



Develop

Arindam Ghosh
Prof. Giuseppe Riccardi



Design, Develop and Deliver

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Prof. Giuseppe Riccardi



D-D-D

- Design → Designer(s)
 - Develop → Developer(s)
 - Deliver → Customer(s)
- 





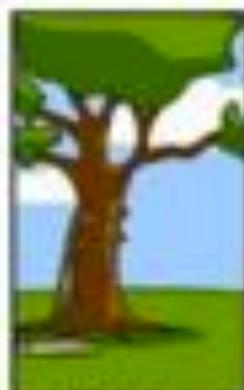
How the customer explained it



How the Project Leader understood it



How the Analyst designed it



How the Programmer wrote it



How the Business Consultant described it



How the project was documented



What operations installed



How the customer was billed

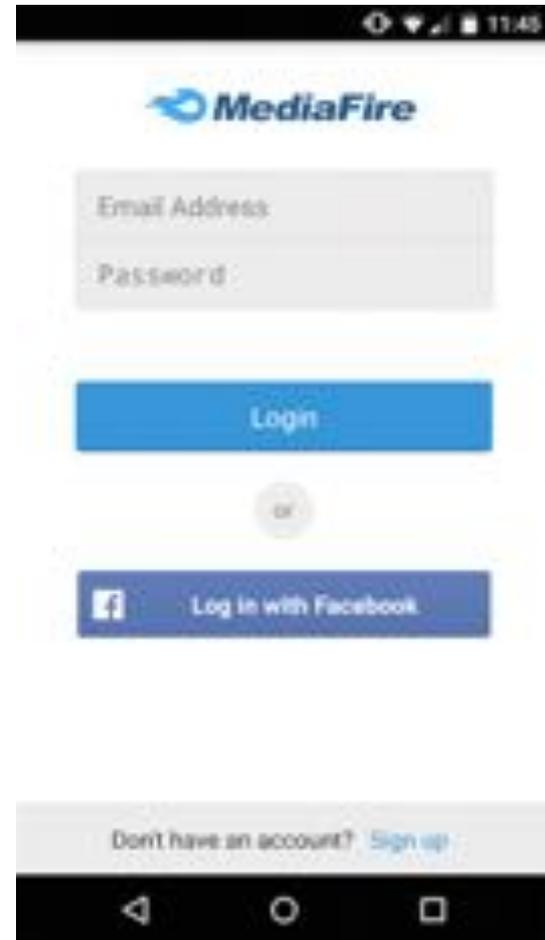
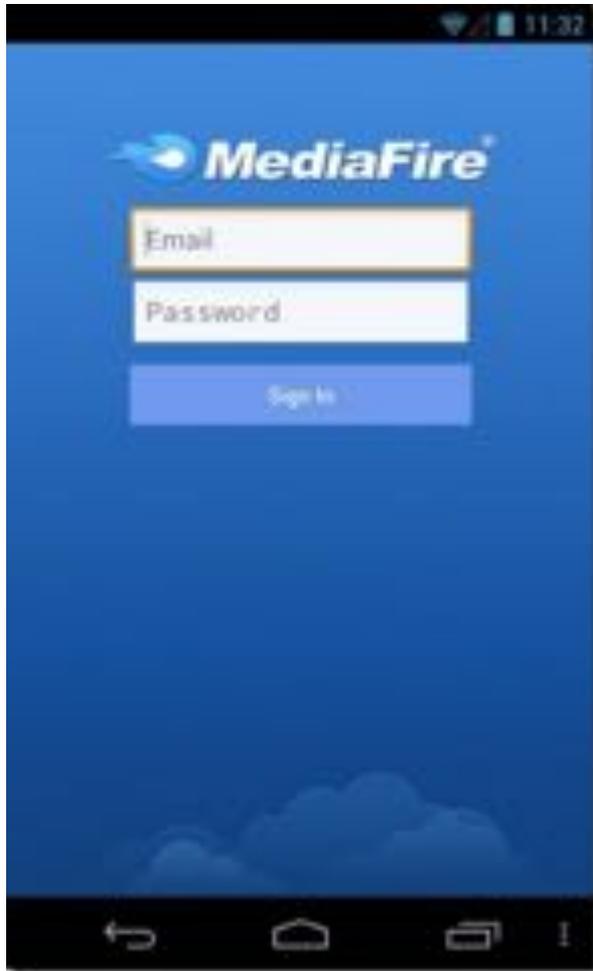


How it was supported



What the customer really needed

Sign up screen – social or not?



NEWS

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

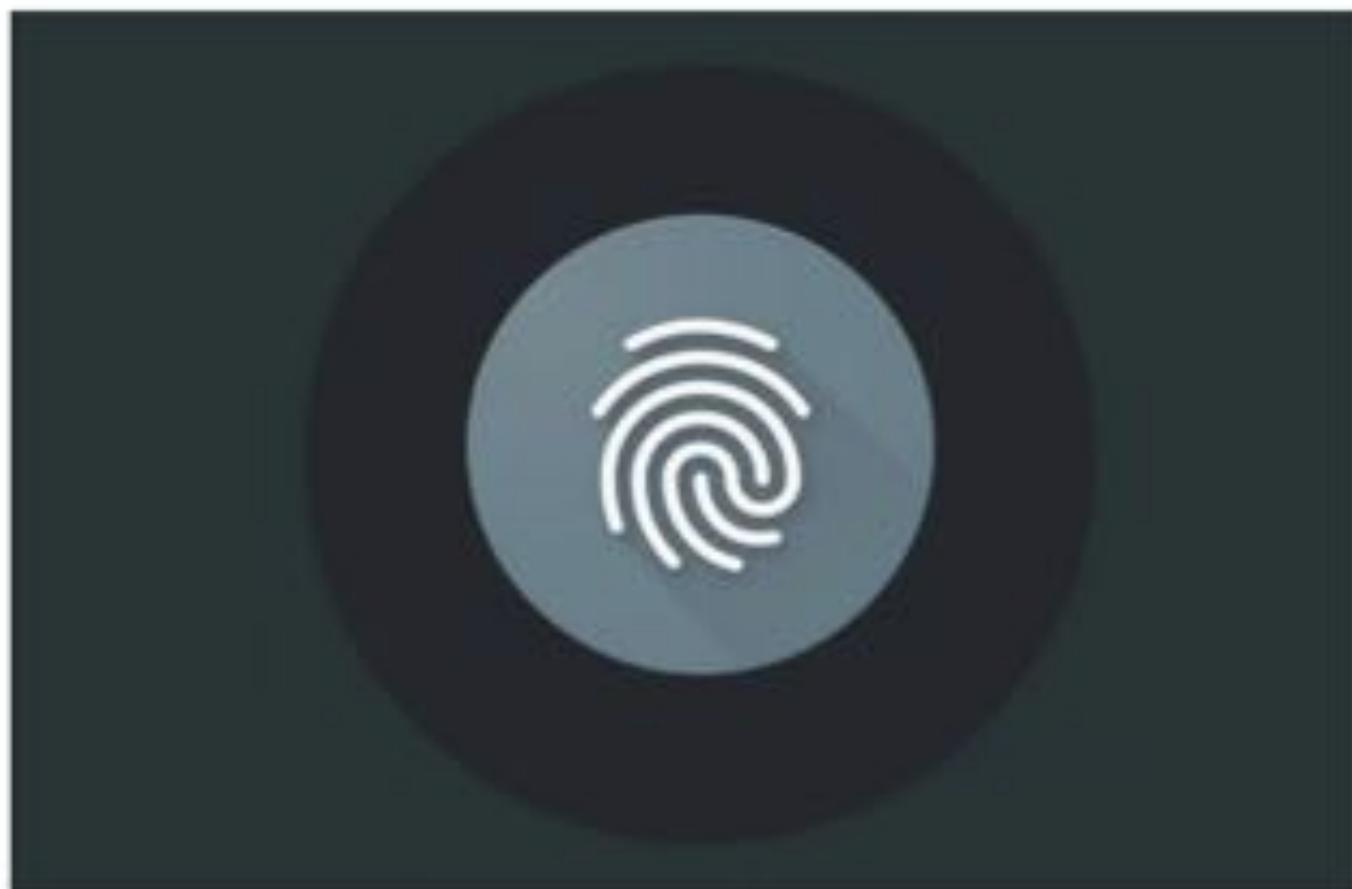


Image ID

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](#)



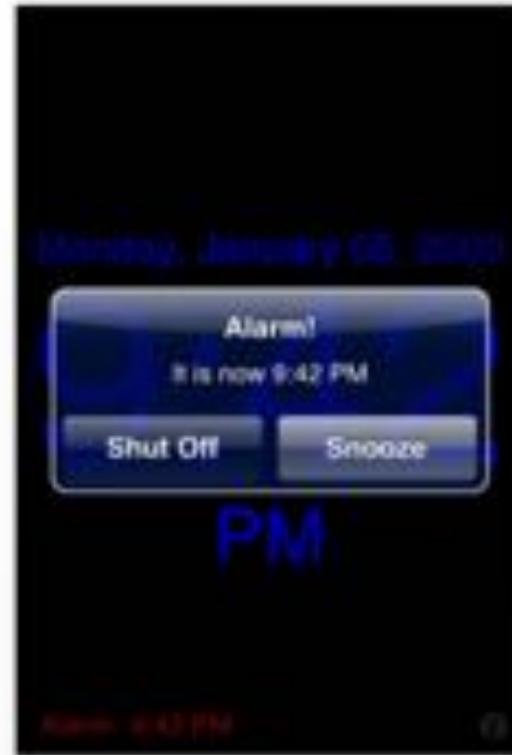
<http://www.theverge.com/2015/1/18/7785443/apple-ipad-pro-stylus>

DAVID PIERCE GEAR 09.12.15 7:00 AM

ONLY APPLE CAN MAKE THE PERFECT STYLUS IT ONCE SPURNED



Alarm App - cool or simple?

