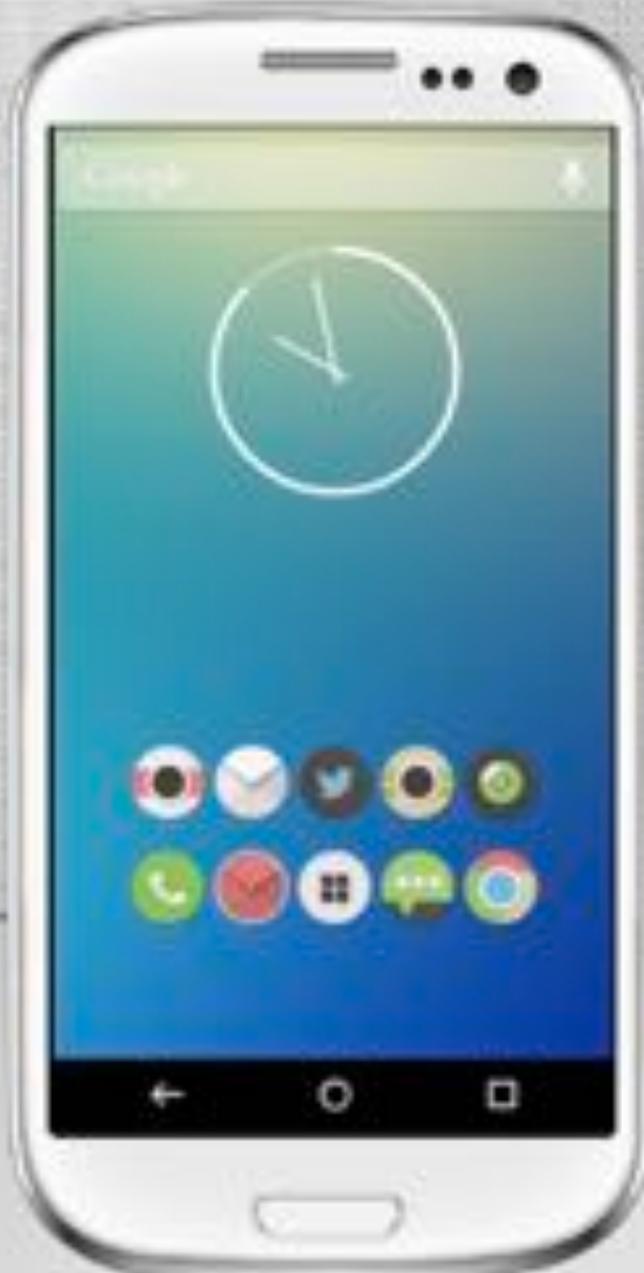




Develop

Arindam Ghosh
Prof. Giuseppe Riccardi





Design, Develop and Deliver

Arindam Ghosh
Prof. Giuseppe Riccardi



D-D-D







How the customer
envisaged it



How the Project
Leader understood it



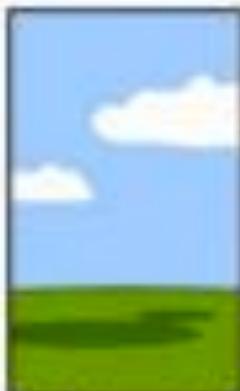
How the Analyst
described it



How the Programmer
wrote it



How the Business
Consultant described it



How the project
was documented



What operations
installed



How the customer
was told

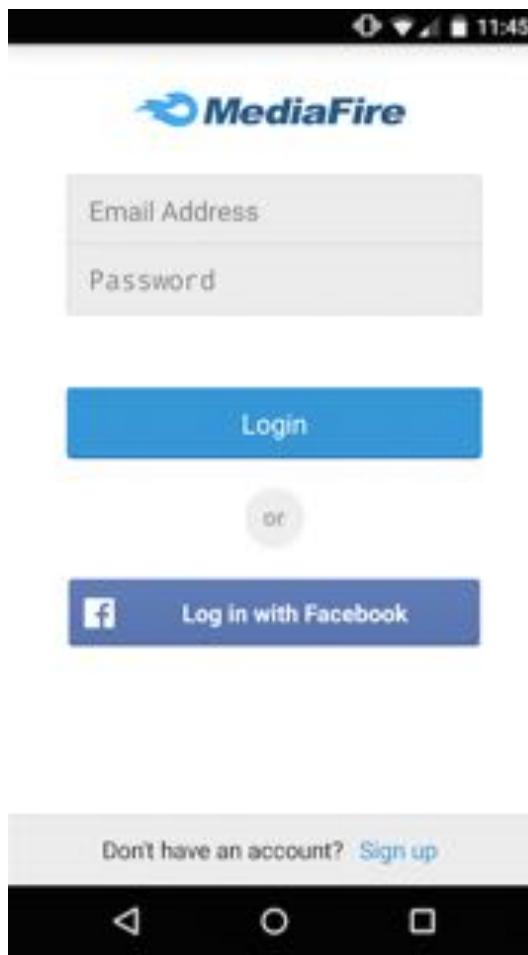
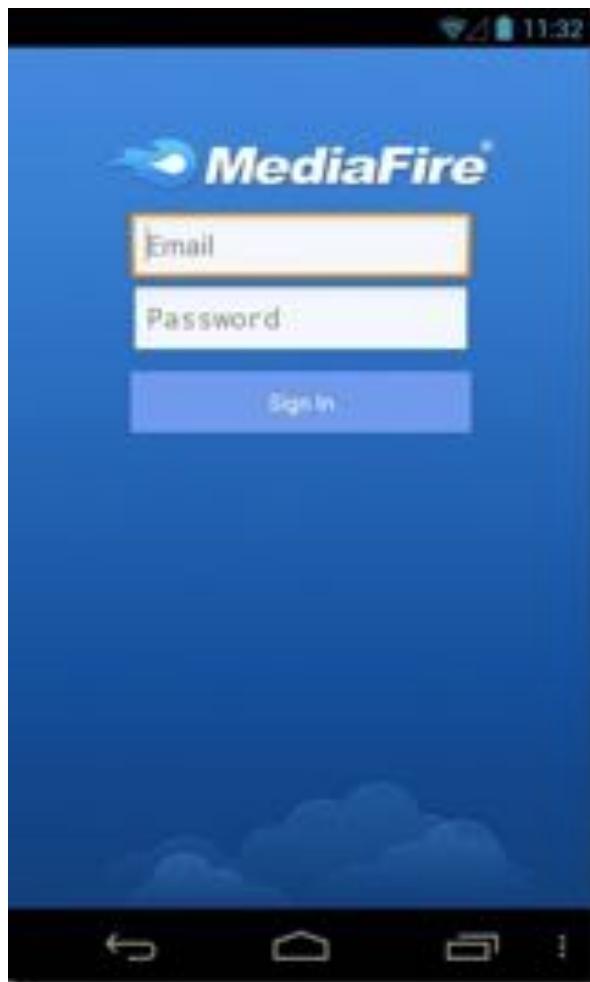


How it was supported



What the customer
really needed

Sign up screen – social or not?



Android M's getting the equivalent of Apple's Touch ID

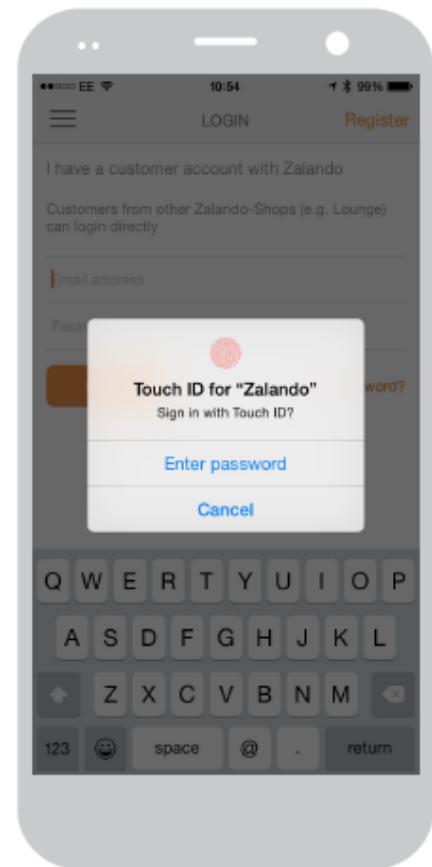
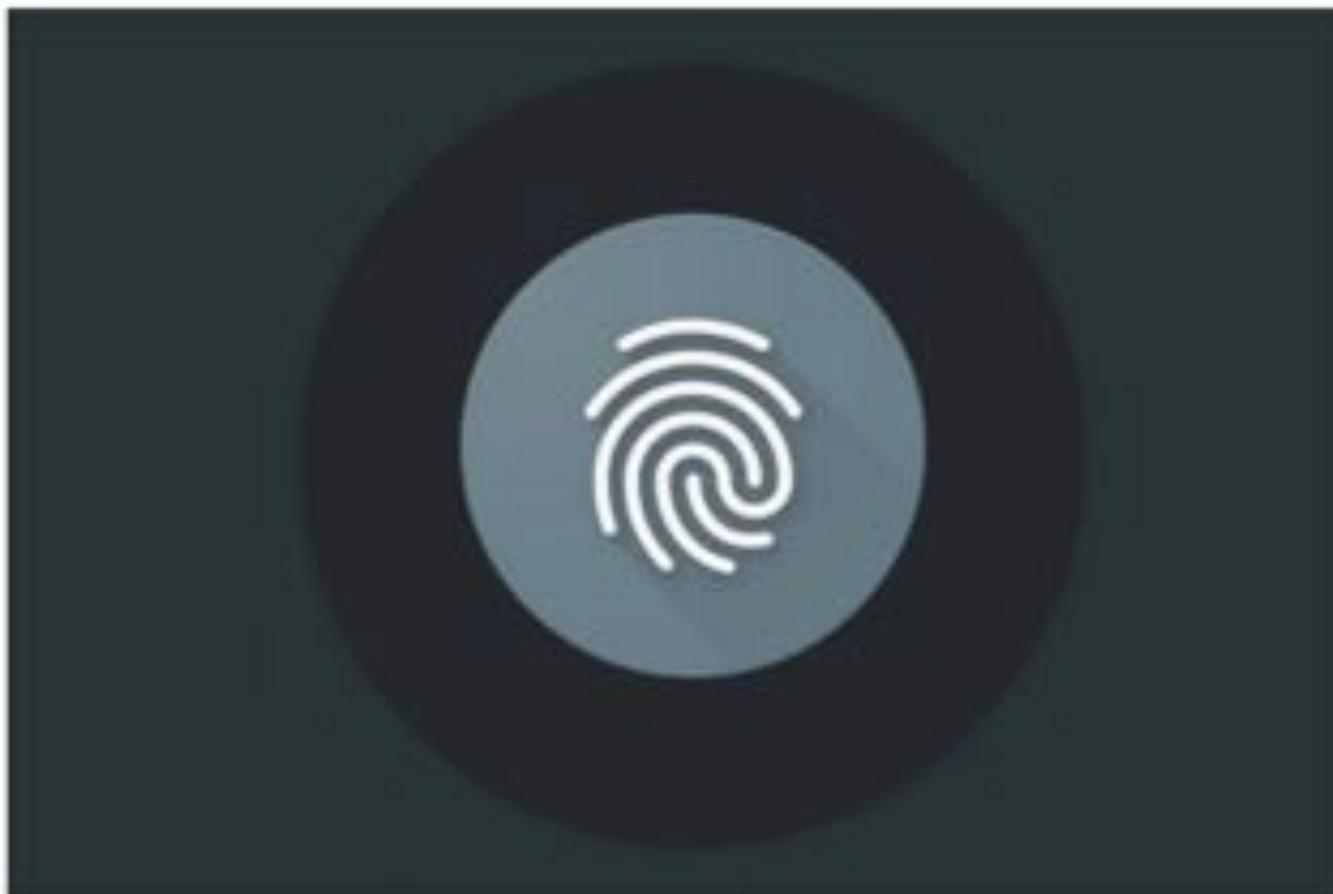


image 10

Requirements

#	Functionality	Host	Guest	To be completed by	Completed
1	Login	✓		17 March 2011	✓
2	Register	✓		17 March 2011	✓
3	Retrieve guest list	✓		24 March 2011	✓
4	Add guest	✓		24 March 2011	✓
5	Remove guest	✓		24 March 2011	✓
6	Update guest	✓		24 March 2011	✓
7	Create questionnaire	✓		24 March 2011	*
8	Retrieve questionnaire	✓		2 April 2011	*
9	Remove questionnaire	✓		2 April 2011	*
10	Send questionnaire	✓		2 April 2011	*
11	Answer questionnaire		✓	2 April 2011	*
12	Create HTML	✓		2 April 2011	✓

* Down scoped



Stylus or Touch Screen ?



