

REMOTE PAPER PROTOTYPE TESTING

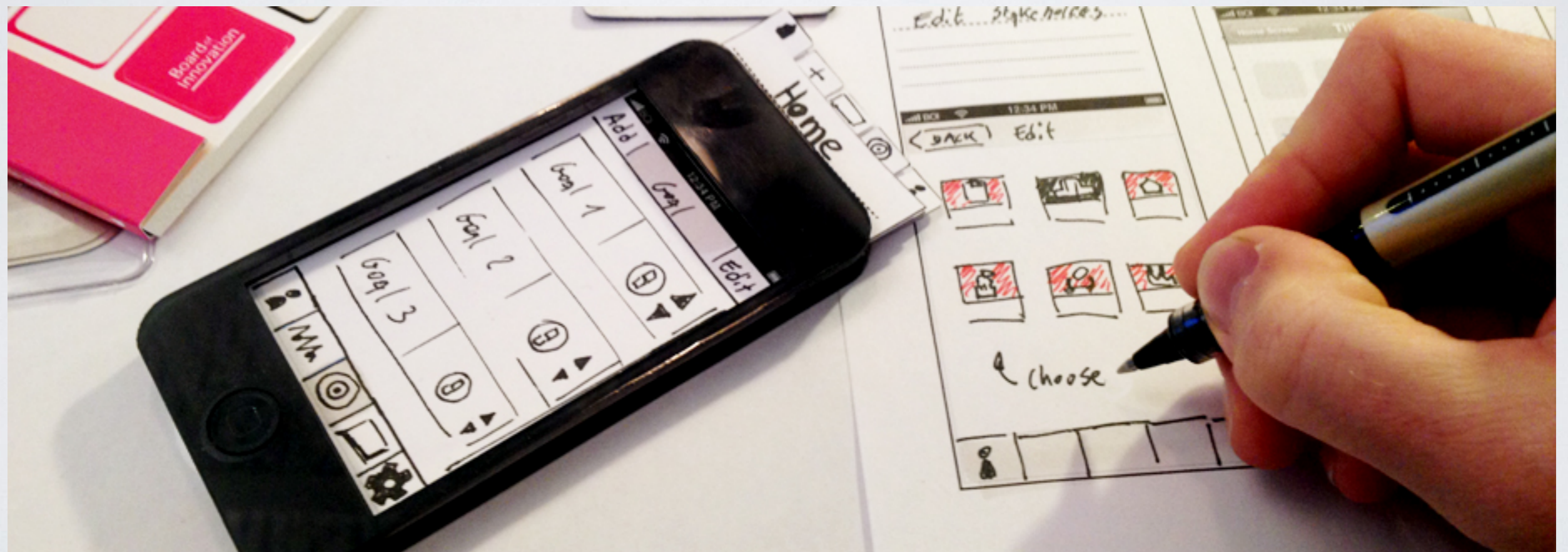
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Delta Lab, Northwestern

MILLIONS OF MOBILE APPLICATIONS NEED PROTOTYPING AND TESTING

Mobile app usage accounts
for >50% of time spent on
digital media^[Lipsman]



HOW CAN WE QUICKLY MAKE AND TEST PROTOTYPES?



PAPER PROTOTYPING

- Fast and cheap to make and test (<1 hour)
- Focuses on core interactions instead of look & feel
- Test multiple designs and iterate rapidly

[Rettig; Tohidi, Buxton, et al.; Beckam, Barry; Dow, Glassco, et al.]

3. Marc Rettig. Prototyping for tiny fingers. *Communications of the ACM*, 37(4):21–27, 1994

4. Maryam Tohidi, William Buxton, et al. Getting the right design and the design right. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, CHI '06*, pages 1243–1252, New York, NY, USA, 2006. ACM.