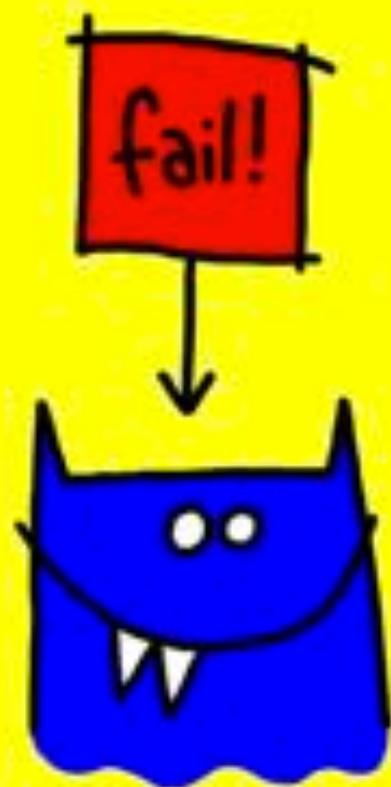


YOU HAD ONE JOB





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



Prototype before you Build



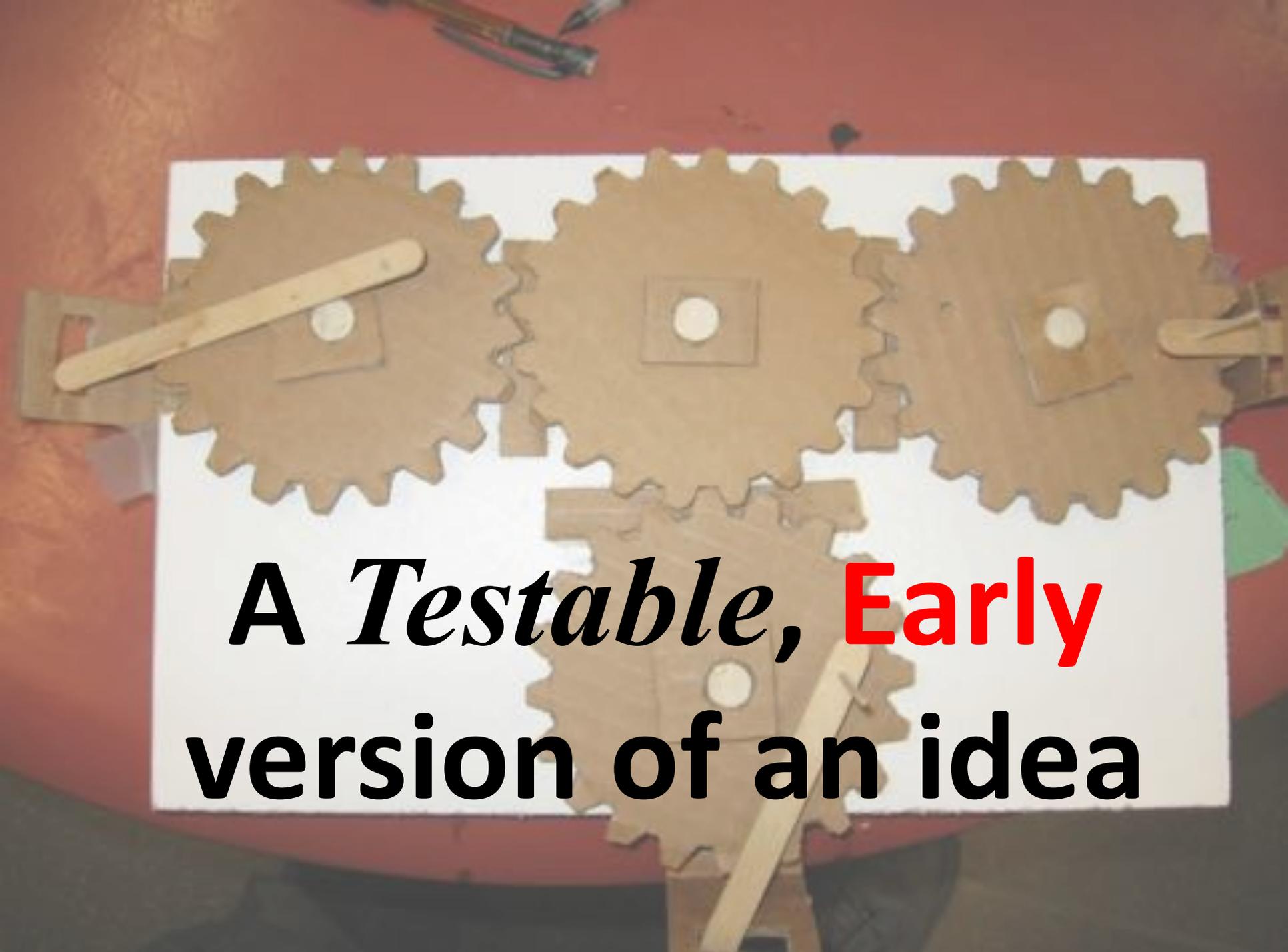


<http://www.businessinsider.com/photos-early-apple-prototypes-2014-6?op=1&IR=T>

3D printed future car prototype



What is a Prototype?



*A Testable, **Early***
version of an idea

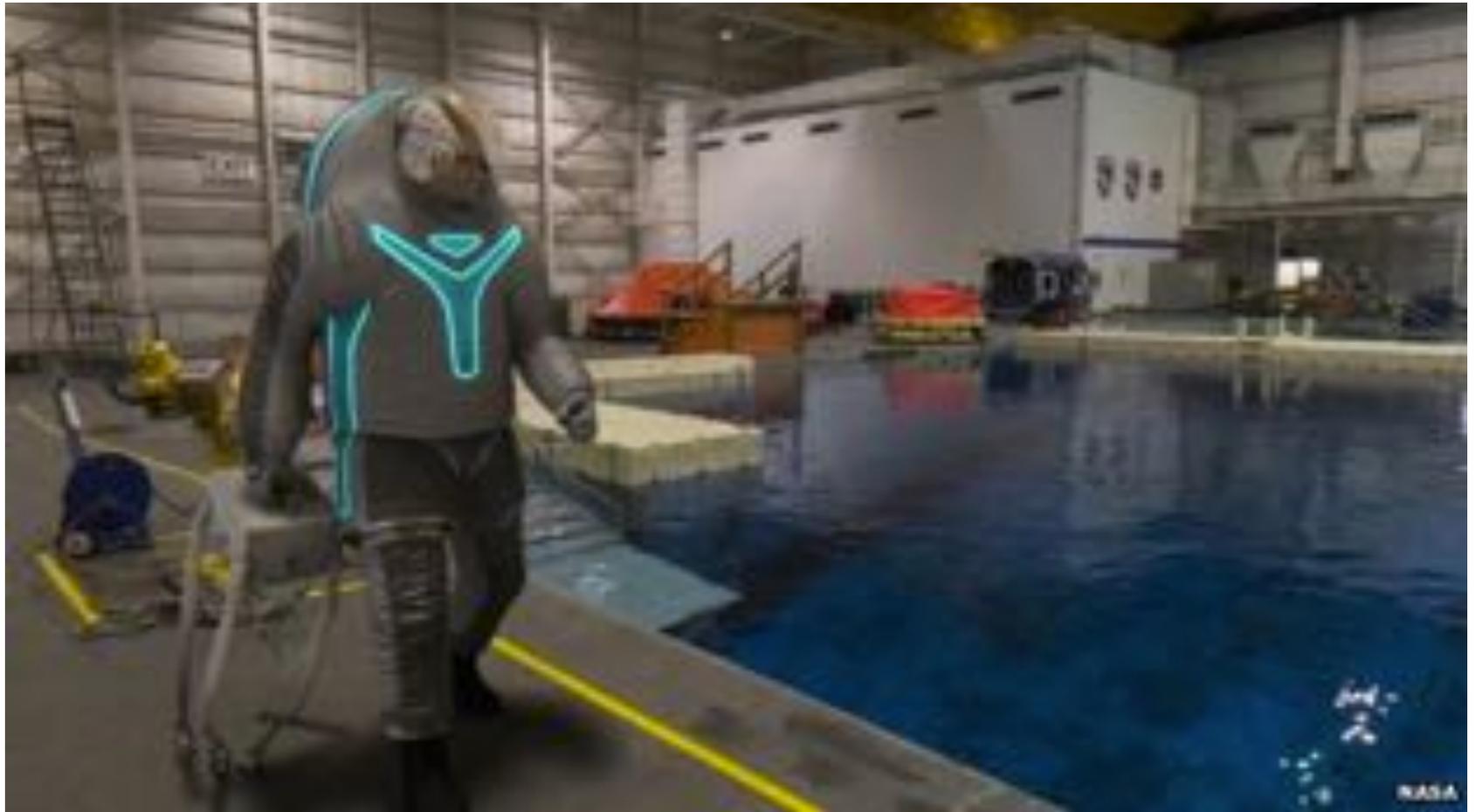


1 May 2014 Last updated at 12:36 GMT



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+

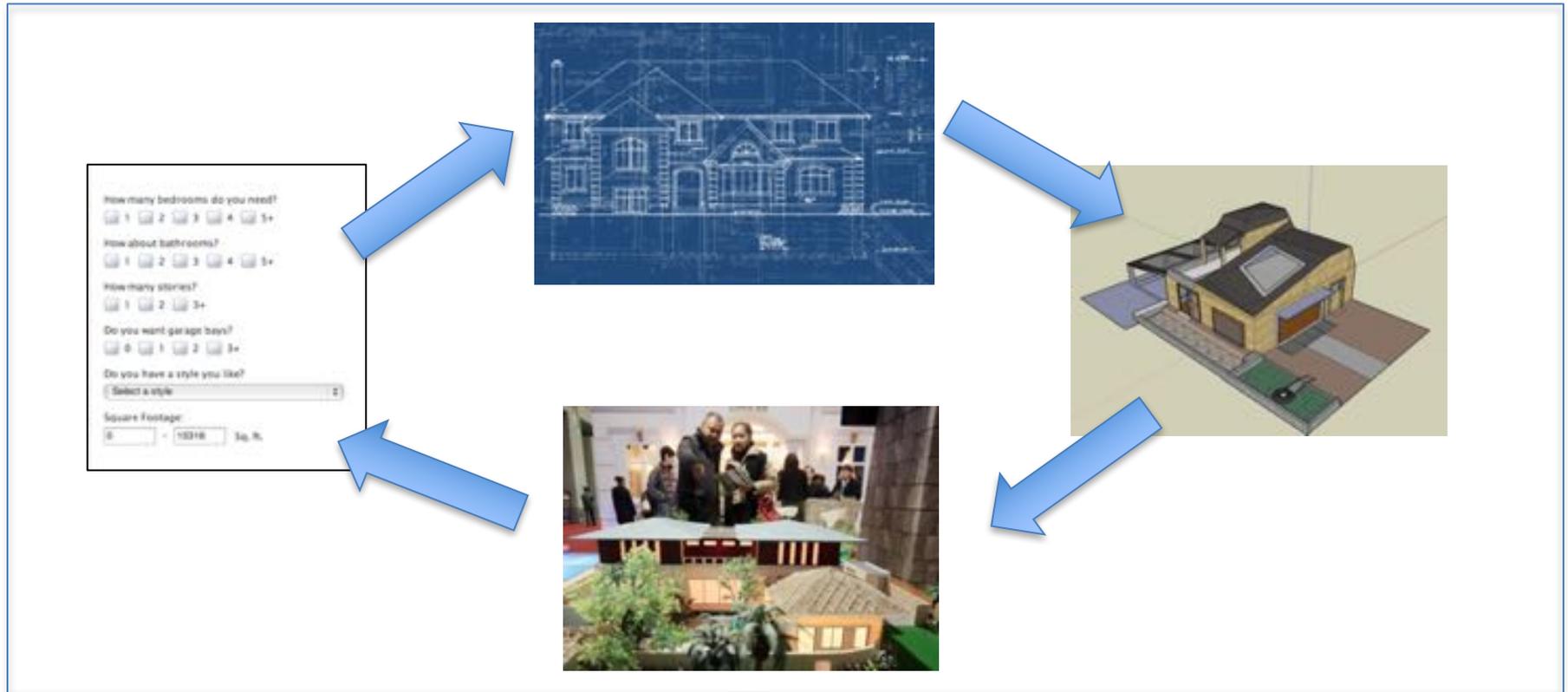
Do you want garage bays?
 0 1 2 3+

Do you have a style you like?

Square Footage:
 - Sq. ft.



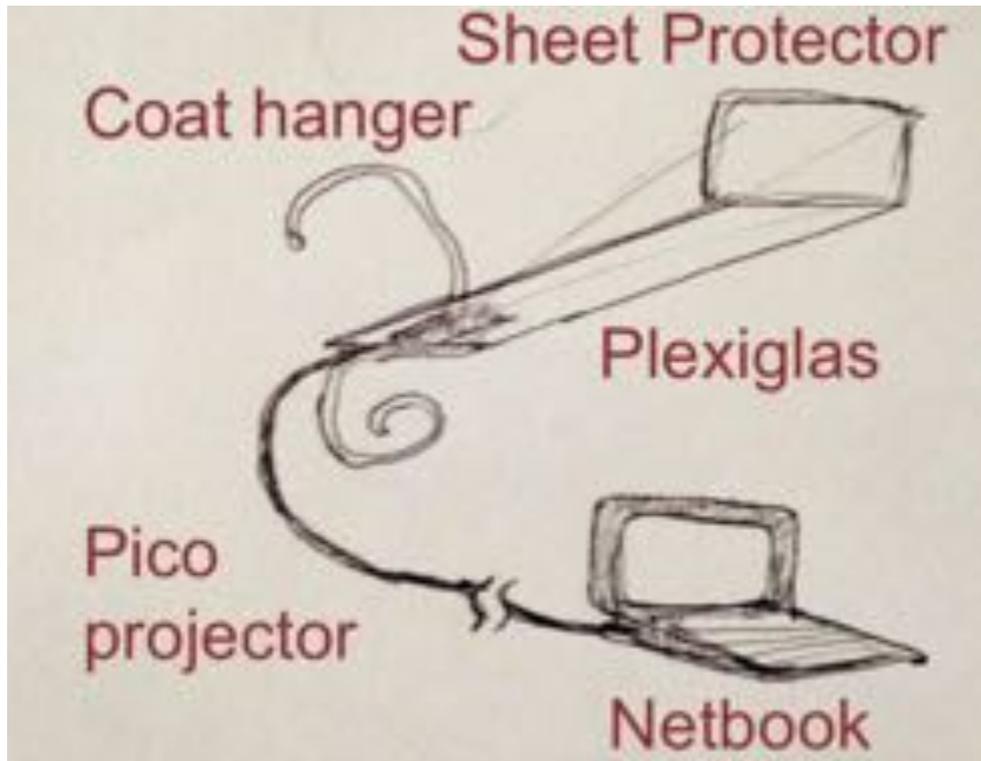
Architecture







Google Glass



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

What about Prototypes
for Software?