Is Apple making an 'iPad Pro' with a stylus?

By **Sam Byford** on January 18, 2015 08:41 pm  Email  @345triangle



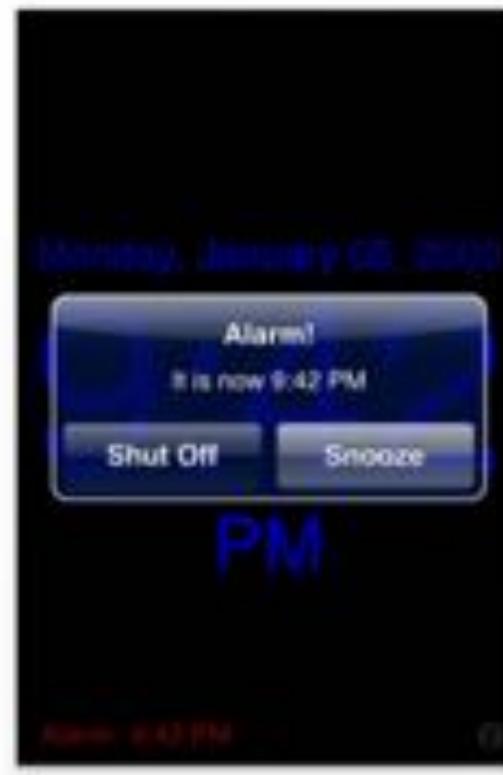
<http://www.theverge.com/2015/1/18/7785443/apple-ipad-pro-stylus>

DAVID PIERCE DEAR 09.12.15 7:00 AM

ONLY APPLE CAN MAKE THE PERFECT STYLUS IT ONCE SPURNED



Alarm App - cool or simple?



YOU HAD ONE JOB





1

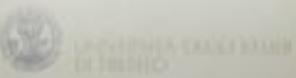
2

-1

0



-2



PIANO TERRA -1

- Aule A101→A108
- Reception

PIANO PRIMO 0

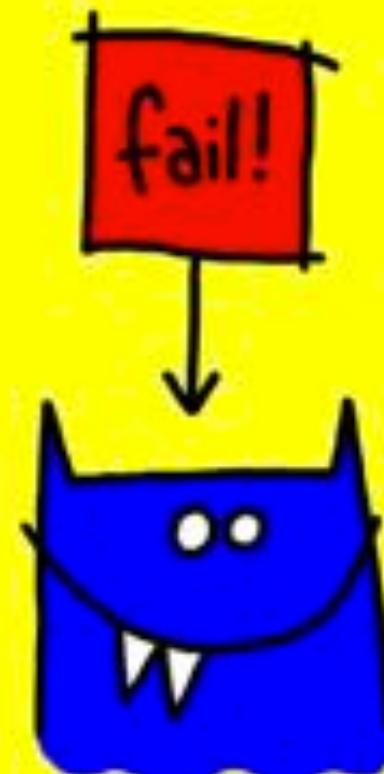
- Aule A201→A224
- Lab. Didattico Meccanica

PIANO SECONDO 1

- DISI Secretary
- ICT Doctoral School
(riservato afferenti ed ospiti)

POLO SCIENTIFICO E TECNOLOGICO "FABIO FERRARI"

fail cheap.
fail quick.
fail often.
fail. fail. fail. fail.
fail. fail. fail. fail.
exactly.



Prototype before you Build





<http://www.businessinsider.com/photos-early-apple-prototypes-2014-6?op=1&IR=T>

A Picture is worth a thousand words

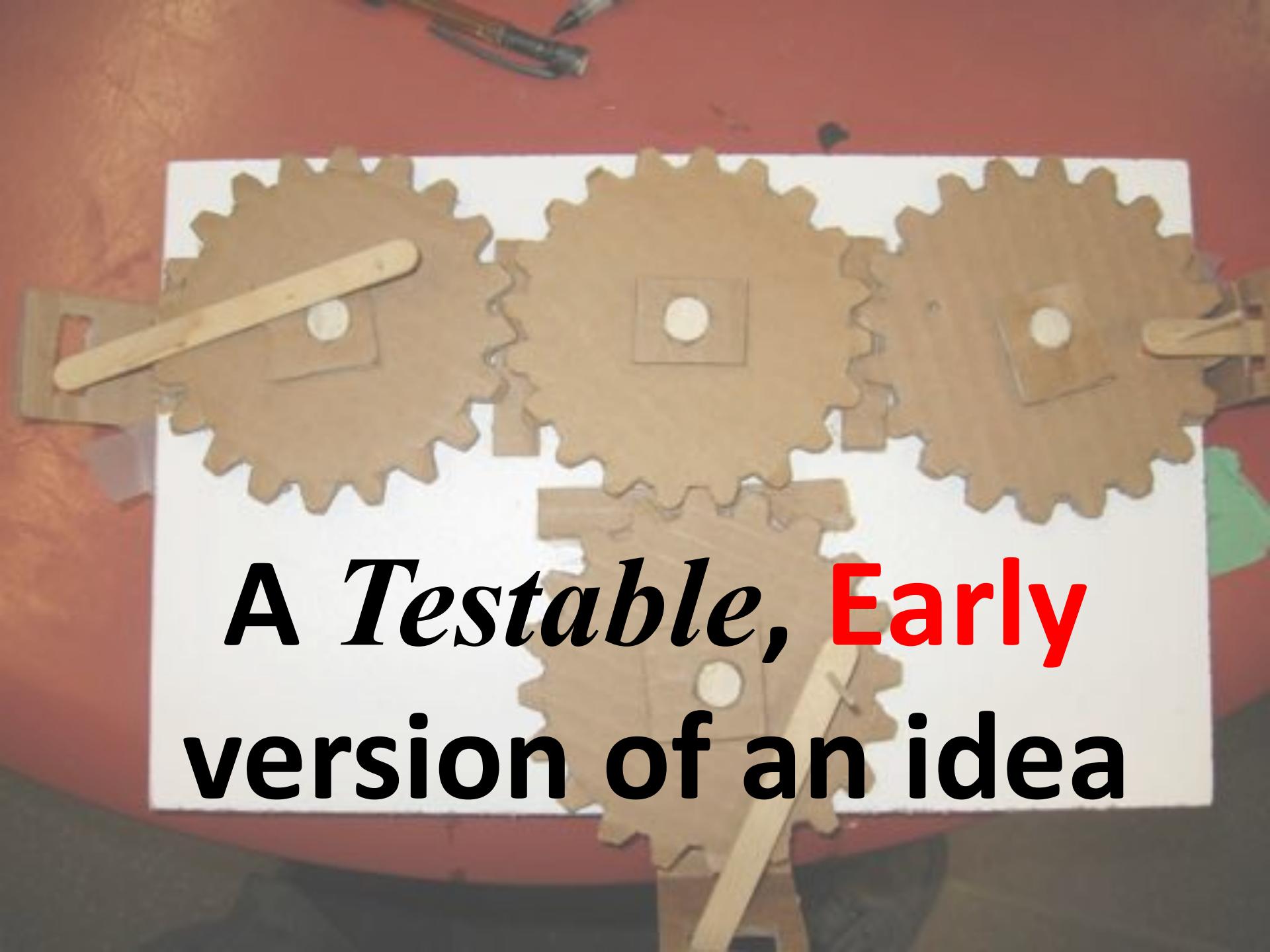
A word cloud centered around the word 'APPLICATION'. Other prominent words include 'MOBILE', 'GOOGLE', 'ANDROID', 'DEVELOPMENT', 'PHONE', and 'JAVA'. The words are in various sizes and colors, including shades of green, blue, and red, set against a dark background.

A Prototype is worth a thousand pictures

3D printed future car prototype



What is a Prototype?



A *Testable, Early*
version of an idea





News Sport Weather Earth Future Shop

NEWS TECHNOLOGY

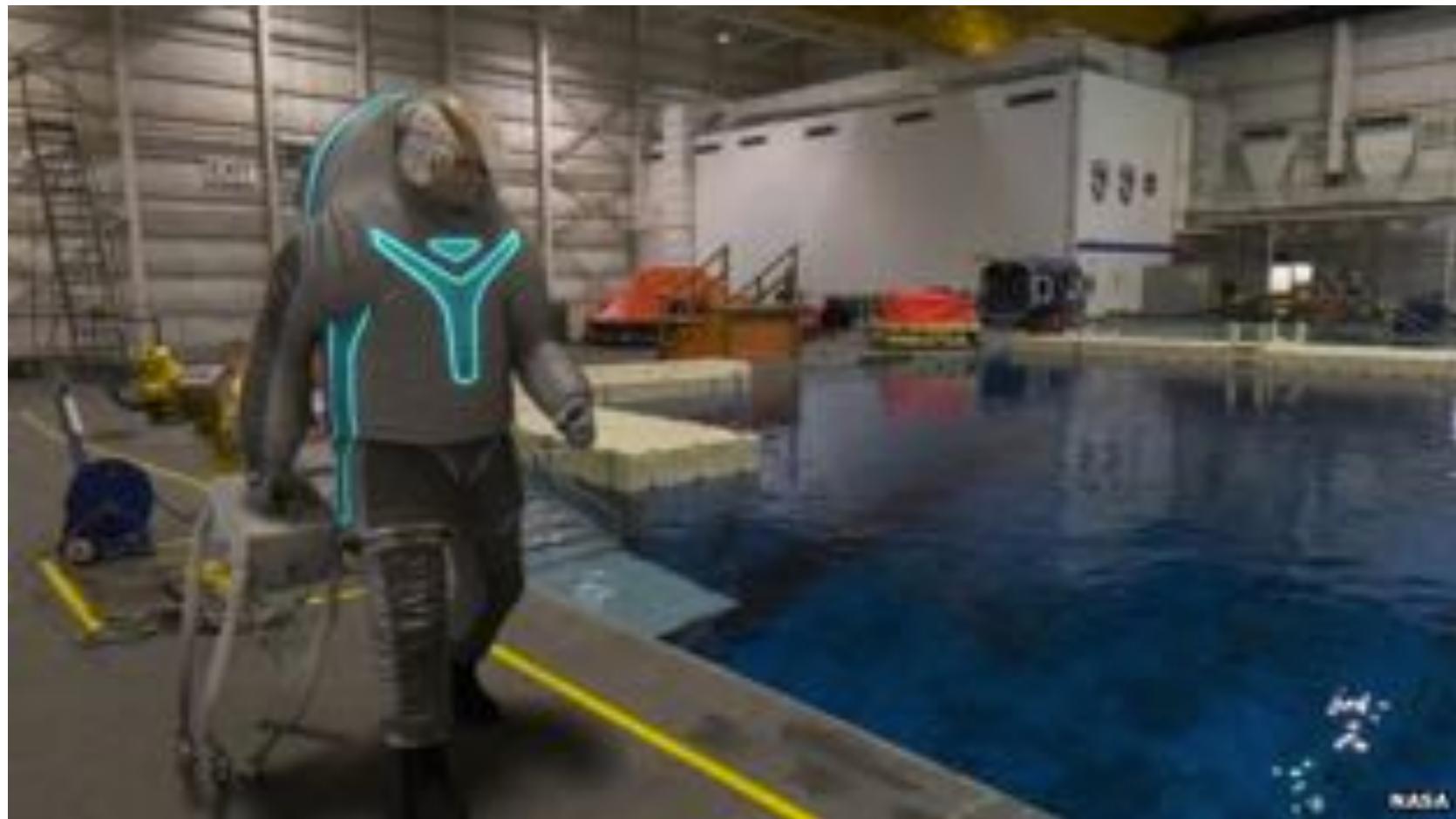
[Home](#) [UK](#) [Africa](#) [Asia](#) [Australia](#) [Europe](#) [Latin America](#) [Mid-East](#) [US & Canada](#) [Business](#) [Health](#)

1 May 2014 Last updated at 12:36 GMT



Nasa shows off prototype spacesuit for journey to Mars

Nasa said the Z-2 spacesuit was only a prototype, but elements of it would be incorporated into the suit worn by the first humans to reach the Red Planet.



