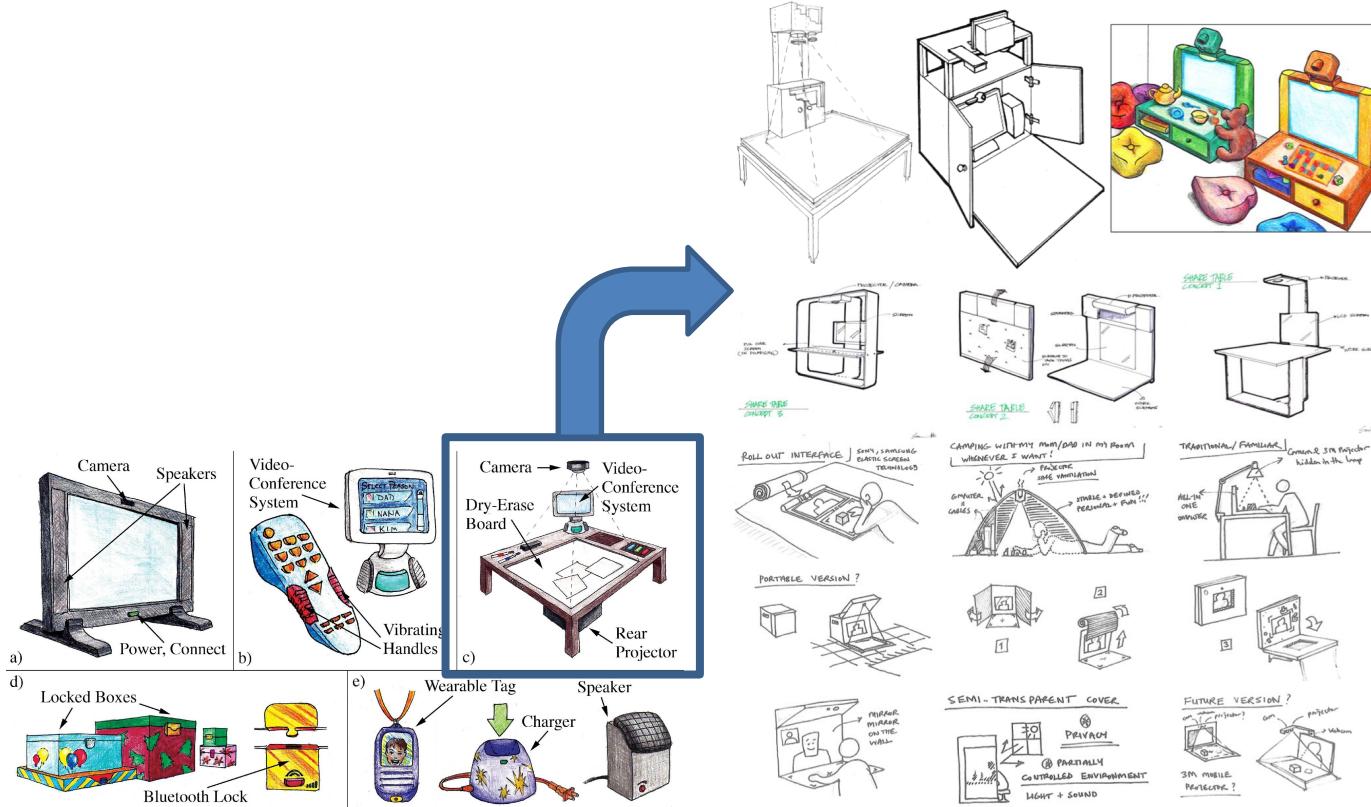


Rule 3: Build on Other's Ideas



Rule 4: Stay Focused on Topic

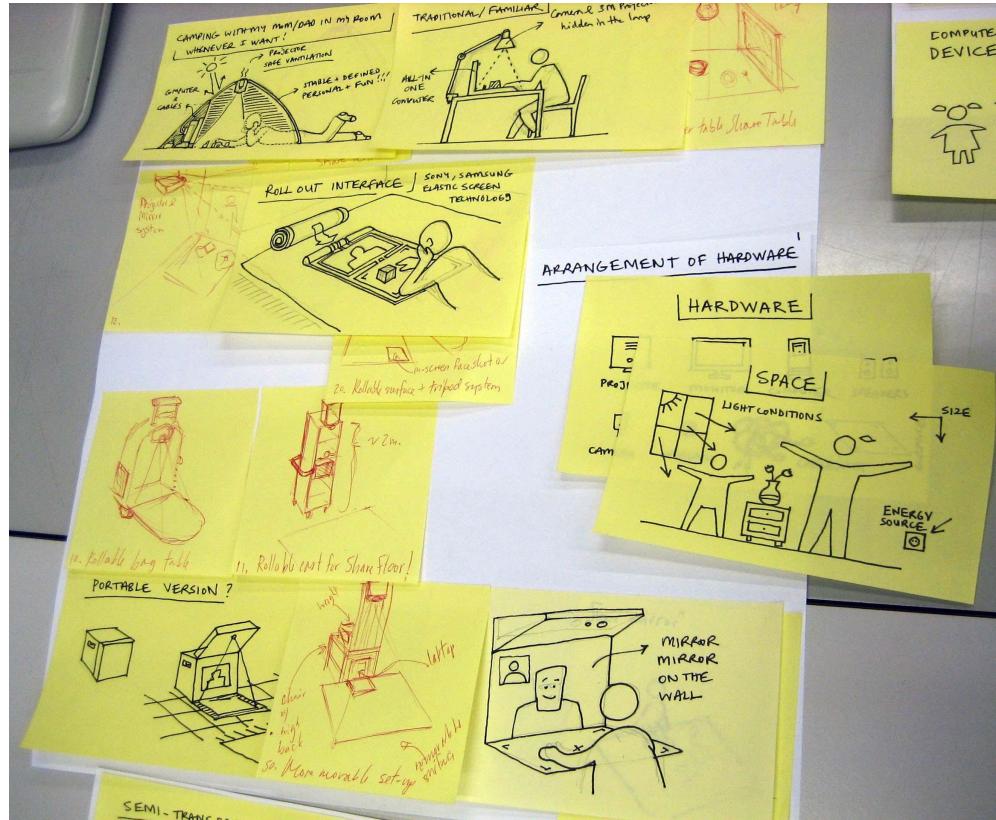
ShareTable Conceptualization Sketches



Rule 5: Conversations take place one at a time



Rule 6: Be Visual



Rule 7: Go for Quantity

1. Shared whiteboard
2. Teleconference WiFi
3. Prompted cell phone OS
4. Sports cast
5. Cook together - eating show & cook
6. Share Table
7. Document Bay w/ wearable sensor - synchronous communication
8. Mobile phone tree in hand
9. Position aware!
10. Shared TV remote - big after results only
11. Text message for next day's event (using events calendar)
12. Draw together using Clicker app

13. Shared document like Google documents/spreadsheets
More: Pinchwriting
14. Website for shared storybook reading
15. RSS or other automatic notification
16. Shared wall
17. 3-D skype → holograms
18. Robot parent
19. Clothes that transmit a hug
20. Doll that you dress up using clothes
21. Common pet
22. Shared calendar
23. Shared sit song
24. Applications reading (good night story)
25. Shared video of an artifact
26. Screen set through email
27. Write a story together bringing characters

74. Present through email
75. Cooperative meal Some food + audio connection
76. Read online newspaper - discuss
77. YouTube video + high-Q-mic
78. Idea recorder ↗ brainstroming w/ mobile device
a memory aid
79. Slave walls (log and seal)
Start that you won't - 80
80. Remote driving
81. Talking while driving

29. Fine Dude's magic bar
30. 3D scanner + printer system
31. Nutrition monitoring
32. Medical monitoring
33. Online shopping
34. Get better package
35. Special events shopping
36. Ubiquitous audio stream location specific
