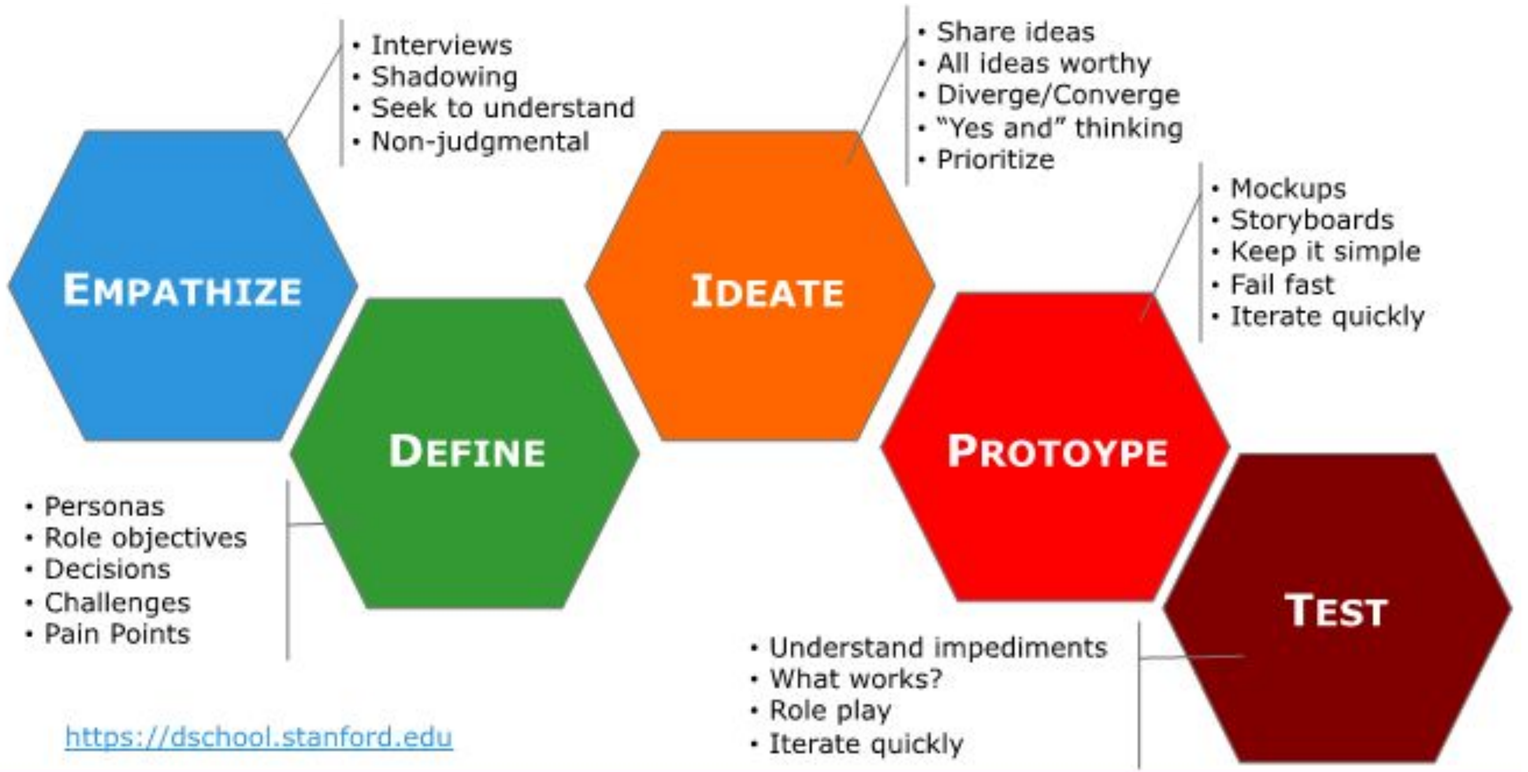
31260 42017 Fundamentals of Interaction Design

Lecture 7, Week 7

Interface Prototyping

Image: Csaba Házi, via http://babich.biz/the-magic-of-paper-prototyping/

Design Thinking Process

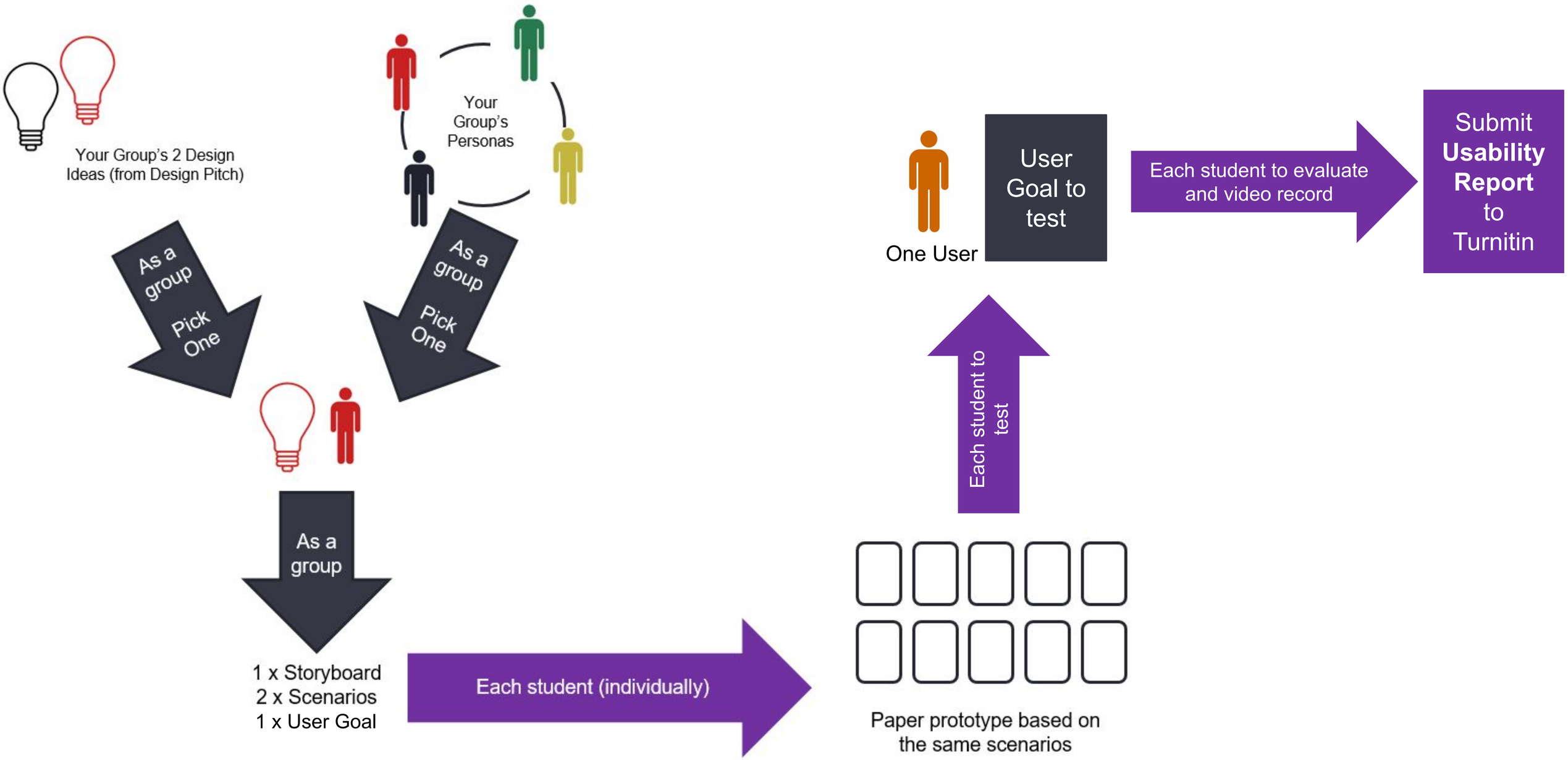


Today

- Assessment Task 3.2
- Scenarios
- Prototyping
- Examples

Assessment Task 3.2: Paper Prototype / Usability Report

Assessment Task 3.2: **Summary**



How should your individual Usability Report be structured?

Cover: UTS assignment cover sheet, followed by a cover page for your report.

Section 1: The persona your group has decided to design for.
This section of the report will be identical to the other members of your group.

Section 2: Problem Scenario and a Future Use Scenario.
This section of the report will be identical to the other members of your group.

Section 3. Storyboard.
This section of the report will be identical to the other members of your group.

Section 4. Specified Goal.
This section of the report will be identical to the other members of your group.

Section 5. Prototype Evaluation:
1) Include link to your video (hosted on YouTube or Vimeo).
2) Completed Evaluation Template (details covered in the in Week 8).

Section 6. Recommendations for improvements to your prototype. Recommendations should reference annotated photos if required.

Section 7. Appendix. Include photos of your prototype being used.

Assessment Task 3.2: Structure: **1. Persona**

Cover: UTS assignment cover sheet, followed by a cover page for your report.

Section 1: The persona your group has decided to design for. This section of the report will be identical to the other members of your group.

Your scenario is based on <u>one</u> of the Personas your group created or you may decide to make a new one that combines elements of each others.

UTS

Assessment Task 3.2: **2. Scenarios**

As a group you will write a **Problem (current) Scenario** and a **Future Use Scenario** in relation to your group's design idea.

Both of these scenarios should not be longer than 300 words each.

UTS

Assessment Task 3.2: **3. Storyboard**

As a group you will together create a **storyboard** of how your **design / product / system** fits into the user's context.

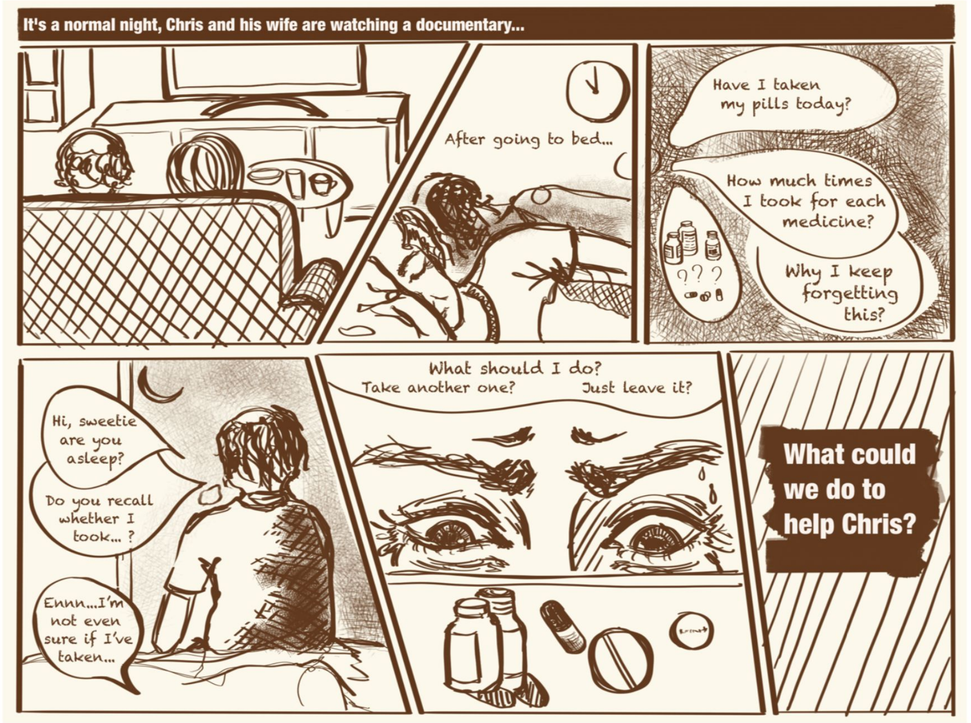


Figure 4.1: Storyboard that represent the problem the user group facing

UTS

Assessment Task 3.2: **4. User Goal**

As a group you will together agree on a specified **user goal** to give to your testing participants.

