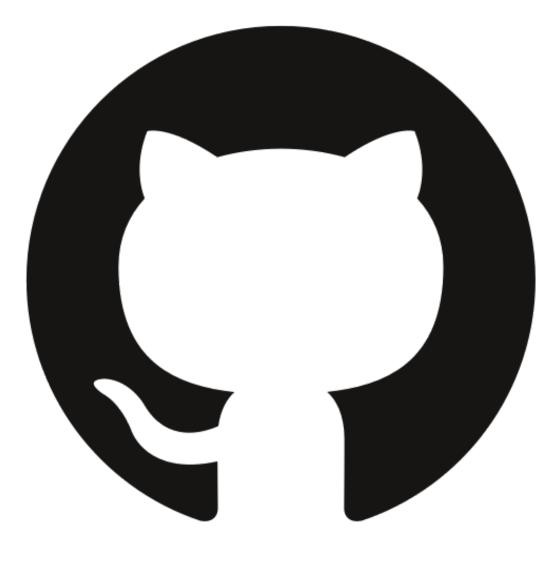
# **GitHub PR Feature Design Project** Michelle Venetucci Harvey

michelle.ann.harvey@gmail.com November 2017

# **Product Choice: GitHub** Improving Developer <> Designer Workflows

GitHub has the potential to improve cross-functional collaboration throughout the product development process.



My Design Process / Outline

## Product Opportunity & Research Conduct basic foundational user research and competitive analysis to provide context and opportunities.

### Existing GitHub Product Audit

Audit the product to contextualize problems and identify areas of opportunity or improvement.

### Brainstorming & Prototyping

Generate ideas and direction through rapid brainstorming activities, prototyping, and wireframing.

### Final Design

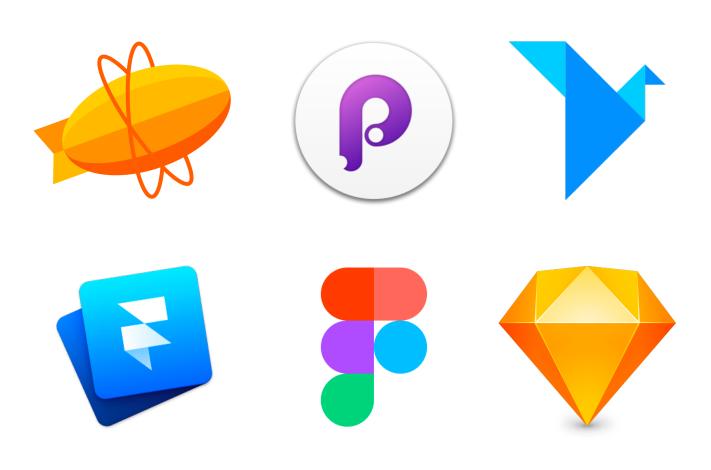
Walk through the final solution from a user experience design perspective.

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GitHub's existing mobile experience

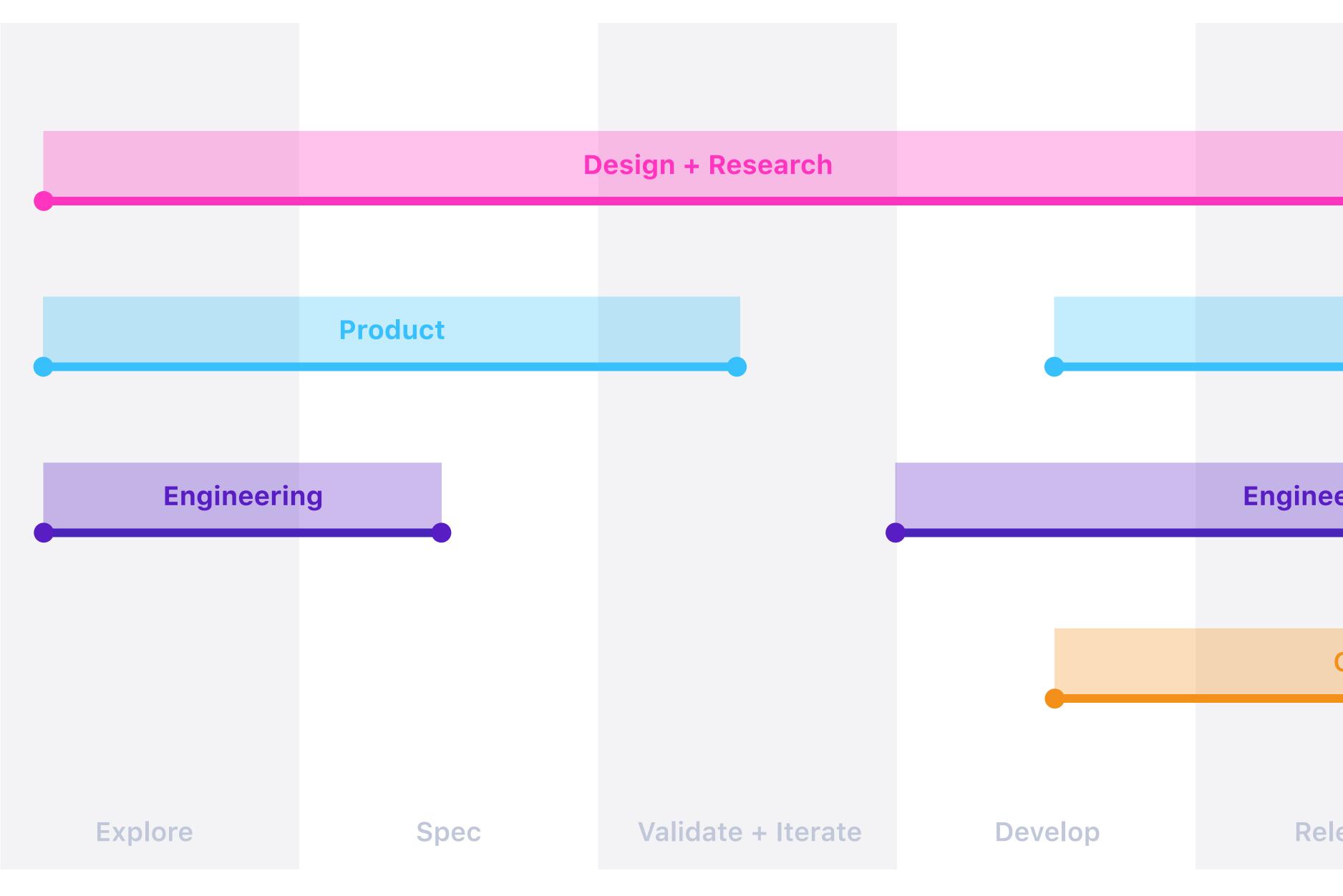
# **Product Opportunity** Research & Competitive Analysis

I conducted time-constrained foundational user research and looked over the competitive landscape in order to better understand the industry and start identifying the most compelling problem spaces.



### Product Opportunity / Project Lifecycle

There are many cross-functional touchpoints throughout a typical digital project lifecycle.



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Product Opportunity / Project Lifecycle

aren't many that are targeted specifically towards cross-functional collaboration and treat cross-functional partners equally.