37. Action monitoring through artifact
38. Wearable sensors
39. Share vehicle for all healthcare providers
40. Test, question, report cards online

43. Exercise monitor
44. Showing an object or a friend
45. AI parent
46. Tangible chess/board game
47. Modifying nice videos spontaneously
48. Play a KAROOPC together ↗ View LocalLife Neights
49. Playing regular video game ↗ more common
50. More realistic avatars
51. System that lets you live to your pool
52. Measure temperature → missing school
53. Chair that gives virtual hug for both
54. Rumble chair ↗ more together

55. Shared scrapbook that you mail
56. Video game maker - lets 2 play
57. Mobile connection audio & video private - personalized
58. Projected shared space
59. Figuring out favorably of other people as well
60. Video tracking board or audio for gathering
61. Remote control car w/ 2 mics
62. Make food & send ↗ preserving
63. Emotion tracker → wood ring
64. Collaboration listening
65. Baby monitor
66. Figuring out ranking each ↗ was to help
67. A way to describe the child
68. A way to reward yourself

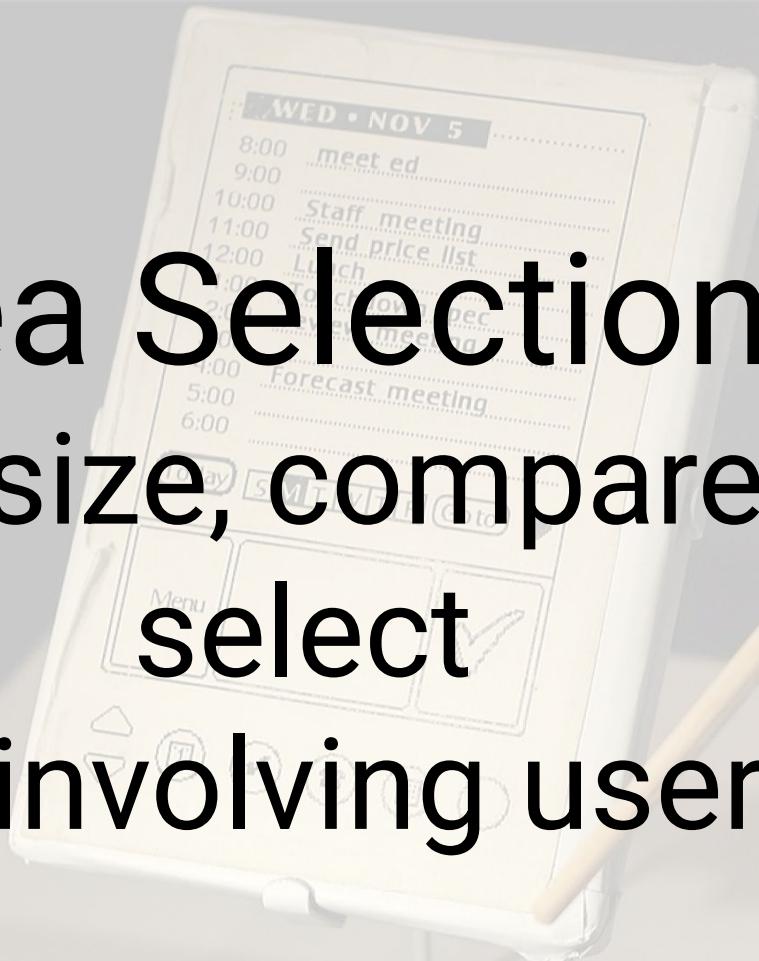
Please Use Only Dry Erase Markers Provided
See Room 111 for Additional Pens

96. Building something together
97. Monitoring computers / internet use → logo
98. Monitoring expenses
99. Arranging next physical meeting
100. Being able to "talk to each" other online shadow
101. Bed w/ built-in audio
102. Shared light
103. Whispering complaints/truths
104. Constant record that immediately sends ↗ after you say "record"
105. Away of letting know to turn on a system
106. Kid-friendly cell phone "Fridly"
107. Shared tools ↗ pieces ↗ clay
108. Deciding on reward

How do you know it worked?