A **user goal** is derived from a scenario.

For example…
Scenario: Moira wakes up to find that her daughter has left her a text message. Her daughter has asked her to come over to babysit as soon as possible.

Goal: Book a taxi from Hurstville to Surry Hills.

UTS

Assessment Task 3.2: **4. Paper Prototype**

As a group you will agree on and create:

- Problem Scenario
- Future Use Scenario
- Storyboard
- User Goal

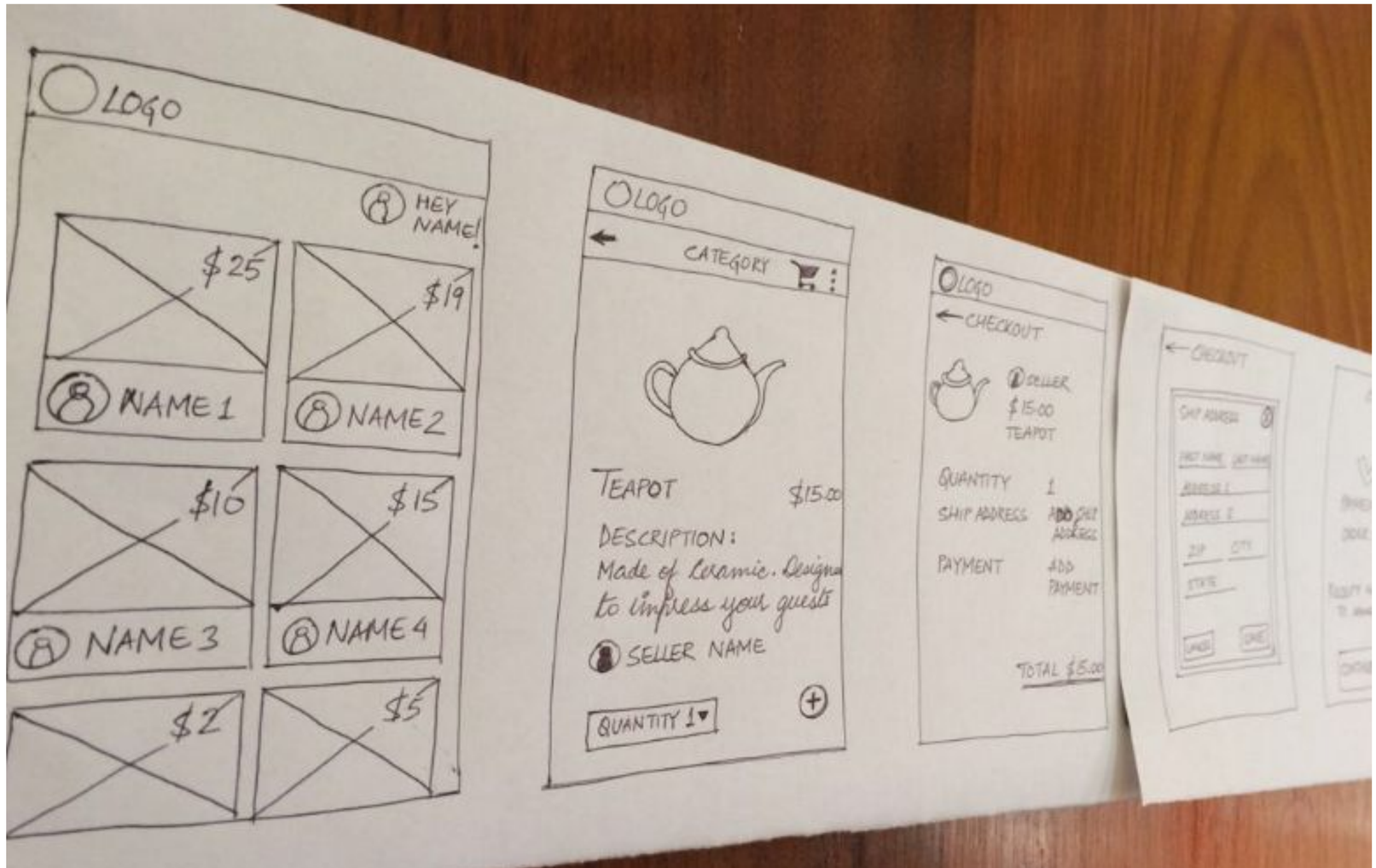
Individually you will create your own Paper Prototype. This will be your interpretation of how the interface should look. This is based on the same agreed goal.

Think about what screens you must design for your user to accomplish the specified goal?

UTS

Assessment Task 3.2: **4. Paper Prototype**

Minimum 10 screens in sequence - unless you have a very good reason to have fewer.



Assessment Task 3.2: **5. Usability Report**

Between **today** and **Week 10**, you will **individually**:

1) Prepare your Usability Report

2) Include the URL to your video in your Usability Report

3) Submit your Usability Report to Turnitin.

UTS

Assessment Task 3.2: **5. Usability Evaluation (Video)**

Between **today** and **Week 10**, you will **individually**:

1) Carry out a usability evaluation of your paper prototype with (at least) one person aged 55+

2) This evaluation will involve documenting your observations of the participant using your prototype to complete the **user goal**. You should use the **Heursitic Evaluation Template** provided on UTSOnline.

3) **You will be required to video record** the prototype being used. The video should not be longer than 5 minutes. It only needs to show the participant using your paper prototype from the **start of the user goal** to the **end of the user goal**.

4) Upload your video somewhere so you can provide a URL (eg. YouTube, Vimeo, DropBox).

UTS

Assessment Task 3.2: **5. Usability Evaluation (Video)**

Example

UTS

Assessment Task 3.2: **6. Recommendations**

Recommendations for improvements to your prototype.

Recommendations should reference annotated photos if required.

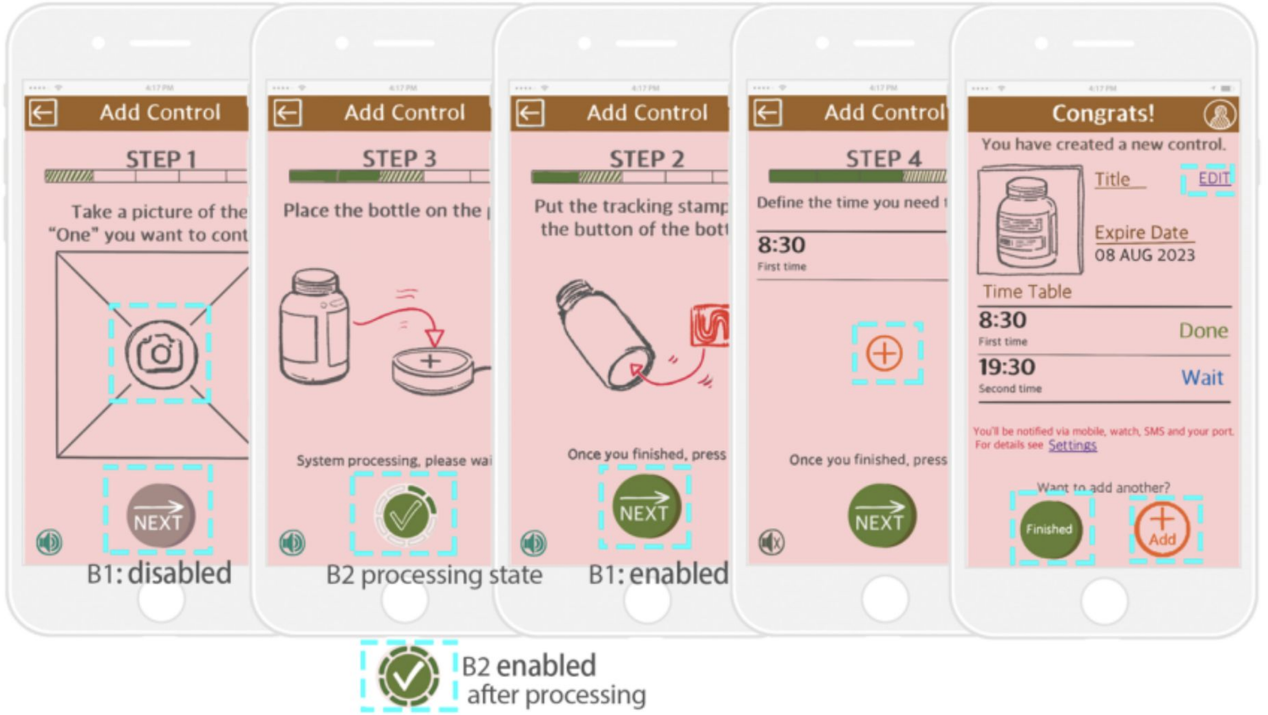


Figure 7.1: series of various buttons within the prototype (prototype: 2/4/6/8/12)

Assessment Task 3.2: **7. Appendix.**

Include photos of your prototype being used.

UTS

Assessment Task 3.2

A detailed explanation is available on UTS Online

Assessments → Assessment 3: Design Assignment → Assessment Task 3.2: Paper Prototype / Usability Report

Prototyping Questions?

Can I make the prototype using prototyping software?

We want to see evidence of a paper prototype for this part of the assignment. But you can make drawings digitally to be printed, for example using Powerpoint to make a button then printing it out, to physically cut and paste it on your prototype (instead of using pen and pencil).

UTS

Prototyping Questions?

Where can I find some more examples and further information?

In the Week 7: lecture resources link, on UTS online.

Scenarios

If a Persona is a **representation of your users**, having a unique set of perspectives of the design problem, then scenarios are ‘stories’ about your Persona.

Scenarios are **short action-driven stories** where your Persona:

- acts, experiences, or lives through the design problem
- **uses a ‘solution’** to overcome one or more aspects of the design problem
- **work with others to use a ‘solution’** to overcome one or more aspects of the design problem

Life's Destinations At Your Fingertips

GOING PLACES WITH NOKIA N97 AND OVI MAPS

8:02 AM

LOCATION Home, Montclair, NJ
DESTINATION Hoboken Office

I start my morning a little later than planned, and as I prepare my coffee I access the **Web** on my new Nokia N97 to **browse headlines and check my RSS feeds and email.** My boss has news: He's sending me to the Barcelona office tomorrow to meet with potential clients. Great! I've never been. In the meantime, I head into the office to prepare for lunch with Seth, a potential investor.

Alex Harding, director of business development at a growing tech company, travels frequently to meet investors and cultivate clients. As a person who's always in the know about the latest technology products, he's been following reports that the Nokia N97 is the ultimate mobile phone and personal navigation device—designed to connect its users with life's destinations. After thorough research, Harding purchases a Nokia N97 and upgrades Ovi Maps to ensure he has the most current software.