The suit is being tested in Nasa's pools used to teach astronauts to spacewalk

<http://www.bbc.com/news/technology-27238452>

Architecture

How many bedrooms do you need?

1 2 3 4 5+

How about bathrooms?

1 2 3 4 5+

How many stories?

1 2 3+

Do you want garage bays?

0 1 2 3+

Do you have a style you like?

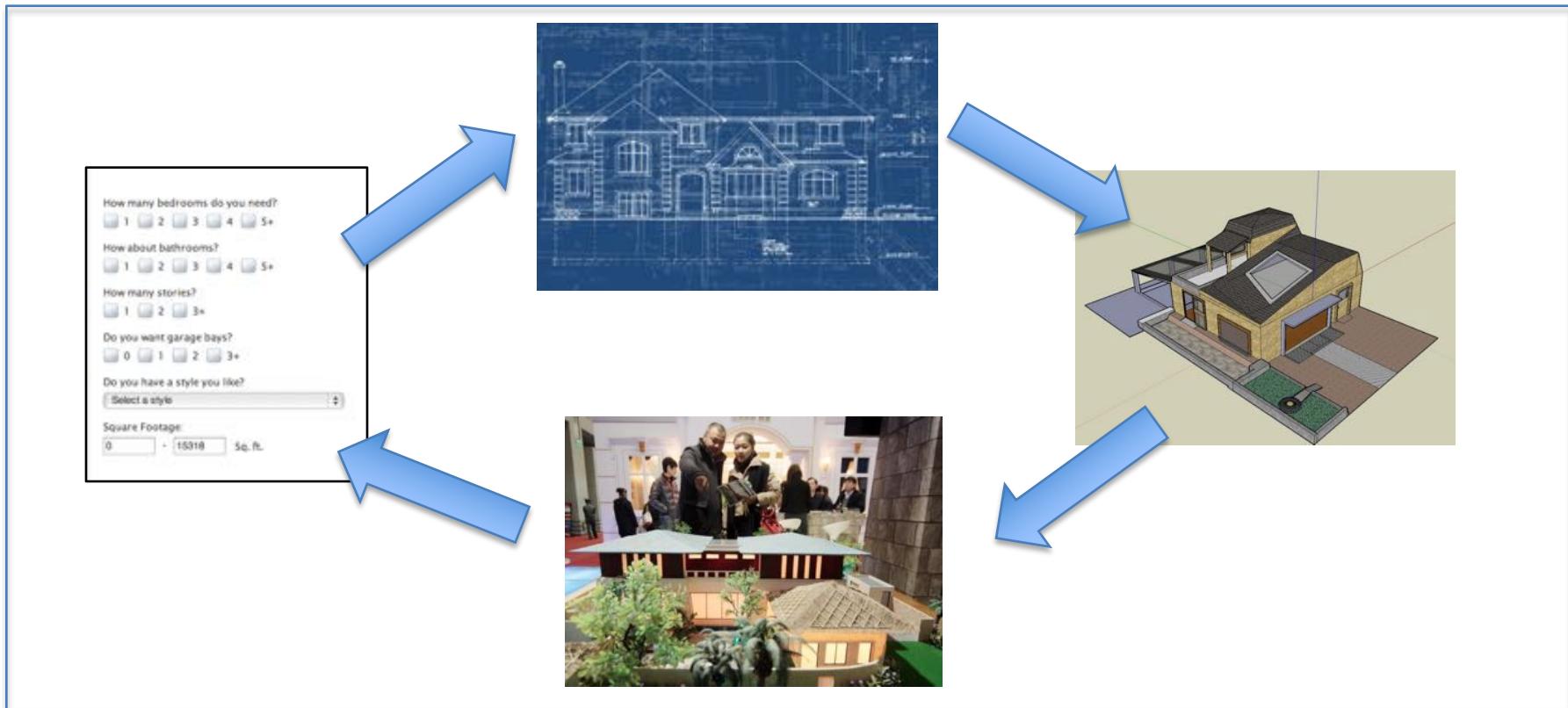
Select a style

Square Footage:

+ Sq. ft.



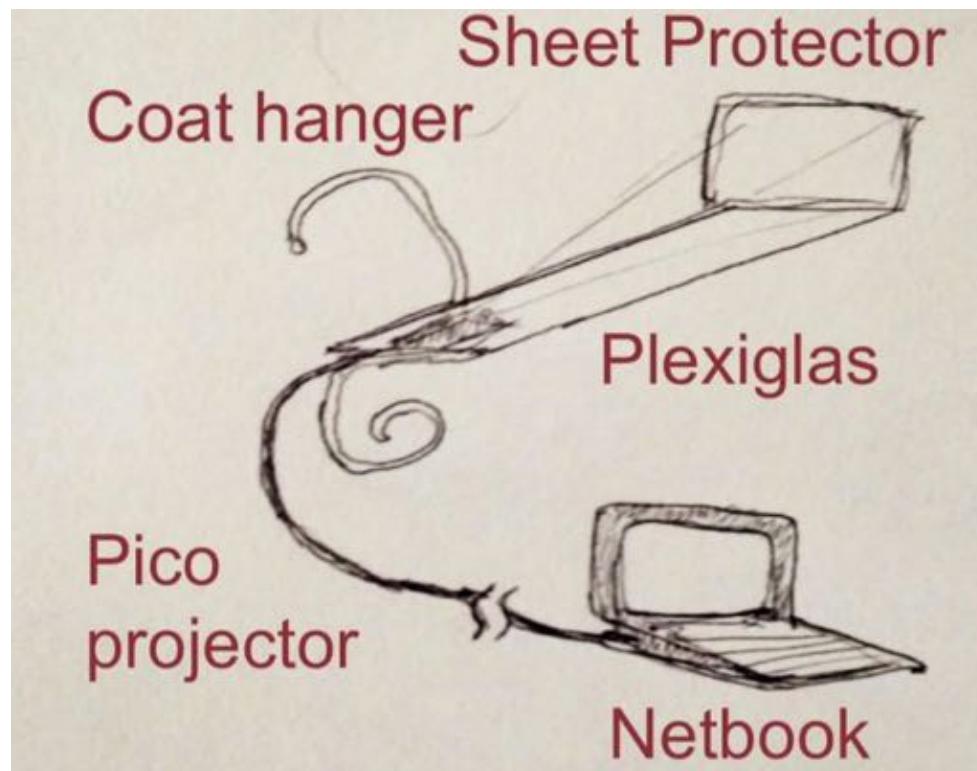
Architecture







Google Glass



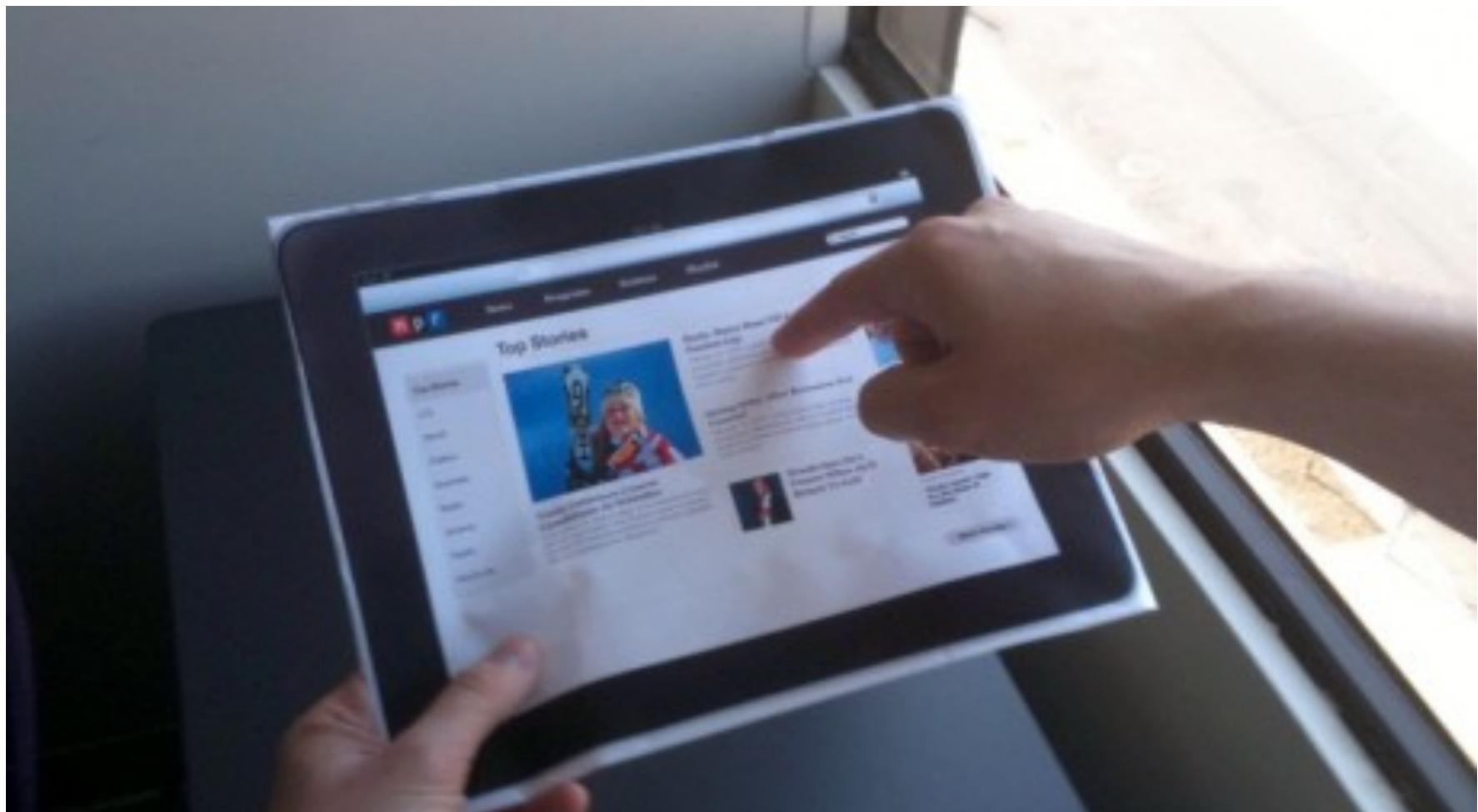
http://youtu.be/d5_h1VuwD6g?t=34s

What about Prototypes
for Software?