- There is a **wide variety of ideas** (for the given goal)
- Nobody says “that was MY idea”
- At the end, you feel like celebrating!

Idea Selection: Synthesize, compare and select (not involving users)



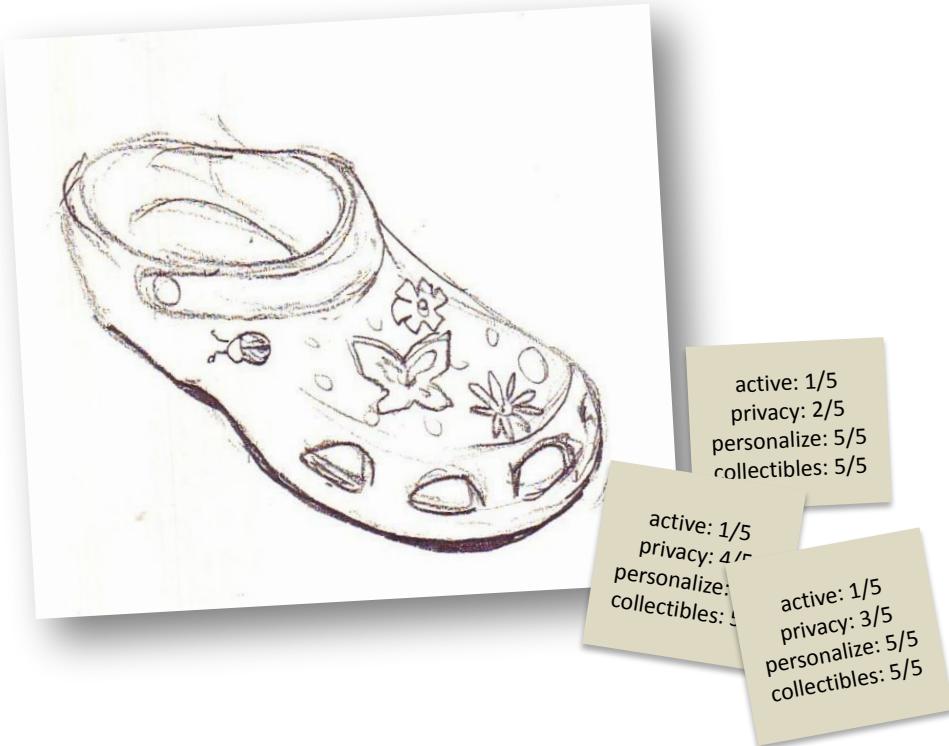
Example Topic: Adding social technology to shoes



Idea Selection - Combine ideas

- Combine similar/identical ideas
- Remove ideas unrelated to project topic
- Synthesize ideas that are very similar in function
 - e.g., “shoes vibrate when friend is close” + “shoes light up when near friend” + “shoes get warmer when near friend” -> “shoes indicate proximity to friend through sensory feedback”

Idea Selection - Rate



- Develop an internal rating mechanism
- Rate the ideas based on the dimensions

Idea Selection: Speed dating with users (discover users' likes and dislikes)



PalmPilot wooden model

Jeffrey

Speed dating using Storyboards

- Quickly test ideas with users
- Need validation

Why do we use speed dating?

- It's a design method for rapidly exploring application concepts without requiring any technology implementation. (Davidoff et al., 2007)
 - Situated between sketching and prototyping
 - Structures comparison of concepts
 - Help identify and understand the contextual risk factors

Examples

Goal (from need finding):

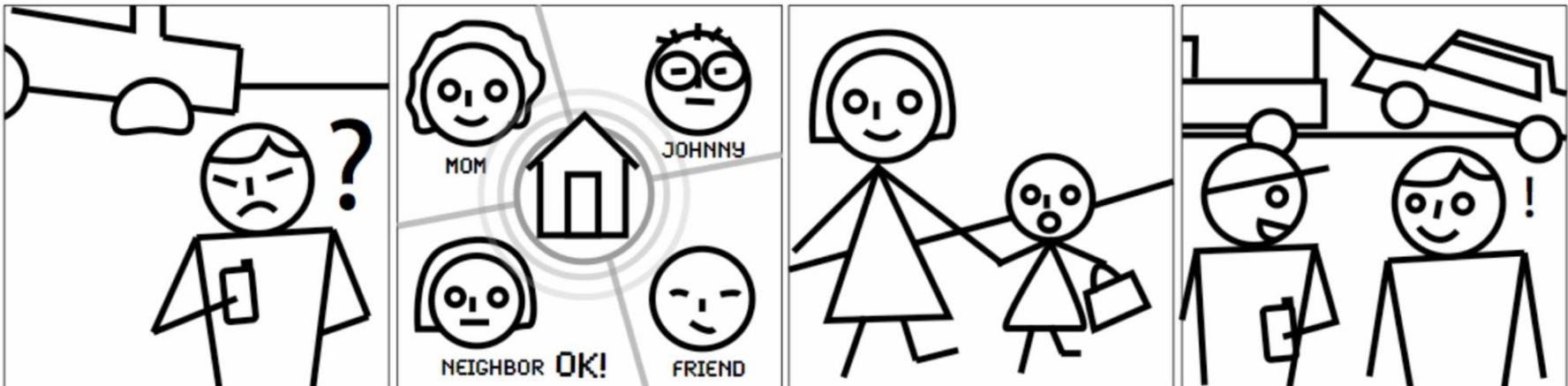
Supporting the activity management of dual-income families with smart home solutions

Personas & scenarios:

A family with two parents and two children

Example 1 (Parents' anxiety about forgetting or not being able to pick up their children)

A break point identified in the need finding stage



"No signal, I feel so helpless."