Before Building an app

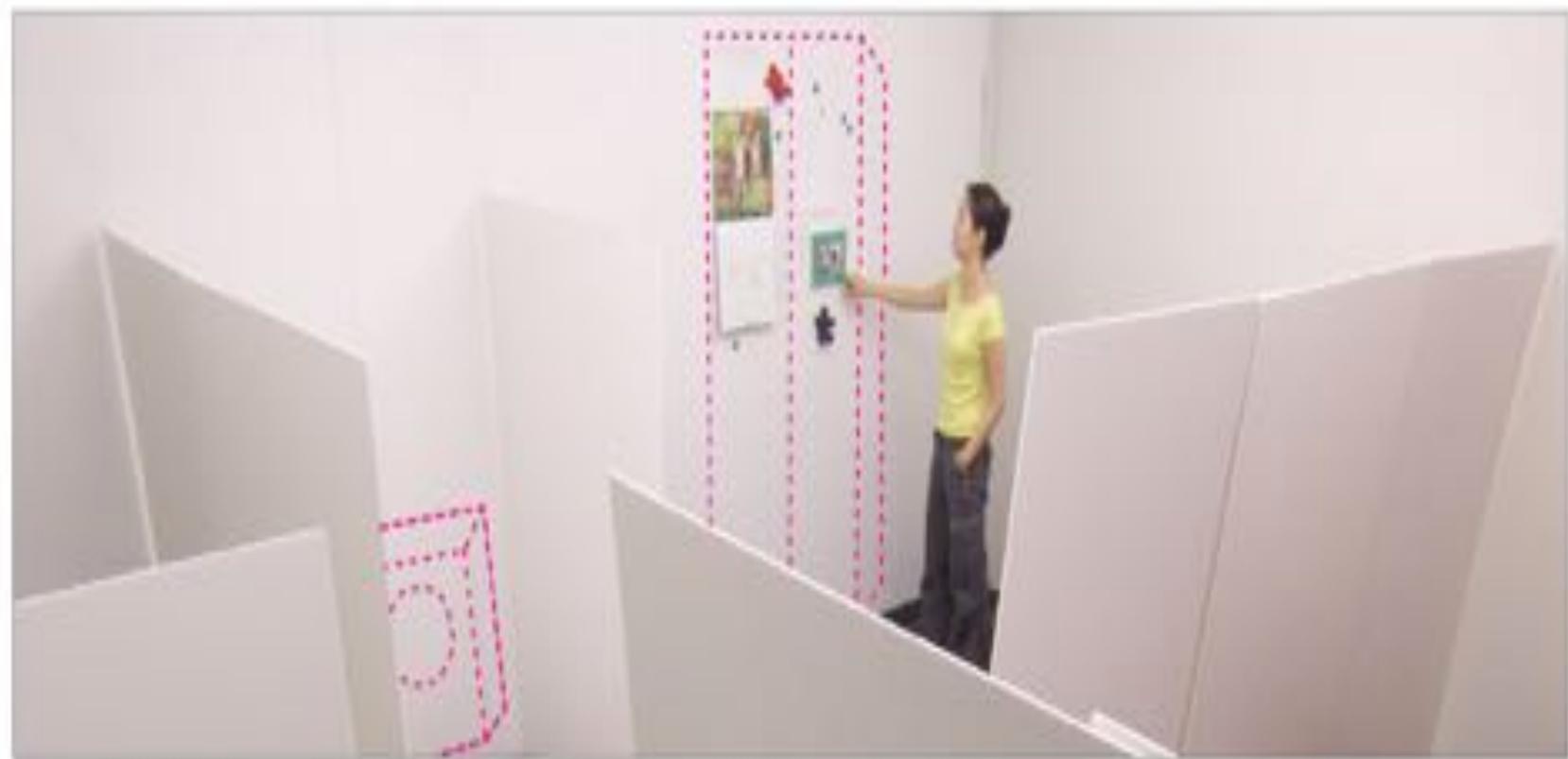


Build a Prototype



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](#)

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

Why Prototype?

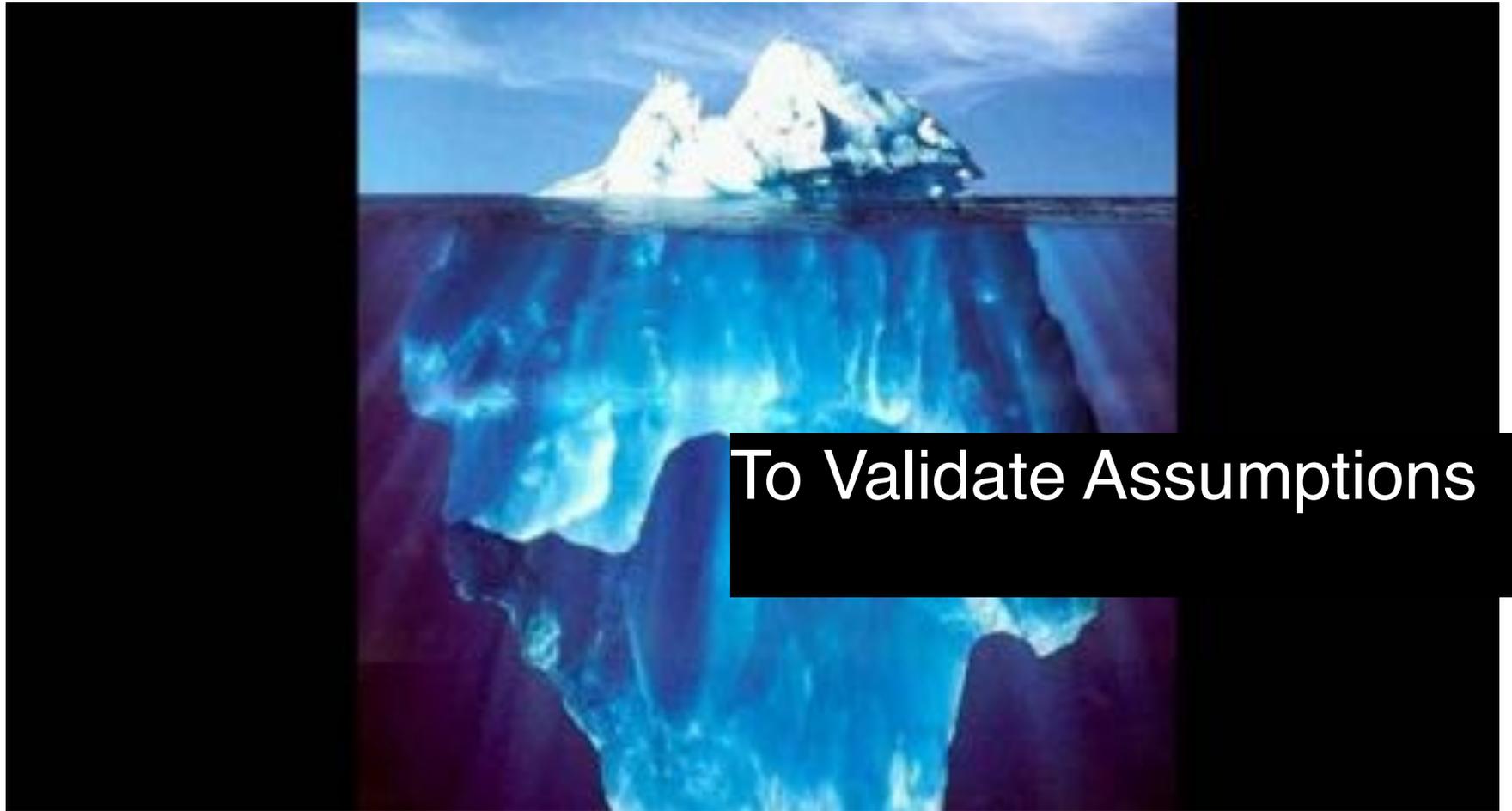
To Communicate an Idea or Experience



We want to build the next cool
gadget...

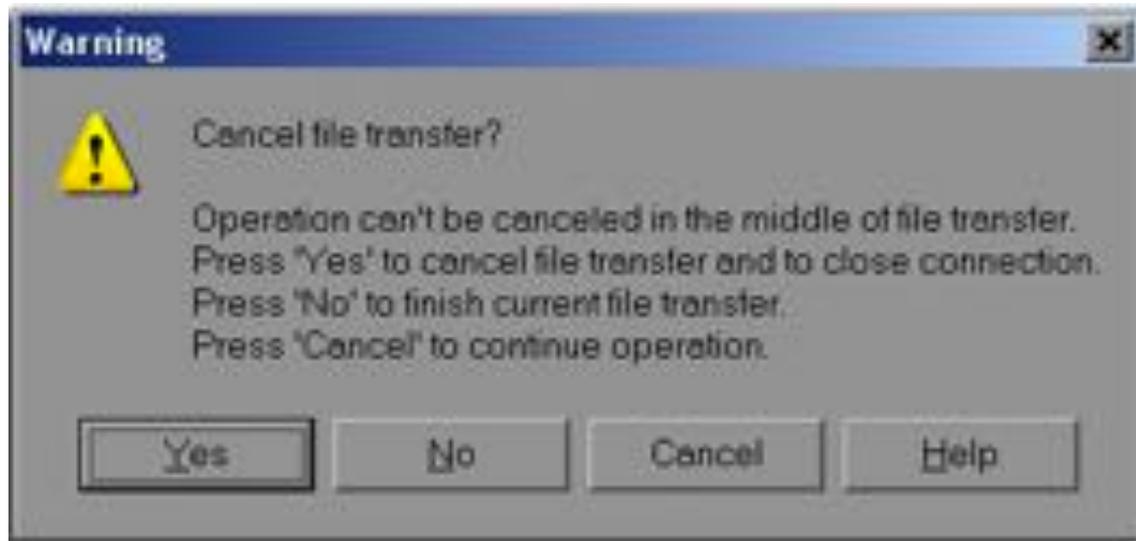


But What do people think about it?
Lets show them a video



To Validate Assumptions

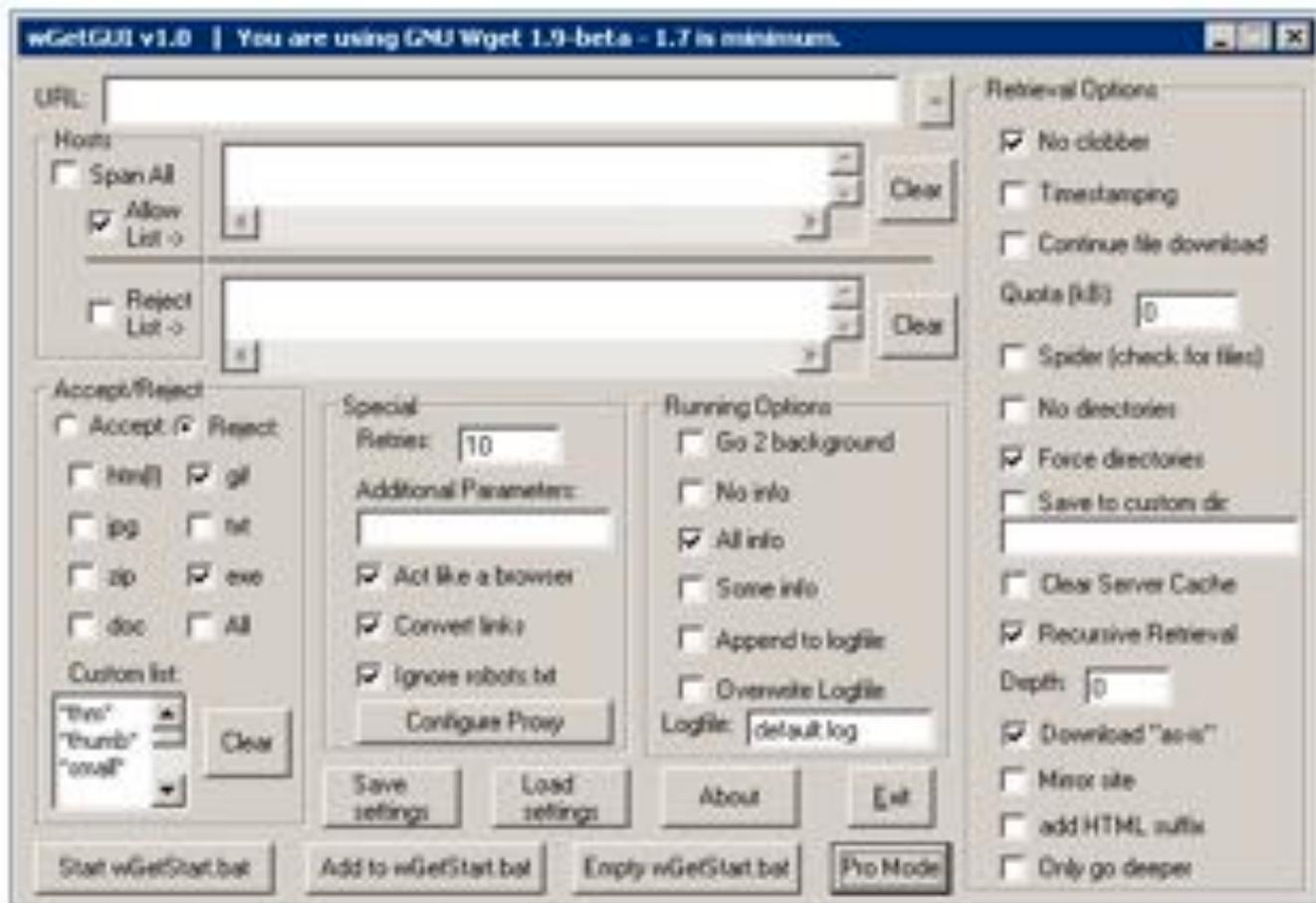
Does the User Understand you?