Before Building an app

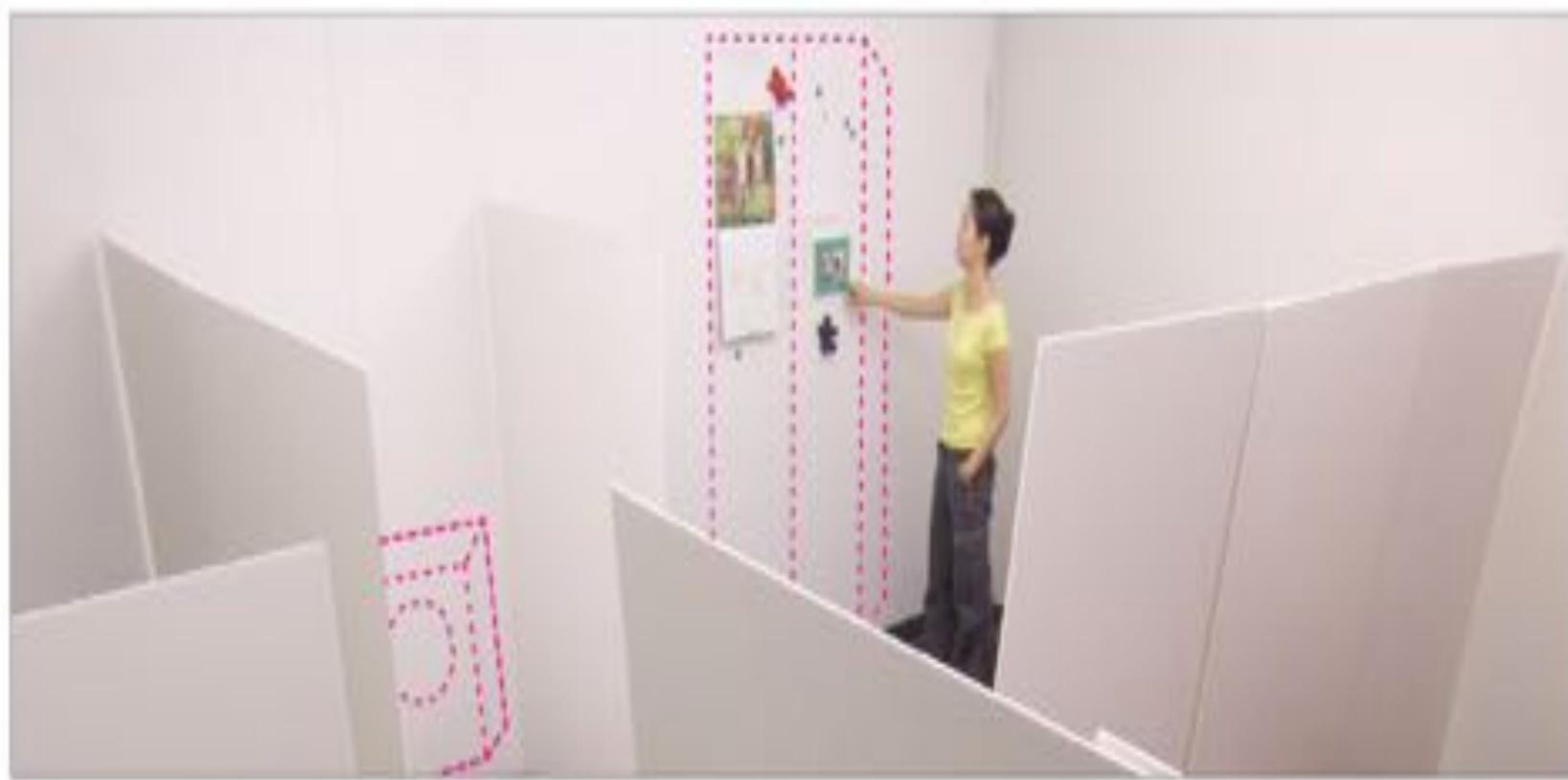


Build a Prototype



Smart Fridge





Smart Watch

Pebble Time - Awesome Smartwatch, No Compromises

by Pebble Technology



37,866
backers

\$8,035,231
pledged of \$500,000 goal

30
days to go

[Back This Project](#)

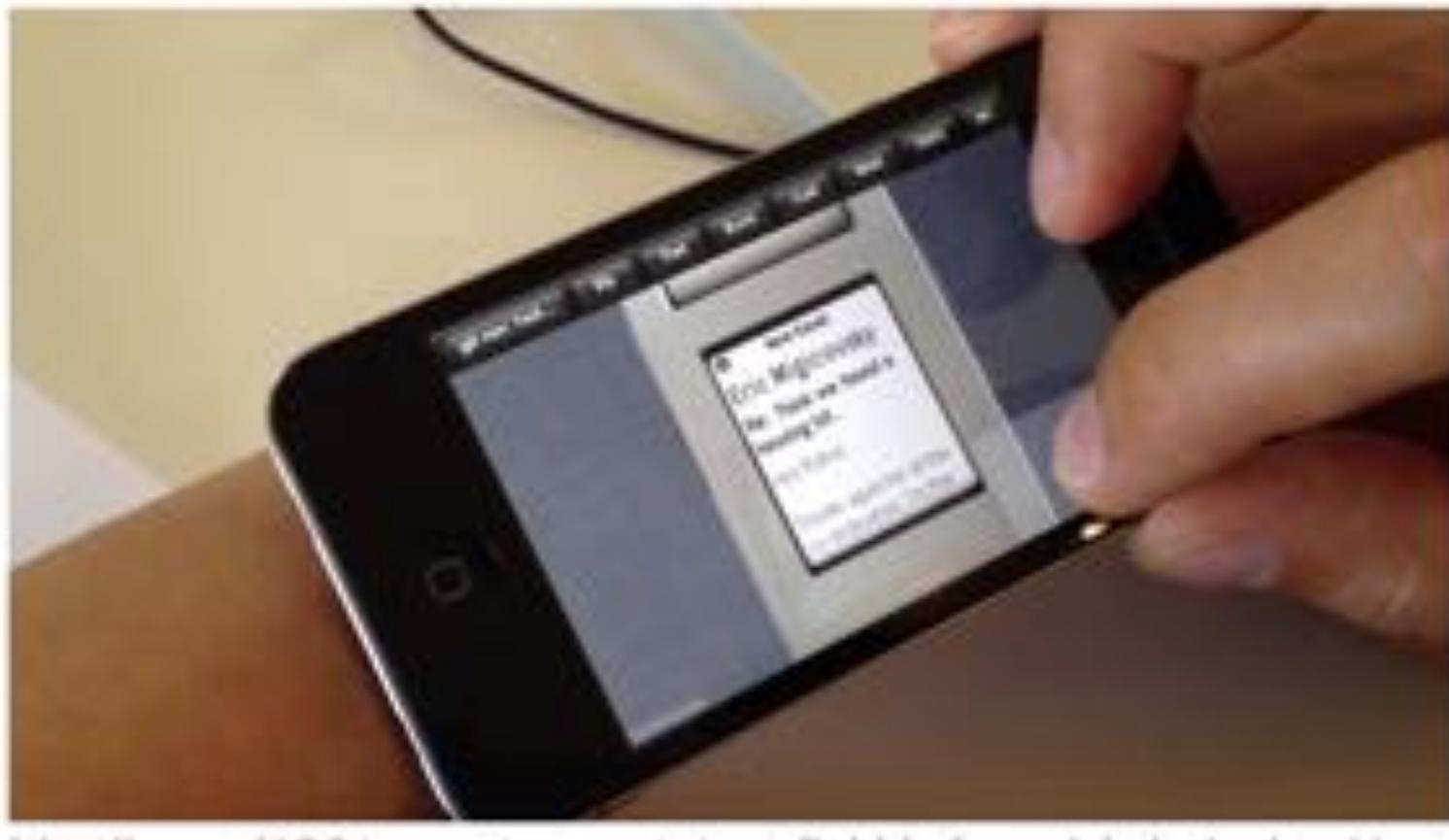
★ Remind me

12:00 PM

→ slide to unlock

15:00 PM

→ slide to unlock

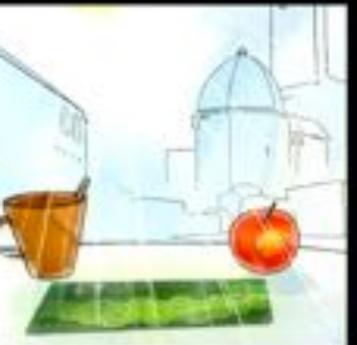


<https://blog.getpebble.com/2012/08/10/user-interface-preview-updates/>

Why Prototype?



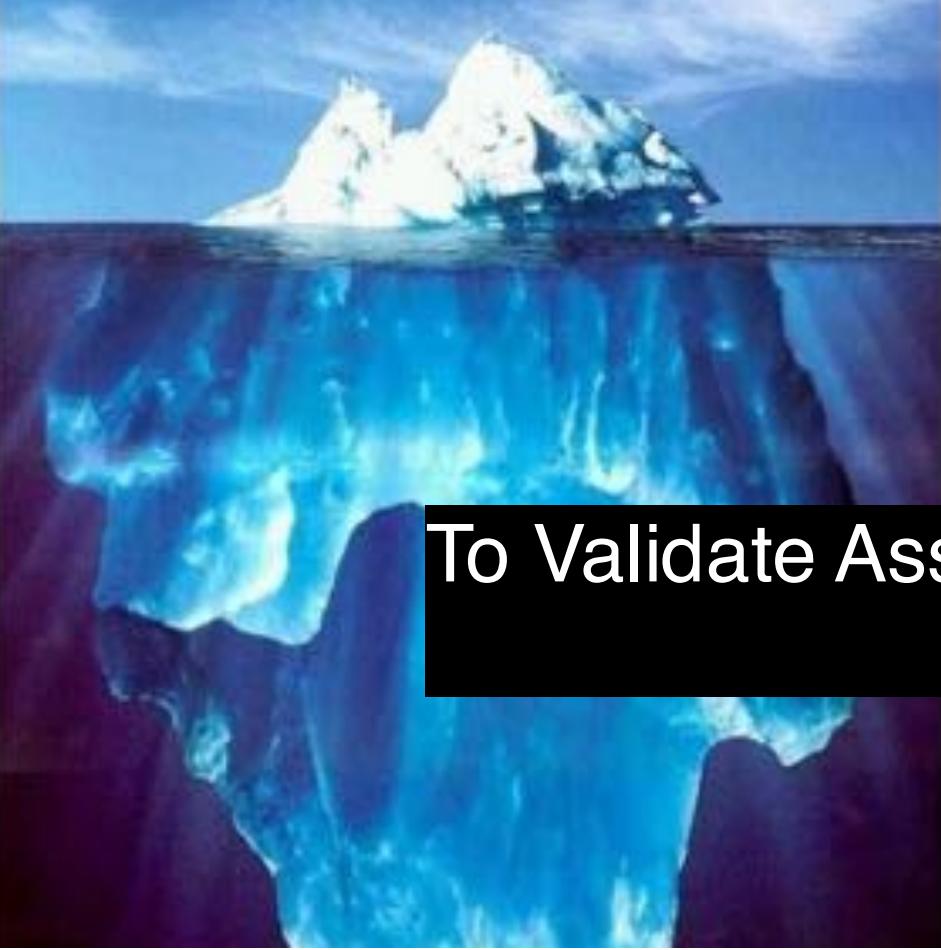
To Communicate an Idea or Experience



We want to build the next cool
gadget...