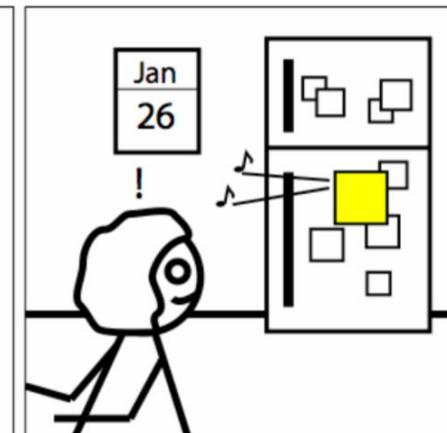
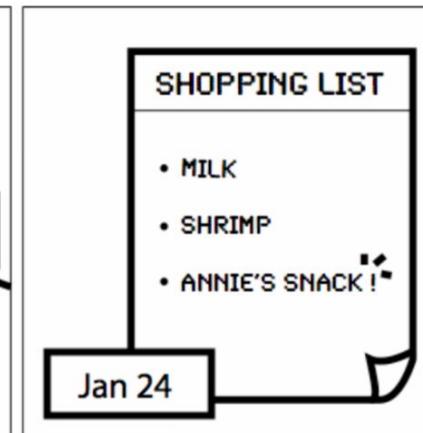
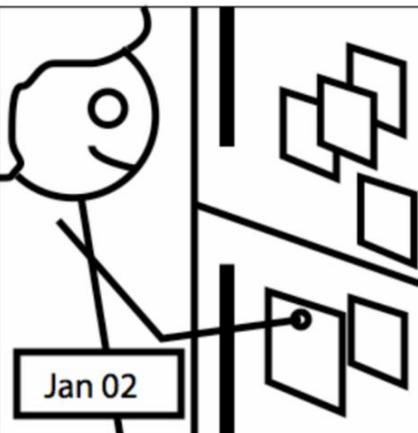
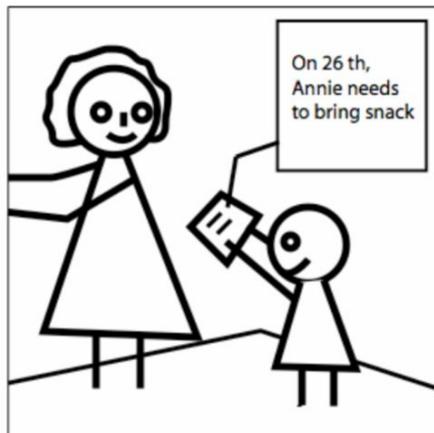
The smart home senses that Dad's going to miss Annie, and pings the people the Millers count on in a pinch.

The neighbor's not far from Annie. She agrees to get her.

The tow truck that comes for Dad tells him that Annie is safe and sound.

Example 2 (Parents' need to support snack day at school)

A user need identified in the need finding stage



Annie brings home a note from school. This month, it's her turn to bring in snack for everyone on the 26 th.

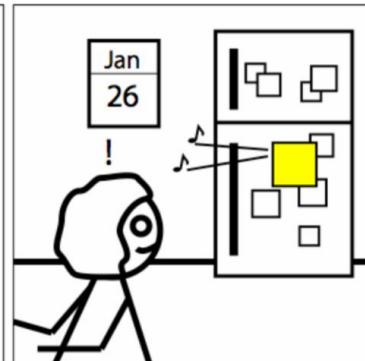
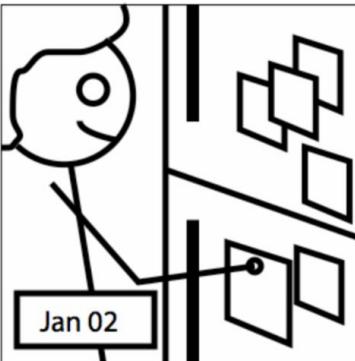
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On the 24th, the smart home adds Annie's snacks to Mom's shopping list.

The smart home rings a reminder sound as Mom walks past the fridge on the 26 th. She sees her note sparkling, and remembers to give Annie her cookies.

Speed dating with Storyboards

- **User Need** (parents' need to support snack day at school)
- **Scenario** (with a persona) - 1 panel
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- **Outcome** 1 panel
- **Text description** on each panel



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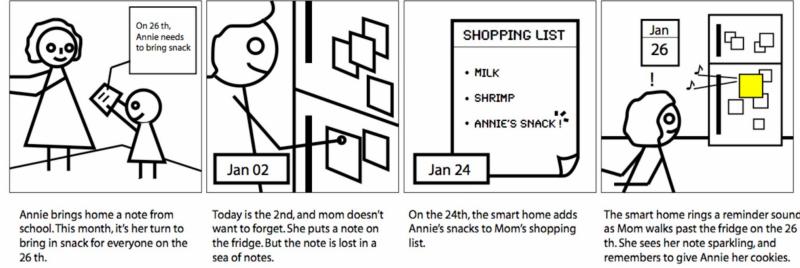
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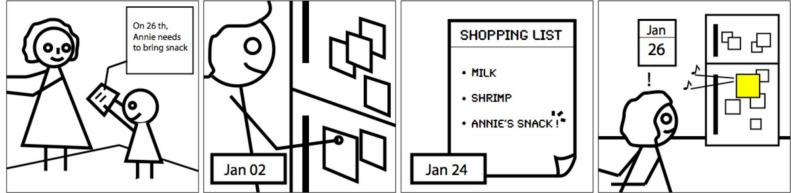
What to do during speed dating?