ALEX HARDING'S DIGITAL JOURNAL

10:26 AM

LOCATION
Hoboken Office
DESTINATION
Midtown Manhattan

Seth calls to let me know he's running behind schedule and asks me to pick a place in Midtown East. **Using Ovi Maps,** I see where the **nearest restaurants** are, choose a cuisine (I know he likes Italian), **read a review,** call to make a reservation, then send him confirmation via email.

11:01 AM

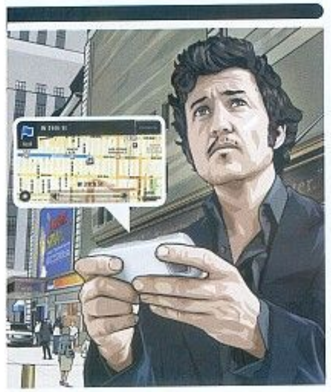
LOCATION Parking Lot
DESTINATION Italian Restaurant

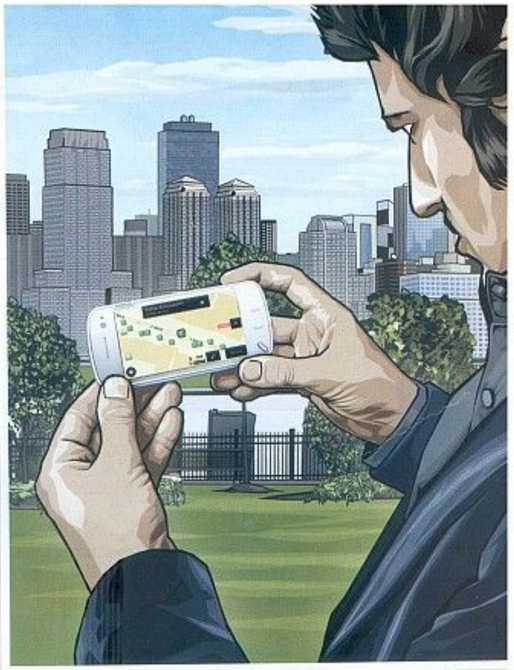
There's no on-street parking. So I ask **Ovi Maps to show nearby parking lots.** Switching to **3D landmarks,** I select one near **Times Square.** I pull in. The rate is good; I'll keep the car here all afternoon. And so I don't forget where I've parked, I **save the location.**

11:15 AM

LOCATION Times Square
DESTINATION Italian Restaurant

I **plot a walking route** from the garage to the restaurant, and decide to walk through Shubert Alley because the **pedestrian map** gives me visual guidance with **compass support. Gauging the speed** at which I walk, it tells me I'll be at the restaurant in 20 minutes.

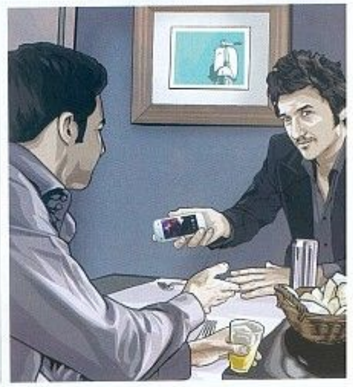




12:00 PM

LOCATION
Italian Restaurant

I arrive at the restaurant. After we order, I use my Nokia N97 to show our latest corporate brand video. He asks me to send him the video so he can share it with his partner, and before our main dishes arrive, the video's **uploaded** to **share.ovi.com** and we've sent his partner the URL.



1:30 PM

LOCATION Italian Restaurant

As we're leaving, Seth realizes that he has to meet a friend after work at a gallery opening in downtown Manhattan. I offer to **email him the address and directions** to save him time.

1:42 PM

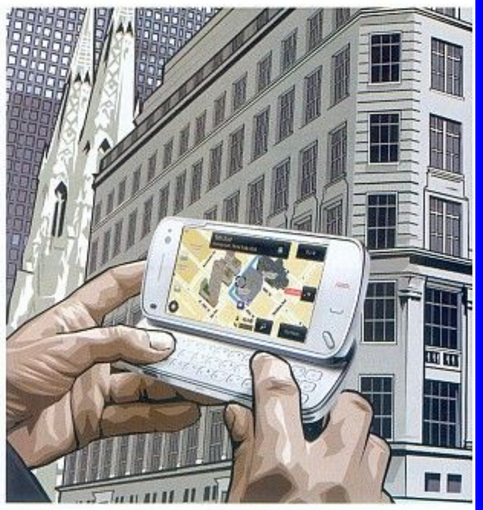
LOCATION Italian Restaurant
DESTINATION Parking Lot

The meeting went well! I open my calendar and set a reminder to follow up next week. As I'm walking to the parking lot, my sister sends me an SMS to remind me that our mother's birthday is next week. I need a gift.

1:45 PM

LOCATION Italian Restaurant
DESTINATION Fifth Avenue Department Store

I could tap on **Shopping** in Ovi Maps, but instead choose the bird's-eye landmark view. I see that a high-end department store is right around the corner. Tilting and sliding the display to access the **QWERTY keyboard,** I follow the map and walk to Fifth Avenue.



4:00 PM

LOCATION
Back in the Office

I avoid rush hour traffic by using Ovi Maps to find the fastest route. When I return to the office, I turn on my PC to research points of interest in Barcelona for my trip. I visit **Ovi Map Loader** [maps.nokia.com], where I can access free maps for more than 200 countries. I **download and sync** Barcelona to my Nokia N97. WOW. The **landmarks in 3D view** reveals places I've always wanted to visit: museums, must-see attractions, and stores. I hit **Save** for each one. The **multimedia city guide** provides more points of interest. I add the fine arts museum and a hotel reviewed by Lonely Planet.

5:12 PM

LOCATION Still in the Office

As I'm researching more hot spots, my device begins to ring. I can tell from the ring tone it's my buddy from graduate school. He wants to meet for drinks at a bar in Hoboken. Since I'm able to connect to where I want to go, no matter my location, I pull up the address and tell him, "See you at six."

A scenario from Nokia

Scenarios (short action-driven stories) that:

Focus on **describing how** people use the ‘proposed technologies’ to achieve their goals in their contexts (e.g. domestic);
what they think

- how well/easily it fits into their everyday practice,
- how meaningfully it fits their hopes, desires,
- how they feel, etc.

Provide descriptions of how the technology works and **how people interact with it** to achieve their desired goal within a particular activity in a specific context

Do not focus on the specifics of the technology. **Don’t** provide the technical specs

Various types of Scenarios

Different types of scenarios can be created to help to focus the development cycle. For example,

Problem scenarios highlight typical and critical situations of use then undergoing successive transformations and refinements into

future scenarios that can contain ***activity scenarios***, ***information scenarios***, **and** ***interaction scenarios***

Scenarios: What to emphasise

The level of detail present in a scenario varies depending on where in the development process they are being used.

During requirements it is a good idea for scenarios to emphasize the context, the usability and **user experience goals**, and the tasks the user is performing.

When used in combination with detailed personas, this kind of scenario can improve the developers' appreciation of the user experience.

text book 10.6.1

Writing a Scenario

Choose one persona and focus on him/her

1. Discuss what (or a few things) you think would be the most important to support, (problems, situations, needs, goals, etc)

2. Brainstorm ways technology (the solution you have in mind) might be able to help

3. Always consider the persona(s) (e.g., would this suit him or her, would he or she want this, etc?)

4. Write the scenario!!!

Tips for Scenario writing

1. Stories give more information than tables of tasks and attributes
2. Don’t sweat over it, this is not literature
3. Write it the way people act – which is not always rational
4. Maintain a character’s consistency (remind yourself from the Persona)
5. For your assignment, write a Future Use Scenario to illustrate your Design Ideas in action. You can refine this Scenario as you progress with the design activities
6. Don’t worry too much about the technological limitations at the start
7. You can write different scenarios for how the technology might act in different contexts
8. Have characters interact if appropriate

Using scenarios in design

Scenarios put you (the designer) in the user's shoes
ANALYSE the scenario through acting out together:

- Identify issues and concerns
- Identify tasks and task flows
- Illustrate areas to investigate further
- Illustrate design flow
- Understand the experience of end users
- (during prototyping) - use to validate emerging designs

Examples of:
Persona to different types of Scenarios

- Problem (current) scenario
- Future scenario

Judy Connolly - Persona - Bio

Judy, a retired nurse is 65. She moved to a smaller home in a retirement village in Port Macquarie (from Sydney) 2 years ago after her husband passed away. Although Judy takes medications to manage her high blood pressure, and is careful about her diet, she is still relatively active and independent. Judy regularly drive herself around Port Macquarie and uses this to visit friends and to participate in various community activities including volunteering at an animal shelter. Her only child, Juliet is married with 2 kids. They live in Sydney.

Living alone can be lonely. At times, especially in the evening, Judy also has some safety concerns. She often thought about getting another dog for companionship but the rental apartment she lives in doesn't allow her to keep a dog. Juliet gave Judy a smartphone a few months ago, which Judy uses as the primary source of communication with her daughter and grown up grandchildren. She has even taught herself how to perform short texts. But most of all Judy likes to use Skype to call her grandchildren. But because Judy doesn't use her phone very much, she tends to forget to charge the phone and also often forgets where she left the phone. This makes it difficult when Judy's family or her friends try to contact her.

Scenario 1: Problem scenario
Judy is at home and feels lonely. She misses her dog which passed away a year ago before she moved here. So, Judy decided to use skype on her smartphone to call her grandchildren. She thought she could also see how they are going with getting their Halloween costumes ready. But Judy can't find the phone. She can't remember where she last left it. She tried to call it using her landline phone but she still can't hear anything. She thinks either the phone is dead or that it must be somewhere well hidden.

Scenario 2: Use scenario (part of a Future Scenario)
Judy uses this 'technology' to locate her phone. Because the technology is 'tethered' to her phone, it can help her find the phone. The 'technology' will also alert her if her phone battery is running low and that she will need to charge it. If the phone rings and Judy is not nearby, the 'technology' will also alert Judy. Because the technology is always at home, and charges itself, Judy will always have access to it.