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?

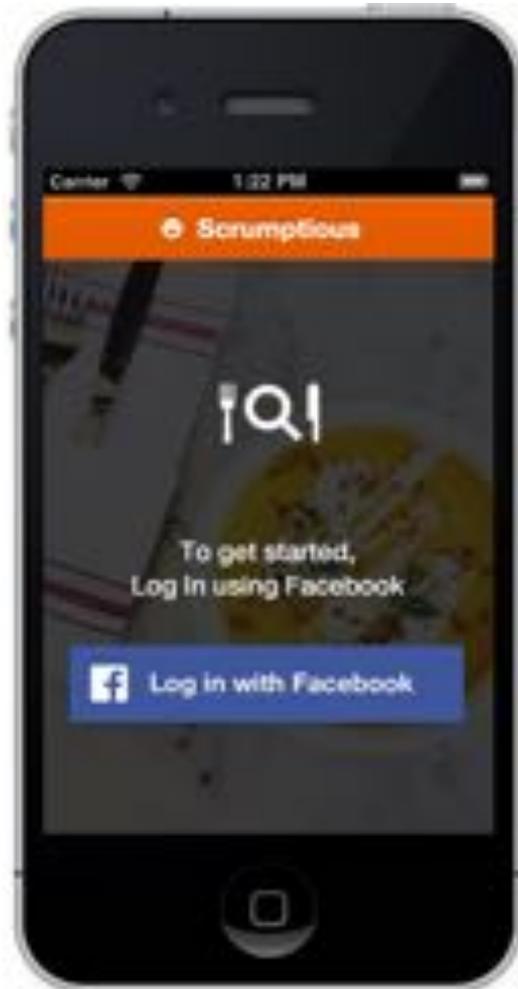


INTERNATIONAL DECOR
interidecor.blogspot.com

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.



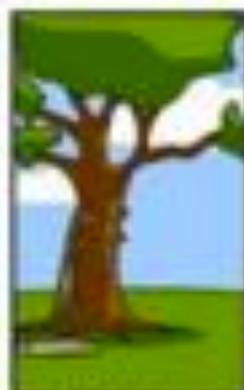
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What operations installed



How the customer was billed



How it was supported



What the customer really needed

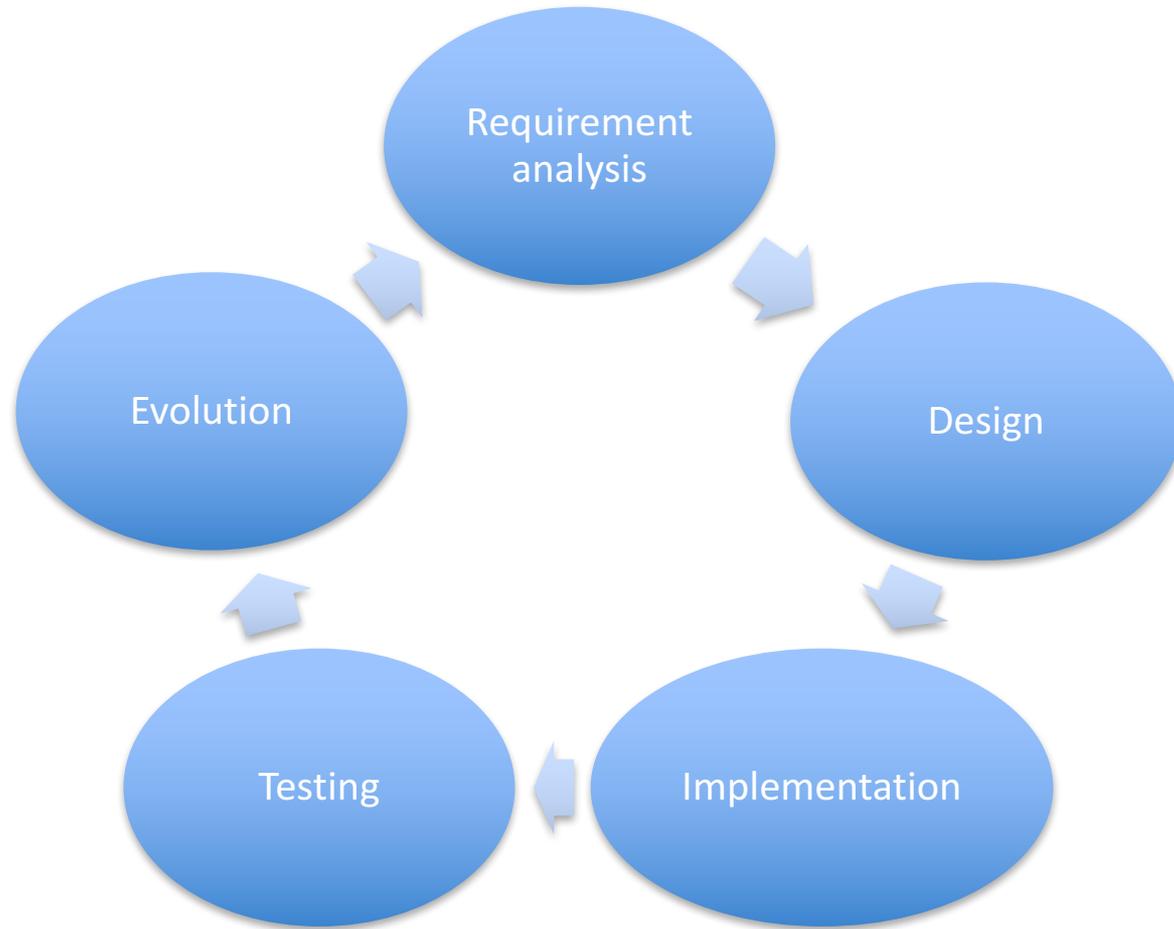
User Journeys/User Stories

- What are the goals of the user – *not of your app*.
 - Order find
 - Find **local** deals
 - Chat with **friends** nearby
 - Save Time
- How is the user going to use the app?
 - Type
 - Speech
 - Sensors
 - Virtual Reality

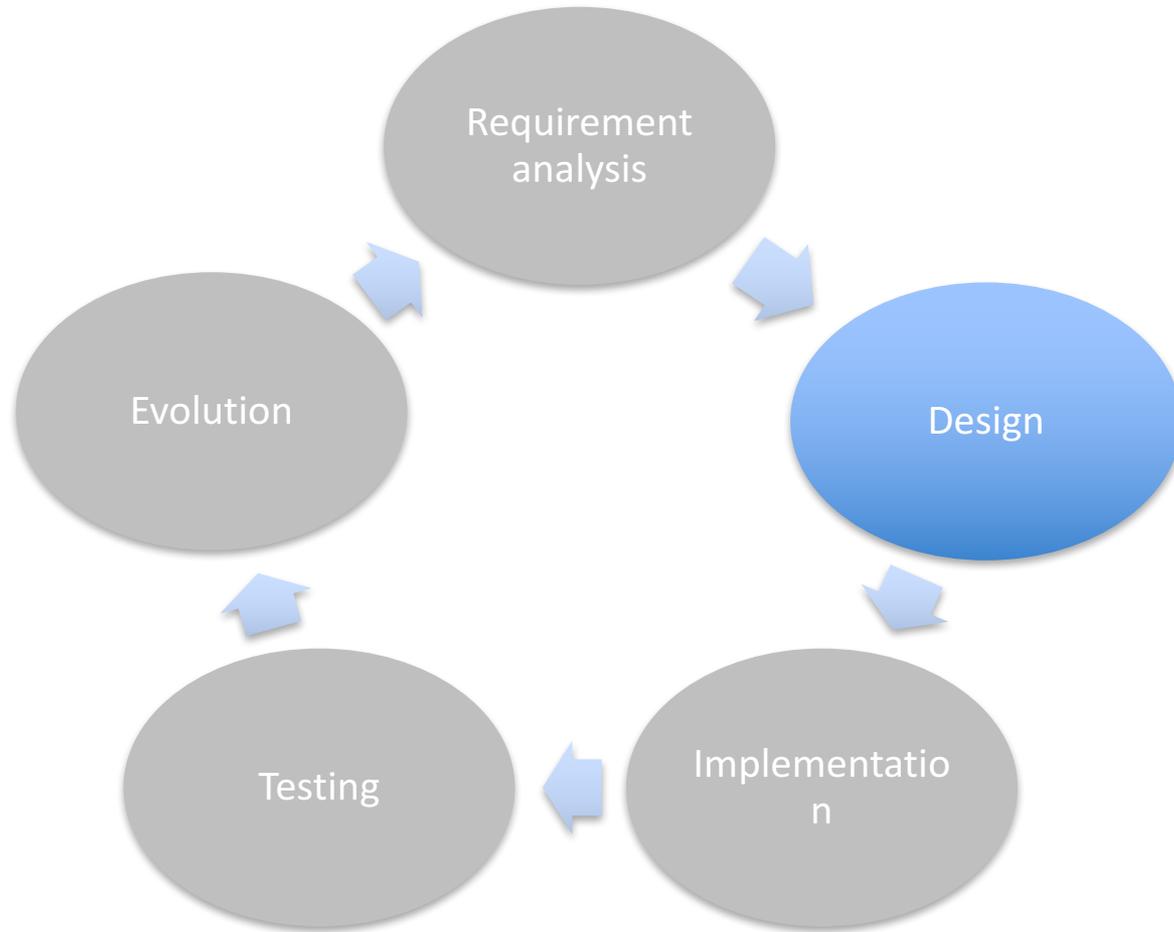
Constraints?

- What are the constraints?
 - Used while driving/biking
 - Can the user interact with it easily?
 - Used mostly at home
 - Why would the user not use the computer/tablet/laptop?
 - Used while travelling in the mountains
 - How much battery will the app consume?
 - How will it deal with low connectivity?
 - Used for buying etc.
 - What if the user has no credit card?
 - How will the app ensure repeated usage once the user and seller have created a connection?

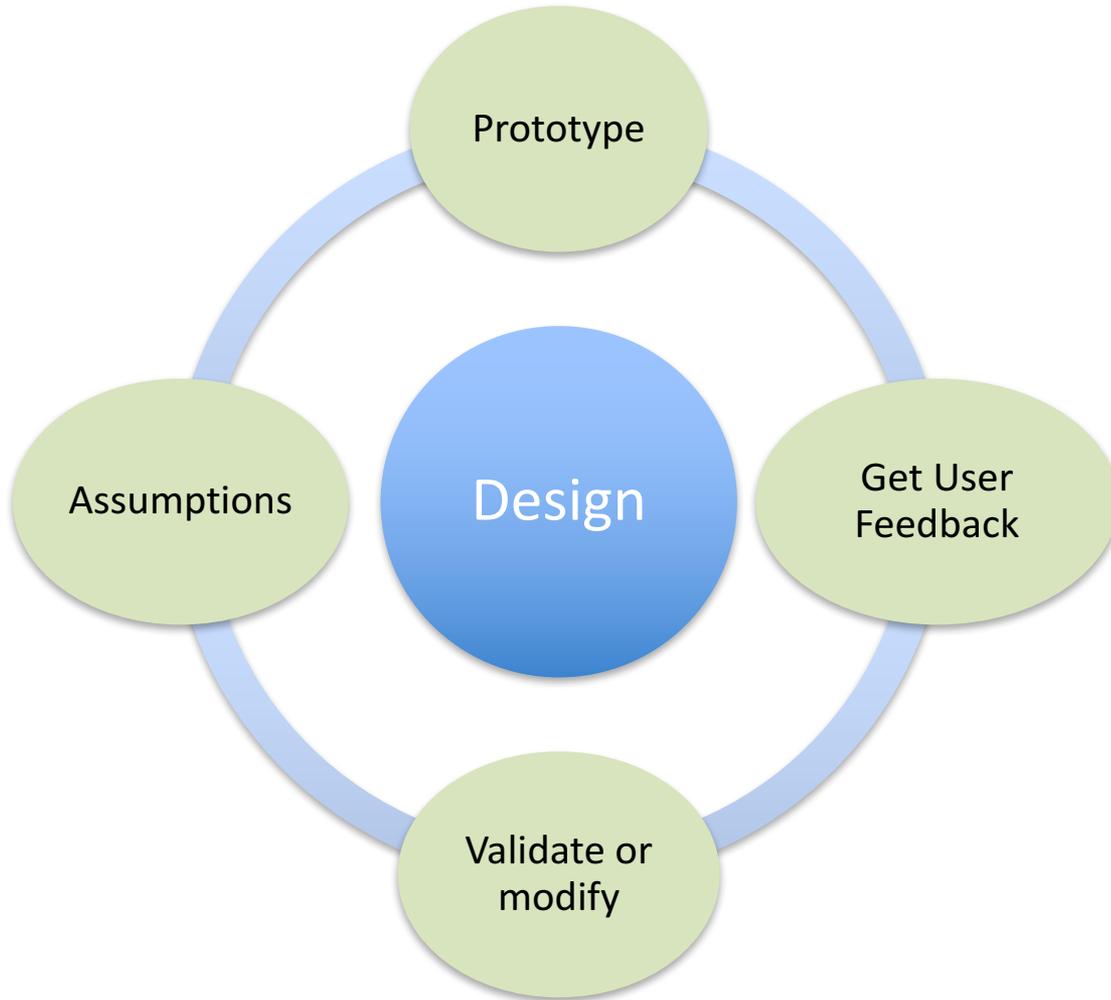
Ideal Software Engineering Life Cycle



Where does prototyping come in?