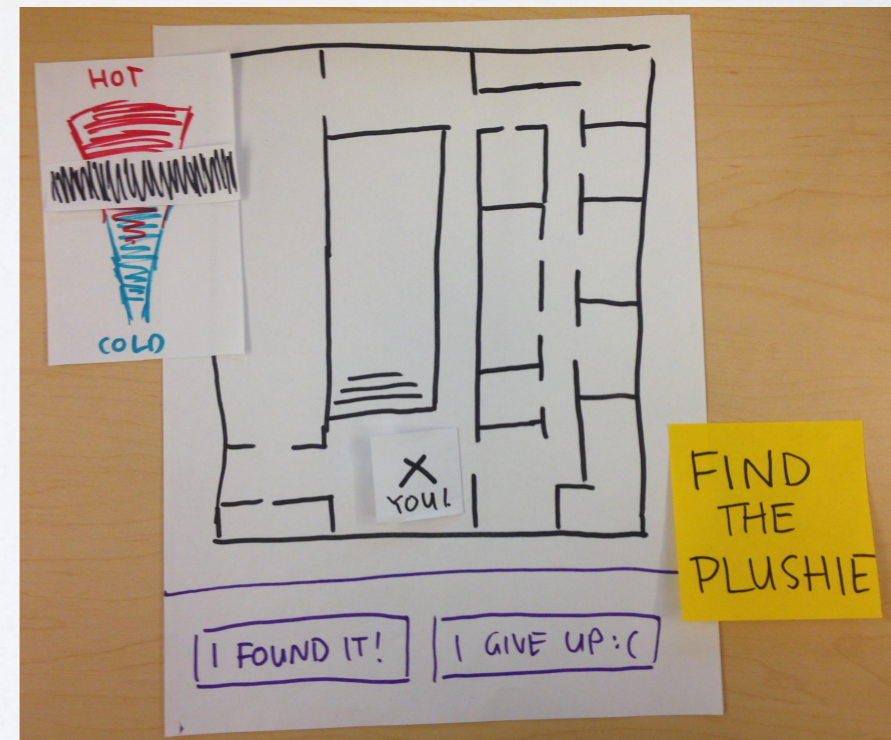
5. Sara L. Beckman and Michael Barry. Innovation as a learning process: Embedding design thinking. *California Management Review*, 50(1), 2007.

6. Steven P Dow, Alana Glassco, et al. Parallel prototyping leads to better design results, more divergence, and increased self-efficacy. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 17(4):18, 2010.

What about mobile applications?

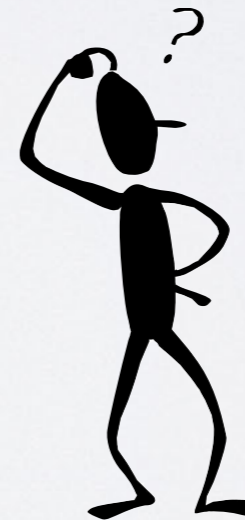
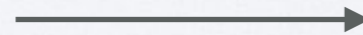
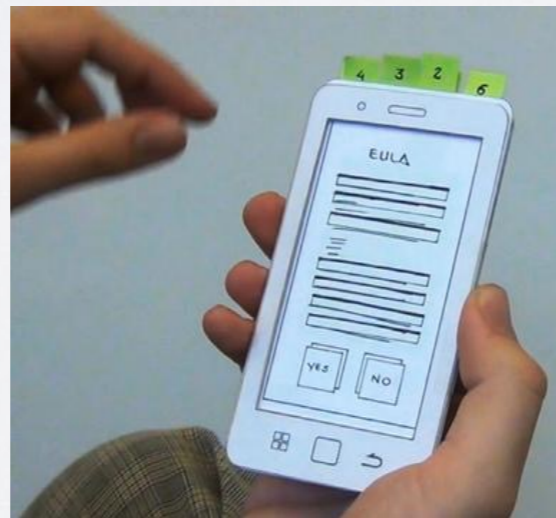
IN LAB?

- Researchers have argued that paper leads to contrived scenarios and does not surface realistic expectations^[de Sa]