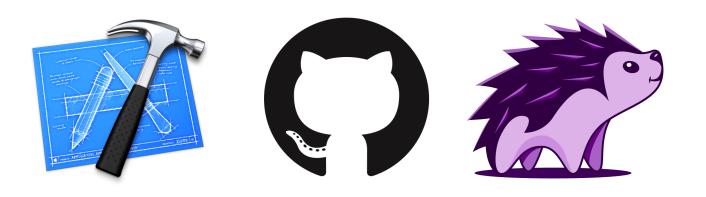
**Design + Research** 

# While there are currently many tools that project participants use, there





**Product / Project Management** 



### Engineering

### User Research / Foundational Insights from Designers



## 66

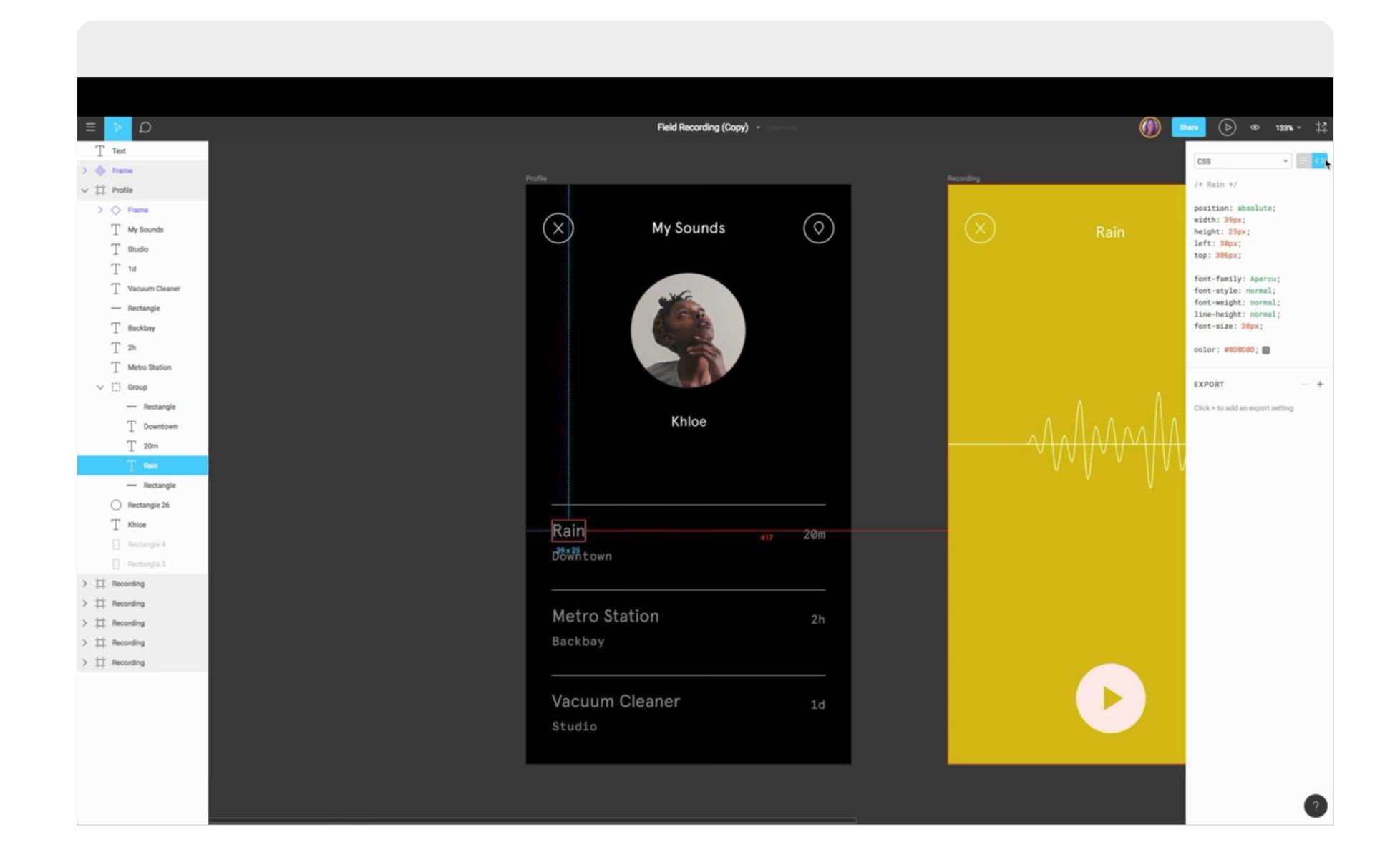
When handing off work to engineers, I always think the videos and mocks communicate the design perfectly. But what I get back often looks nothing like my intention, which ends up being an awful experience.

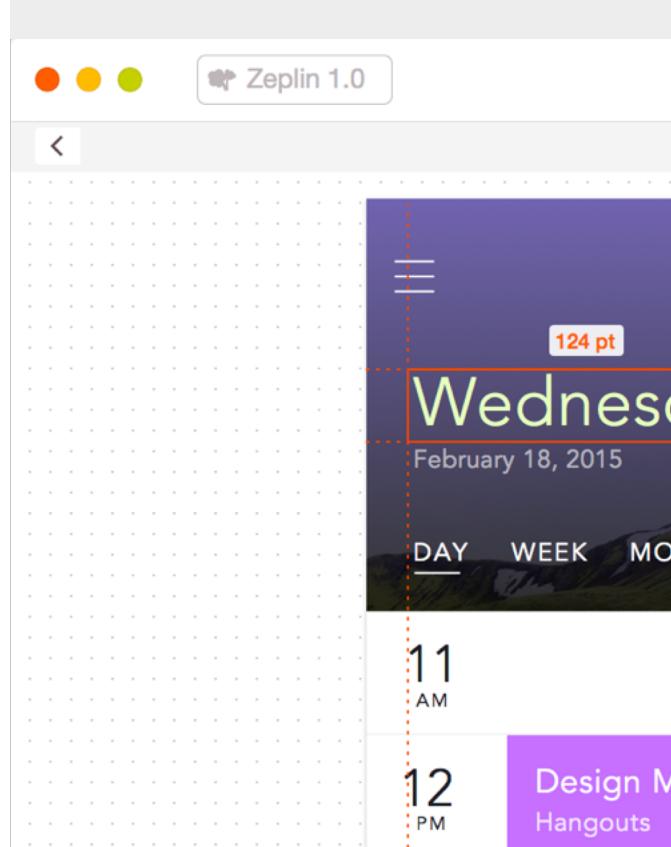
## - Harrison, Product Designer

Competitive Analysis / **Design Tools** 

Many design tools have popped up recently with a main goal of improving communication between designers and developers.

These are generally seen as helpful, but remain somewhat separated from the engineering workflow, which can cause communication breakdowns.





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### User Research / Foundational Insights from Designers



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I Use Zeplin for redlines, but it's not very efficient. I also use Dropbox, and it's okay. It gets the job done for sharing files, but it's hard to keep track of things. Google docs and Paper could be useful for comments but overall things are hard to track.

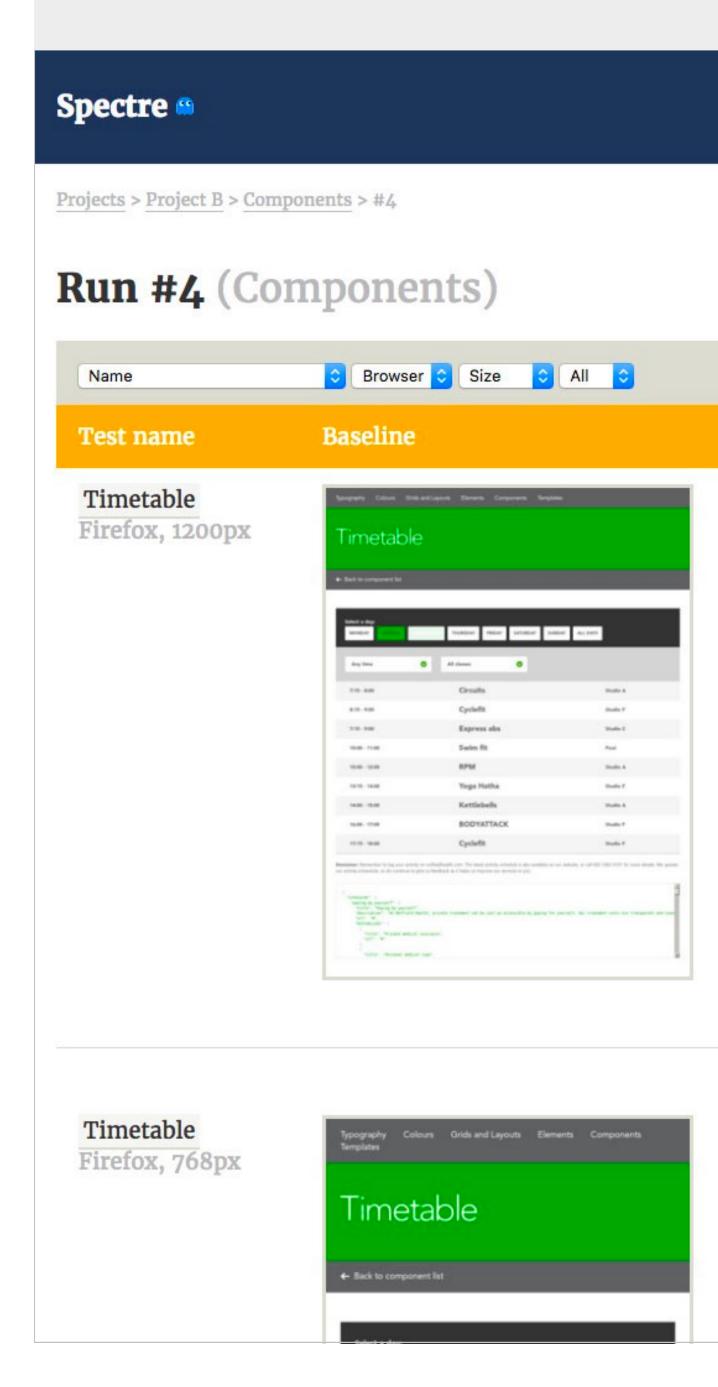
## - Lin, Product Designer

View full research overview  $\rightarrow$ 

Competitive Analysis / Visual Regression Testing Tools

There are a host of visual regression testing tools made for engineering workflows.

Most compare proposed CSS to previous CSS visually, and focus on engineers as the end user.