Using scenarios to evaluate developing designs

- Review design or implementation against scenarios
- Develop test scenarios and activities according to what you are needing to evaluate at that time
- Create test participant personas

Moving from text-based scenarios

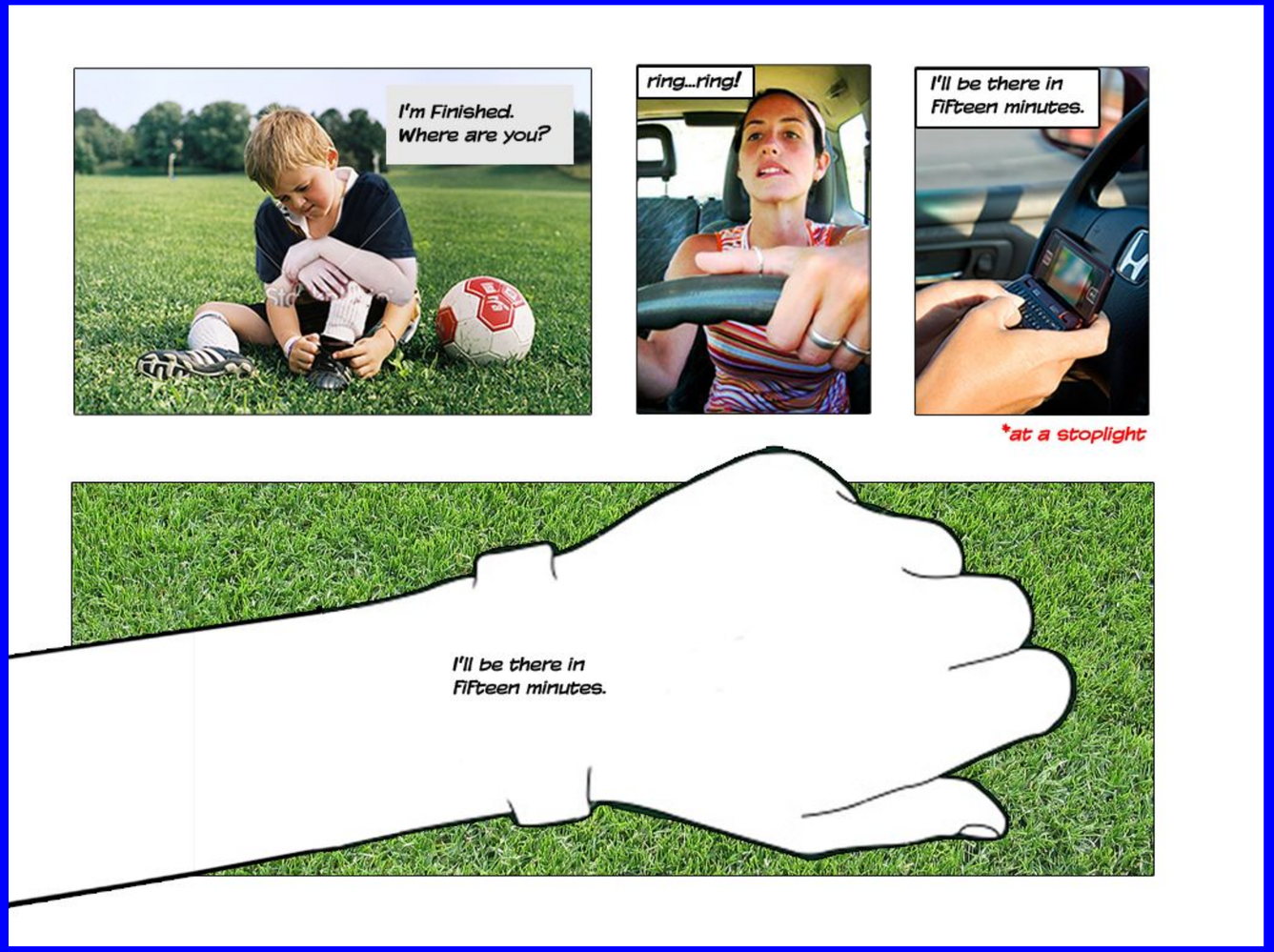
Visual representation

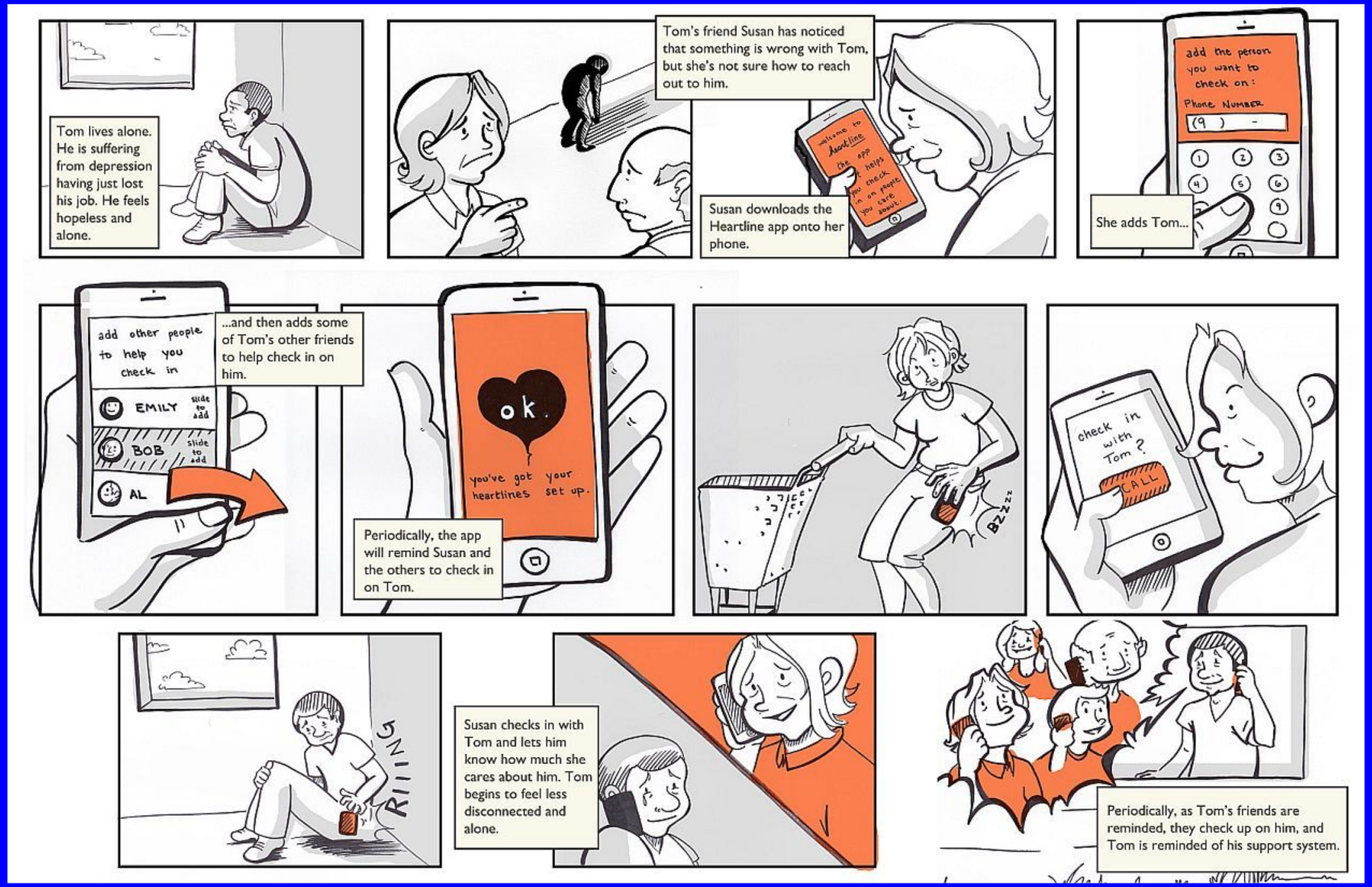
- Sketching
- Composites with photos
- **Storyboarding**