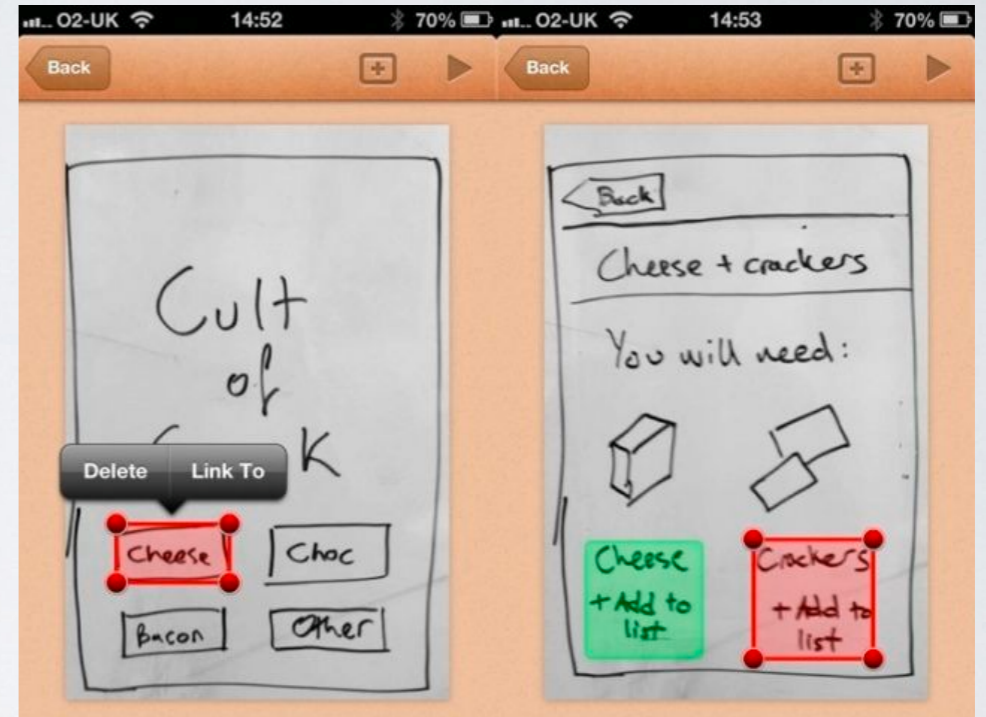
OUT OF THE LAB?

- practical challenges: follow user around, awkward to “wizard” the prototype and see user actions

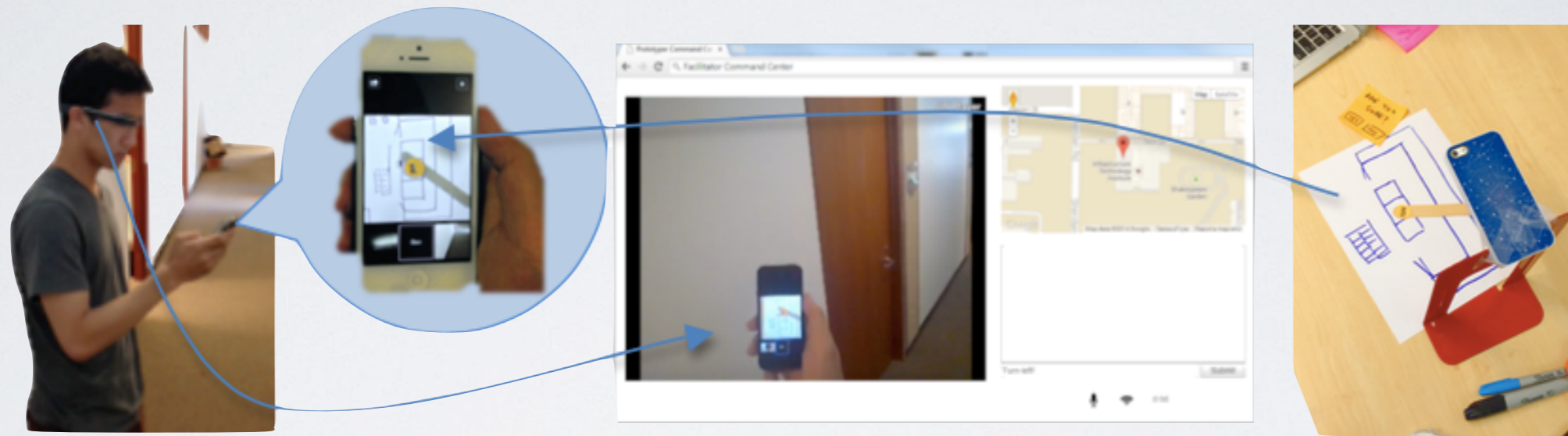


OUT OF THE LAB?