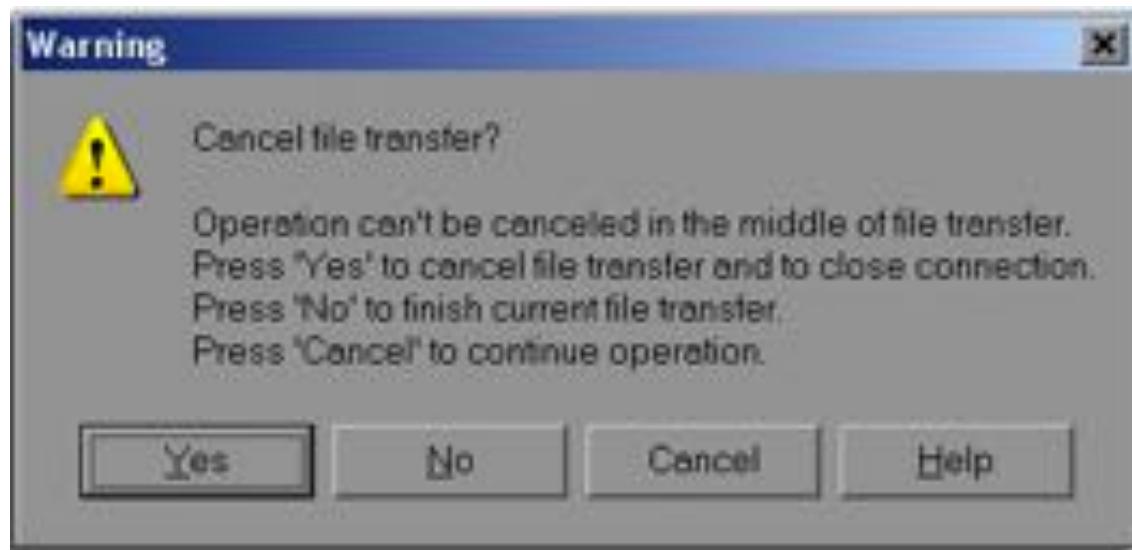


But What do people think about it?
Lets show them a video



To Validate Assumptions

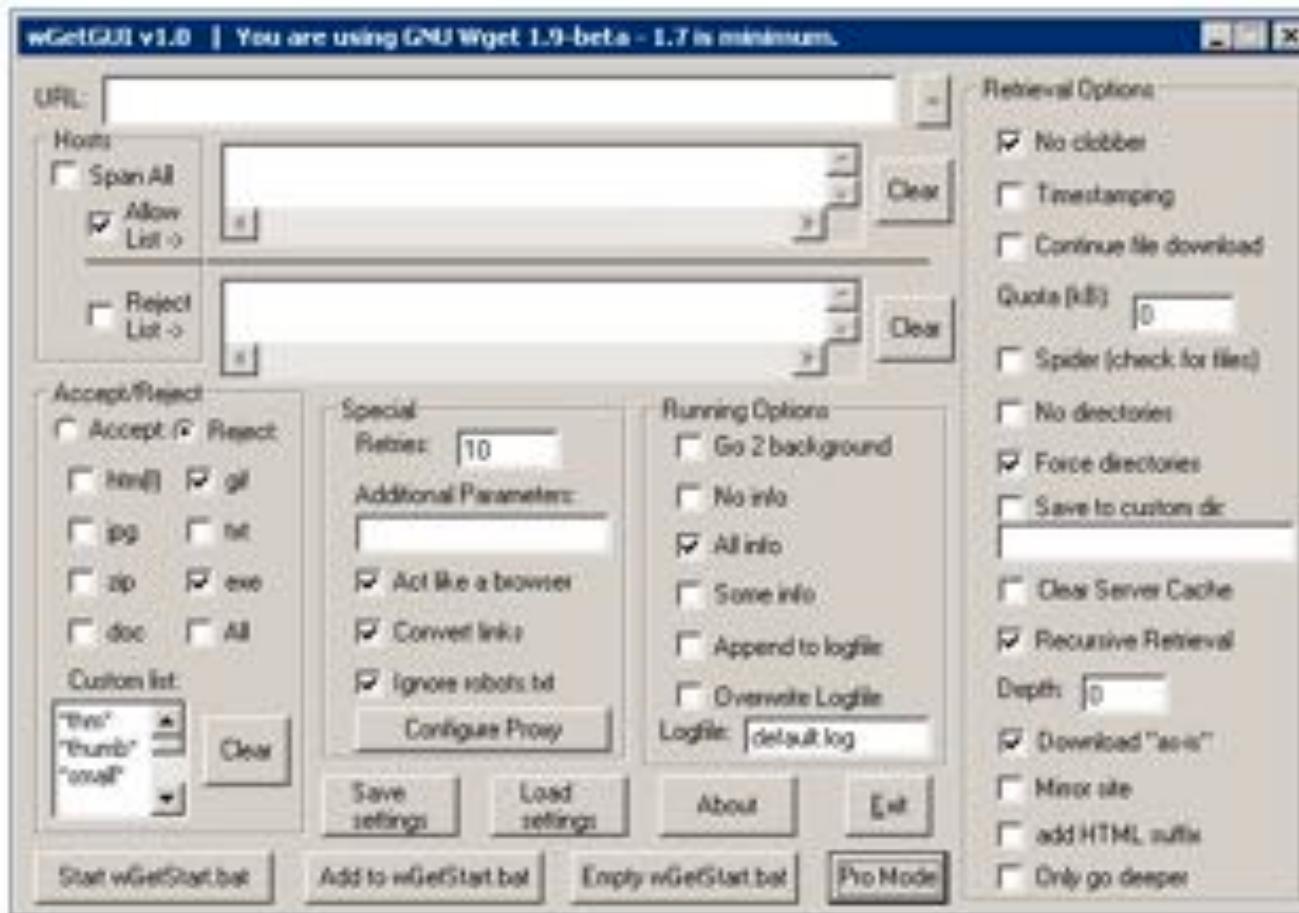
Does the User Understand you?



Press *Yes* to Cancel" – "Press *Cancel* to Continue ?????

This Is What Happens When You Let Developers Create UI

Deep down inside every software developer, there's a budding graphic designer waiting to get out. And if you let that happen, you're in trouble. Or at least your users will be, anyway:



Spiral Staircase - Good Idea?

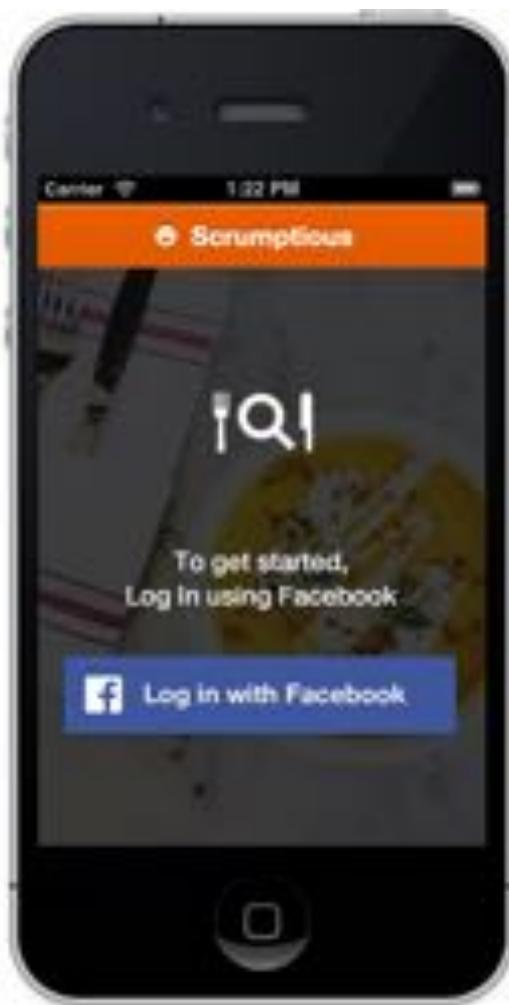


INTERNATIONAL DECOR
interidecor.blogspot.com

Still a good idea?



Facebook Sign-in Only?



What if your users don't trust your app?

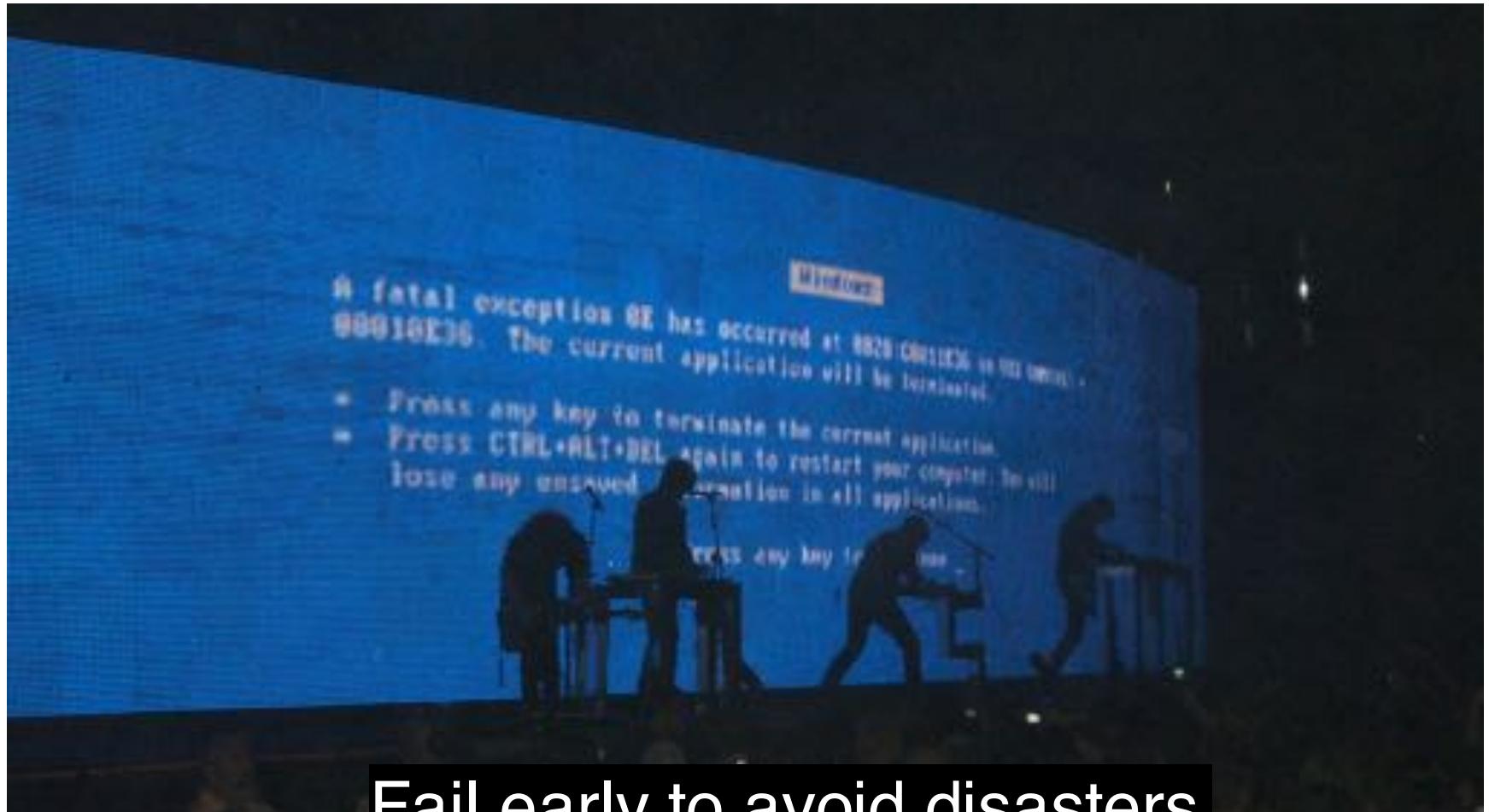


To compare alternatives



Stylus or Touch Screen ?