Acting out

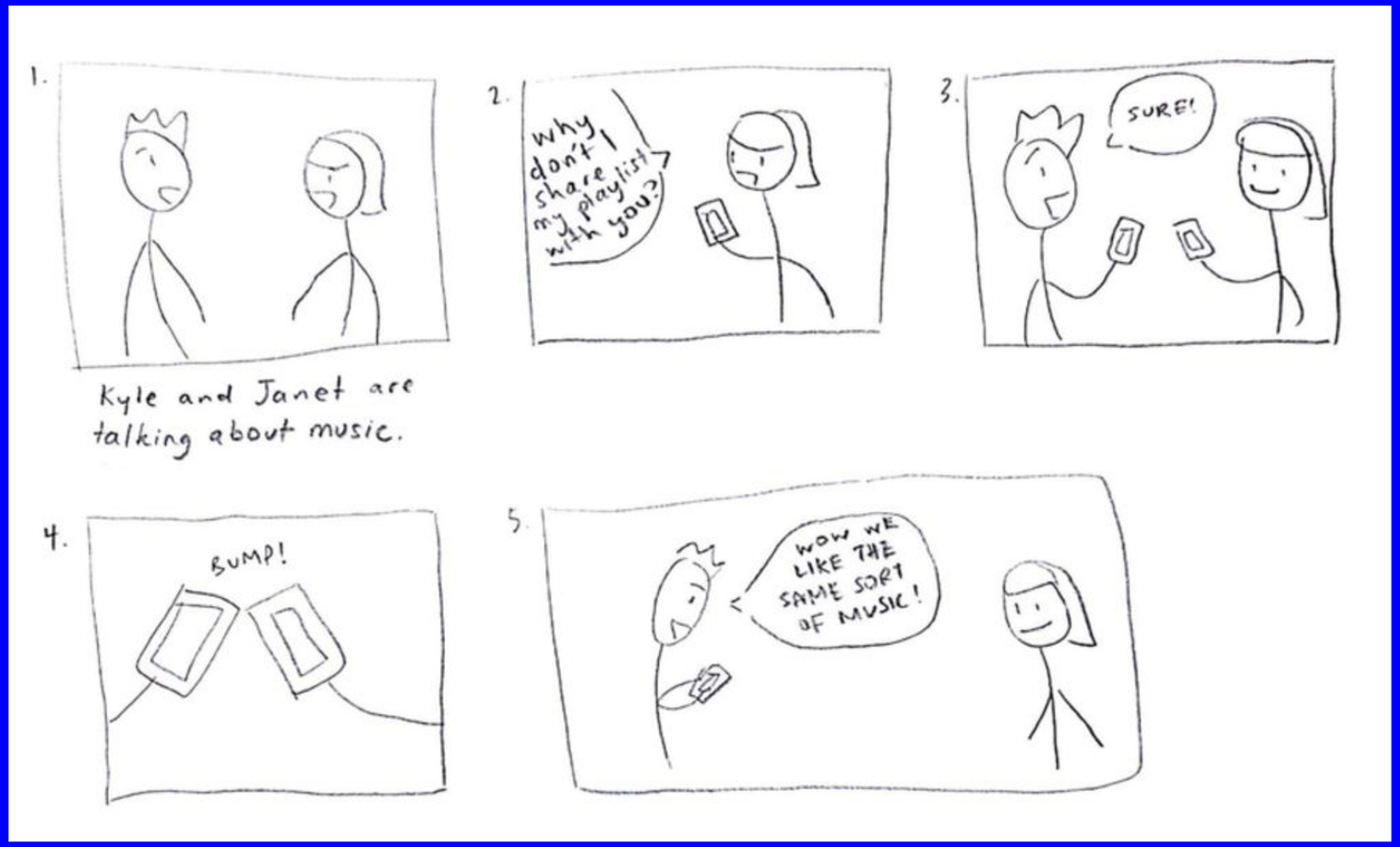
Video

Examples of storyboards





Storyboard for Heartline



simple storyboard

Workflow

1. Create Personas

2. Create Problem (Current) Scenario to help deepen understanding and share understanding of current issues

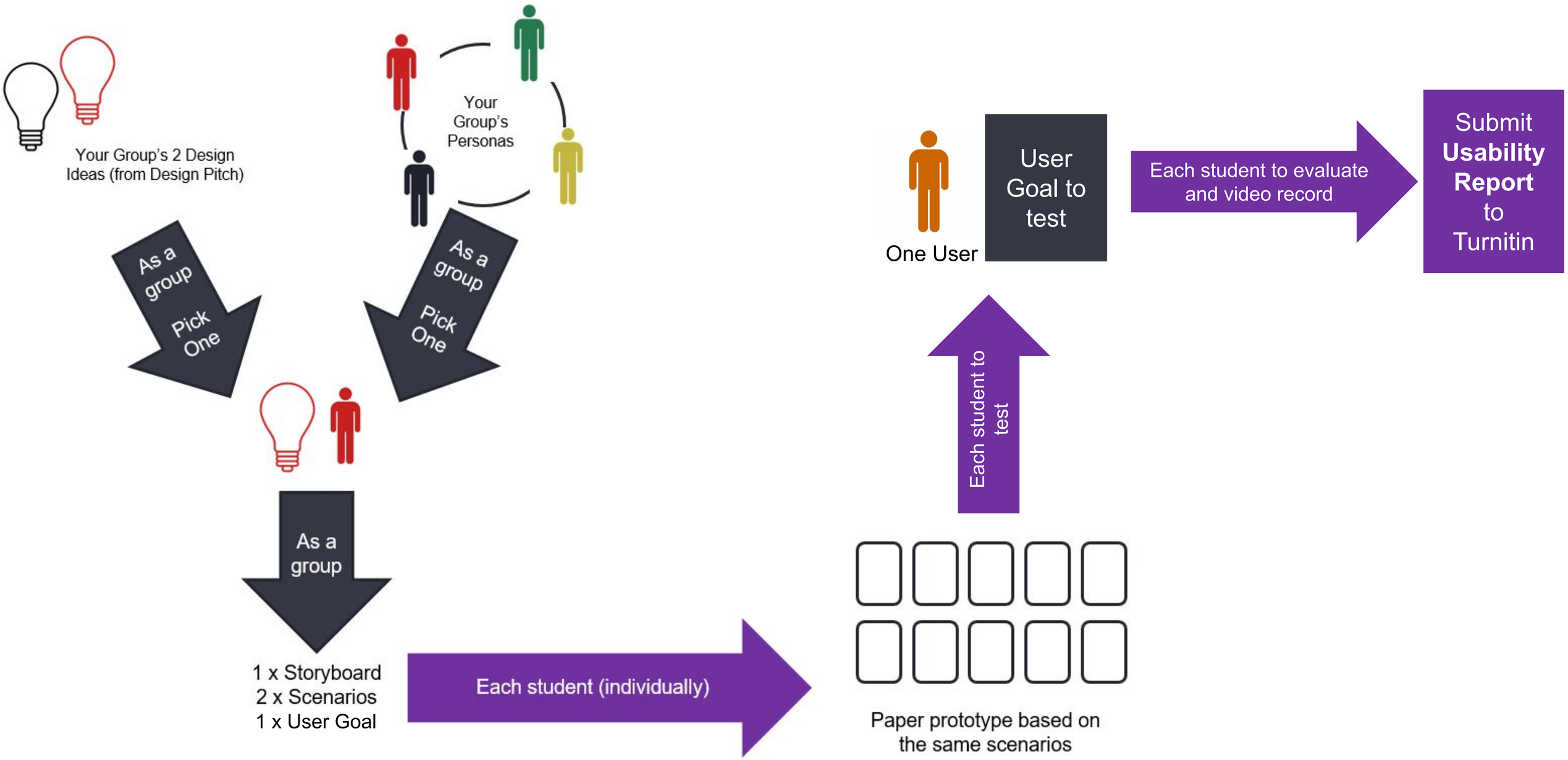
3. Ideation of solutions to intervene at the current problem

4. Create Future Scenarios to further explore and deepen understanding/share understanding of possible solutions


User research & Findings
Ideation > Emerging Idea
Personas & Scenarios
Storyboard
Paper Prototype

- How these artefacts fit into the Design Assignment deliverables.

Assessment Task 3.2: **Summary**



Questions?

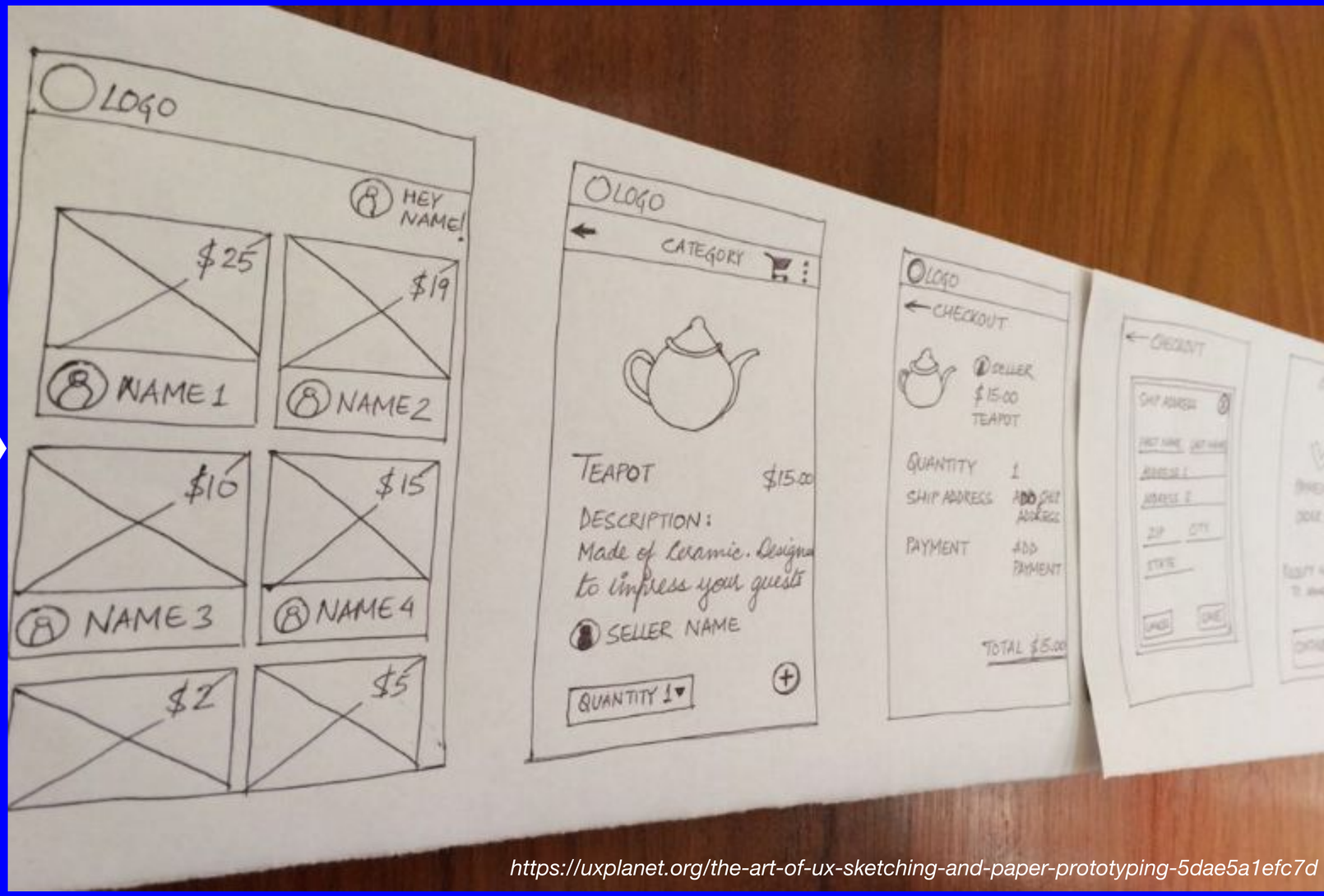
Prototyping interfaces

Prototyping

On paper

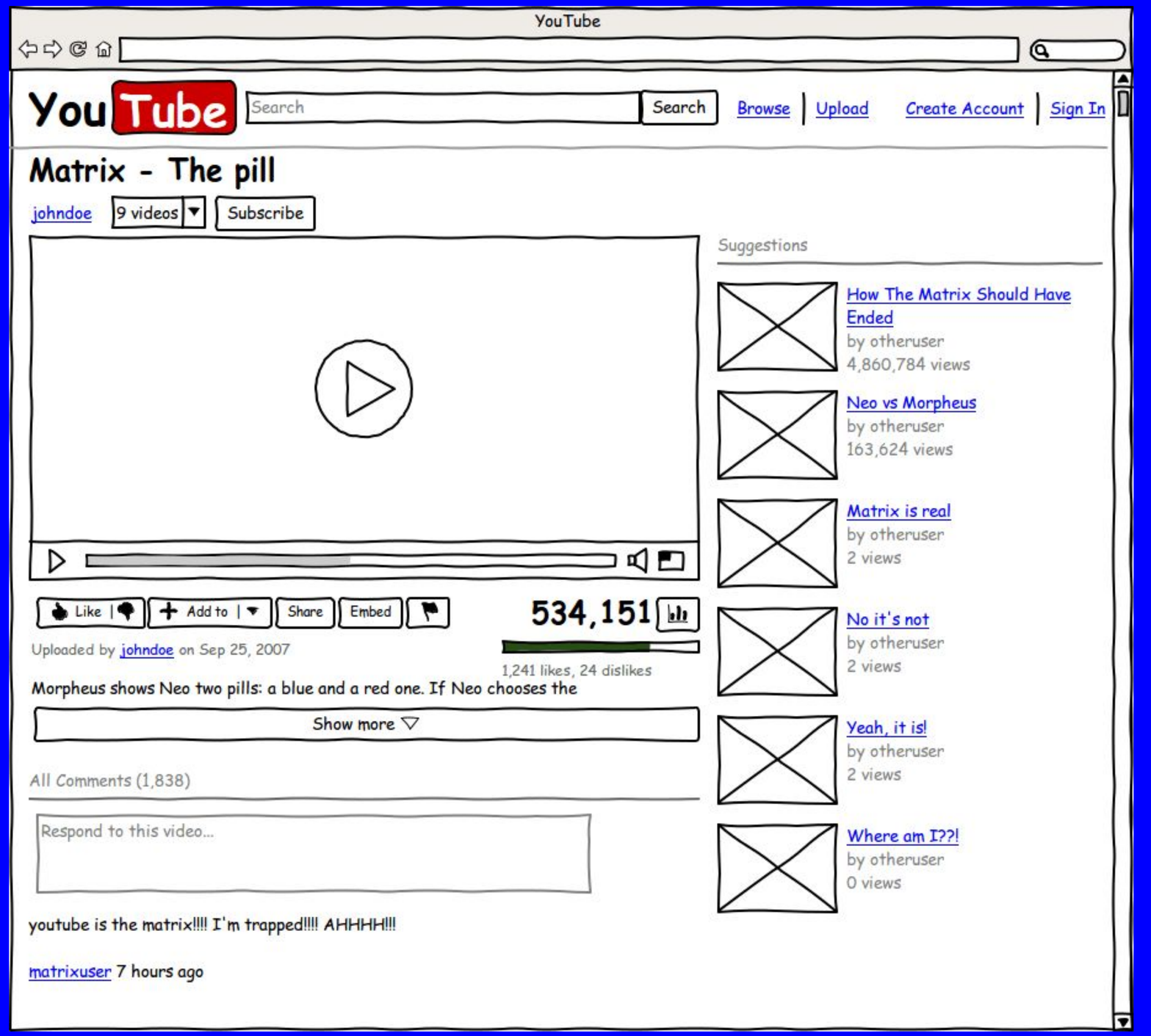
Waggit app by Vibrissa Inc

Wireframes



https://uxplanet.org/the-art-of-ux-sketching-and-paper-prototyping-5dae5a1efc7d

Wireframes


YouTube
YouTube
Search
Search
Browse
Upload
Create Account
Sign In
Matrix - The pill
johndoe
9 videos
Subscribe
Suggestions
How The Matrix Should Have Ended
by otheruser
4,860,784 views
Neo vs Morpheus
by otheruser
163,624 views
Matrix is real
by otheruser
2 views
No it's not
by otheruser
2 views
Yeah, it is!
by otheruser
2 views
Where am I??!
by otheruser
0 views
Like
Add to
Share
Embed
534,151
Uploaded by johndoe on Sep 25, 2007
1,241 likes, 24 dislikes
Morpheus shows Neo two pills: a blue and a red one. If Neo chooses the
Show more
All Comments (1,838)
Respond to this video...
youtube is the matrix!!!! I'm trapped!!!! AHHHH!!!
matrixuser 7 hours ago

Wireframes

- A “skeletal” mockup of a page/screen representing navigational concepts and page content.
- Suggests layout of interface elements on a page.
- Should not dictate visual design.