Prototyping Life Cycle



What could go wrong with a login screen?



They forgot the “FORGOT PASSWORD” button!!!

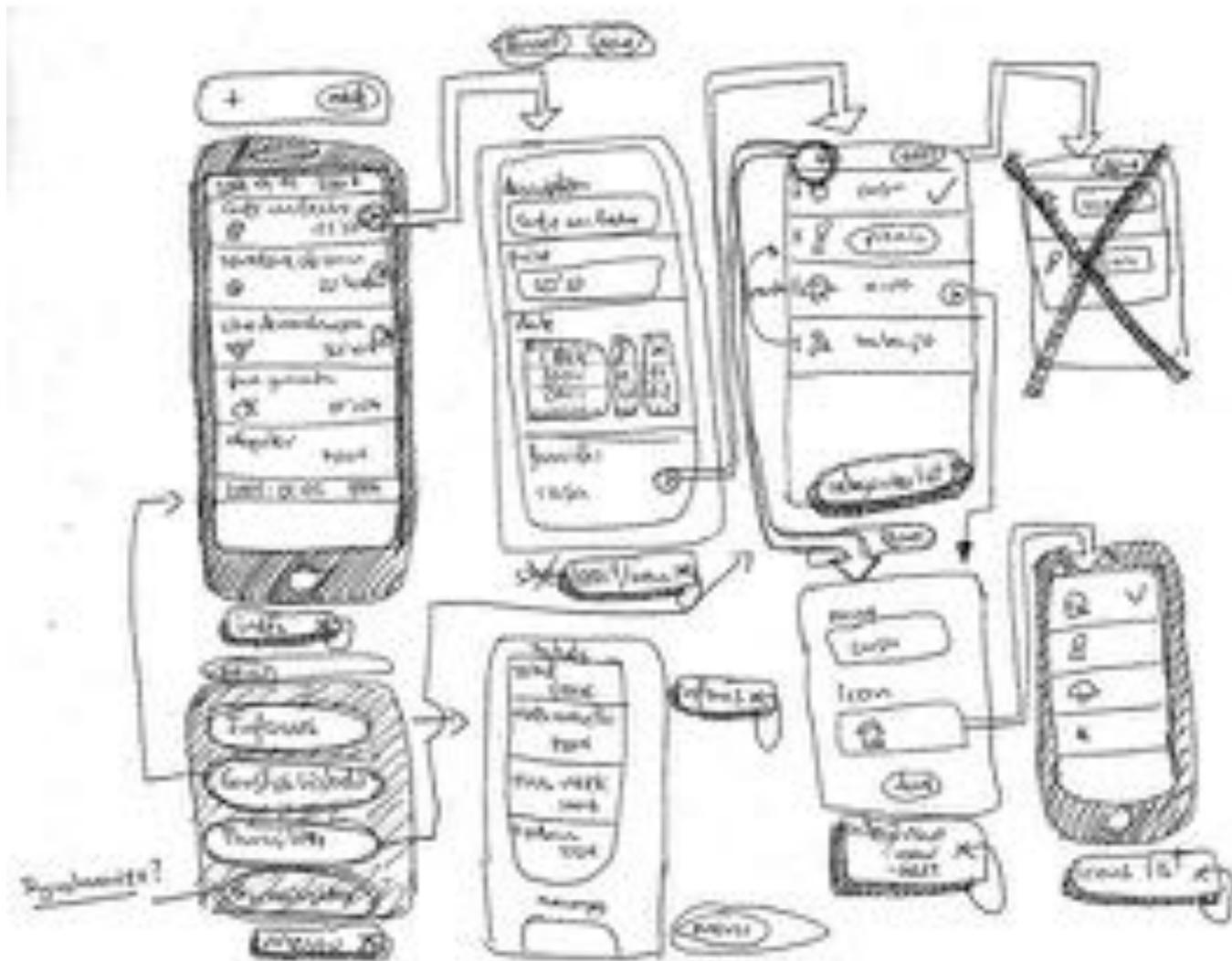
Common techniques

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

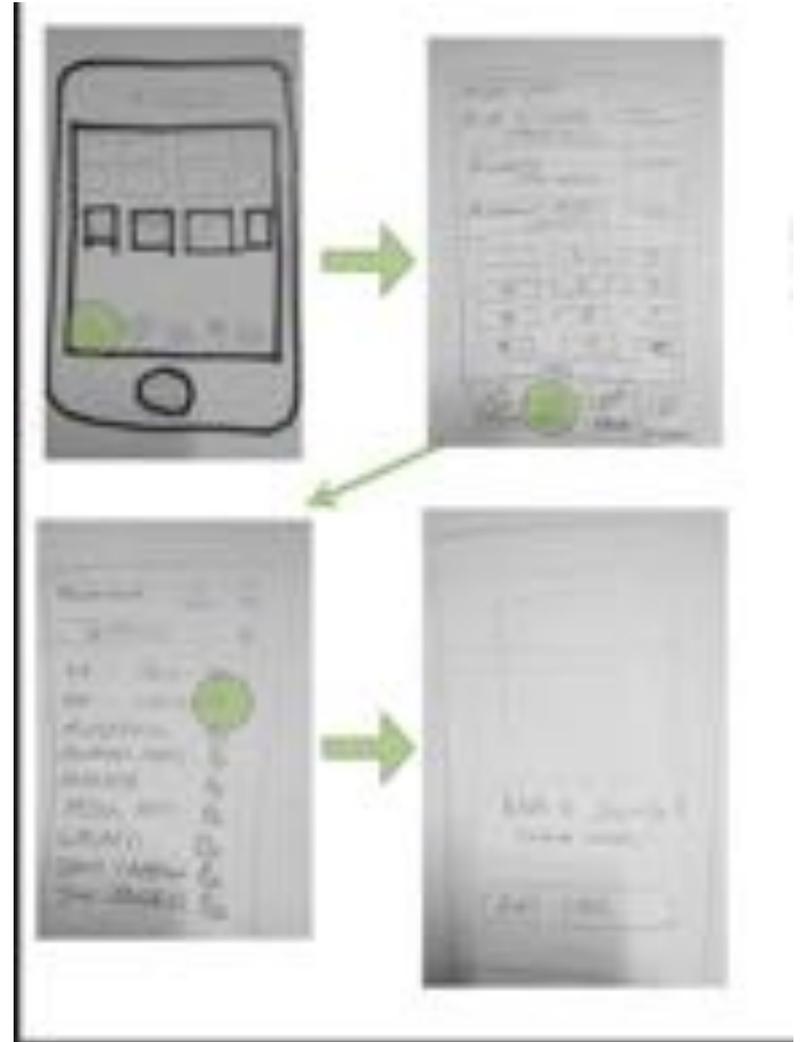
What is Paper Prototyping?

- 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



- 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



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/>

JUSTINMIND[®]

Standalone installation on windows, and mac

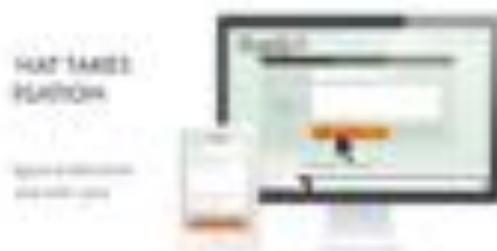
<http://www.justinmind.com/download>

More tools

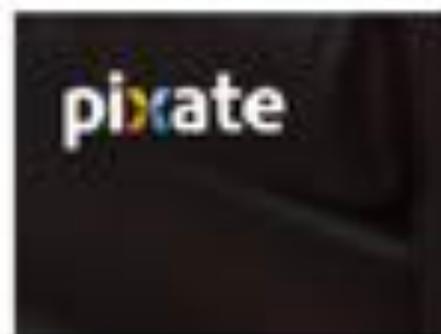
<https://popapp.in/>



<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

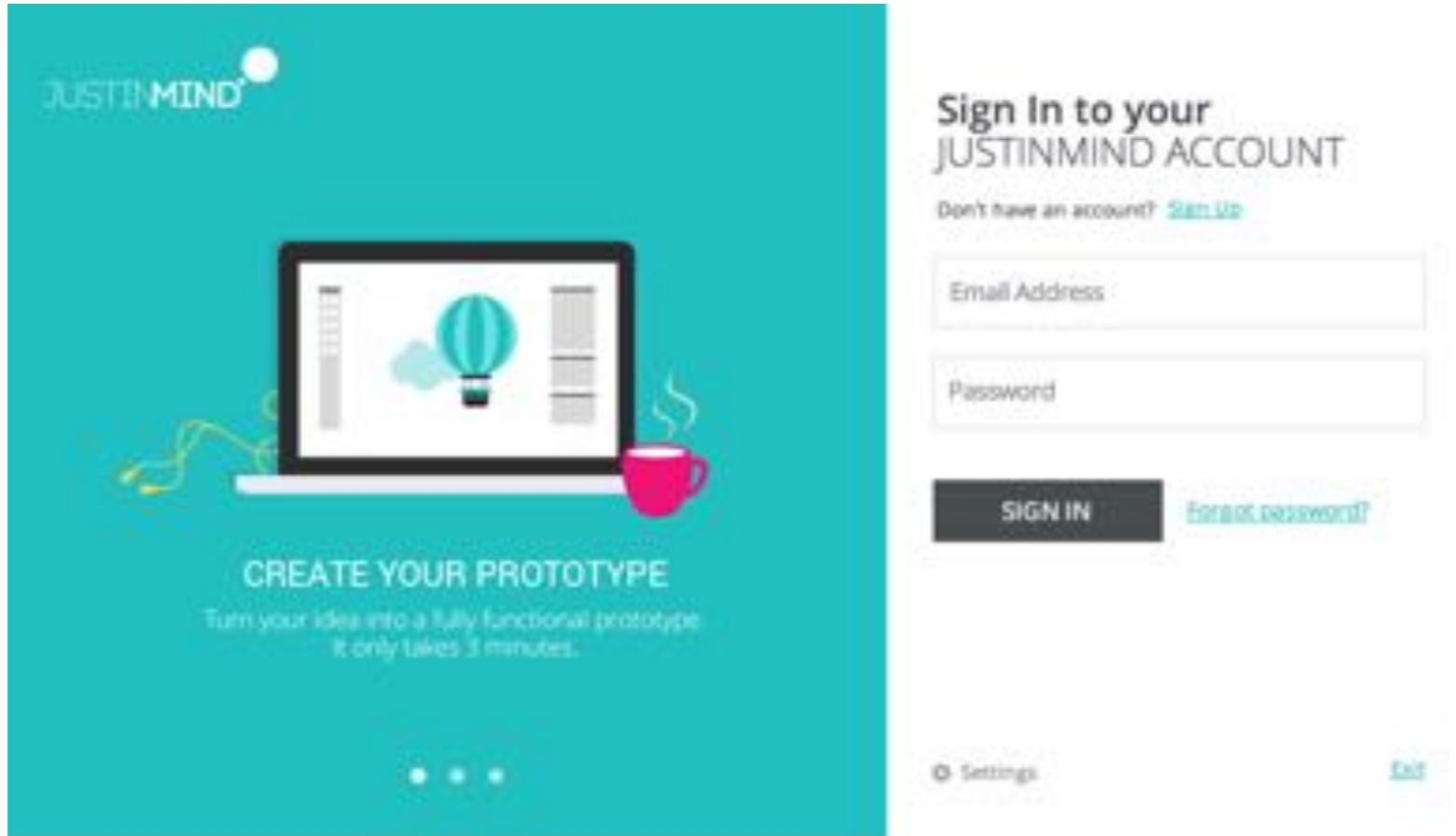


Download and Install



<https://www.justinmind.com/>

Create Account



The image shows a web page for JustinMind. On the left, there is a teal banner with the JustinMind logo at the top left. Below the logo is an illustration of a laptop displaying a hot air balloon and a bar chart, with a pink coffee cup next to it. The text on the banner reads "CREATE YOUR PROTOTYPE" and "Turn your idea into a fully functional prototype. It only takes 3 minutes." At the bottom of the banner are three white dots. On the right, the page has a white background with the heading "Sign In to your JUSTINMIND ACCOUNT". Below this is a link "Don't have an account? Sign Up". There are two input fields: "Email Address" and "Password". Below the fields is a dark grey "SIGN IN" button and a link "Forgot password?". At the bottom right, there is a link "Settings" and a link "Exit".