- Sit down with a target user
- Show them your storyboards
 - One at a time
- Ask questions
- Need validation:
 - **Have you been in a similar situation before?**
 - **Does the scenario reflect an authentic situation you've been in before?**
- Attitudes towards solution:
 - **Can you share your thoughts on the solution proposed?**
 - **What aspects of the technology do you find compelling?**
 - **What are your concerns about the solution proposed?**
 - **Would you use this technology in your own xxx?**
 - **How can this technology be made more suitable for your context?**
 - **Solution-specific questions**



Things to remember during speed dating

- Get the user consent
- Record the session
- Goal #1 -> need validation
- Goal #2 -> probe into their thoughts on the proposed solutions
- Keep in mind that:
 - You're not asking about this one particular solution...
 - You're still deciding which solutions to pursue
 - The goal is to uncover their likes and dislikes
 - As a designer, you will make the decision on what to design



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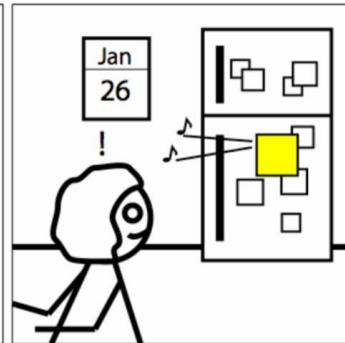
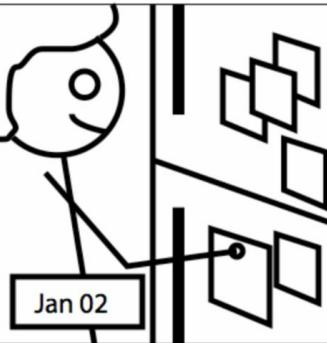
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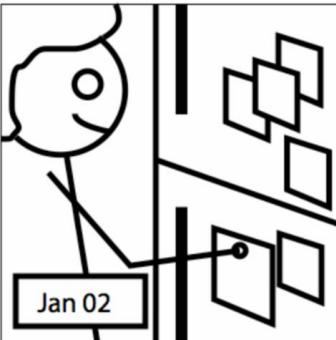
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We're not testing the particular solution

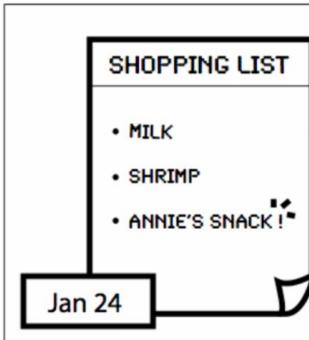
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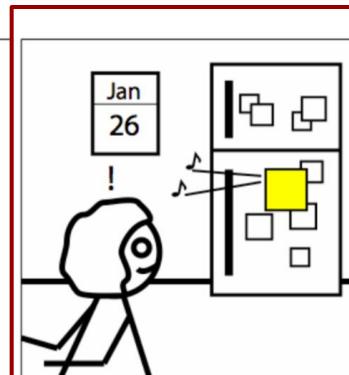
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Sticky note with an embedded system in the backend

Fridge with a screen

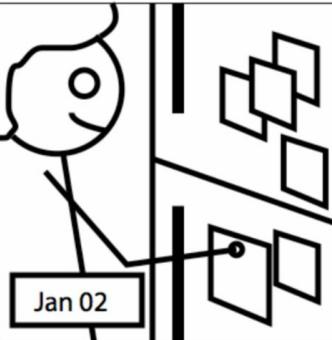
Mobile app rings
etc...

We're not testing the particular solution

- Keep in mind that:
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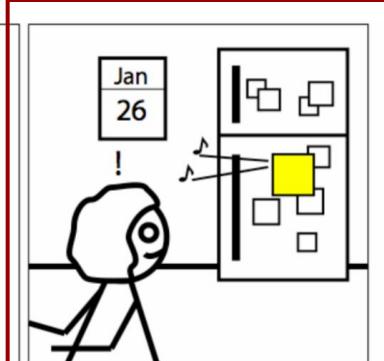
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Privacy concerns?

Face detection?

On-demand?
etc...

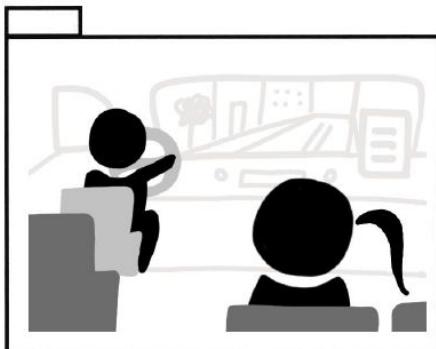
Now let's practice in pairs!

- Get in pairs
 - First round, A presents the storyboard, B is the interviewee.
 - A please keep notes of what you learnt.
-
- Second round, B presents the storyboard, A is the interviewee.
 - B please keep notes of what you learnt.

You are testing some ideas to improve the transportation experience for students.

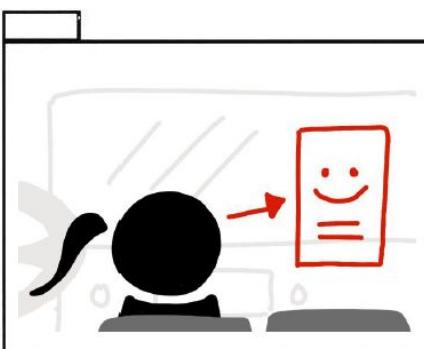
User need 1: riders want to have better communication and reduce barriers with shuttle drivers

SHOT #



Jen is sitting in the front row of the shuttle, diagonal from the driver.

SHOT #



Jen sees the display that signals that the driver is currently “in the mood for conversation.”