Wireframes

- Can be roughly sketched or use standard representations of GUI elements
- Use of indicative elements: text, image placeholders, annotations
- Use of commonly understood visual vocabulary to development team/client/users


Rapid Prototyping 1 of 3: Sketching & Paper Prototyping
Google
for Entrepreneurs
Rapid Prototyping
Part 1: Paper Prototyping
0:00 / 7:31
Scroll for details

Prototyping

On paper + mock device

https://culturedcode.com/things/blog/

Prototyping

On screen

2

Fonts

Figma automatically supports Google Web Fonts. If you want to access your local fonts, download our Font Installer at figma.com/settings

Use Advanced Settings ••• in the Type section of the Properties Panel to activate or deactivate Google Web Fonts.

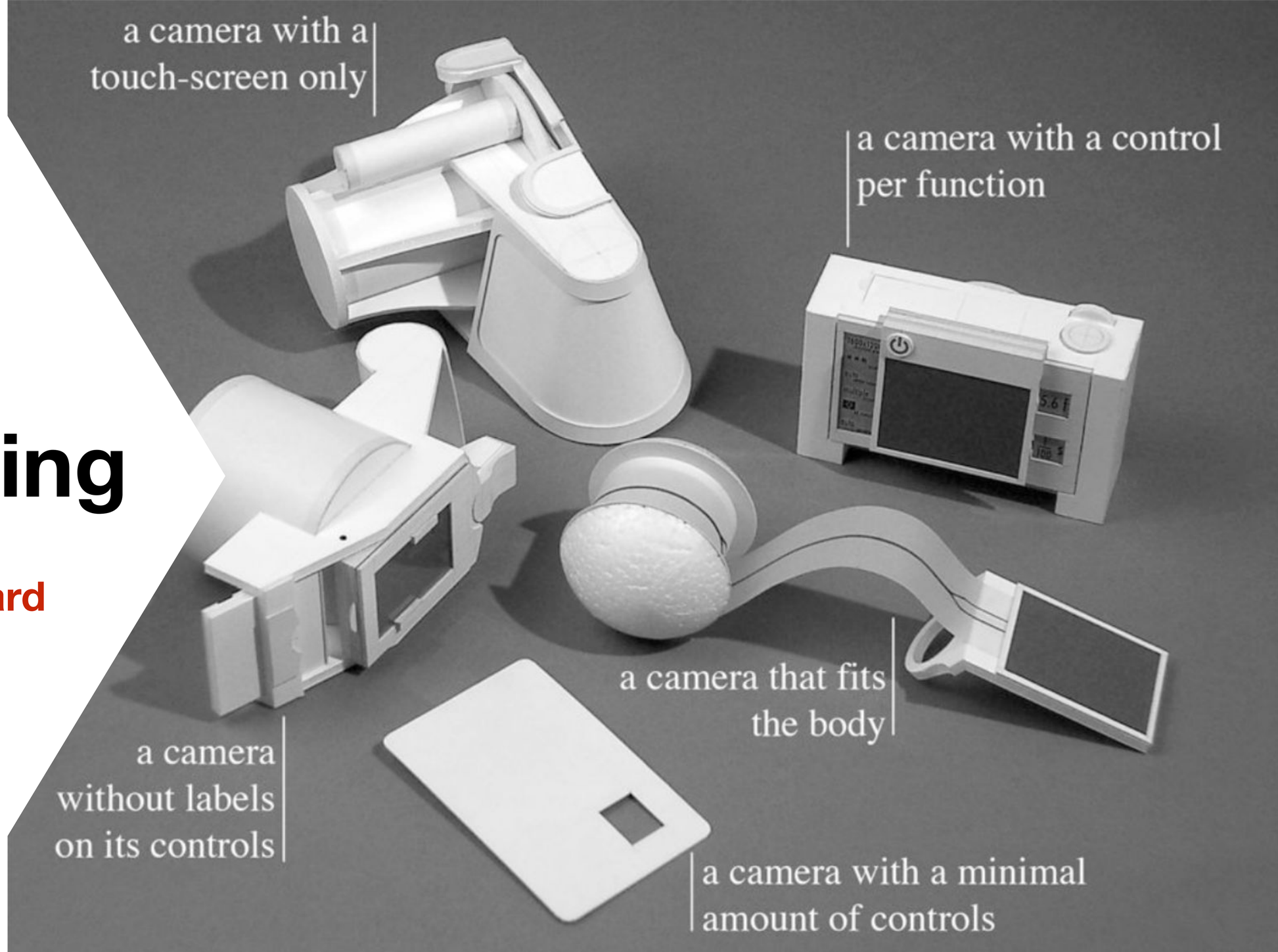
☑ Show Google web fonts

Figma

figma.com demo file

Prototyping

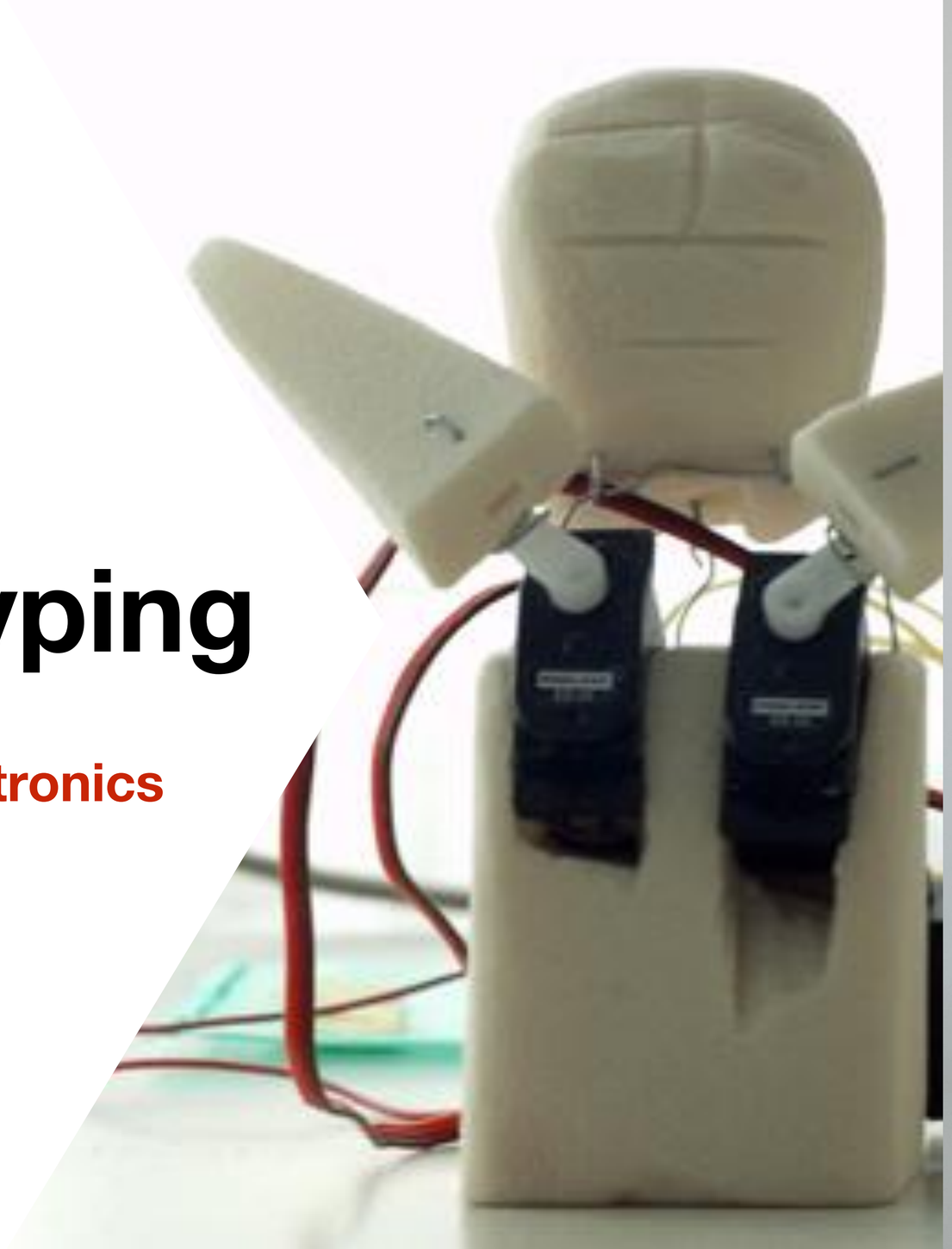
Using foam board

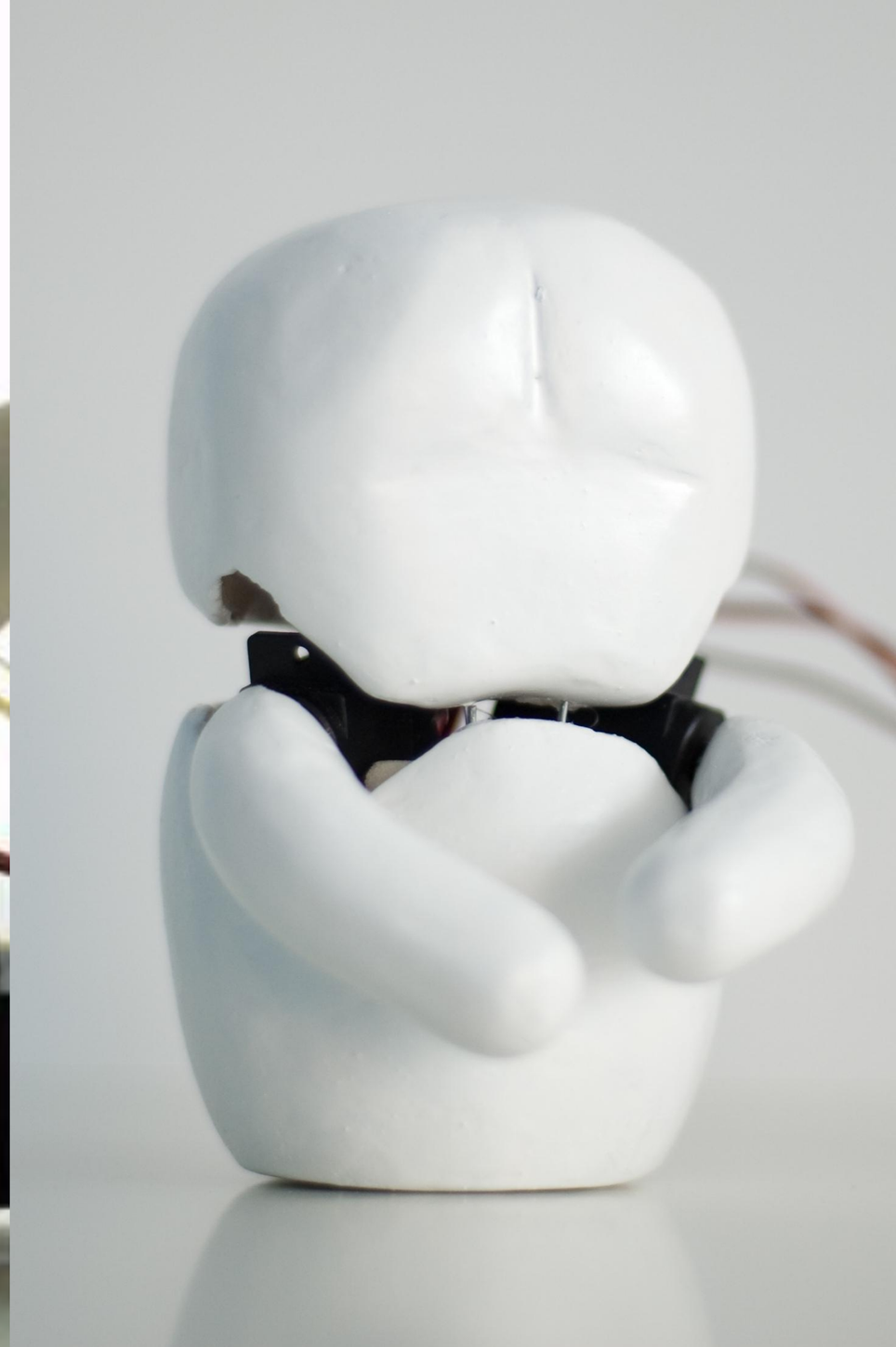


Thesis work on Rich Interaction by Joep Frens, Eindhoven University of Technology

Prototyping

Foam + electronics

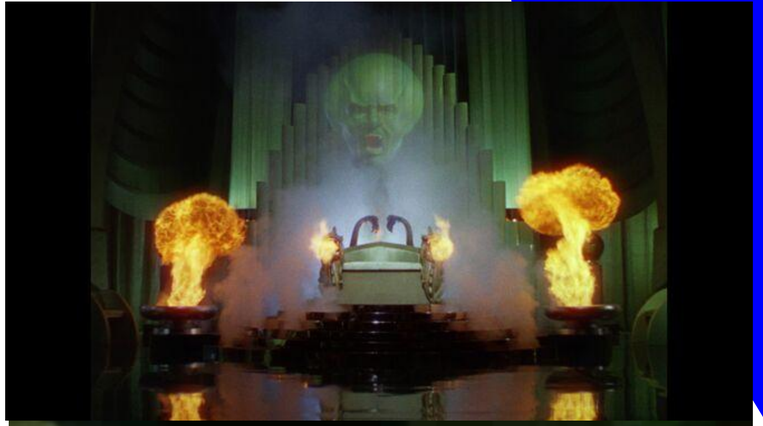




Prototyping

Wizard of Oz

https://www.ericsson.com/en/blog/2012/12/smoke-and-mirrors---wizard-of-oz-prototyping



Wizard of Oz prototypes pretend that a system is functional.

In reality, somebody behind the screen is performing all ‘application logic’ to make it seem like it works.

This is helpful when it would be hard or time-consuming to build even a rudimentary automatic system.

Prototyping

Wizard of Oz

Prototyping

Bodystorming

Designing for Augmented Reality and Virtual Reality demands different ways of prototyping.

https://docs.microsoft.com/en-u windows/mixed-reality/case-study-expanding-the-design-process-for-mixed-reality