- current solutions:
 - paper-in-screen (e.g. POP app)
 - minimum viable product

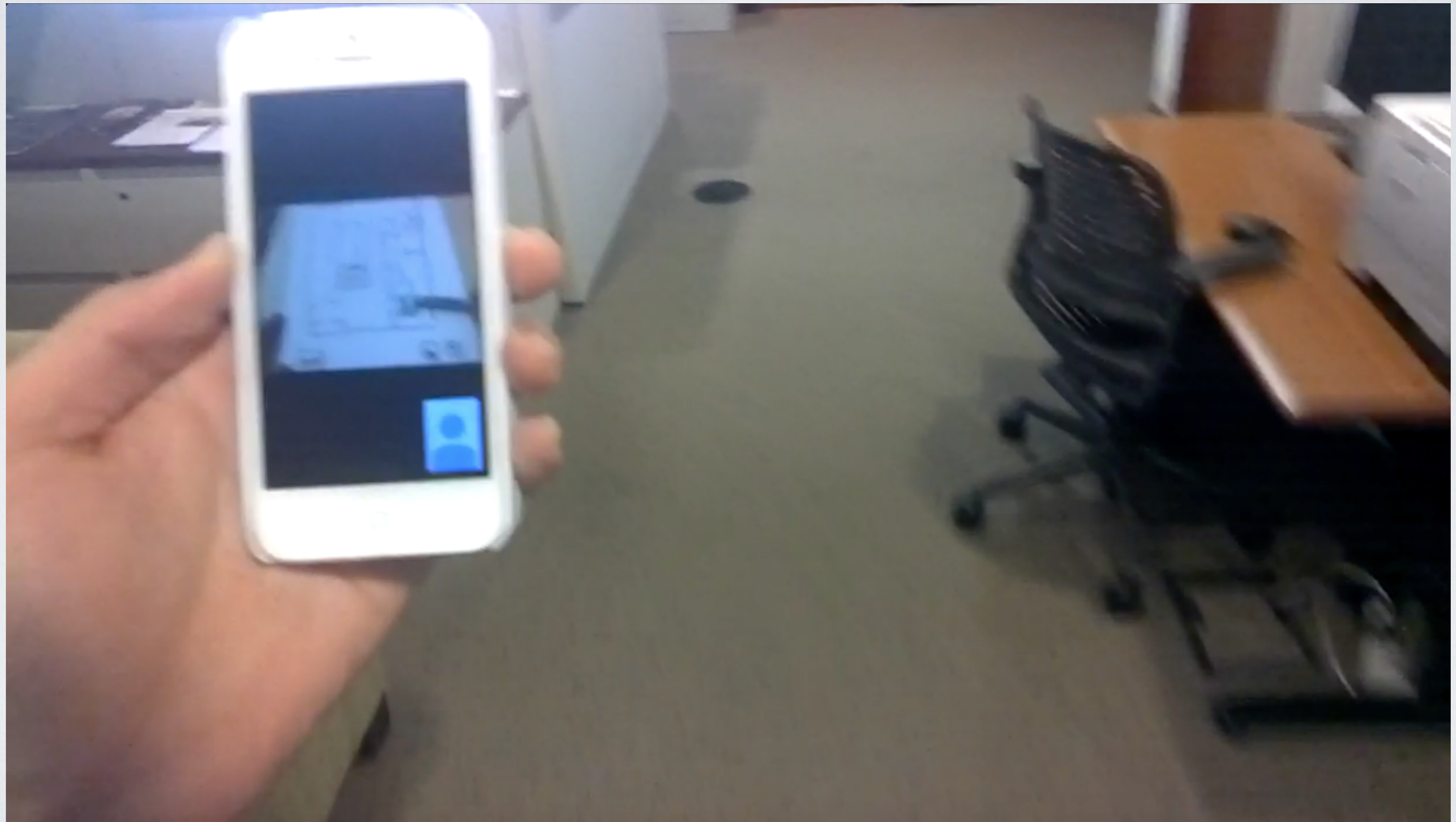


```
router.coffee x dashboard.html x dashboard.coffee x categories.coffee x
1 filter_tab_placeholder = null
2 filter_tab_placeholder_default_value = null
3 filter_tab_placeholder_text = null
4
5 Template.dashboard.helpers
6 items: () ->
7   if Session.get('filter_tab') is not ''
8     return Items.findOne({_id: Session.get('filter_tab')}).items[0]
9   else
10    return Items.find()
11 hasImage: (src) ->
12   return src is not '/'
13 categories: () ->
14   return Categories.find()
15
16 Template.dashboard.rendered = () ->
17   Session.set('filter_tab', '')
18
19   filter_tab_placeholder = $('#cd-tab-filter_placeholder a')
20   filter_tab_placeholder_default_value = 'Select'
21   filter_tab_placeholder_text = filter_tab_placeholder.text()
22
23   $(window).on('scroll', () ->
24     if not window.requestAnimationFrame
25       fixGallery()
26     window.requestAnimationFrame(fixGallery)
27   )
28
29 buttonFilter.init()
30 $('#cd-gallery ul').mixitUp(
31   controls:
32     enable: false
33   callbacks:
34     orMixStart: () ->
35       $('#cd-fail-message').fadeOut 200
36     orMixFail: () ->
37       $('#cd-fail-message').fadeIn 200
38 )
39
40 delay()
41 @matching = {}
42
43 Template.dashboard.events
44 'click_cd-filter-trigger': (event) ->
45   triggerFilter(true)
46 'click_cd-filter_cd-close': (event) ->
47   triggerFilter(false)
48 'click_cd-tab-filter_list': (event) ->
```