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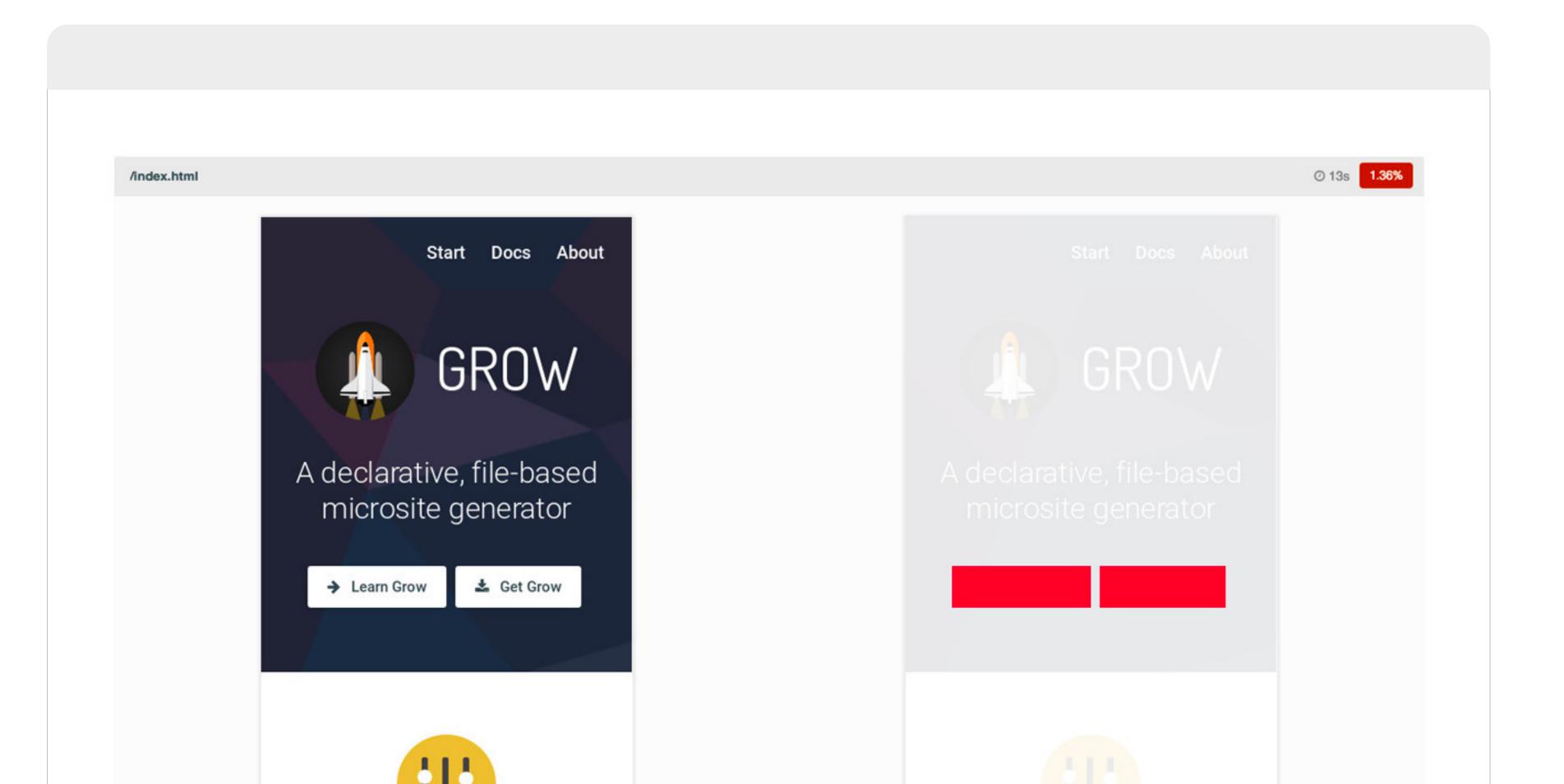
Competitive Analysis / Percy.io

One example is <u>percy.io</u>, a continuous visual review tool for engineers building web apps.

"Percy integrates directly into your development workflow to provide iterative and fast feedback about visual changes. This is what we mean by automated visual reviews."

The fact that so many of these tools exist shows a growing need from users within this problem space, but fragmentation leads to low adoption.

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### User Research / Foundational Insights from Engineers



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There's always a lot of miscommunication in the designer / developer handoff period. It's really challenging to keep track across all the different tools we're trying to piece together.

## - Alex, Engineer

Product Opportunity / Summary of Learnings

### Keeping track of updates

Designers and engineers often struggle to keep track of cross-functional work.

### Polish

Zeplin has improved polish for static mocks, but it's still challenging to communicate animation values.

### **Communication** is a barrier

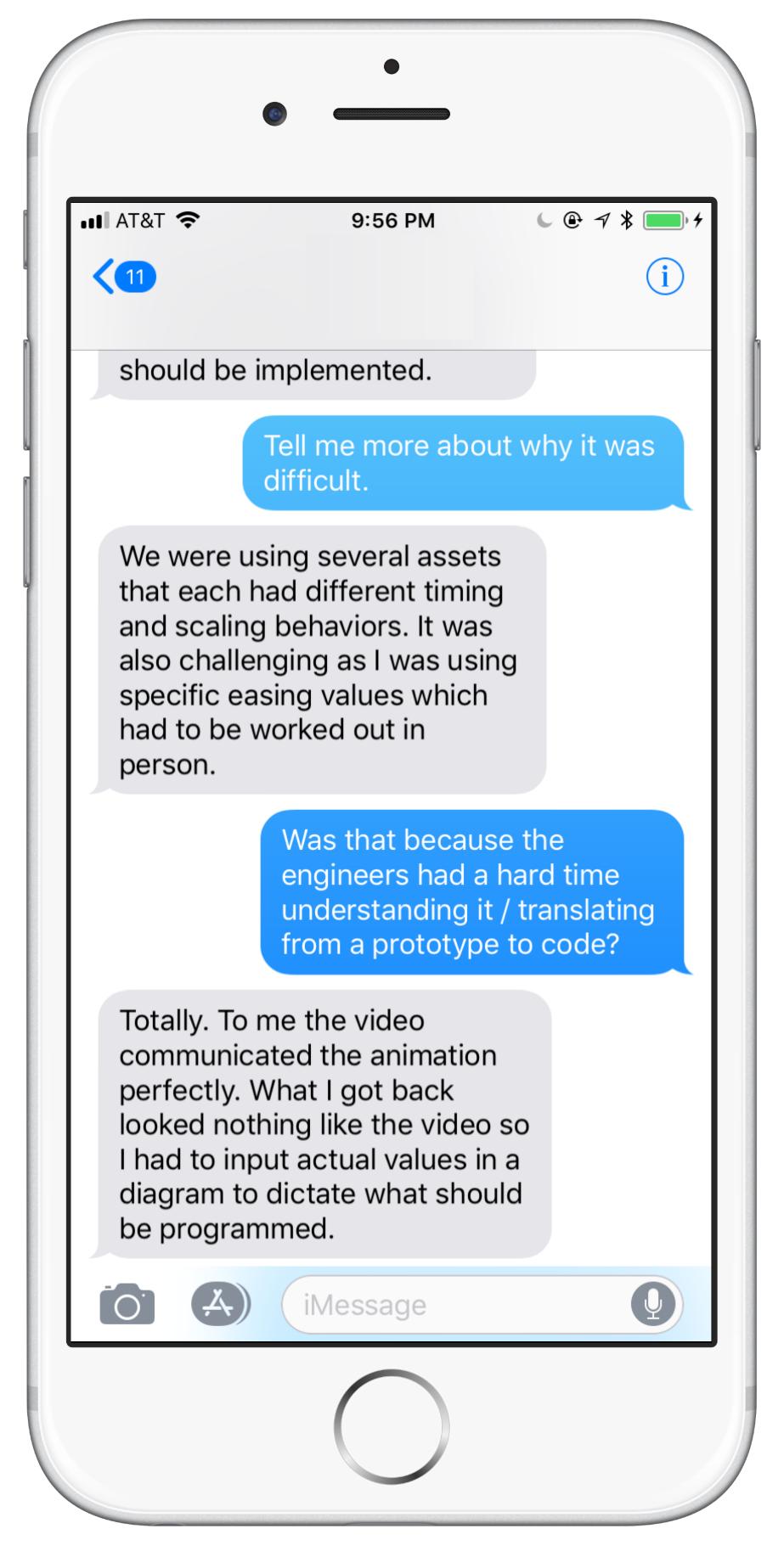
Designers and engineers feel like they communicate clearly to their cross-functional partners, but often the results don't reflect the original intention.

### Too many tools

Designers and engineers are using too many tools to communicate with each other.

### GitHub as a collaboration tool

GitHub feels very intimidating to everyone except engineers.



Screenshot of SMS-based user interview

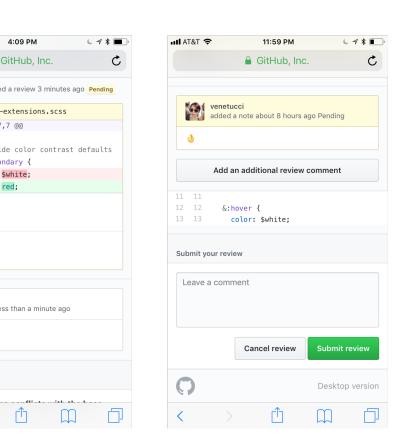
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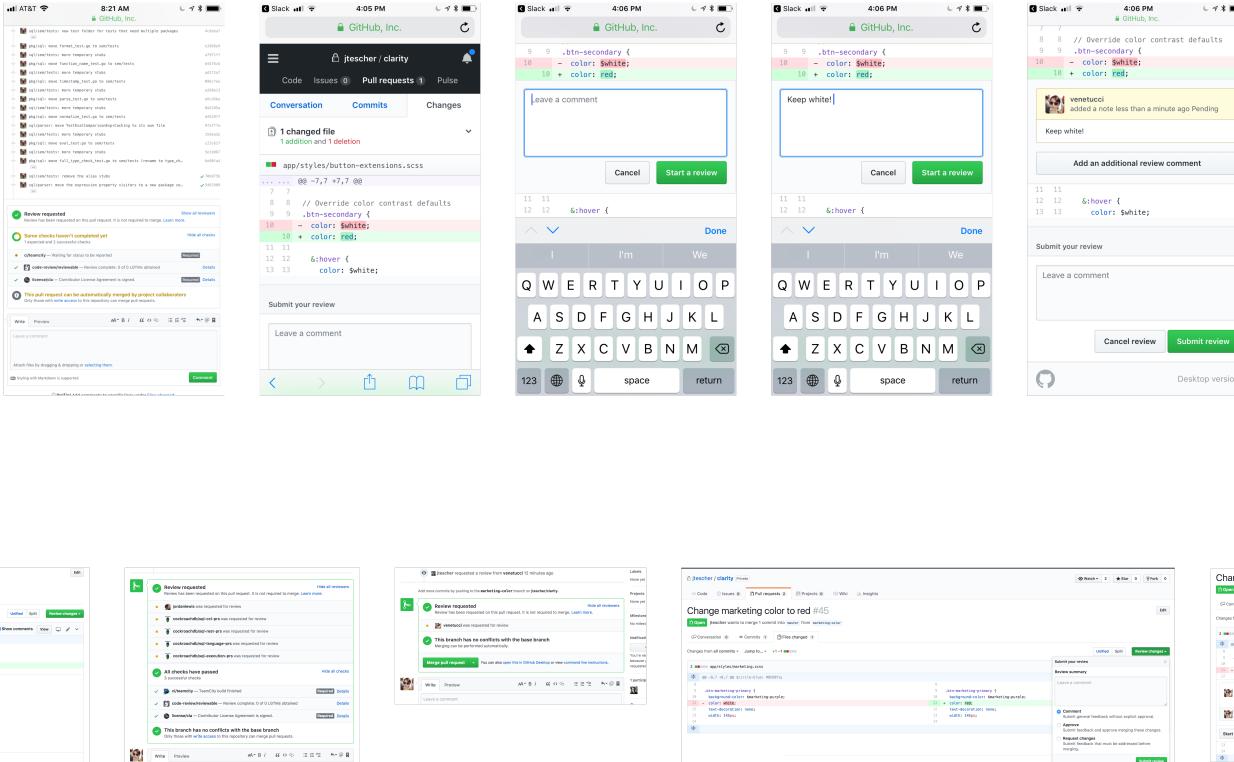
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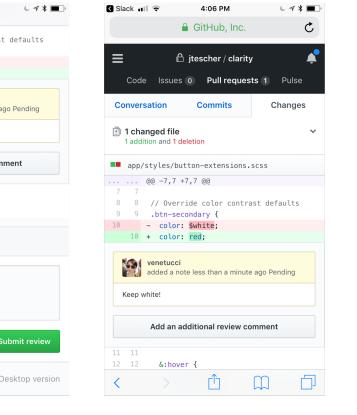
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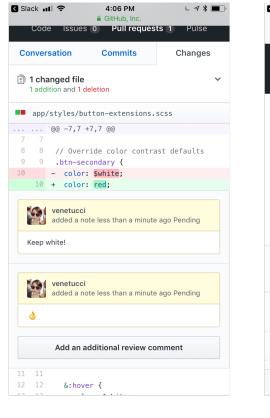