Process

1. Background and context of use
2. Information categorisation
3. Navigation structure
4. High level design
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users

1. **Background and context of use**
2. Information categorisation
3. Navigation structure
4. High level design
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users

- What is the purpose of the system?
  - What goals does it aim to (help) accomplish?
- Who are the users?
  - What is their background?
  - Have they used similar software?
  - Where, how and why do they use it?
- Who are the stakeholders?
- Is this a first version of the software?
- What platform?

1. Background and context of use
2. **Information categorisation**
3. Navigation structure
4. High level design
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users

- Group the information (from step 1) into logical groups.
- Use common terms or terms understood by the user.
- Outcomes give a loose suggestion of what types of goals, input, output, and processing your application may have to cover.

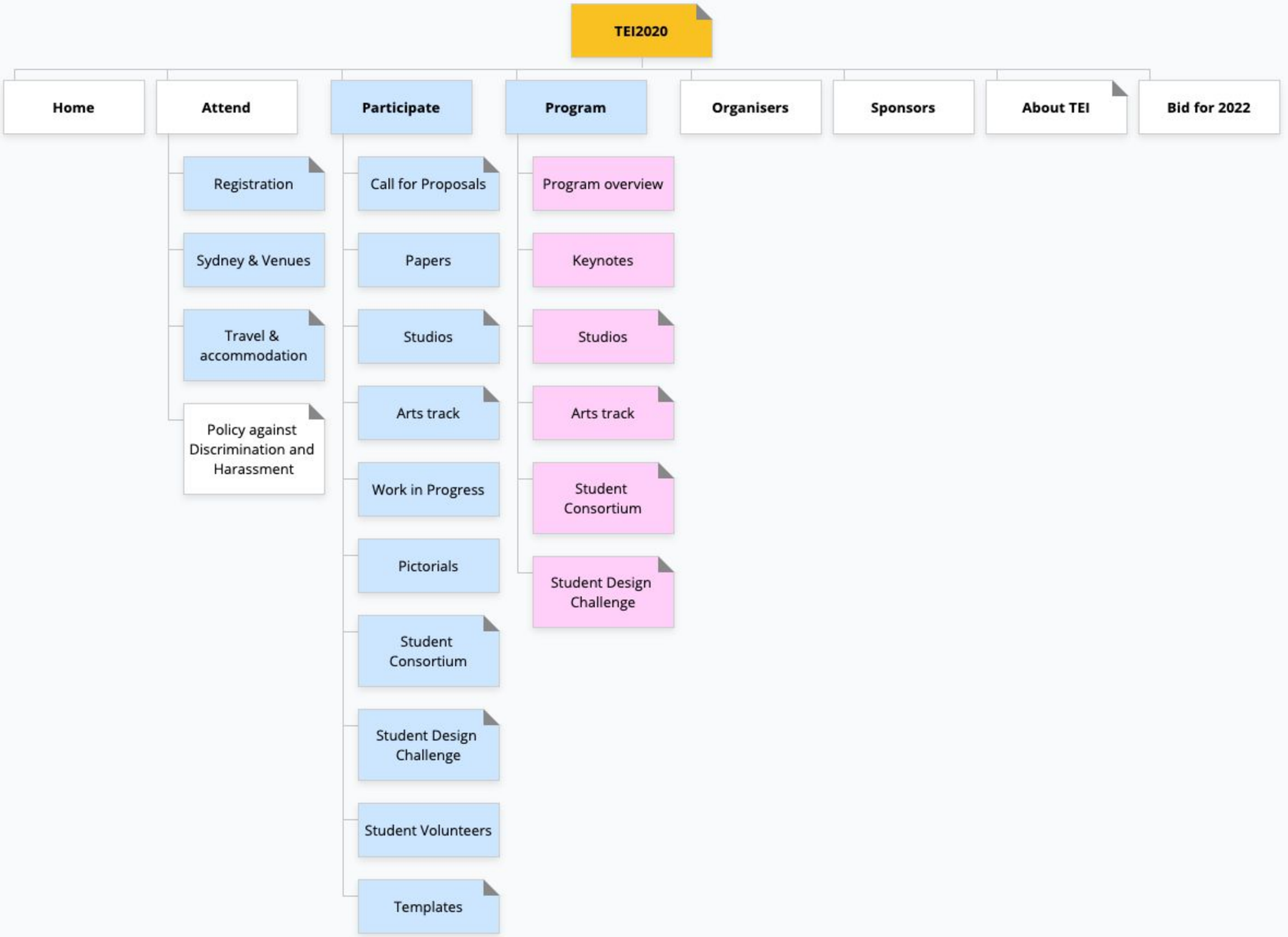
1. Background and context of use
2. Information categorisation
3. **Navigation structure**
4. High level design
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users

- Link the information groups into paths using the user scenarios and common standards.
  - How will the user move from one screen to another?
  - What links need to be provided?
  - How will the user return to the start point?

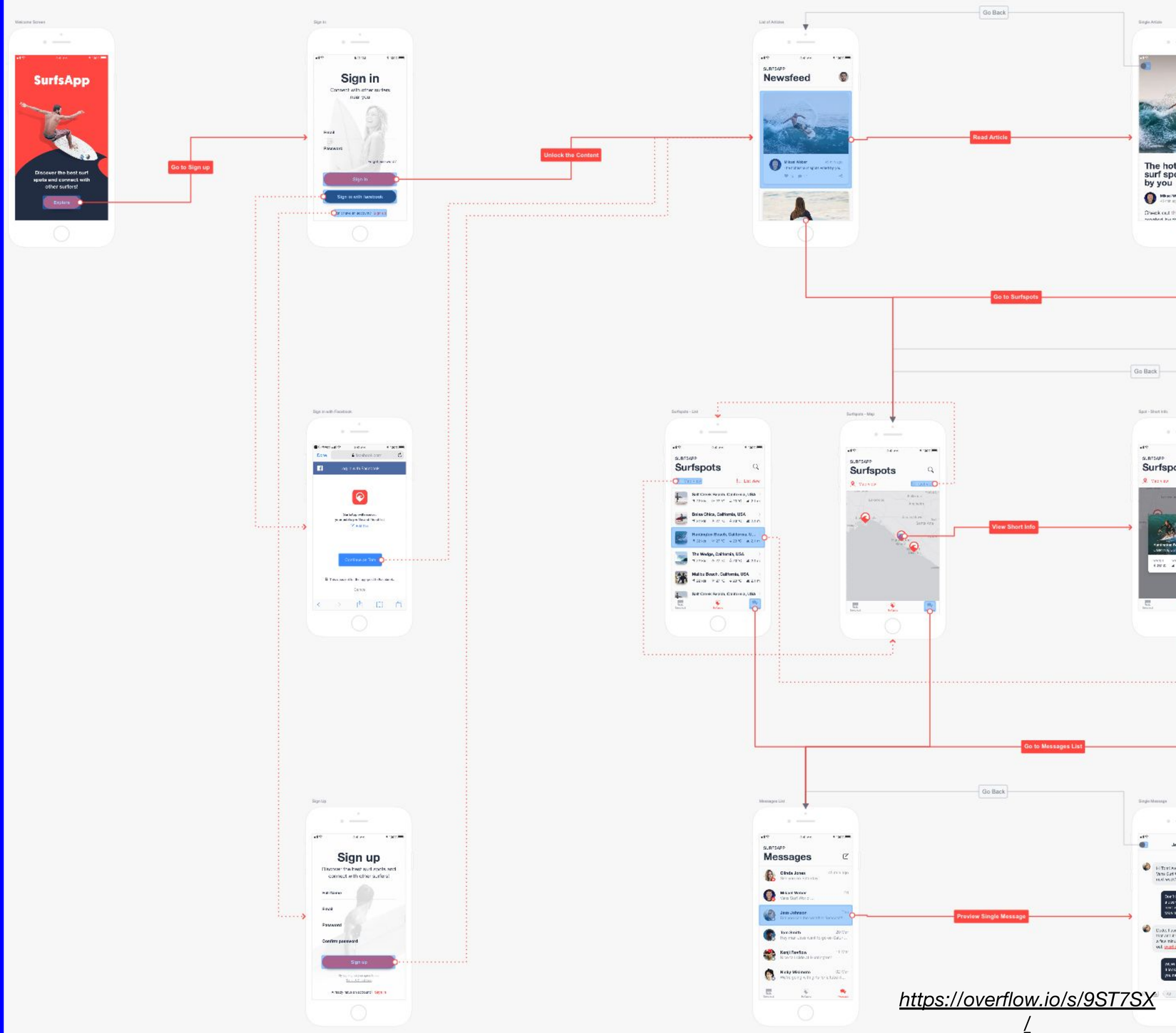
1. Background and context of use
2. Information categorisation
3. **Navigation structure**
4. High level design
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users