JUSTINMIND

CREATE YOUR PROTOTYPE

Turn your idea into a fully functional prototype.
It only takes 3 minutes.

Sign In to your
JUSTINMIND ACCOUNT

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

Email Address

Password

SIGN IN [Forgot password?](#)

[Settings](#) [Exit](#)

Sign Up



ANIMATE YOUR DESIGNS

Our drag and drop editor makes it really easy to add events and interaction to your content. Preview your prototype animations on mobile or on your desktop browser.

• • •

Create a Justinmind FREE TRIAL ACCOUNT

Do you have an account? [Sign in](#)

SIGN UP

⊙ Settings

[Exit](#)





Welcome to Justinmind

New 

[Create a New Prototype](#)

Open 

[Open a prototype](#)

[Open a recent prototype](#)

Learn 

[Just in mind in 3 minutes](#)

[Become an expert](#)

[Visit our site](#)

Don't show again

[Close this window](#)

Select the Target device



Create New Prototype - Options



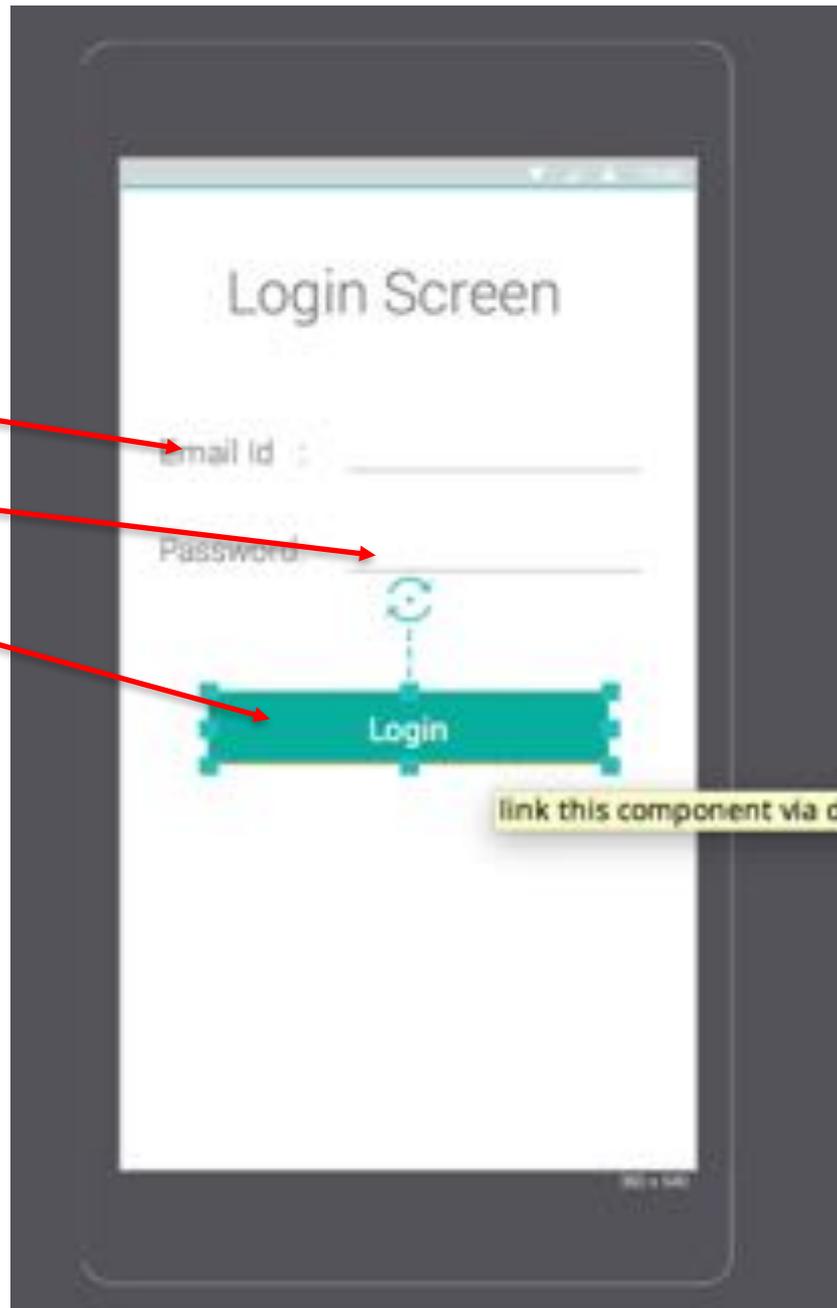
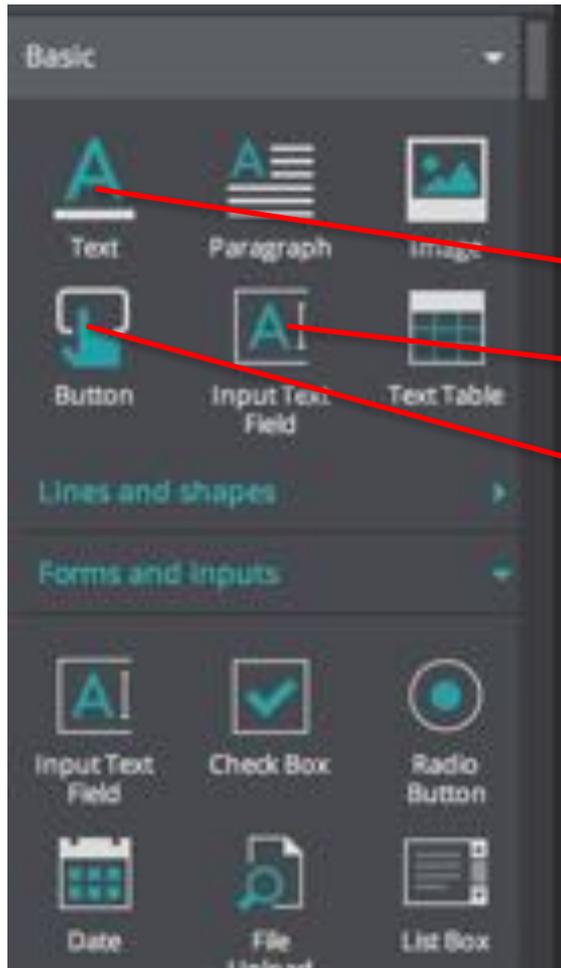
1. Start from an Empty Canvas
2. Start from a set of Images
3. Start from an existing Example
4. Start from another Prototype

From Examples

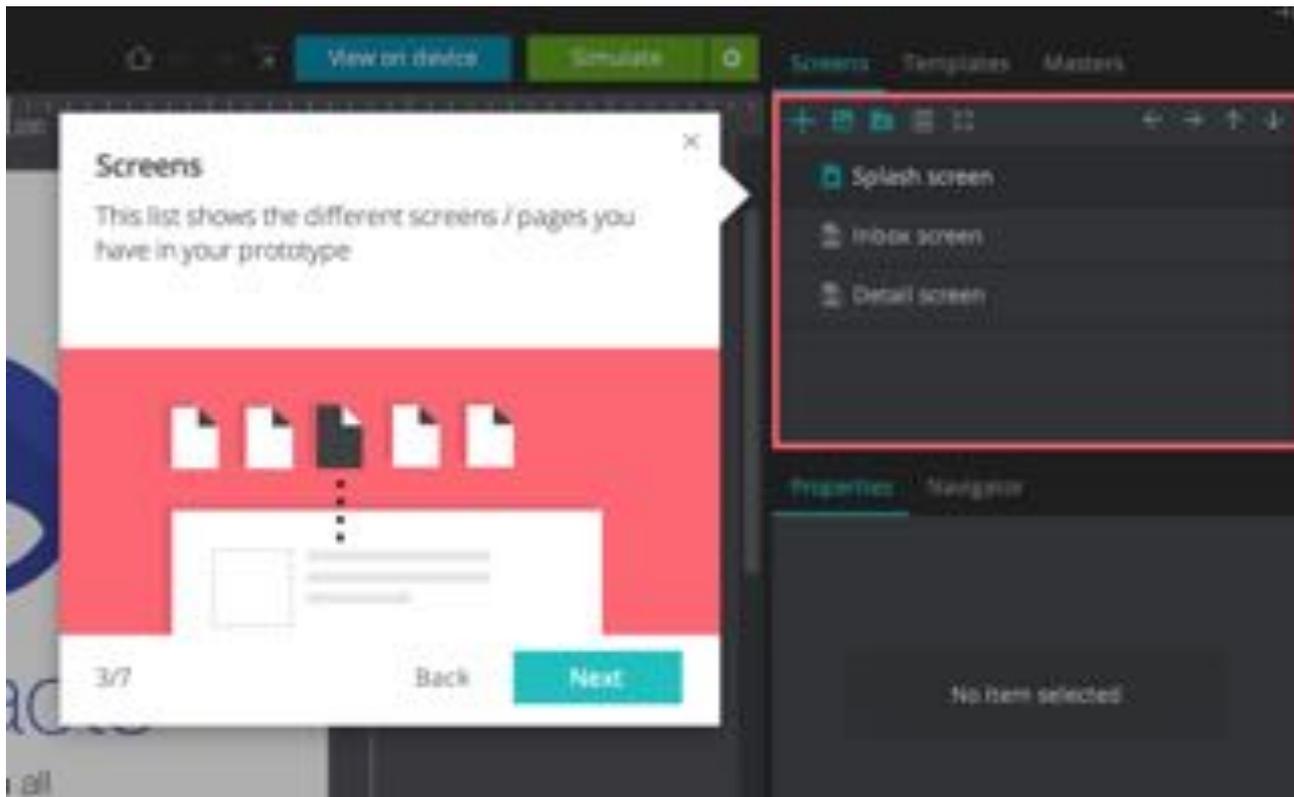


Widgets - pre-existing elements

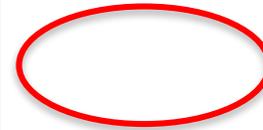
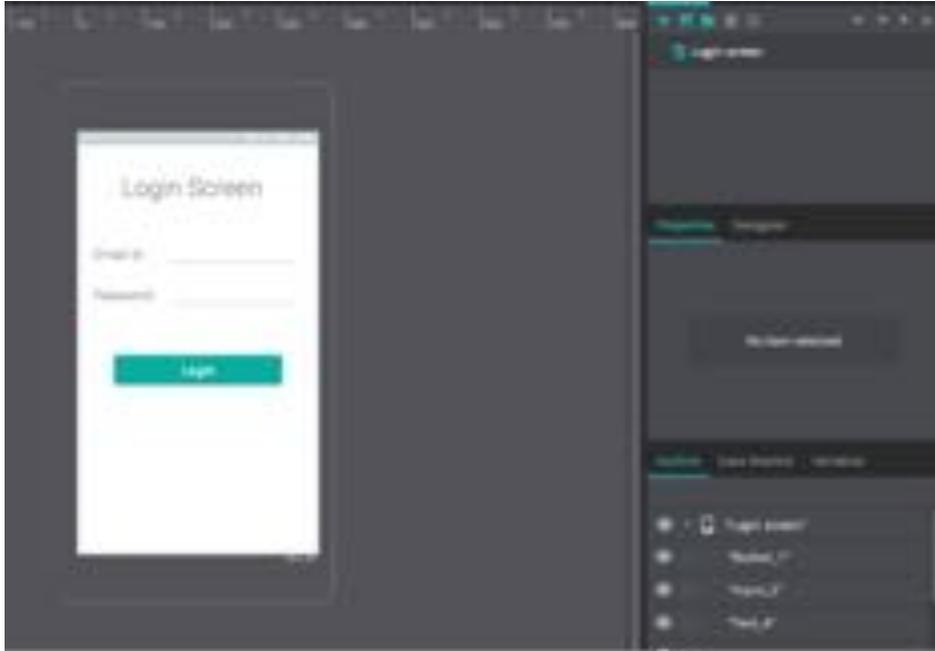