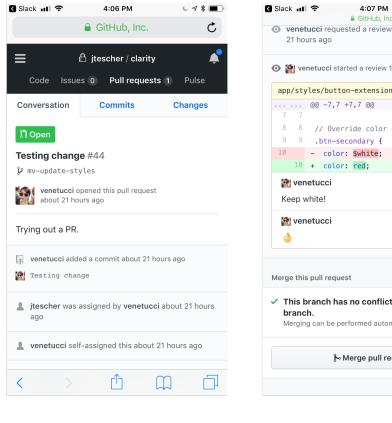
# Product Audit GitHub's Existing Experience

Looking over the existing desktop and mobile user experience helped give me context into existing problem spaces and opportunities for strategic improvement.



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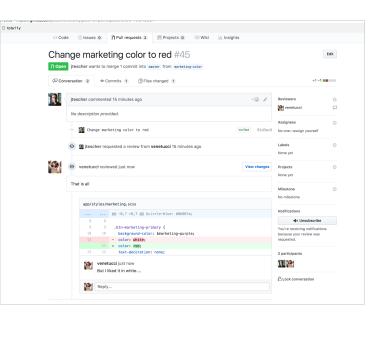


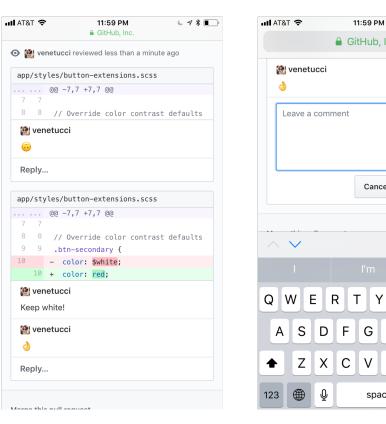


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### Product Audit / GitHub

GitHub is a great tool for developer collaboration, but doesn't currently support much cross-functional collaboration. Some examples:

- Pull Requests (PRs) only include code reviews, even when there are visual updates that need reviewing.
- The UI is intimidating and there is no user experience geared towards designers, who may want to be involved in the review process.

Features Business Explore

### Built for developers

GitHub is a development pla the way you work. From oper business, you can host and manage projects, and build s millions of other developers



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n source to eview code,	Password       Create a password       Use at least one letter, one numeral, and seven characters.
oftware alongside	Sign up for GitHub", you agree to our terms of service and privacy policy. We'll occasionally send you account related emails.

GitHub for teams

### A better way to work together

GitHub brings teams together to work through problems, move ideas forward, and learn from each other along the way.

Sign up your team

### Write better code

Collaboration makes perfect. The conversations and code reviews that happen in Pull Requests help your team share the weight of your work and improve the software you build. Learn about code review.

### Manage your chaos

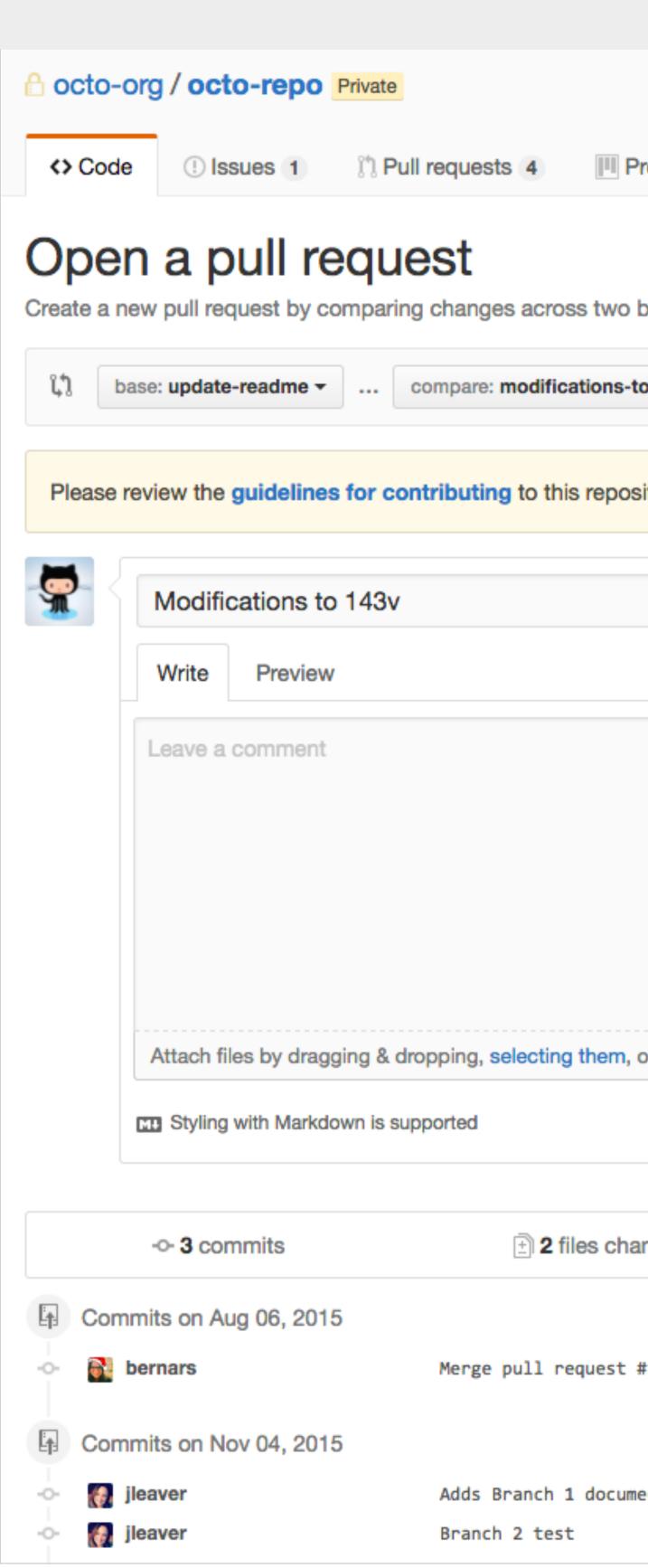
Take a deep breath. On GitHub, project management happens in Issues and Projects, right alongside your code. All you have to do is mention a teammate to get them involved. Learn about project management.

### Find the right tools

Browse and buy apps from GitHub Marketplace with your GitHub account. Find the tools you like or discover new favorites—then start using them in minutes. Learn about integrations.

Product Audit / GitHub PRs

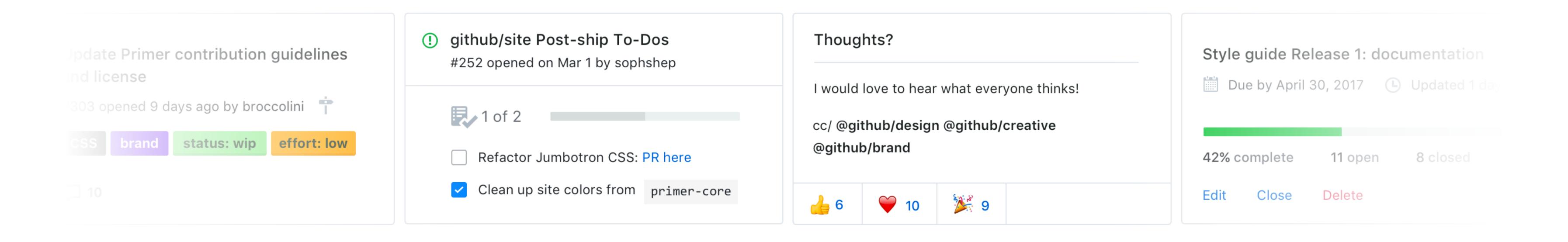
Pull Requests (PRs) are a great opportunity for design QA or as a tool for visual comparisons, but the current view doesn't include useful features for visual reviews.