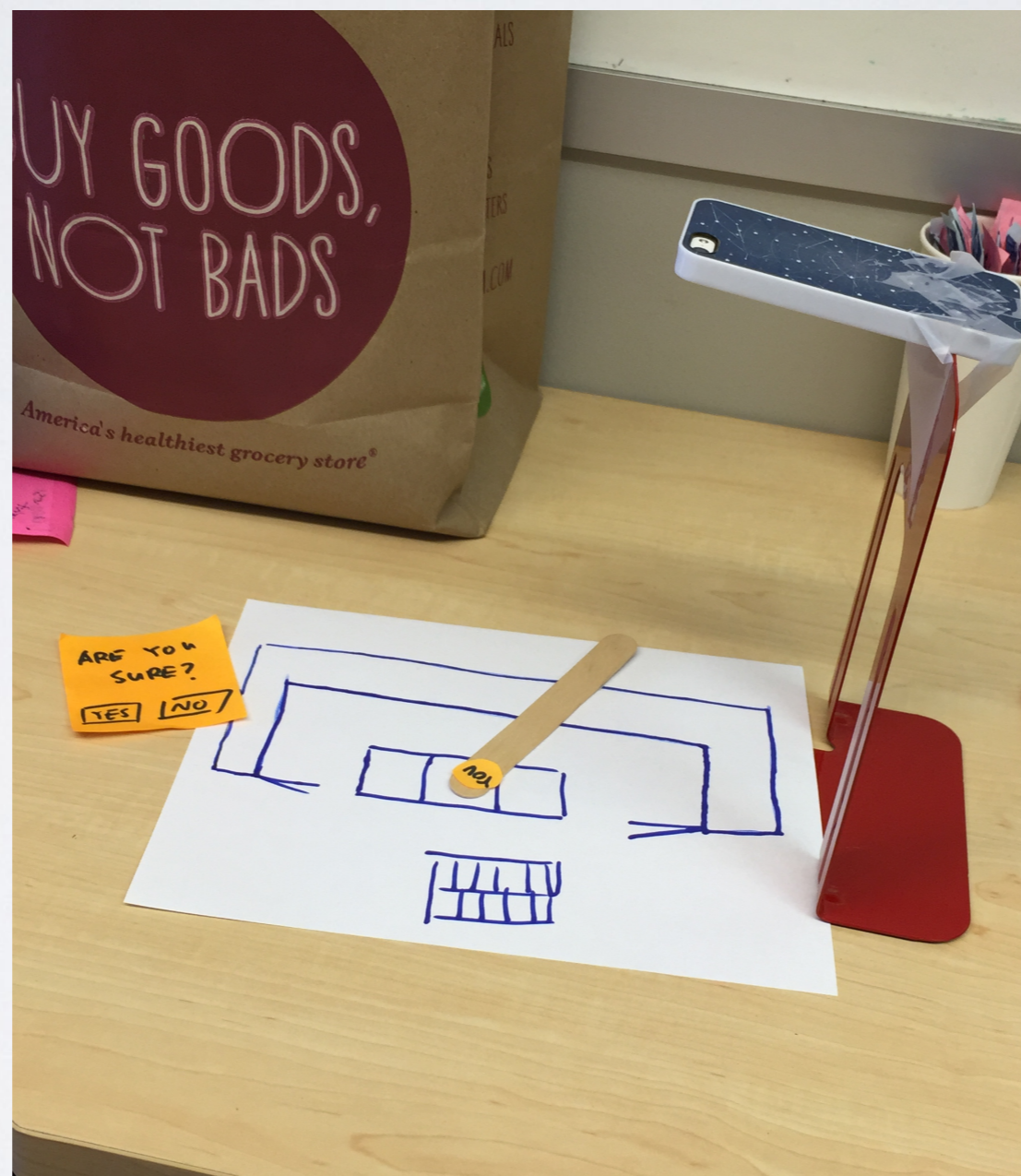



REMOTE PAPER PROTOTYPE TESTING

REALISTIC SITUATIONS

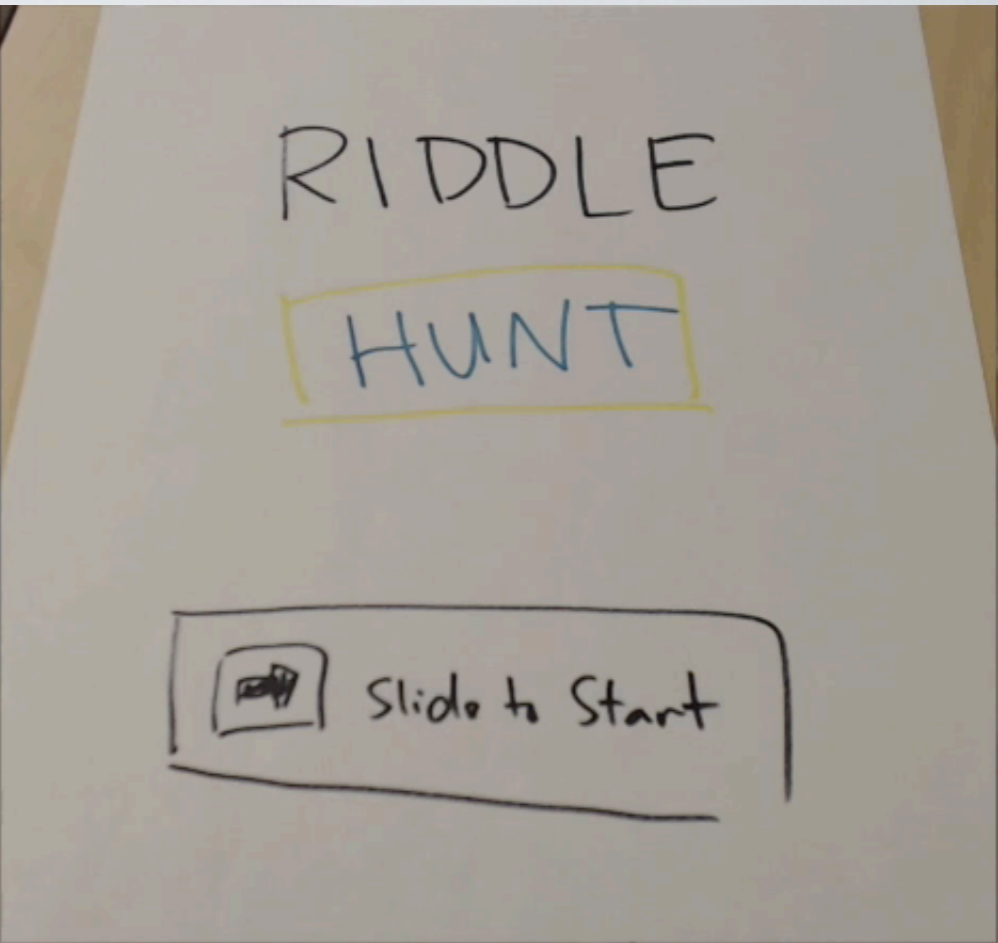


REMOTE WIZARDING

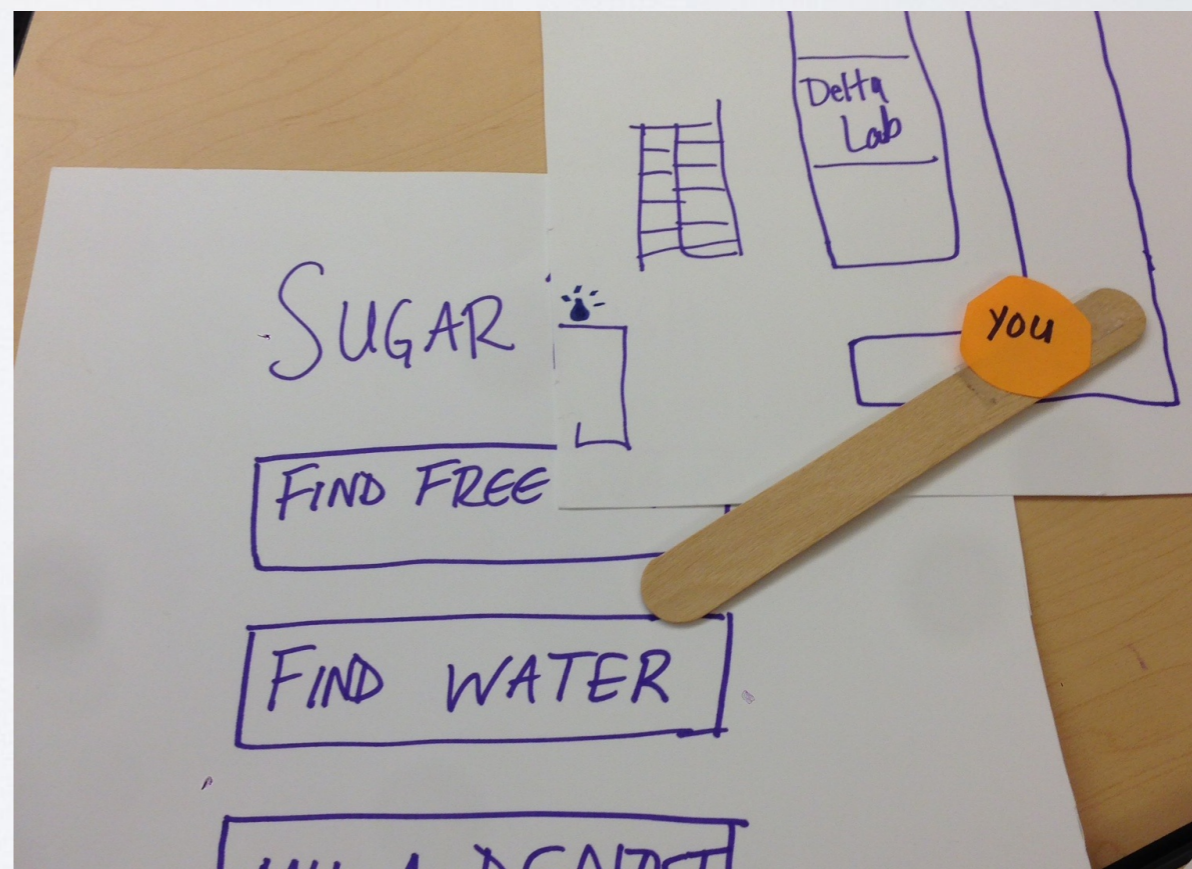


SITUATIONAL CONTEXT

The image shows a browser window with the URL `rppt.meteor.com`. The browser's address bar and tabs are visible, including links to Mail, Facebook, YouTube, and various other services. The main content area is split into two parts. On the left, a video player shows a hand holding a white smartphone. The phone's screen displays a map application. Below the video player is a text input field containing `rtmp://glass.ci.northwestern.edu:4000/live/test.sdp` and two buttons labeled "Start" and "Stop". On the right, a Google Maps interface is shown. The map displays a street view of an area with labels for "Sheridan Rd", "Entrance / Exit", "Tech Dr", and "Shakespeare Garden". Below the map is a large empty rectangular box. At the bottom of this section, there is a text input field containing the instruction "Turn left!" and a "Submit" button. At the very bottom of the browser window, there are icons for microphone, Wi-Fi, and a timer showing "0:00".



PILOT



IMPORTANCE OF CONTEXT

“...you didn't know what to do when you got to the location...users tried to click on [the candy icons] and wondered what to do next...”