SHOT #



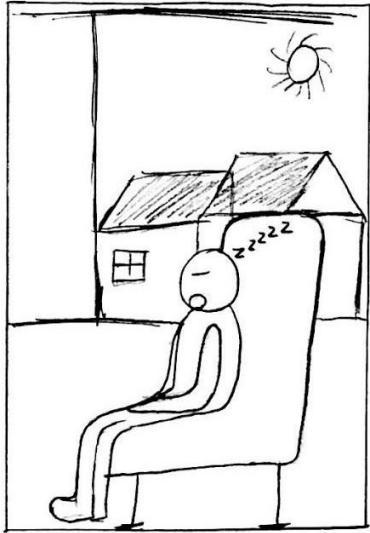
Seeing the display, Jen says hi and before she realizes, they begin sharing stories about their lives. Jen creates a new, unexpected connection during her shuttle ride.

Q: have you been in a similar situation before?

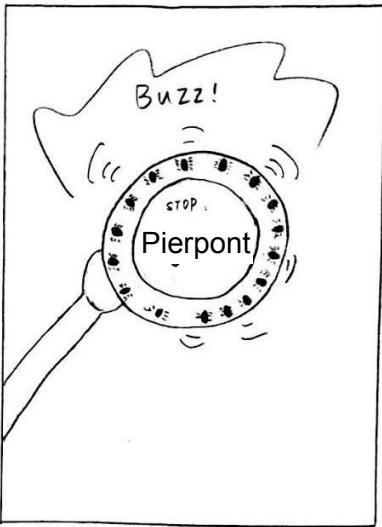
Q: Can you share your thoughts on the solution proposed?

Switch your roles now

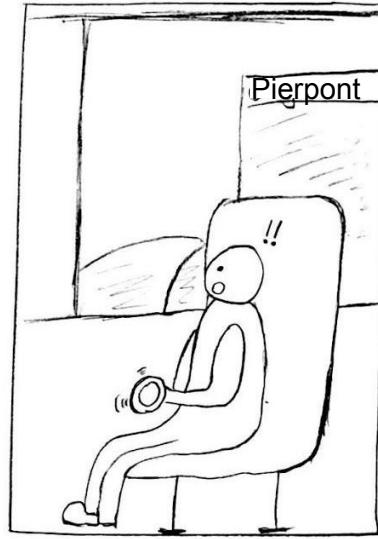
User need 2: riders want to get off successfully at their destinations



It's 8 am and John is heading to campus for his morning class. He's very tired and accidentally falls asleep during the ride.



When the driver is about to pull over at the stop, the pager held in John's hand begins to beep. John grabbed the pager near the entrance door of the shuttle when he got on the shuttle and set it manually to his destination stop.



The beep sound and the vibration of the pager wakes John up. He realizes that he has arrived at his destination stop. He quickly grabs his bag and gets off the shuttle successfully.

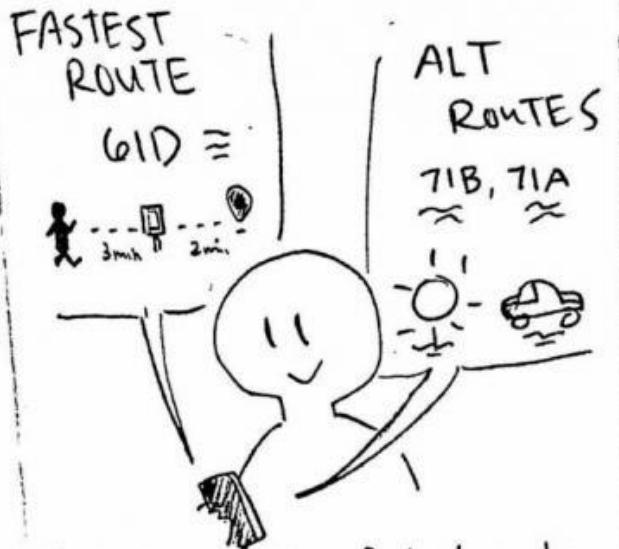
Q: have you been in a similar situation before?

Q: Can you share your thoughts on the solution proposed?

How to create storyboards?

- Storyboards can be very rough, it's a way to visually present your idea to a target user. It doesn't have to be well drawn.
- Sometimes using complex tools may limit your imagination
- The goal is to use visuals to help present your ideas, tell the story more clearly.
- Avoid trying to include all the details of the solution, it's not a screen design.
- We're testing the idea.
- You will implement the design in the next step

An example showing the solution without screen design



It is currently 10:00 am.

Carl has a meeting at 3:00 pm. Carl is given the fastest route He needs to plan his commute to for his scheduled trip as well as alternate routes, weather conditions, and traffic conditions; other modes.



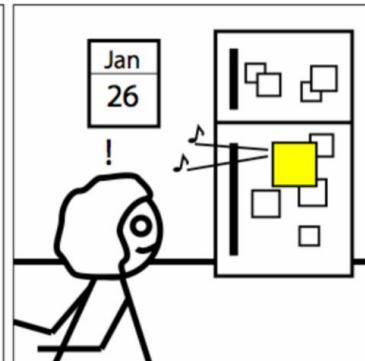
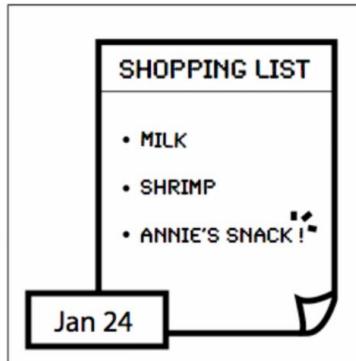
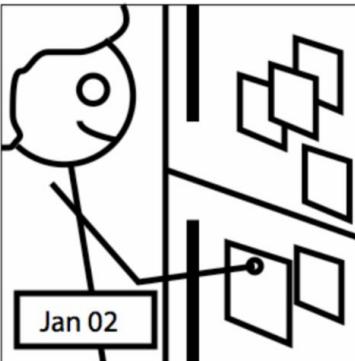
Carl is confident he will make it to his meeting and that he has alternate options should things go wrong.