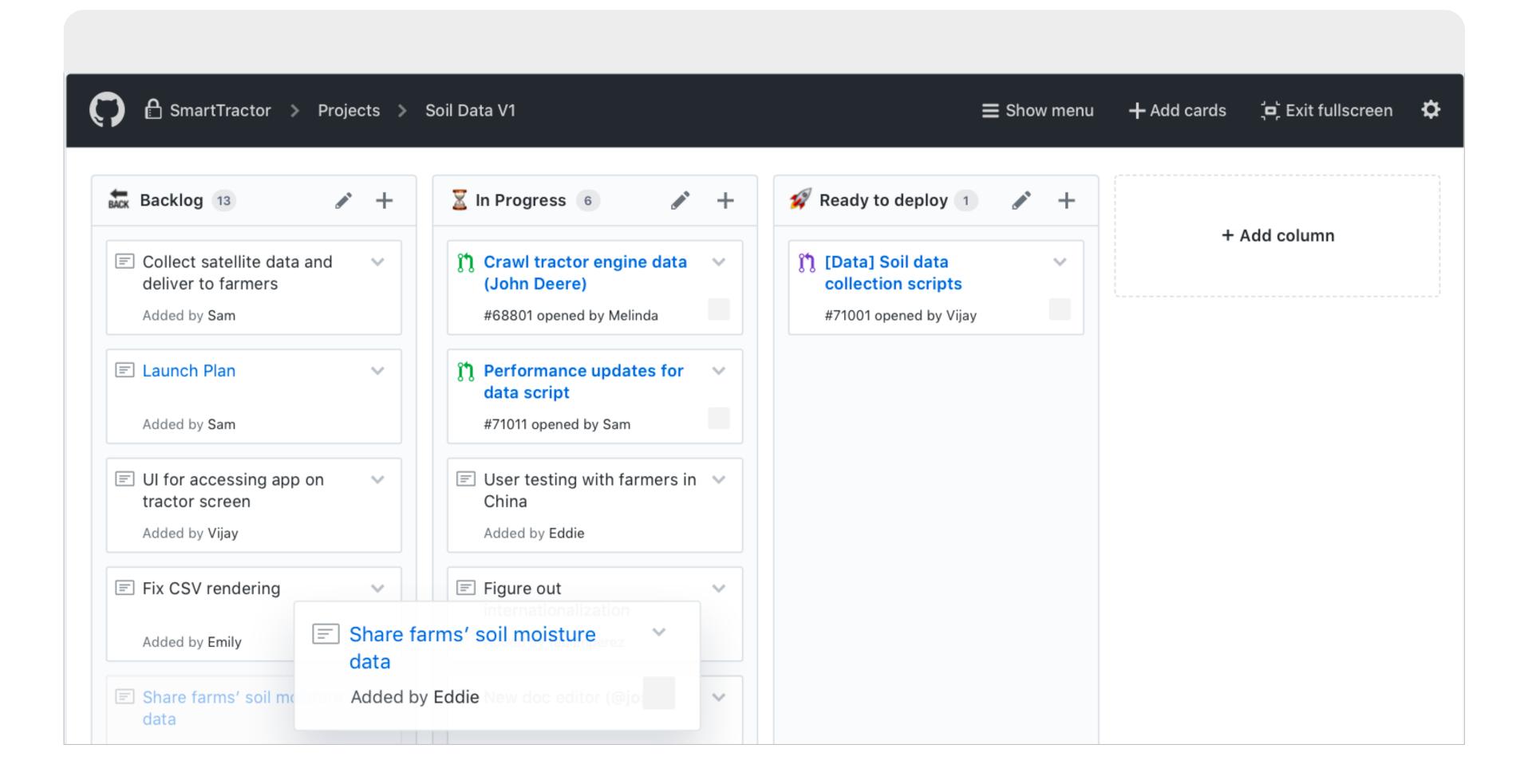


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Product Audit / GitHub Project Management

GitHub has started rolling out project management tools, but they are still very developer focused and don't provide collaboration features for designers.





Product Audit / GitHub Image Diffs

GitHub already has features to show differences in images between different code commits, which many developers find helpful.

This creates the potential to apply similar concepts to full product screenshots, or to compare against mocks instead of previously committed code.



Read about image diffs on GitHub here

### User Research / GitHub



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I don't see any value in GitHub for me. I would love to get a GitHub link that I could open and actually gather some utility from, but I just don't see a use right now.

## - Harrison, Product Designer

View full research overview →

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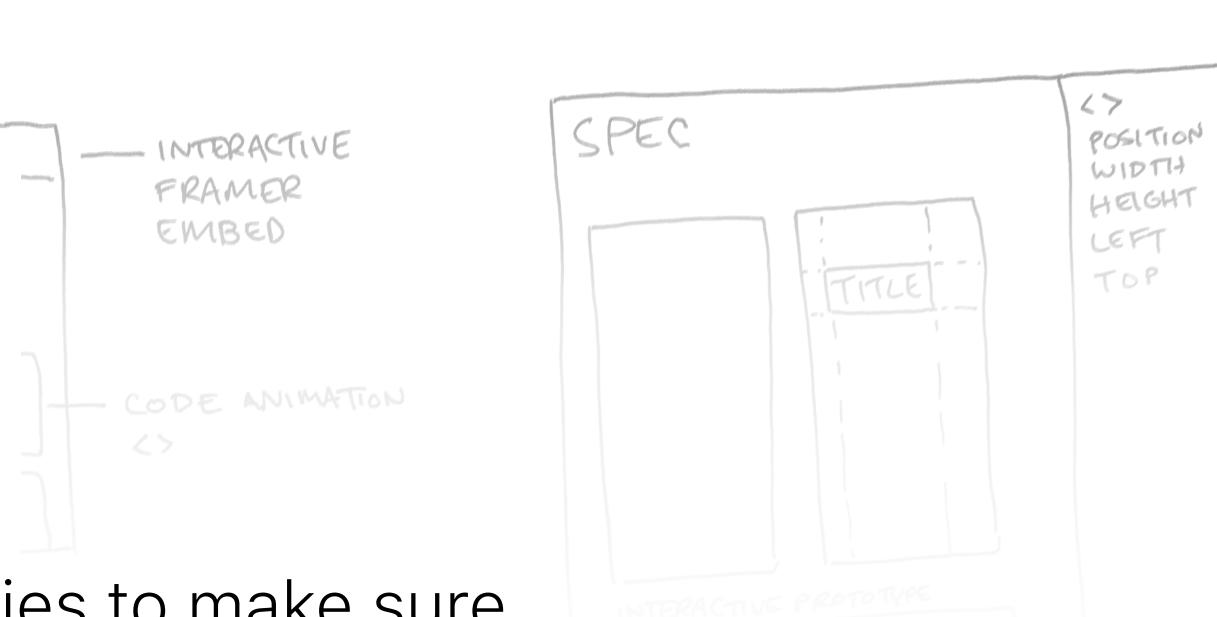
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# Brainstorming Strategy & Prototyping

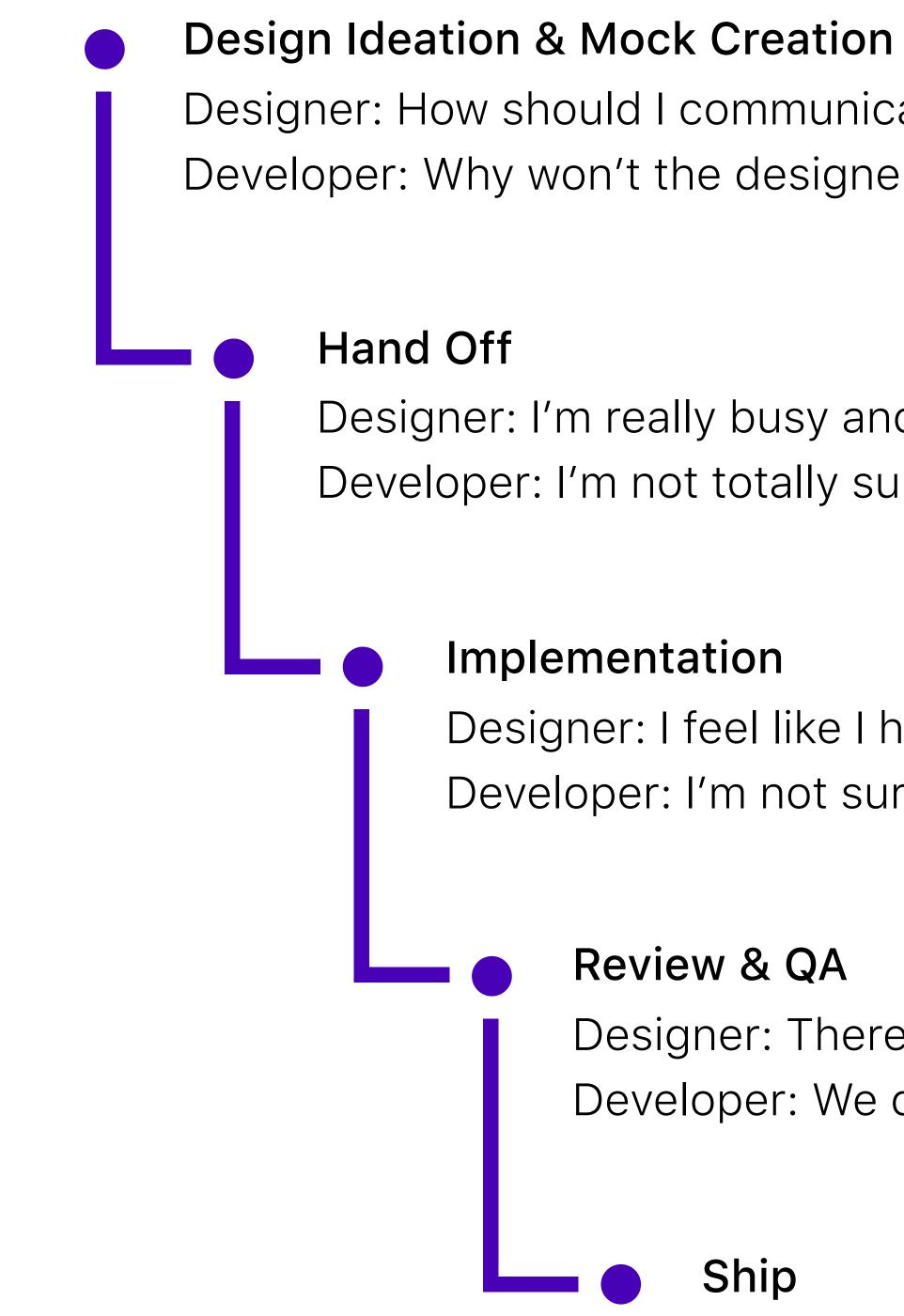
For this project, I did a variety of brainstorming activities to make sure I explored divergent options, and then narrowed down on a solution using sketching and prototyping.