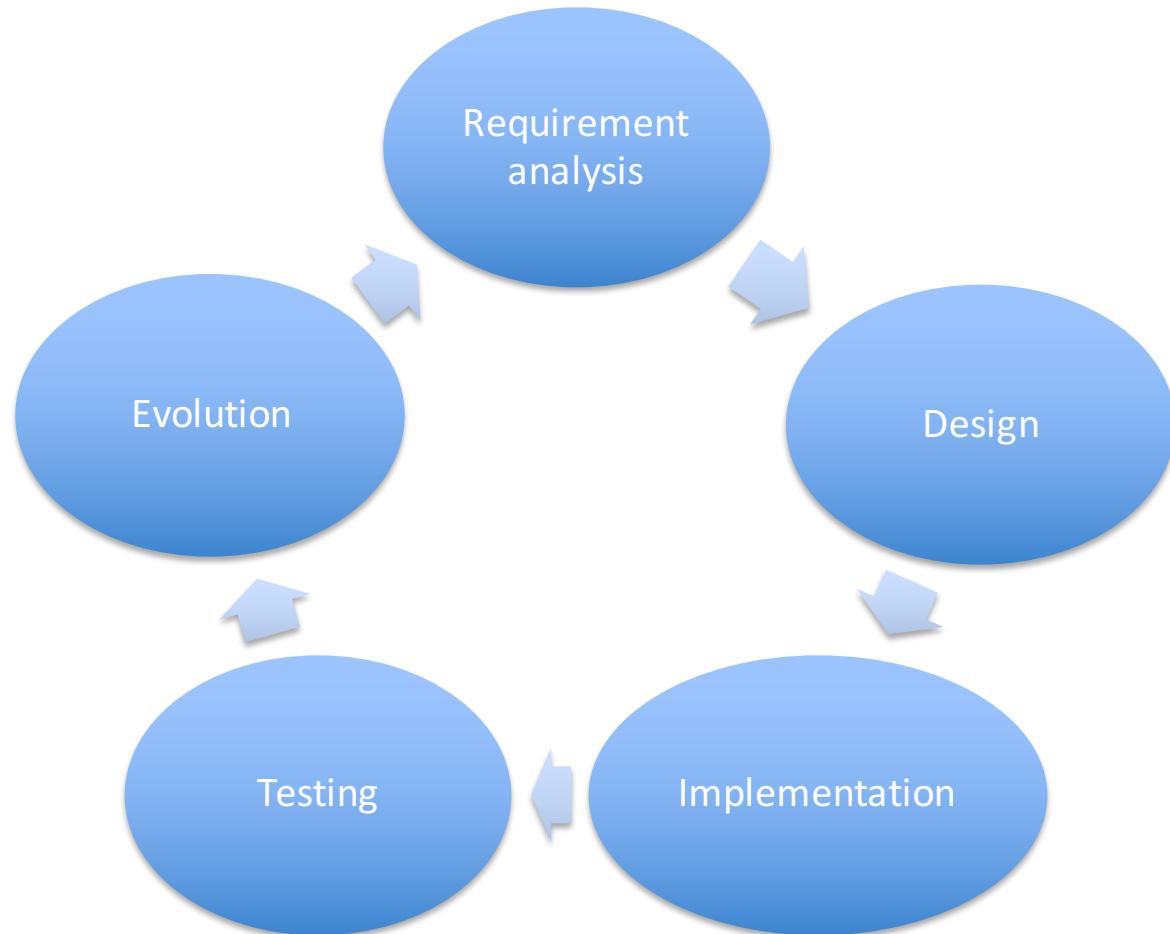


Fail early to avoid disasters

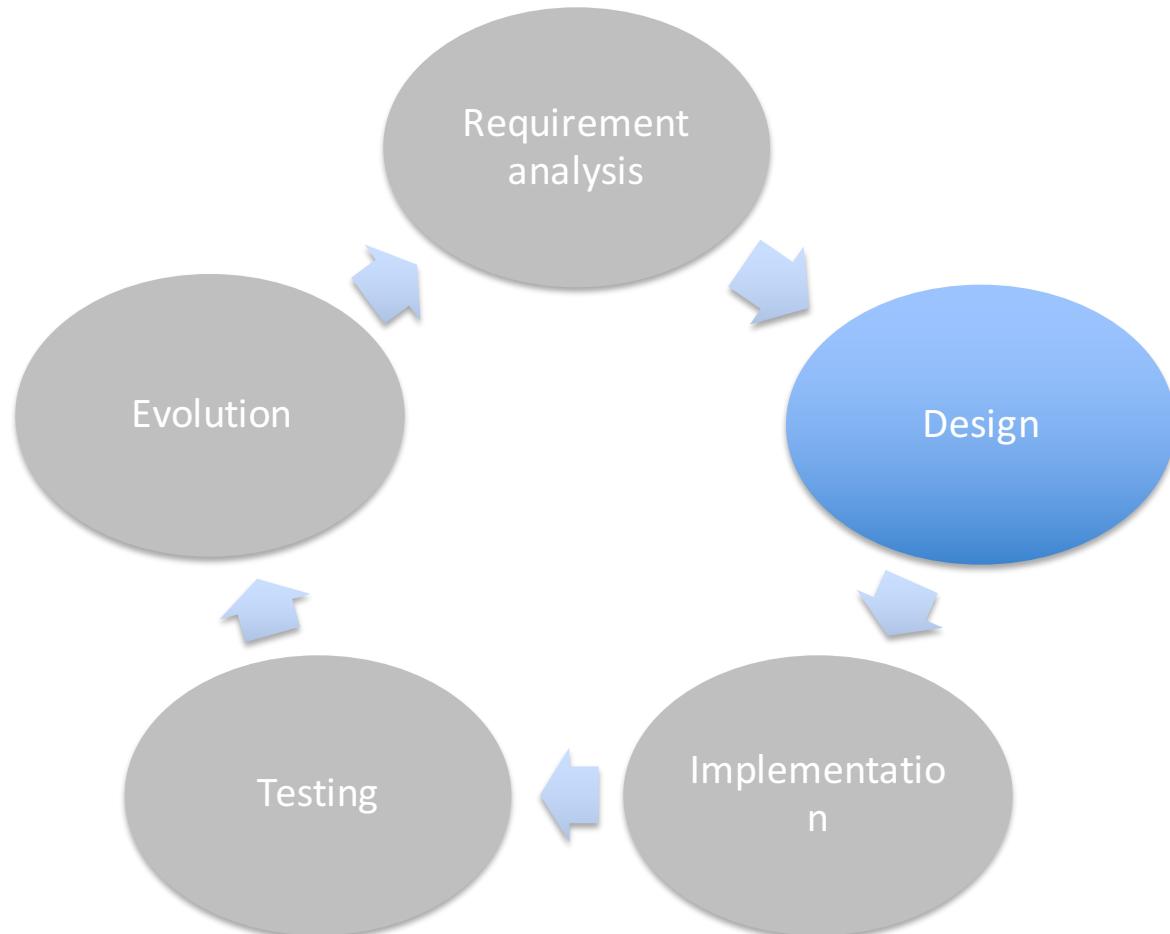
Get Feedback Early

- Design the **concept** before you build it.
- Get Feedback.
- Redesign.
- Keep it fast and simple.
- Review Early.

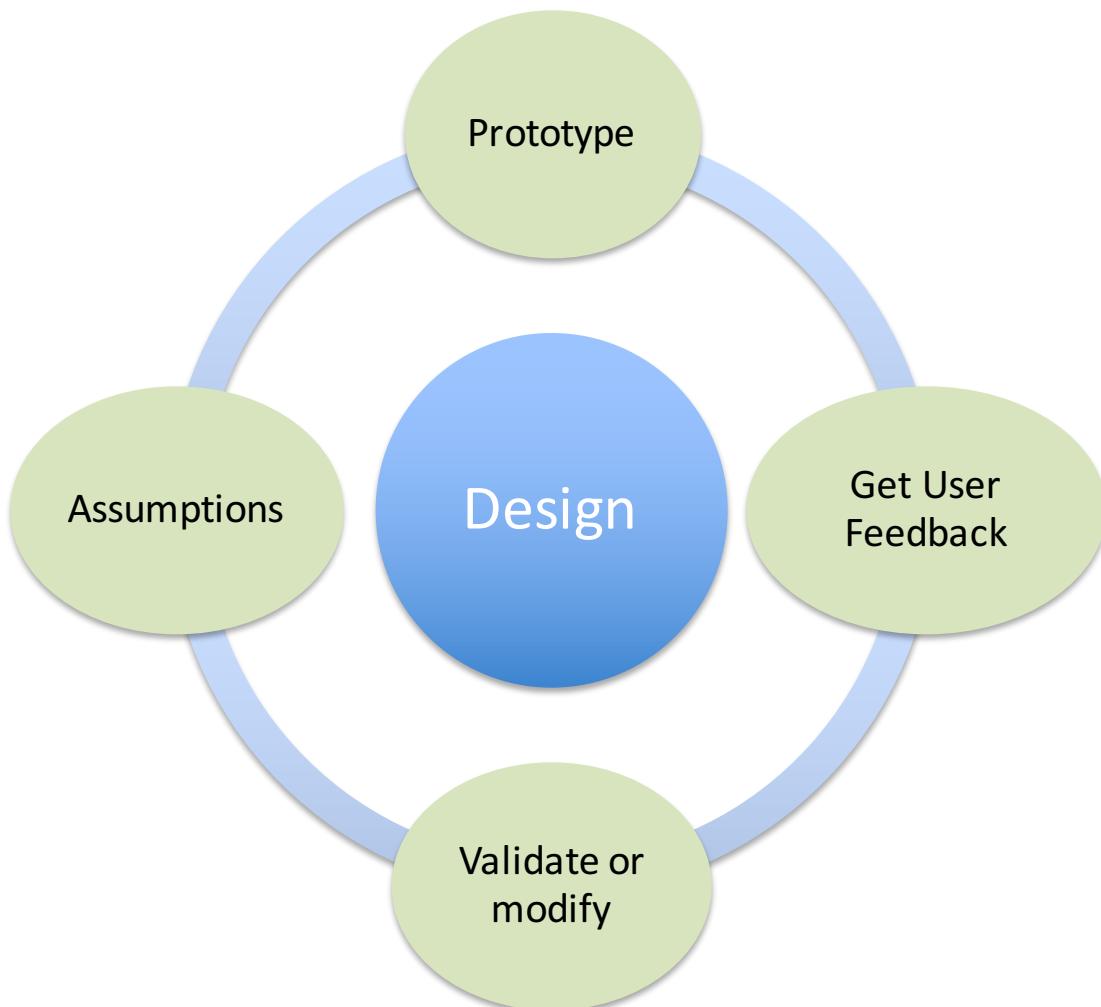
Ideal Software Engineering Life Cycle



Where does prototyping come in?



Prototyping Life Cycle



What could go wrong with a login screen?



They forgot the “FORGOT PASSWORD” button!!!

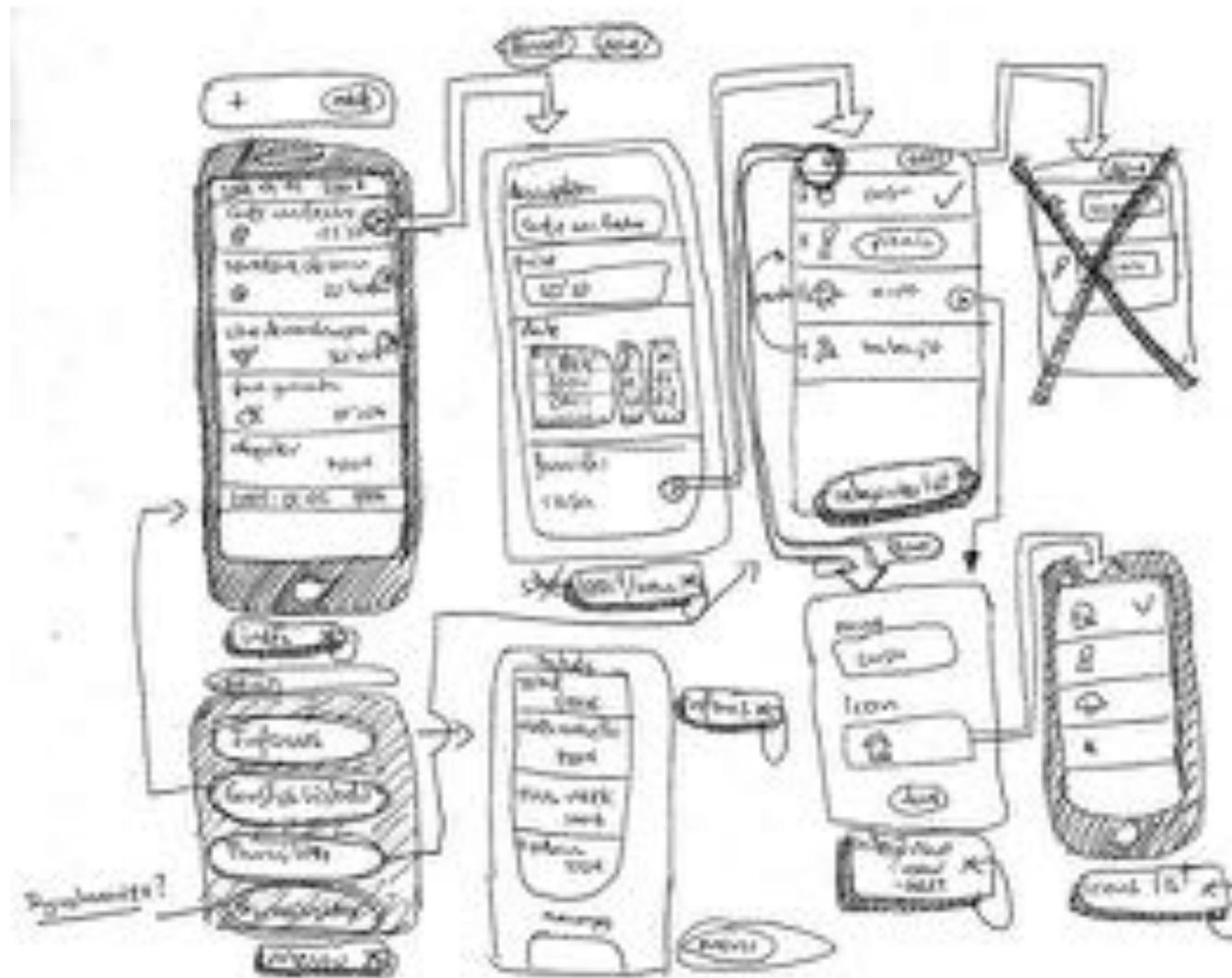
Common techniques

- Paper prototyping
- Wireframes and page schematics
- HTML wireframes
- Interactive prototypes