Now let's practice creating storyboards

You can do this by doing sketches on paper

Speed dating with Storyboards

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- **Scenario** (with a persona) - 1 panel
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User need 1

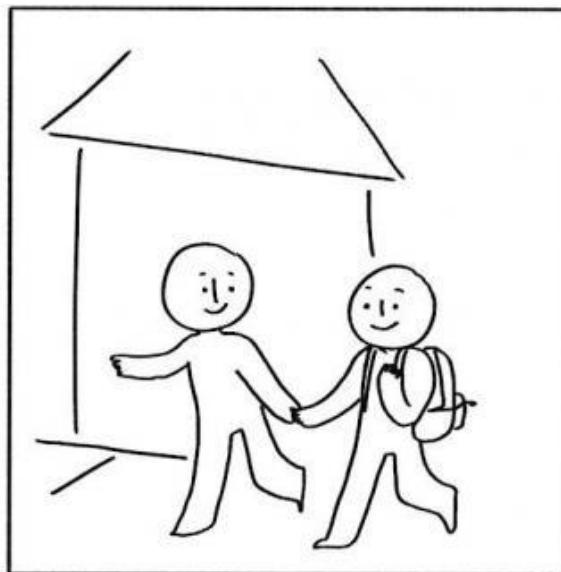
University students feel unsafe to go home late in night.

User need 2

Users want a comfortable and meaningful waiting experience for buses

User need 1

University students feel unsafe to go home late in night.



LUCKILY, YOU HAVE A SUBSCRIPTION TO A BUDDY SERVICE AND WILL ALWAYS HAVE SOMEONE TO WALK HOME WITH.



YOU ARRIVE HOME AND MAKE PLANS FOR TOMORROW AND PAY BUDDY.

User need 1

University students feel unsafe to go home late at night.



User need 2

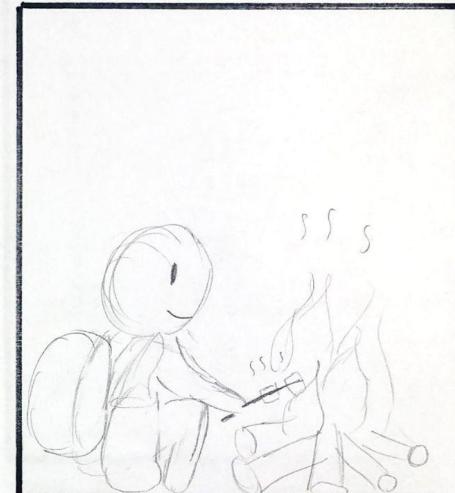
Users want a comfortable and meaningful waiting experience for buses



YOU ARE WAITING FOR YOUR
TRANSPORTATION AND YOU ARE
TIRED, HUNGRY, COLD, YOUR
PHONE IS DYING...
THE EXPERIENCE IS
UNCOMFORTABLE.



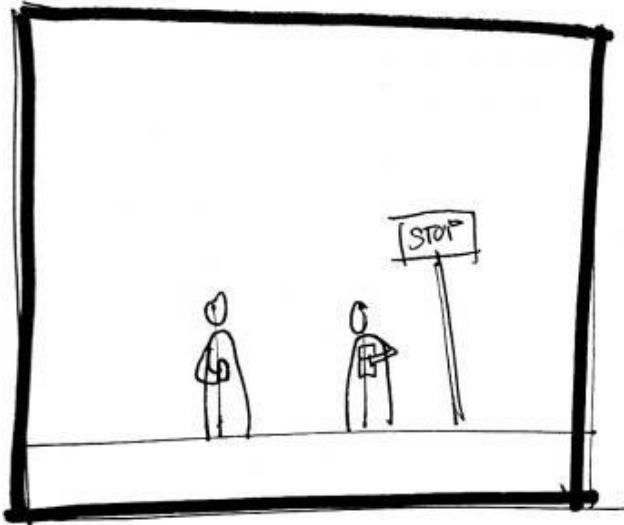
LUCKILY, THERE IS A
BON FIRE A FREE MARSH-
MALLOWS / CRACKERS AT THE
STOP.



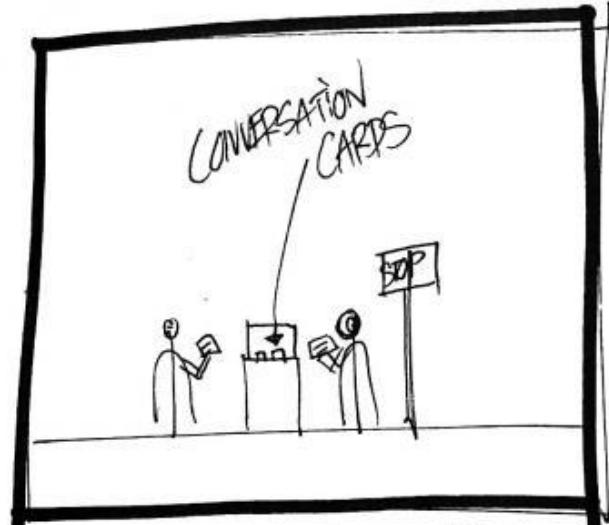
YOU FEEL WARM BY THE
FIRE AND MADE SMORE'S
FOR YOURSELF

User need 2

Users want a comfortable and meaningful waiting experience for buses



WAITING FEELS MEANINGLESS,
EVERYONE IS ON THEIR
PHONE.



OOO, THERE ARE CONVERSATION
CARDS. LET'S HAVE A
CONVERSATION.