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User Journey / Critical Path

mapped a critical path to start thinking about pain points throughout the user journey.



- Designer: How should I communicate with developers?
- Developer: Why won't the designer loop me in?

Designer: I'm really busy and am not sure how much to communicate. Developer: I'm not totally sure what the designer wants.

Designer: I feel like I have to micro-manage, or else I don't know what's going on. Developer: I'm not sure if I'm catching all the details, and I'm not sure how to loop in design.

### **Review & QA**

Designer: There are a lot of design bugs and no one is looping me in. Developer: We don't have time to fix everything now, and I don't know when to loop in the designer.

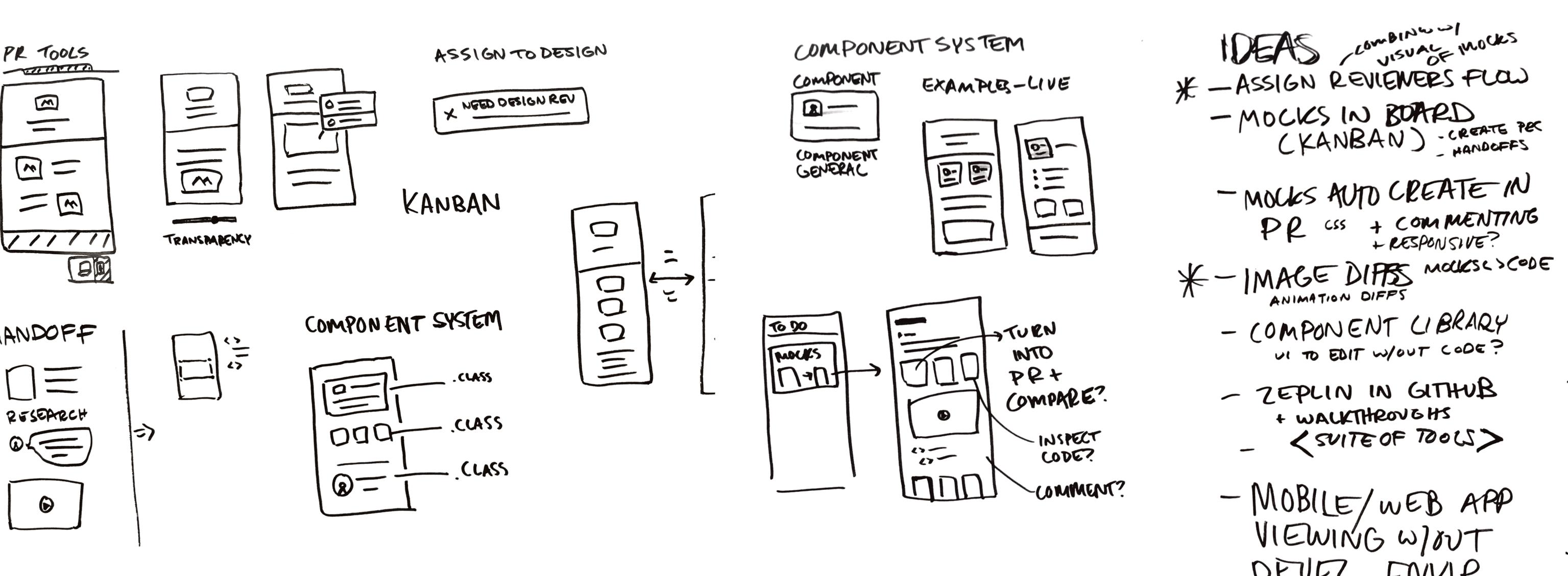
### Ship

Designer: This isn't as high quality as I had hoped and I feel frustrated. Developer: This isn't as high quality as I had hoped and I feel frustrated.

Ideation / Crazy Eights Divergent Brainstorming

did a series of rapid timed sketching activities to produce a lot of ideas in a short amount of time.

noted which ideas seemed the most interesting to me, and chose three concepts to sketch out in more detail.



ANIMATION DIFFS - COMPONENT LIBRARY UI TO EDIT W/OUT CODE? - ZEPLIN IN GITHUB + WALKTHROVGHS < SVITE OF TOOLS> - MOBILE/WEB APP VIEWING WINT DEVEZ. ENVIR.

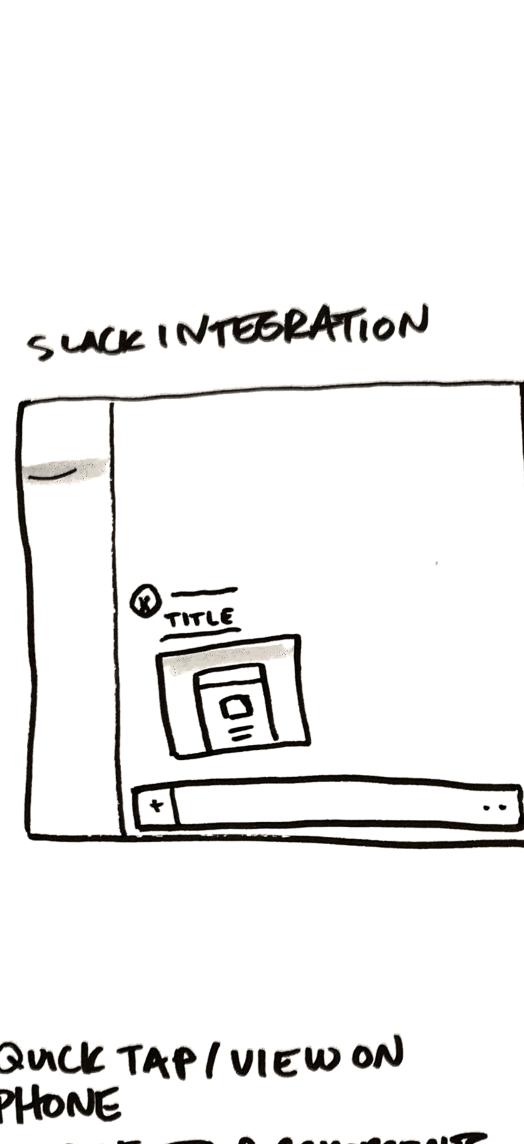
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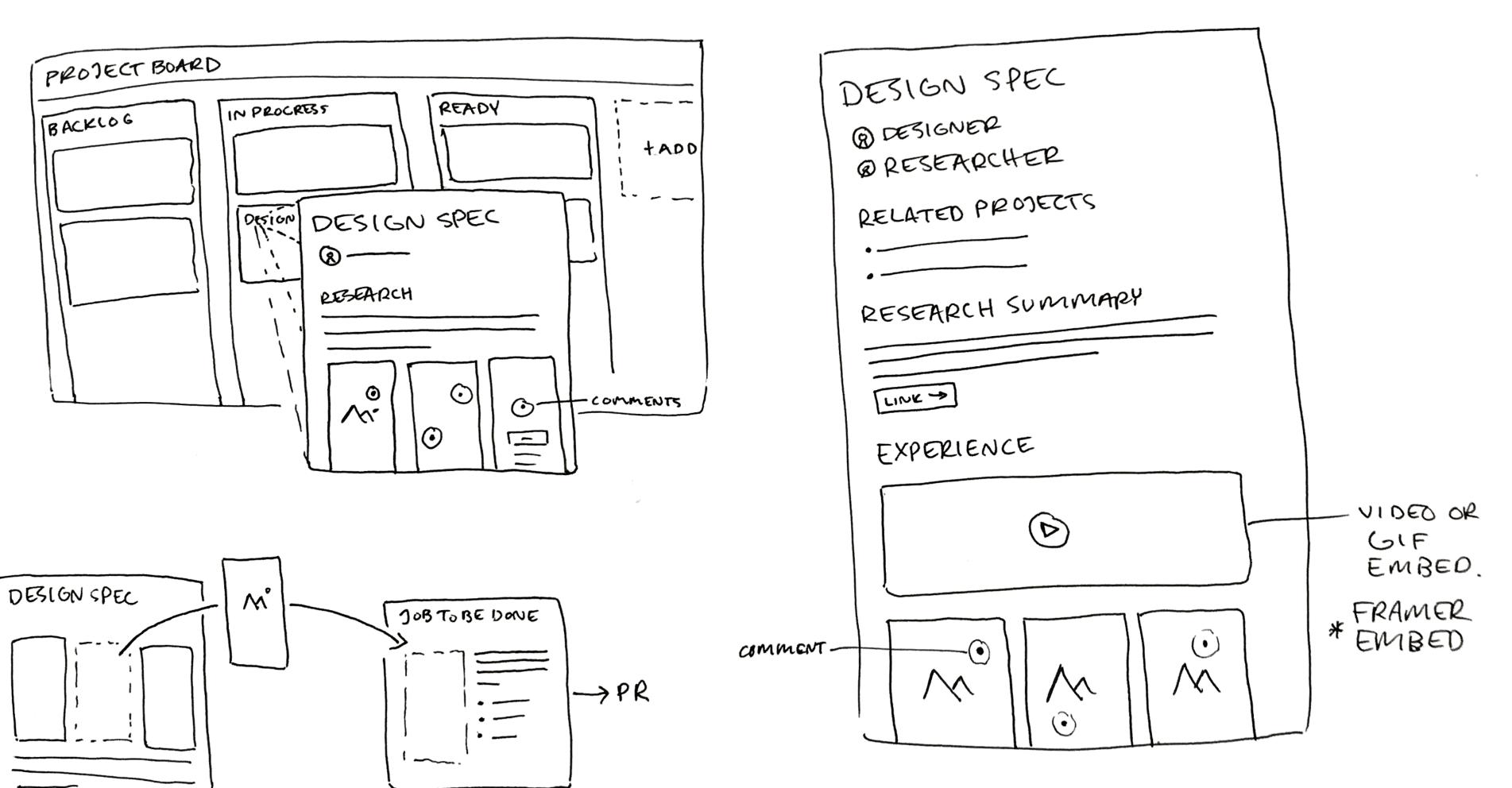
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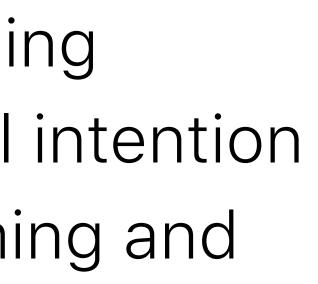