REALISTIC SITUATIONS

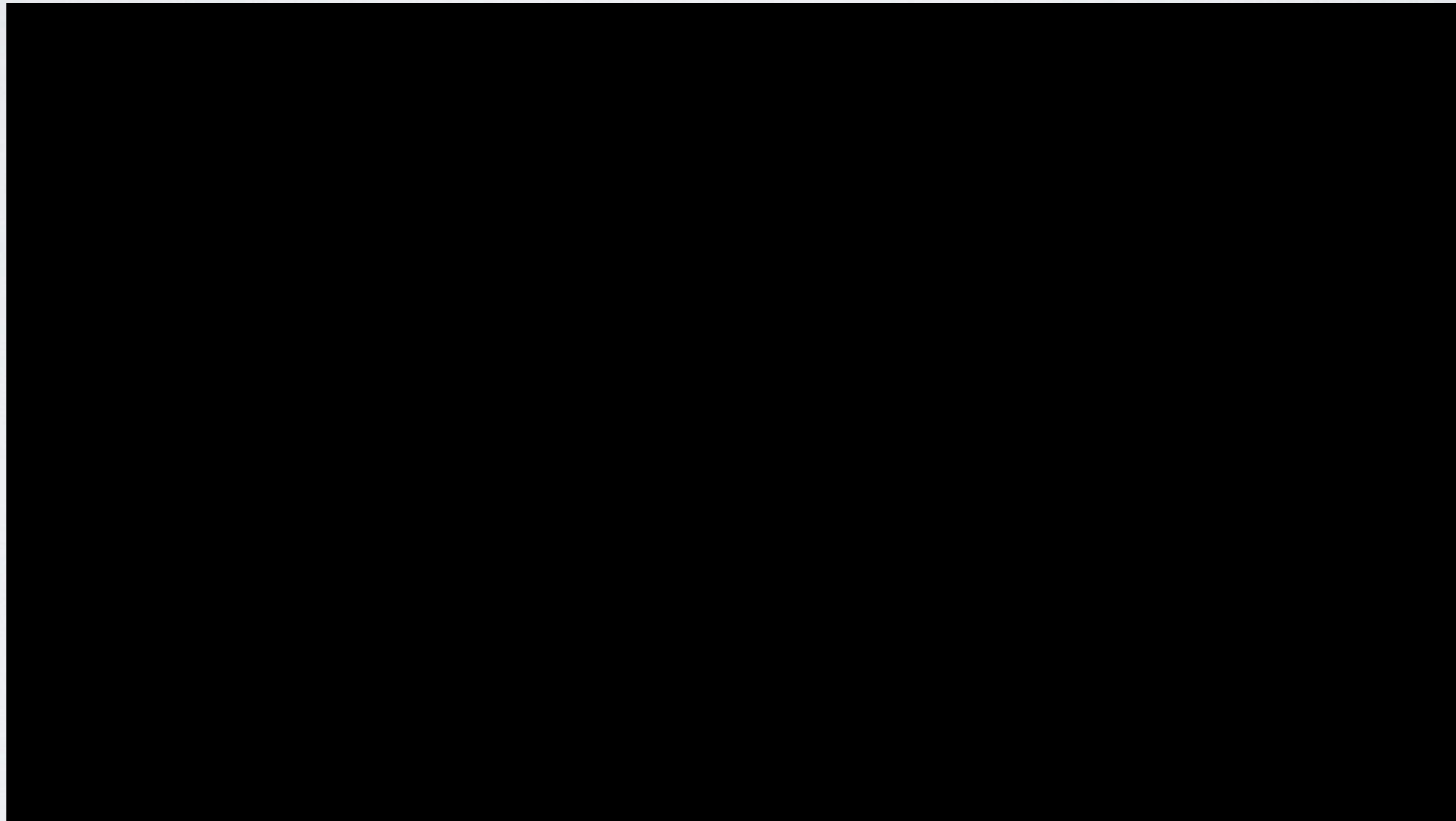
“I got more of the stressed emotion of the app not making sense...seeing the paper and being able to press it seemed more real real, richer...actually using it in the actual environment”

Our tool allows designers to create paper prototypes, test them outside the lab, and flexibly update the interface in response to events while testing.

ACKNOWLEDGEMENTS

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Our tool allows designers to create paper prototypes, test them outside the lab, and flexibly update the interface in response to events while testing.



FUTURE WORK

- mixed fidelity prototyping (e.g. paper “widgets”)
- wizard throughout a day (e.g. recruit a real-time crowd wizard)

GOOGLE GLASS ALTERNATIVES

- **primary affordance:** first-person perspective for situational context
- **possible alternatives:**
 - any other first-person perspective camera
 - phone cameras
 - Google Street View

GOOGLE GLASS ALTERNATIVES

- interface to display tap gestures