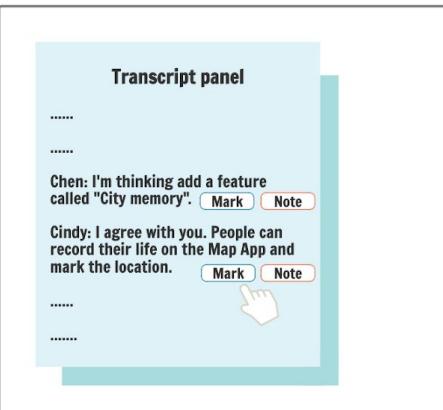
YAY! I MADE FRIENDS
WHILE WAITING. THIS IS
MEANINGFUL!

More examples

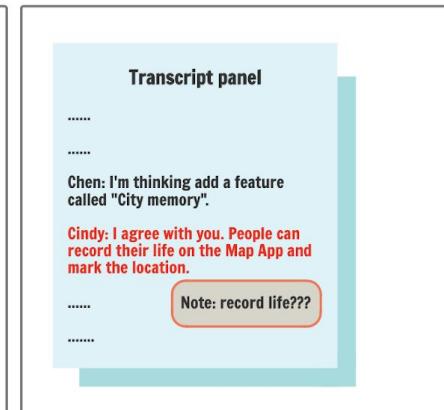
Help students with note-taking through a real-time transcript



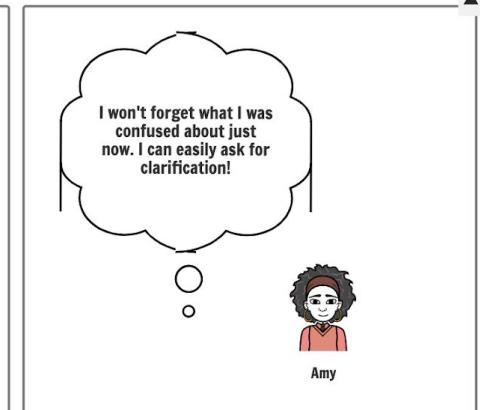
Amy doesn't understand some words when other students are speaking. However, in Amy's speech turn, she forgets what she was confused about just now so that she doesn't ask for clarification.



There is a real-time transcript panel on the right of the screen. When Amy is listening to others, she can mark the sentences that she is confused about and she can also click the "Note" button to add notes as she listens.



Before Amy speaks, she sees the marked sentences and the notes she took in the live transcript panel to help her recall what she was confused about just now.

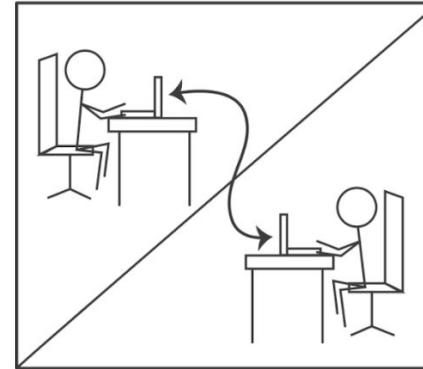
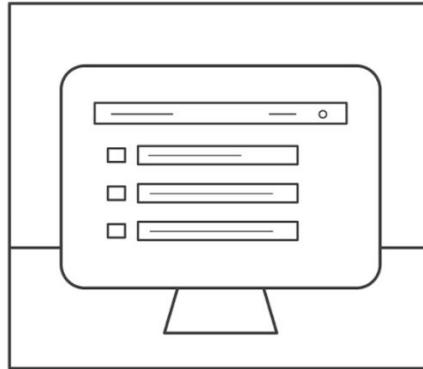
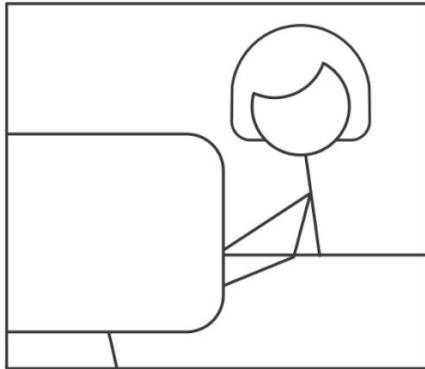


Amy asks a clarification question about the point she was confused just now and received a positive response.

More examples

Help teachers pair students using AI algorithms.

1. Teacher Informs Automated Pairing



A teacher wants students to use the collaborative math tutoring software later this week.

The teacher enters information about each individual student.

Later that week, the system uses that information to pair students.

Things to remember/avoid when creating storyboards

DOs

- Focus on the experience you are providing to the user, and try to emphasize one element at a time in each storyboard
- Storyboards can be very rough, it's a way to visually present your idea to a target user. It doesn't have to be well drawn.

DONTs

- Avoid trying to include all the details of the solution, it's not a screen design.
- The solution (although not a screen design) needs to be specific.
 - E.g., the users don't have a way to learn Arabic, they use an app to learn and it's helpful (Too general) What's unique about the app??
 - Sometimes students focus on modalities, e.g., Storyboard 1, the users use a mobile app; Storyboard 2, the users use a website on a computer. (The storyboard should instead focus on the experience, e.g., a more flexible usage experience versus a stationary one)

Milestone 2 -> Converge on a design solution

- Ideation based on the user needs and break points identified in Milestone 1
 - As a team
- Create 8-10 storyboards
- In-class bake-off, get inspirations from other teams, improve your storyboards
- Run 4 speed-dating sessions, each team member runs one using the whole stack of storyboards.
- Synthesize findings and converge on a design solution
 - What is the problem you're trying to solve, and why is it a serious problem?
 - What do users like or dislike about your proposed solutions?
 - What is your final design idea that you'll pursue in the next step?