Ideation / Concept 1: Design Tools in Kanban Boards

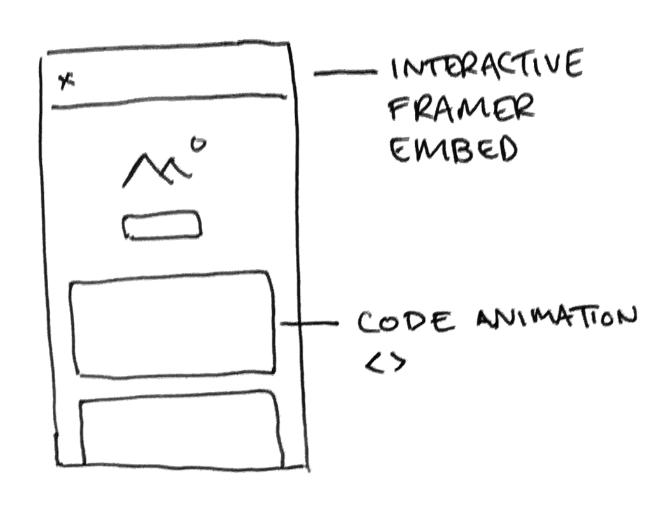
Since GitHub recently introduced kanbanstyle project boards, I thought it would be interesting to incorporate design into the process. Some ideas include:

- Create a "design spec" card for the project board.
- Design specs can provide redlining features, as well as show the full intention of the design through diagramming and research.
- Mocks can be pulled from design specs and attached to other cards.
- Cards that get converted into Pull Requests could attach the mocks as a reference.



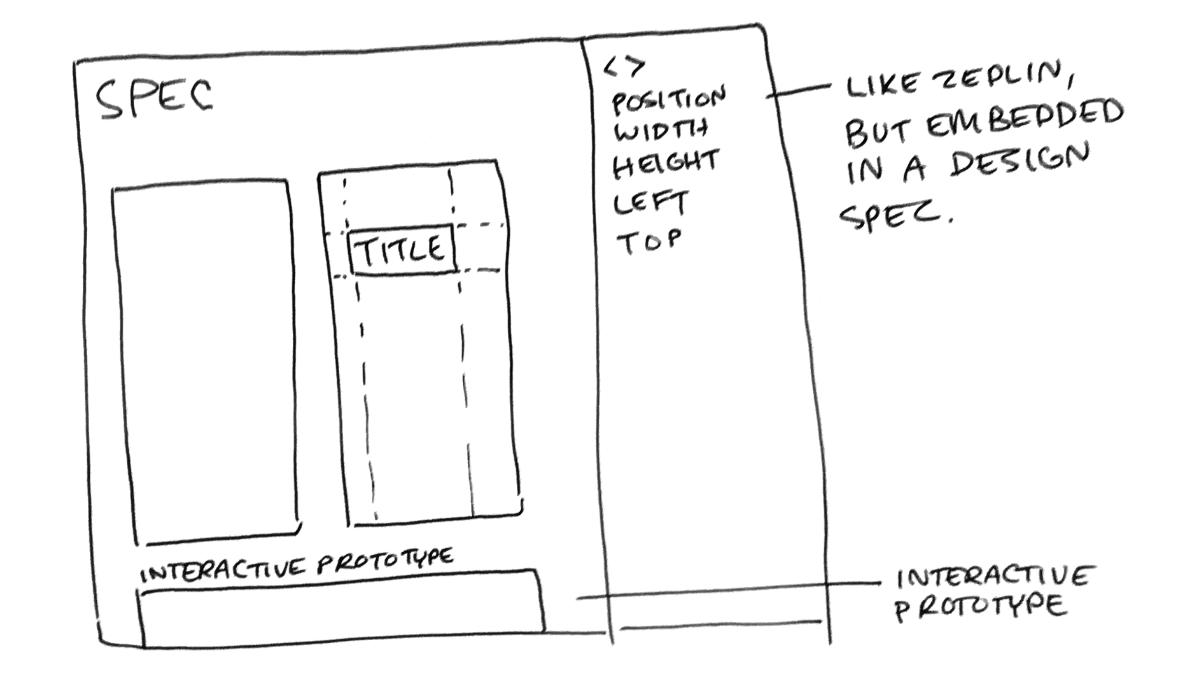






TEAM SETS UP PROJECT BOARD	DESIGNERS UPLOAD MOCKS • FULL DESIGN SPEC WITH CONTEXT • COMMENTING

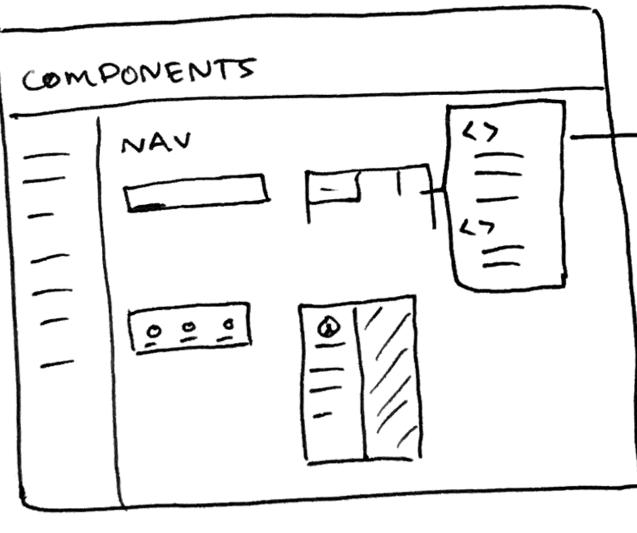
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Ideation / Concept 2: Integrated Component Library

Creating component systems is always a challenge, often because designers and developers have a hard time keeping everything updated.

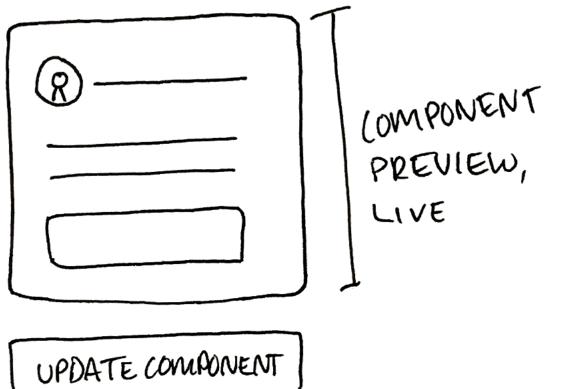
This concept was an exploration around creating a living component library. Designers could update components through a user-friendly UI that automatically submits code for review.