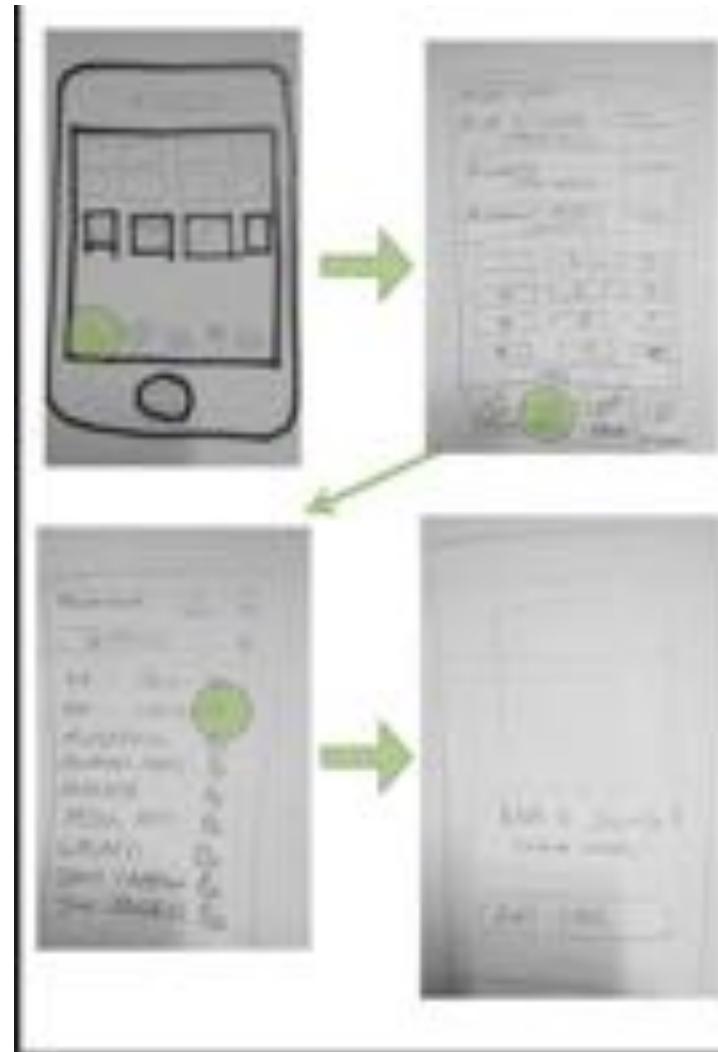
What is Paper Prototyping?

- Paper: materials of paper-and-pencil alike.
- Prototyping: The design and evaluation of the concept.
- Low-fidelity visual representation
- Test Usability.
- Representative users perform real tasks by interacting with a paper version of the interface.

Example Paper Prototypes



Example Paper Prototypes



Advantages

- Quick to build/refine, thus enabling rapid design interactions.
- Requires minimal resources and materials.
- People are willing to give you more feedback when they know you have invested little.

Disadvantages

- Its paper not a real app/webpage

Wireframes

- **Wireframes** – *basic illustrations* of the *structure and components* of a web page or Mobile Application
 - Real Proportions
 - Includes basic page/screen layout
 - Includes navigation
 - May include:
 - headers, footers, content areas, sidebars
 - dynamic widgets, search box, graphics, links

Wireframing examples

The wireframe shows a desktop application window titled "music store". The menu bar includes "Home", "Music", "Genre", and "Artist". The main content area has a search bar with a dropdown menu showing "Artist" and a "Go" button. A sidebar on the left lists "Related Artists" (Artist1, Artist2) and "Popular Tracks" (Track 1, Track 2). The main content area features a "ARTIST NAME" section with a description and a "Choose an album" section. The "Choose an album" section includes a placeholder "Album Art" with a diagonal cross, a list of albums (Album Title 1, Album Title 2, Album Title 3), and a radio button for "CD". The sidebar also includes a "send me updates on this artist" checkbox and an "Add to Cart" button.

- 1 For Q1 release, music search only
- 2 Related artists determined by user purchasing data mining
- 3 Album art to be approved by legal



HTML Wireframes



Advantages

- Better than paper prototypes
 - Feels real
 - Things happen when you click

Disadvantages

- Just a skeleton
 - Not really how the real interfaces looks
 - Not really how the real interface behaves

Interactive Prototyping

Importance of transitions and movements

How did this?



...become this?



How did this?



...become this?

**Optimus
Prime**



How did you go from this?



...to this?



Interactive Prototyping tools



PENCIL PROJECT

Works both as a Firefox plugin and standalone installation on windows, mac, and Linux

<http://pencil.evolus.vn/Downloads.html>

proto

marvel

Completely in your browser

<https://proto.io/>

<https://marvelapp.com/>



<http://www.justinmind.com/download>

Standalone
installation on windows, and mac

More tools

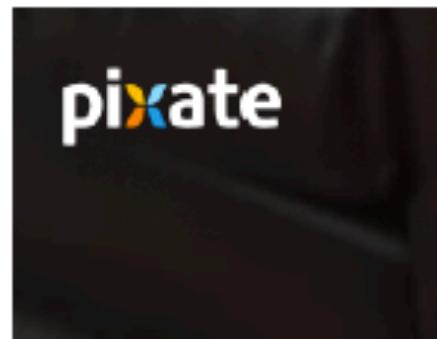
<https://popapp.in/>



<https://mockingbot.com/>



<http://www.invisionapp.com/tour>



<http://www.pixate.com/>

Justinmind Prototyper

Features

- **No programming required.** Justinmind Prototyper is an intuitive tool. Just drag the components or interactions that you need from the palettes to the work area.
- **Instant Simulations.** See your application's prototype in action by simply clicking the Simulate button. No waiting required.
- **Exportable to HTML.** Export to HTML effortlessly, so that your clients or users can see it work online and give you their opinion.

CUSTOMERS

The preferred prototyping tool for thousands of companies

600,000+ other Justinminders in 180 countries. Join them!



Google



SIEMENS



AON



JUST
IN MIND

PROTOTYPER
PROFESSIONAL
EDITION

New 

[Create a new Prototype](#)

Open 

[Open a project](#)

[Open a recent prototype](#)

[Content-smartphone.yo](#)
[Mail-example-mobile.yo](#)

Learn 

[INTERFACES in 3 minutes](#)

[Prototyping export](#)

[Visit our site](#)

[Don't show again](#)

[Close this window](#)

Create a new prototype

Select a device



Cancel

Next

Create a new prototype



Start your prototype from



Empty



Import



Template



Smartphone



Define your prototype settings

Predefined:

360 x 640

Custom:

Width (px):

Height (px):

Back

Cancel

Finish



Add New Widgets from Library

Manage Widget Library

View All Widgets

Android Phone
The recommended set of widgets to use on an Android Phone. Returns to the Device screen whenever you press the home button.

Remove Device Widgets

View All Widgets

Android Tablets
The recommended set of widgets to use on an Android tablet. Returns to the Device screen whenever you press the home button.

Remove Device Widgets

Android Icons
Iconography for use in Material Design icons.

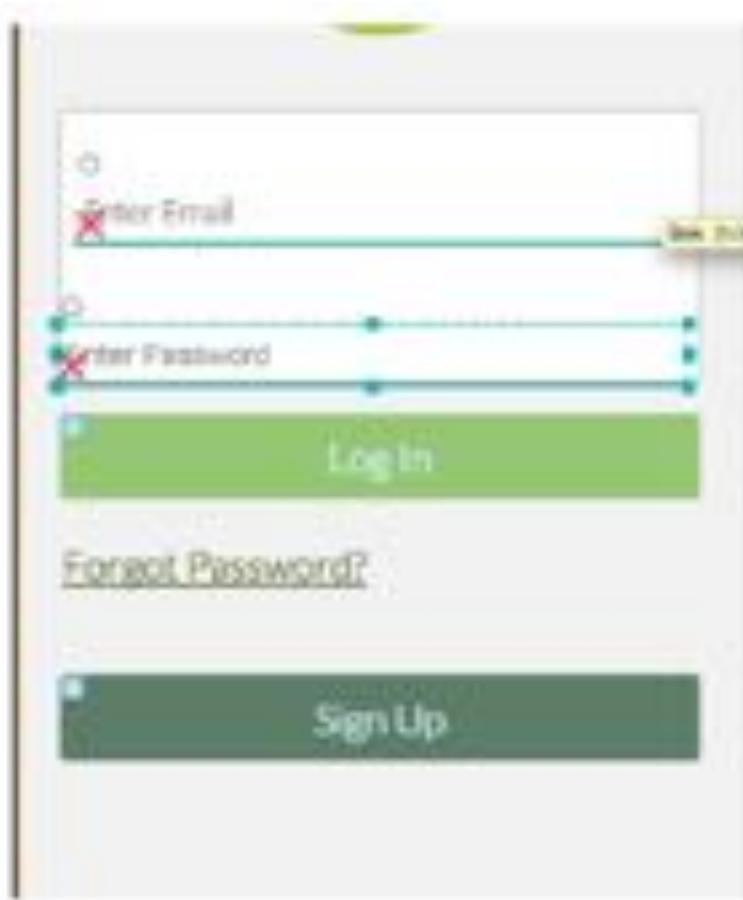
Remove Device Widgets

Google Glass
This library includes an icon library of common icons created for use with Google Glass for better looking user interfaces.

View All Widgets



Adding TextBoxes



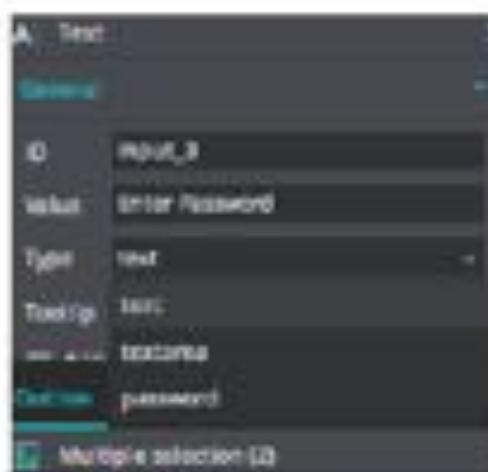
Enter Email

Enter Password

Log In

[Forgot Password?](#)

[Sign Up](#)