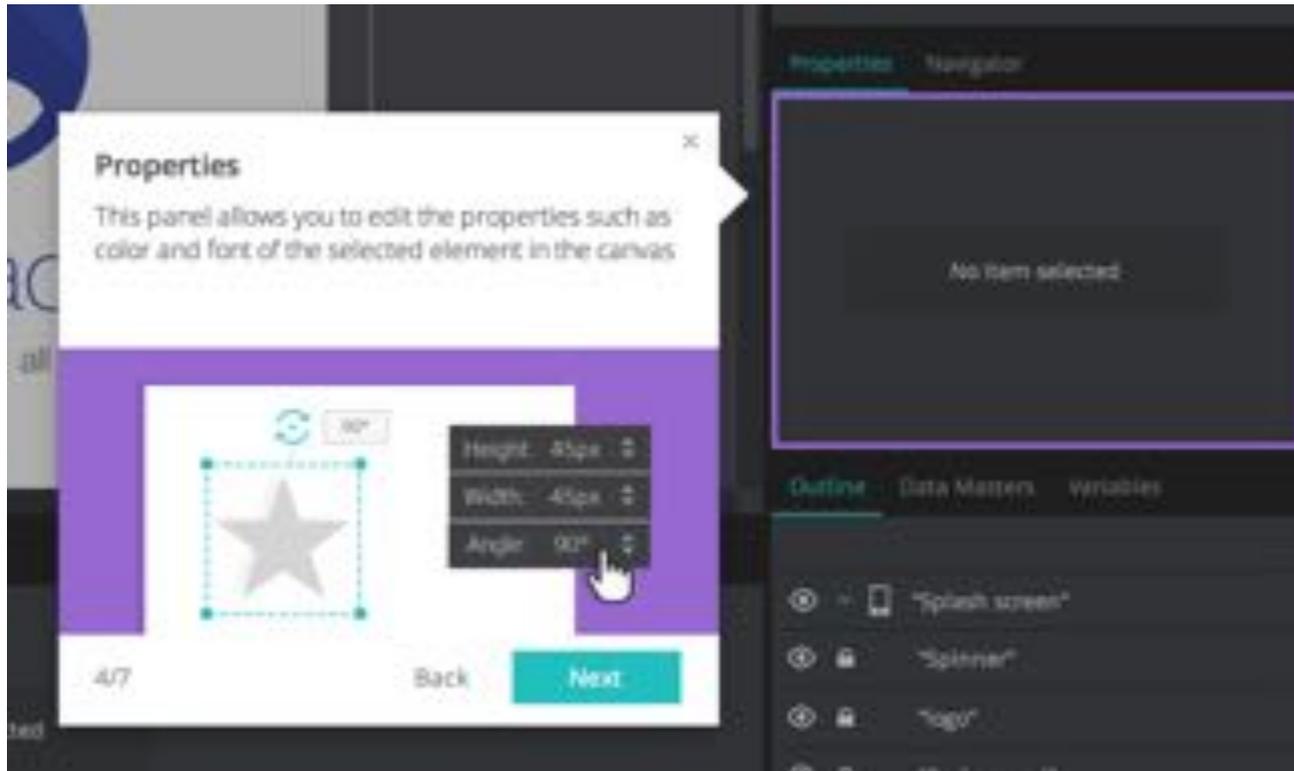
Screens – Each screen of your app



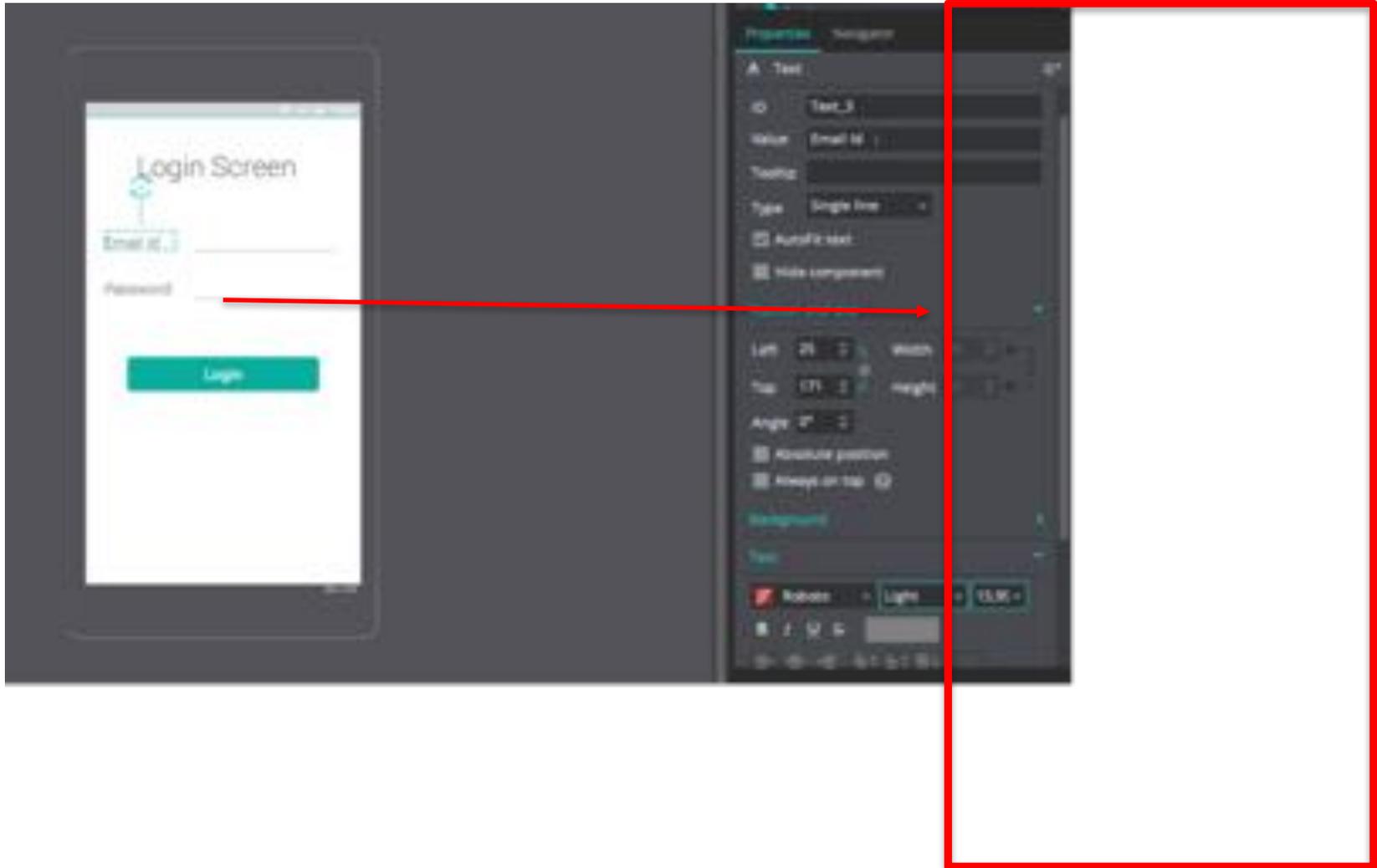
Screen



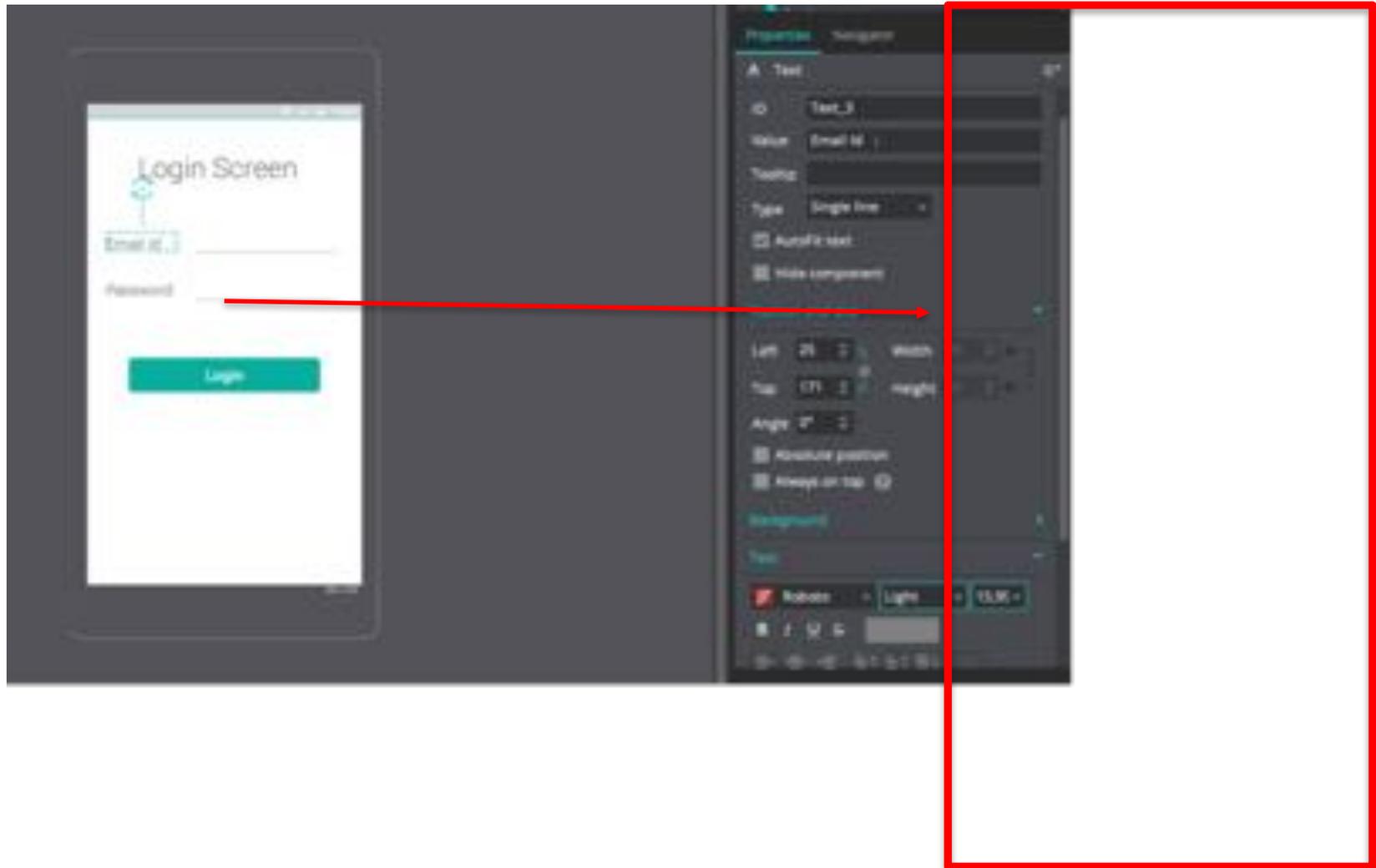
Properties of your individual widget

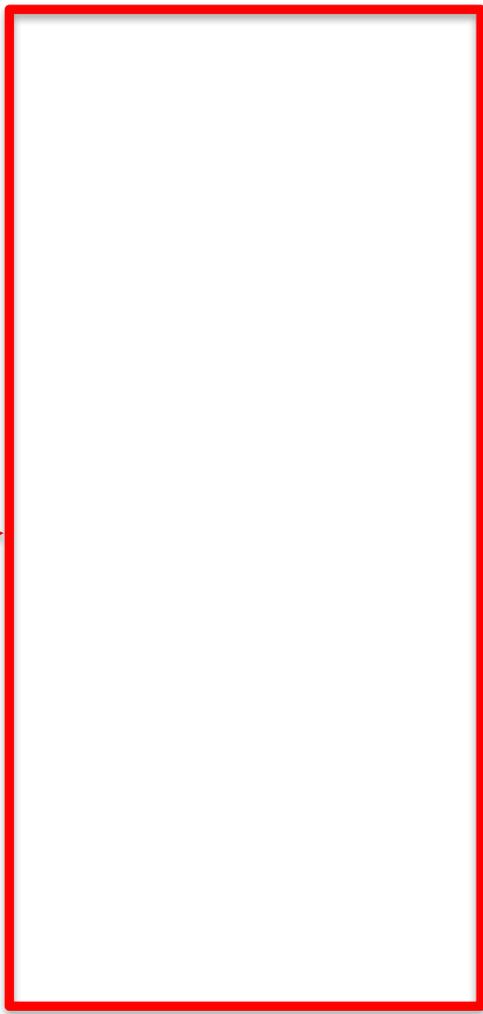
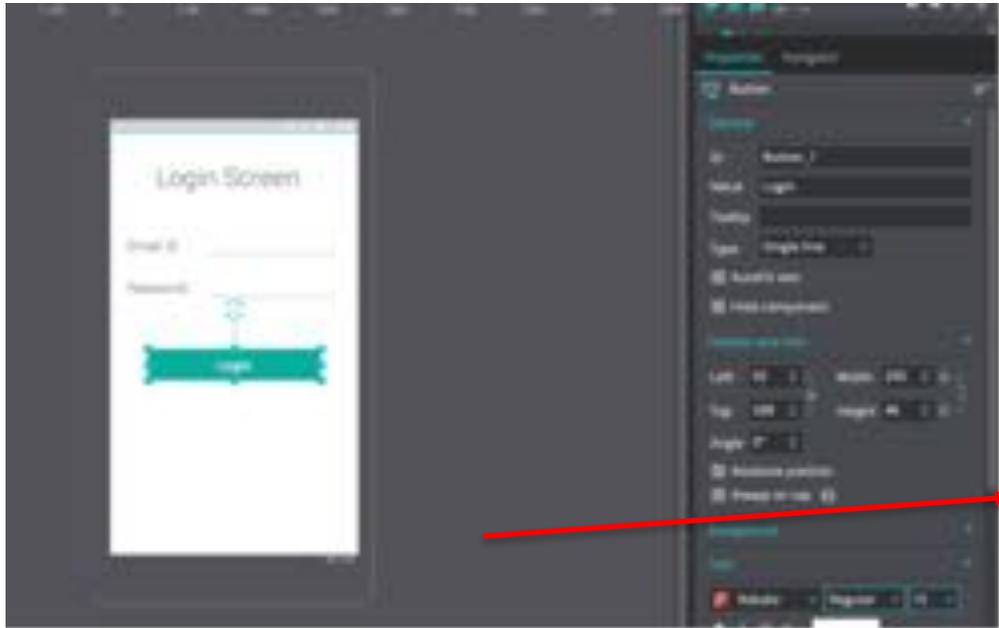


Properties



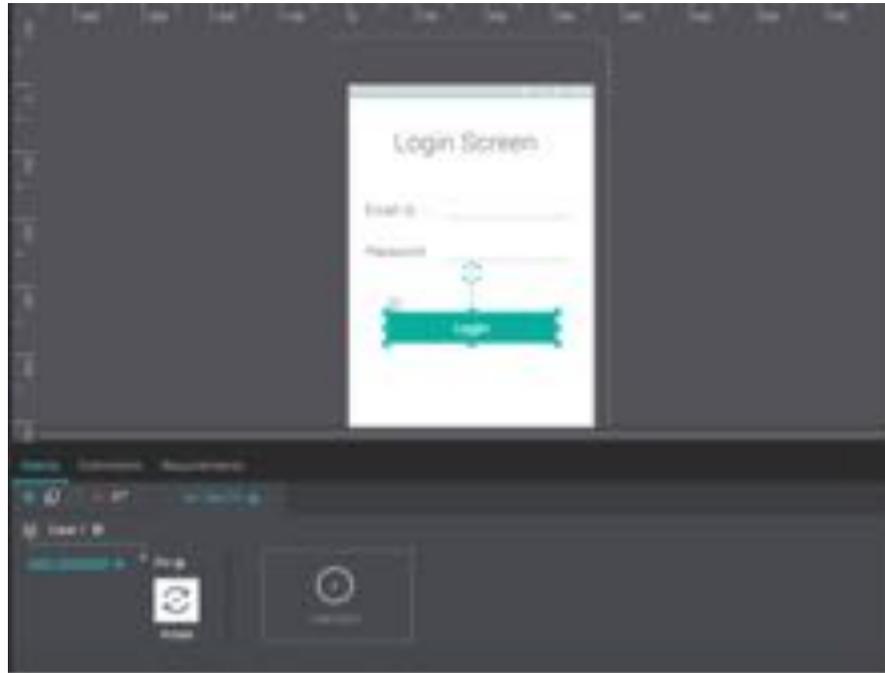
Text Label Properties





Events – what makes your prototype interactive





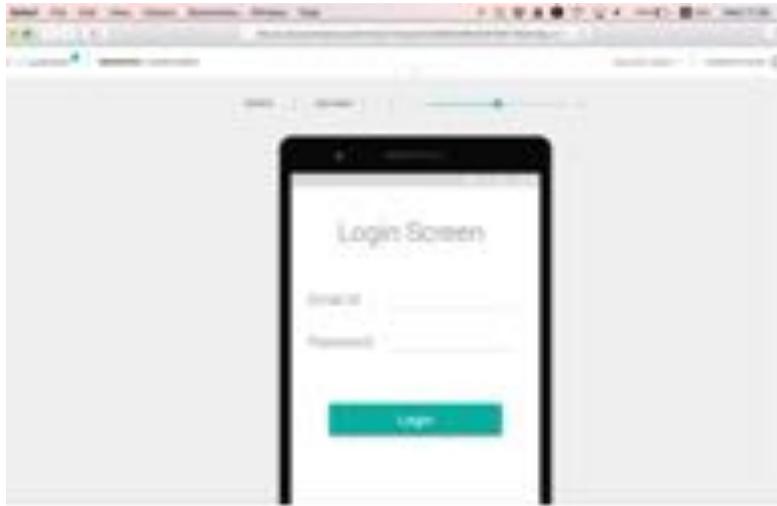
Events



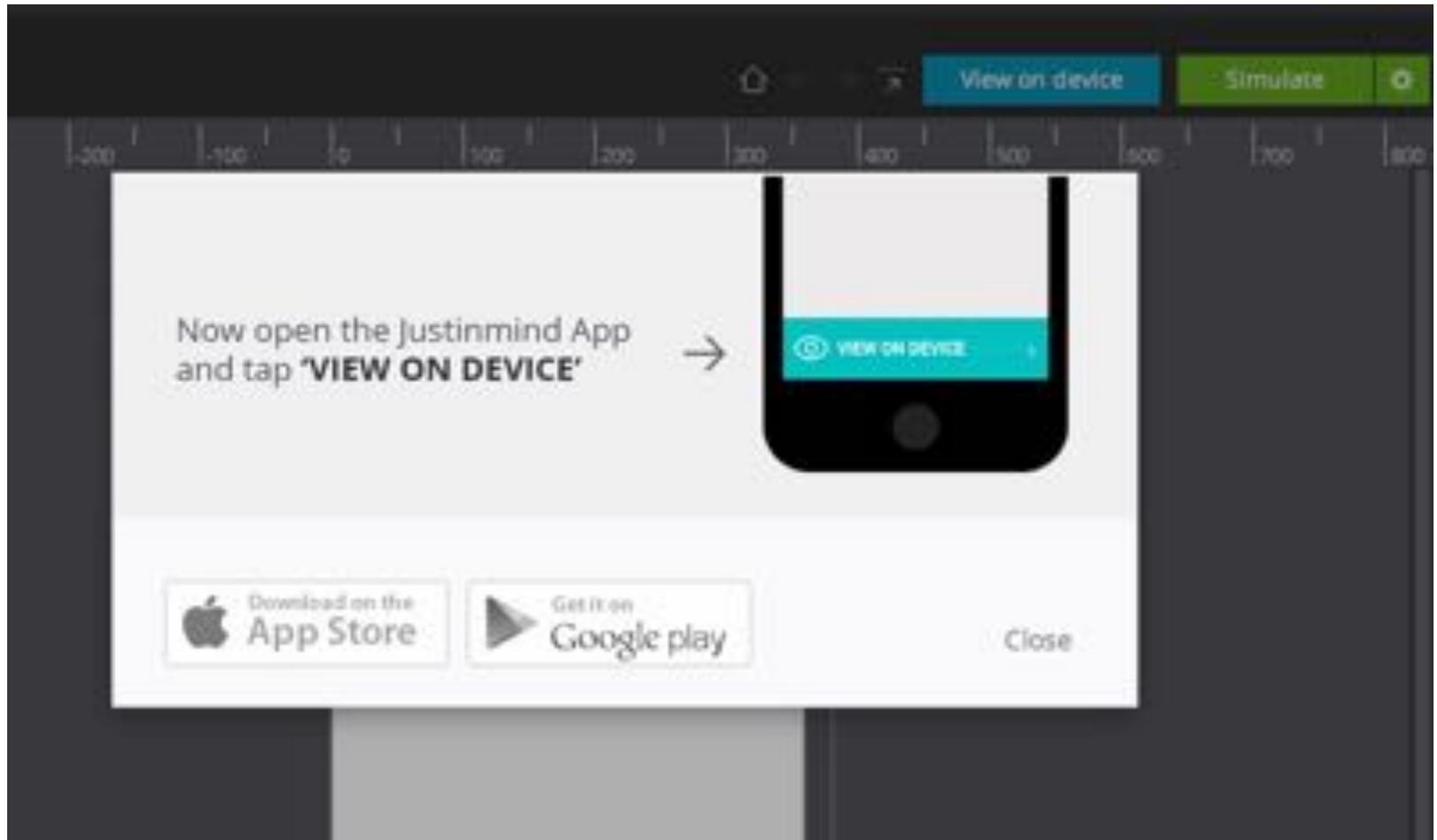
Simulation – see it all in action



Simulates on browser



View on Device



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  Storyboard  Annotated 

Select image files Link to image files Include images in prototype ✕ Delete all