- How to do this:
  - By creating site maps
  - By creating paper prototypes
  - And by testing these rough, early versions with users!

1. Background and context of use
2. Information categorisation
3. **Navigation structure**
4. High level design
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users



1. Background and context of use
2. Information categorisation
3. **Navigation structure**
4. High level design
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users



https://overflow.io/s/9ST7SX/

1. Background and context of use
2. Information categorisation
3. Navigation structure
4. **High level design**
5. Low level design (adding detail)
6. Error handling
7. Prototype
8. Test with users

- Design the navigation elements, sets of screens, and linkages between the screens.
- Use the user scenarios to create a context of use.
- Create wireframes and sketch screens:
  - Initial versions are best done on paper.
  - You can use digital prototyping tools, e.g. Figma, Adobe XD, Balsamiq to help.
- Wireframes can be used to test with users.

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- Develop the wireframes to increase the detail of the design
- Stop using dummy-text and start using the actual content
- Evaluate the design through the lens of Nielsen’s heuristics.

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- The principles that apply to designing interfaces apply to error messages as well!
  - Start by identifying where errors may occur, usually where you gather input, save data, or retrieve data from an external source.
- Ensure that you help users recover from the error. Don’t just say what the issue was, try and provide a solution!

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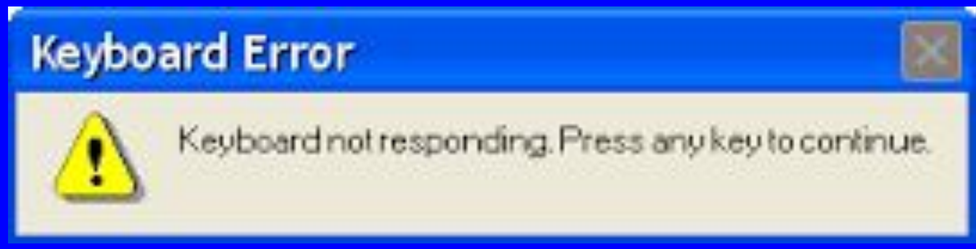
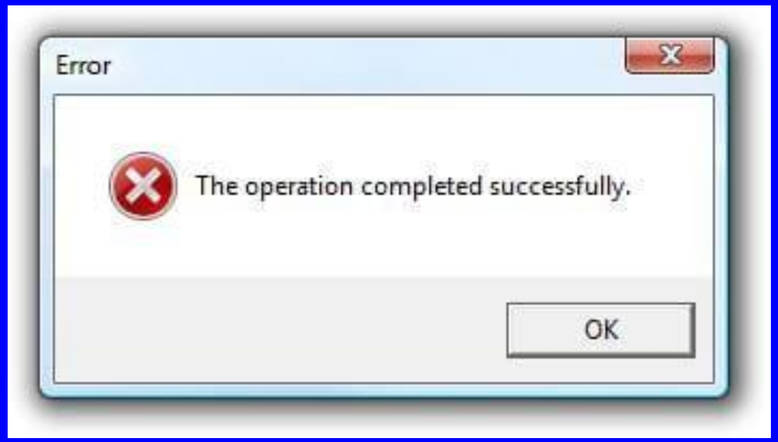


http://cld.goliath.com/image/upload/t_cn,f_auto,q_auto,$w_700/go/2015/04/keyboard-error.png



http://www.goliath.com/tech/funny-windows-error-messages/2/

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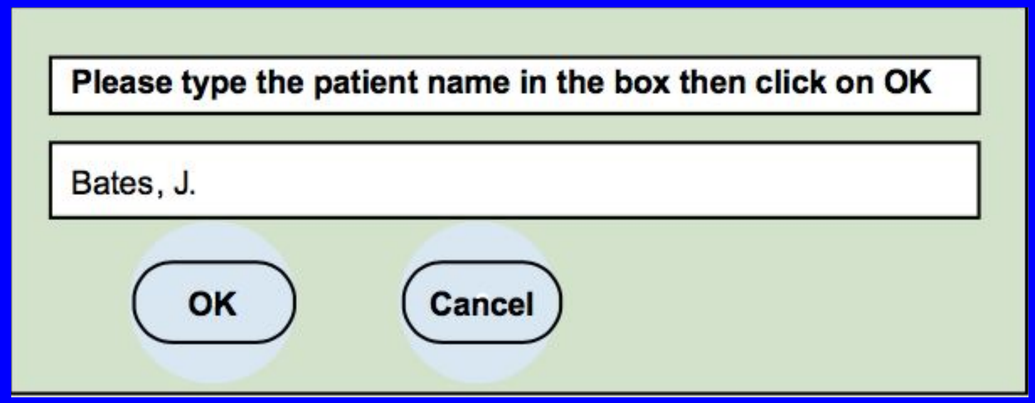
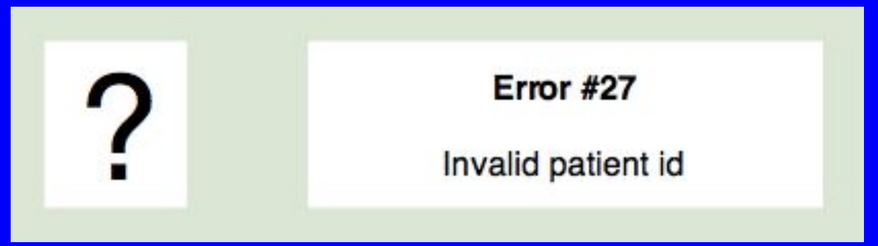
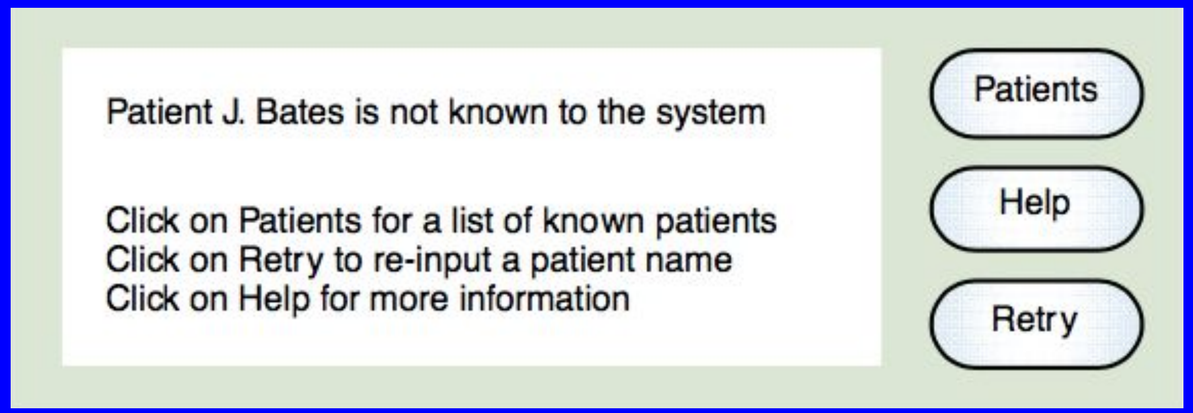




OR



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- A prototype embodies key aspects of your design. These can be fairly crude or highly detailed.
- Use prototypes to evaluate a system and its interactions before committing to building the real (likely time-consuming) product.
- Building a prototype is also useful because it stimulates reflection. Designers use them to frame, refine, and discover possibilities in a design space.
- Support the communication and evaluation of design ideas.

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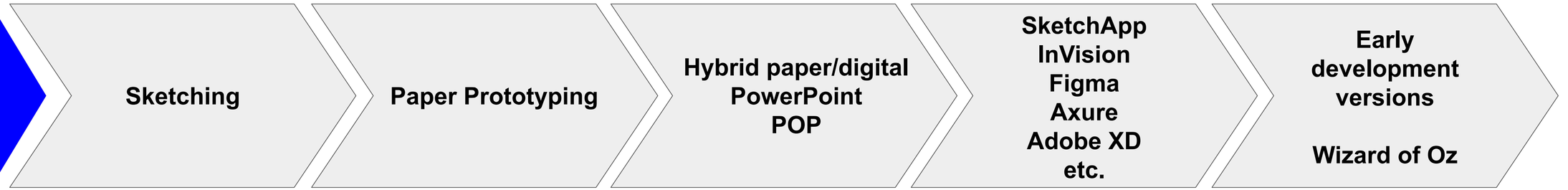
- Determine what you would like to test and get feedback on.
  - Start with some of the key assumptions behind your design before focusing on the details.
- Use realistic scenarios to create tasks for users to (attempt to) complete.
- Keep track of what users say and do, and when and where they seem to struggle.

Fidelity

Fidelity and time spent is a tradeoff. At first, you don't need the detail as you focus on high level organisation. Later, you may need to flesh out detail and focus on aesthetics.



Rough
but
Fast

Detailed
but
Slow

Fidelity is the degree of **exactness** with which something is copied or reproduced.

Oxford English Dictionary

Prototyping

- Adding too much detail early costs time.
  - That time is better spent evaluating high level issues.
- Prototyping lets us **focus on user flow** rather than static screens.
  - Static UI design is only **part** of the equation.
  - We need to **simulate user interactions** to test whether our design is **usable**.

SKETCH 20 mins

LOW-FI 1 hour

HI-FI 2 hours

http://cdn.sixrevisions.com/0486-01-mockup-fidelity-progression.png

https://material.io/design/

Google material design

Previous Students example - Design in Action Video

Team Astra Fundamentals of Interaction Design, Autumn Session 2019

Geojo Jacob George
Mayank Chhabra
Shweta Sangwan
Varshitha Marni
Muhammed Fawaz

Previous Students example - Design in Action Video

Team Funda, Fundamentals of Interaction Design, Autumn Session 2019

Questions?