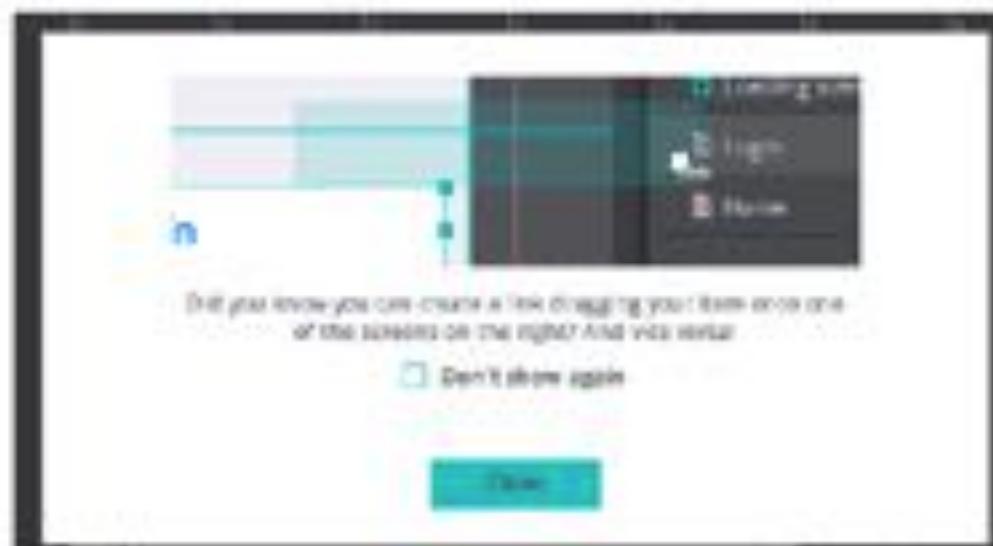


Create Another Screen



Creating HotSpots





Simulate

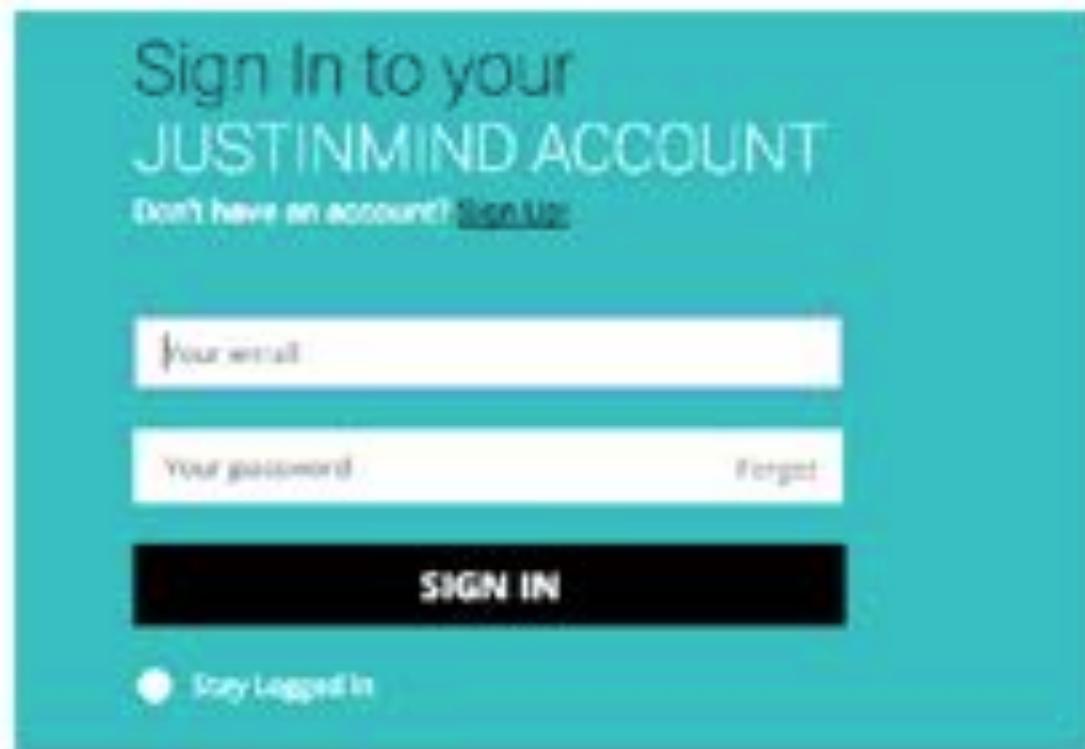


Simulate



Share

- <http://justinmind.com/>



Sign In to your
JUSTINMIND ACCOUNT

Don't have an account? [Sign Up](#)

Your email

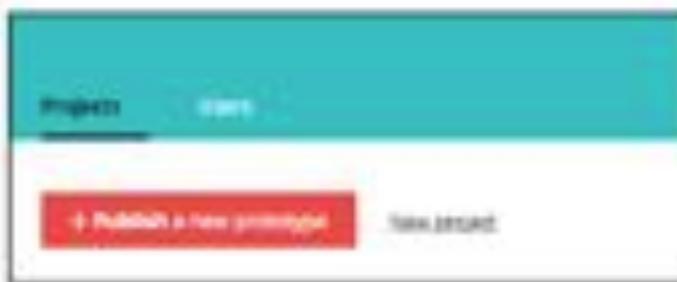
Your password [Forgot](#)

[Remember Me](#)

SIGN IN

[Stay Logged In](#)

Upload the prototype



Publish a prototype

[Shareable](#) [Embed](#) [Download](#)

Description:

Preview: 

[Publish the prototype](#) [Cancel](#)

Create a new project

Project name: [Create new project](#) [Cancel](#)

Invite Reviewers

Invite reviewers to: SmartMenuPrototype

Lists and groups that you can invite

Smart list

Smart list created by someone else

Subject

You have been invited to review a prototype

Content

I'd like to message you about your access to review this prototype: [SmartMenuPrototype](#).
The prototype, [SmartMenuPrototype](#), will be associated with this communication for each message.

You have been invited to review this prototype:

SmartMenuPrototype
[SmartMenuPrototype](#)
Message: This link has been created for your use only. Do not share this message.
Mobile app users: [Install](#)

[Send invitation](#)

...

Using Predesigned Asset Files

- Designed in Adobe PS/Sketch
- Import into Prototyping Tool

In Justinmind

Create a new prototype

Start your prototype from



Empty



Images



Documents



Assets



Select image files

Link to image files

Include images in prototype

Delete all

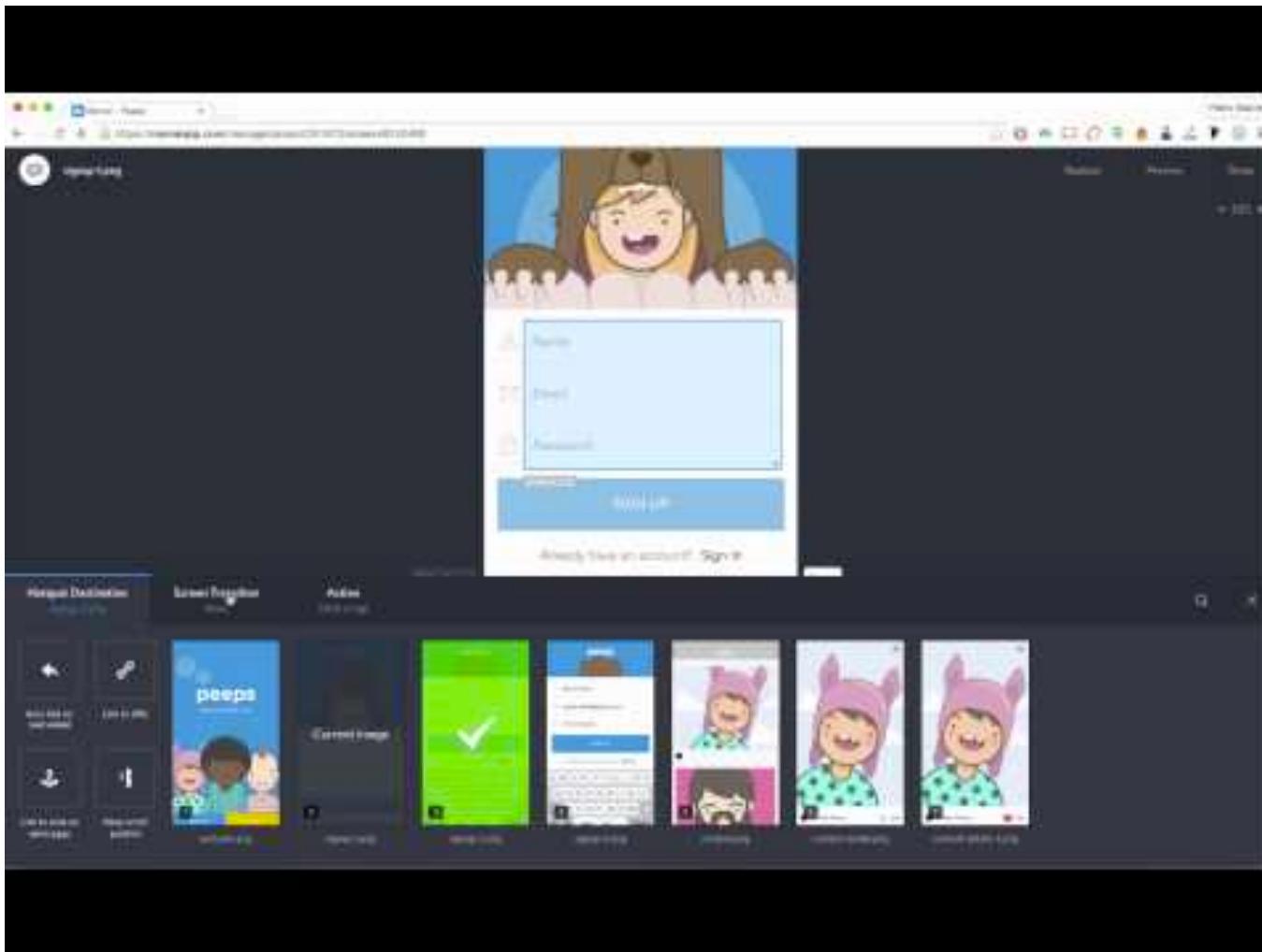


Back

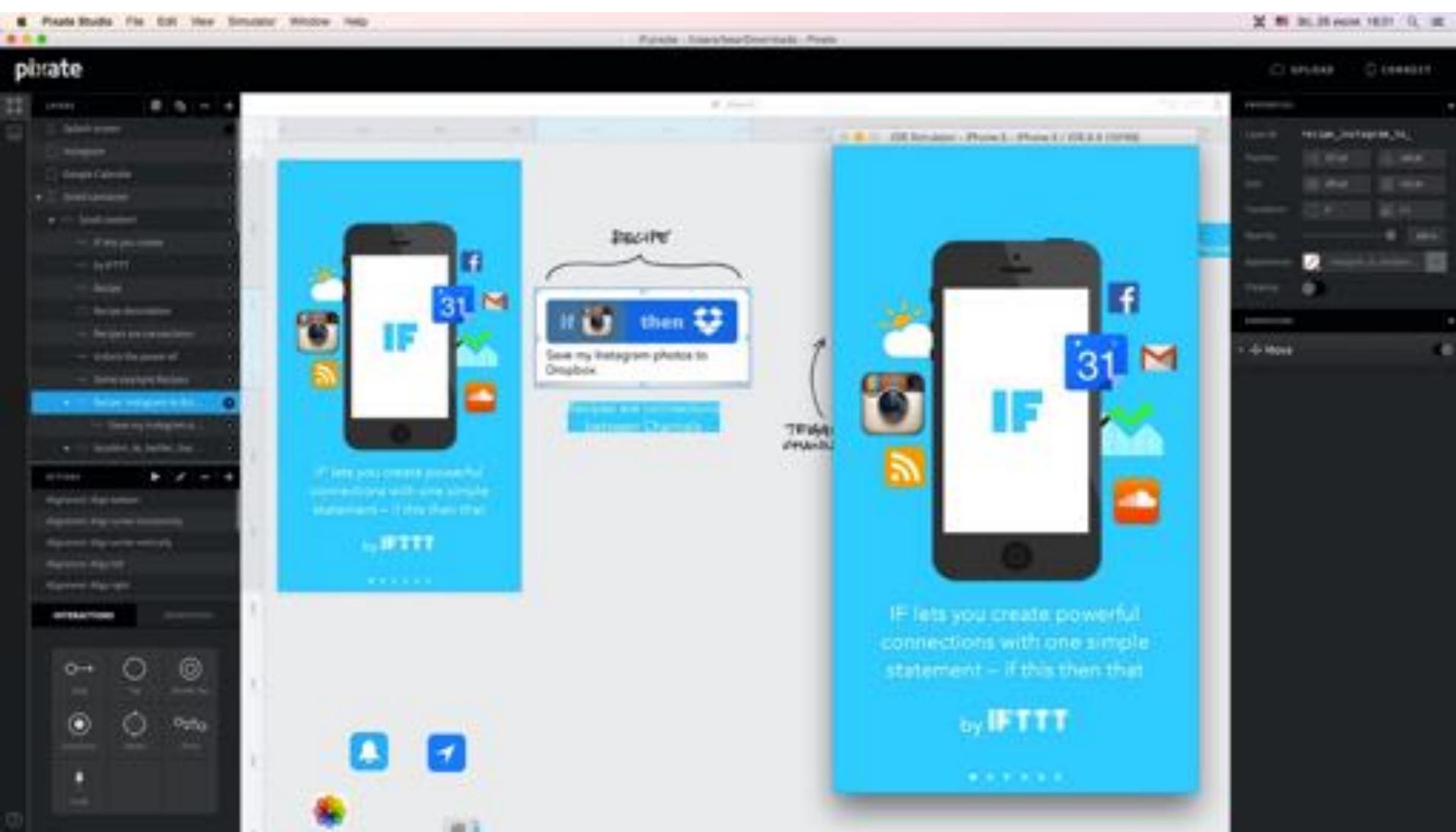
Cancel

Finish

Marvel App



Pixate



Pop

- Leveraging the simplicity of paper prototyping



Design on paper

Simulate and Test



Take Pictures



Simulate clicks

Homework

- Mobile Shopping Cart App
- Help People shop for Groceries
- What features should a shopping cart app have
- Look at existing shopping apps
- What features would you want to add/remove
- Next class YOU will *build the* prototype