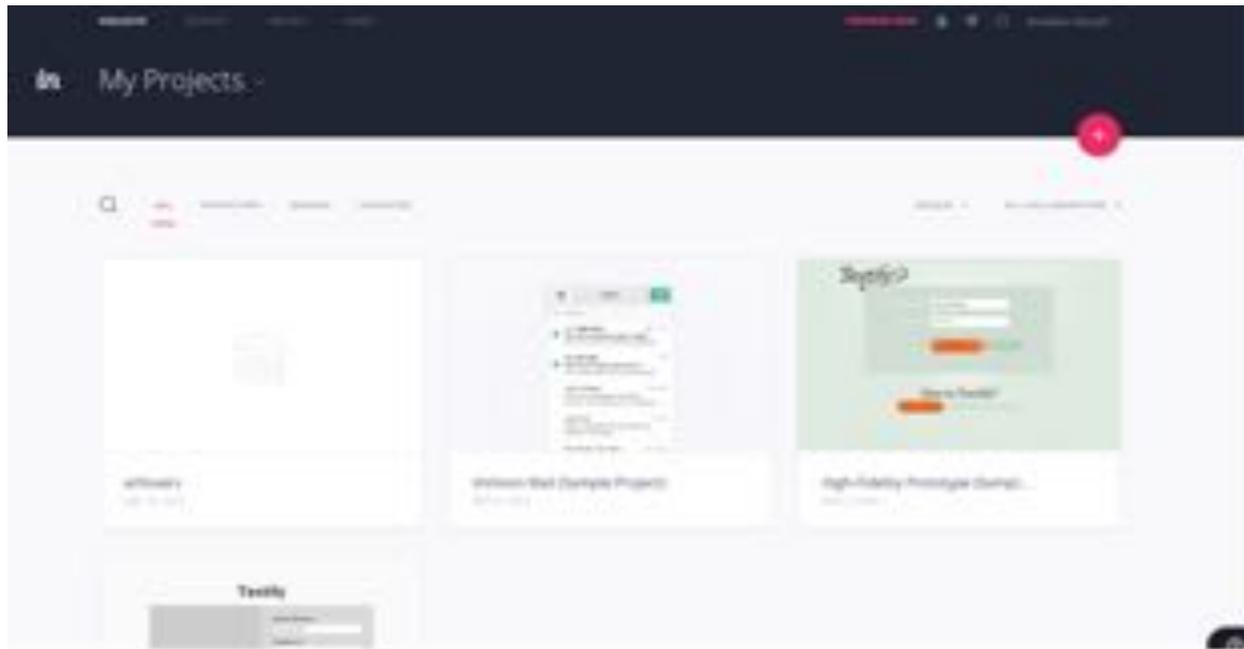


Back Cancel Finish

Marvel App



Invision



Pop

- Leveraging the simplicity of paper prototyping



Design on paper

Simulate and Test



Take Pictures



Simulate clicks

Marvel acquires prototyping tool POP

Posted Nov 19, 2014 by [Steve O'Hear](#) (research)



Back in May, Woomoo, the startup behind app prototyping tool POP, was acquired by Priceline, leaving POP's future a little uncertain. Today that uncertainty comes to an end with news that the U.K.'s **Marvel**, a rival web and app design platform, has acquired the

Homework

- Chat Application

- Look at existing chat applications
- What features would you want to add/remove
- Next class YOU will *build the* prototype