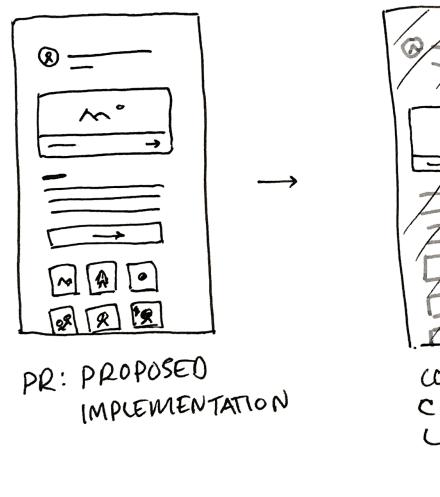


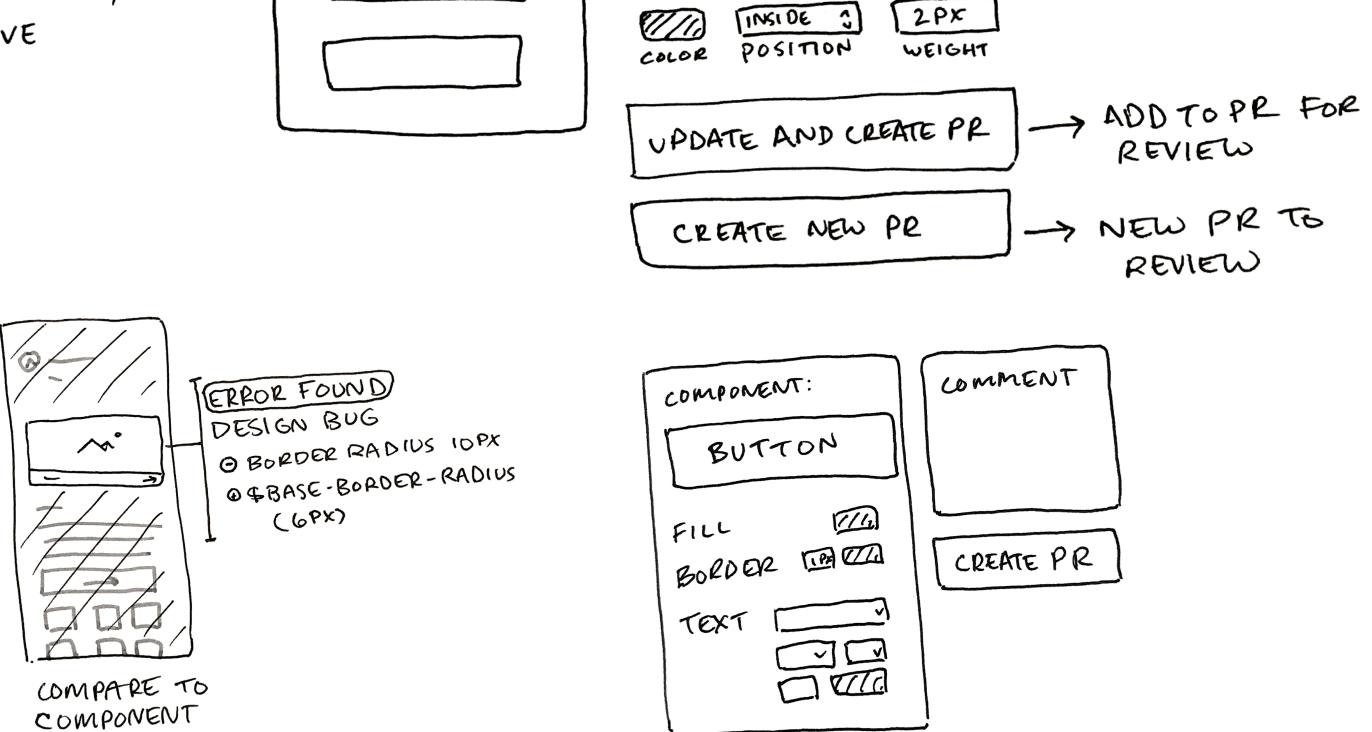
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· LIVING, CAN INSPECT CODE

CARD LOMPONENT



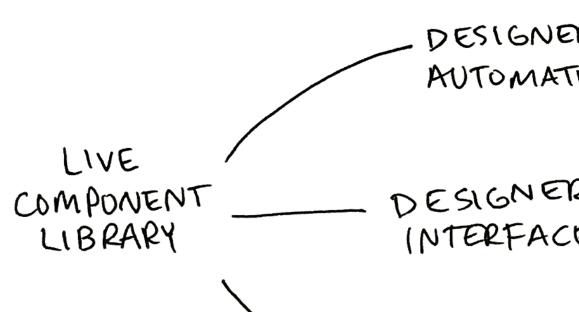




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LIBRARY

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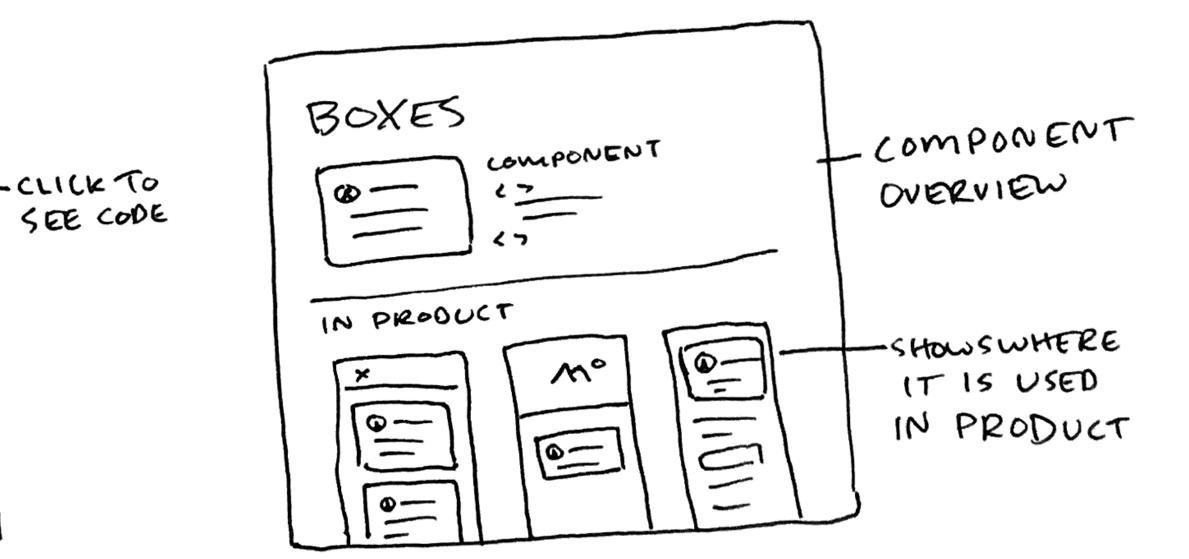


ENGINEERS + DESIGNERS CAN USE A LIVE COMPARISON TOOL TO SEE DESIGN BUGS IN IMPLEMENTED SCREENS

DESIGNERS CAN UPDATE COMPONENTS VIA A SKETCH-LIKE INTERFACE AND CREATE A PR BY CLICKING A BUTTON

. DESIGNERS + ENGINEERS CAN TRIGGER SITE AUDITS THAT WILL AUTOMATICALLY SHOW (VISUALLY) WHERE THE COMPONENTS ARE USED

USAGE AUDIT



UPDATE COMPONENT:

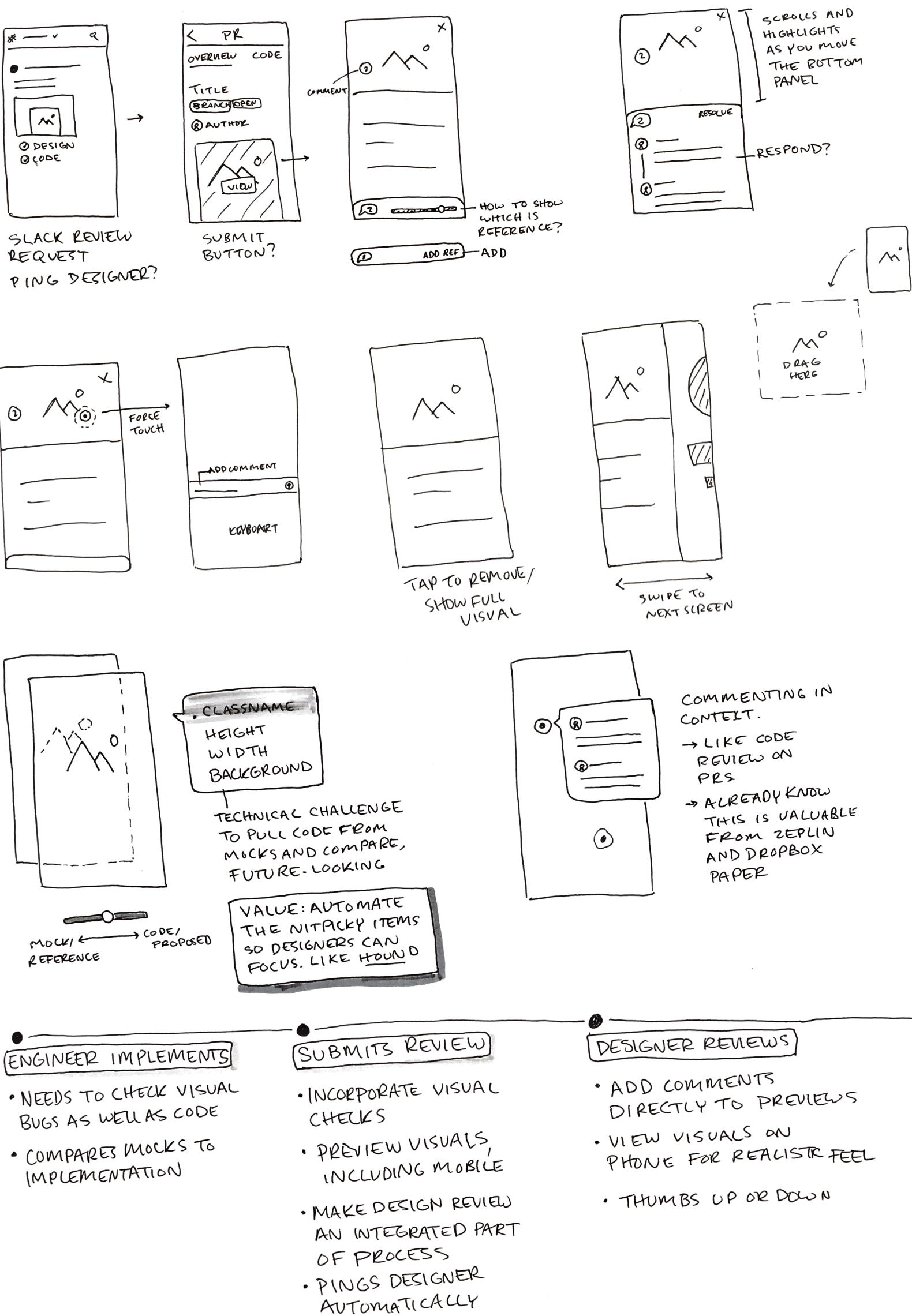
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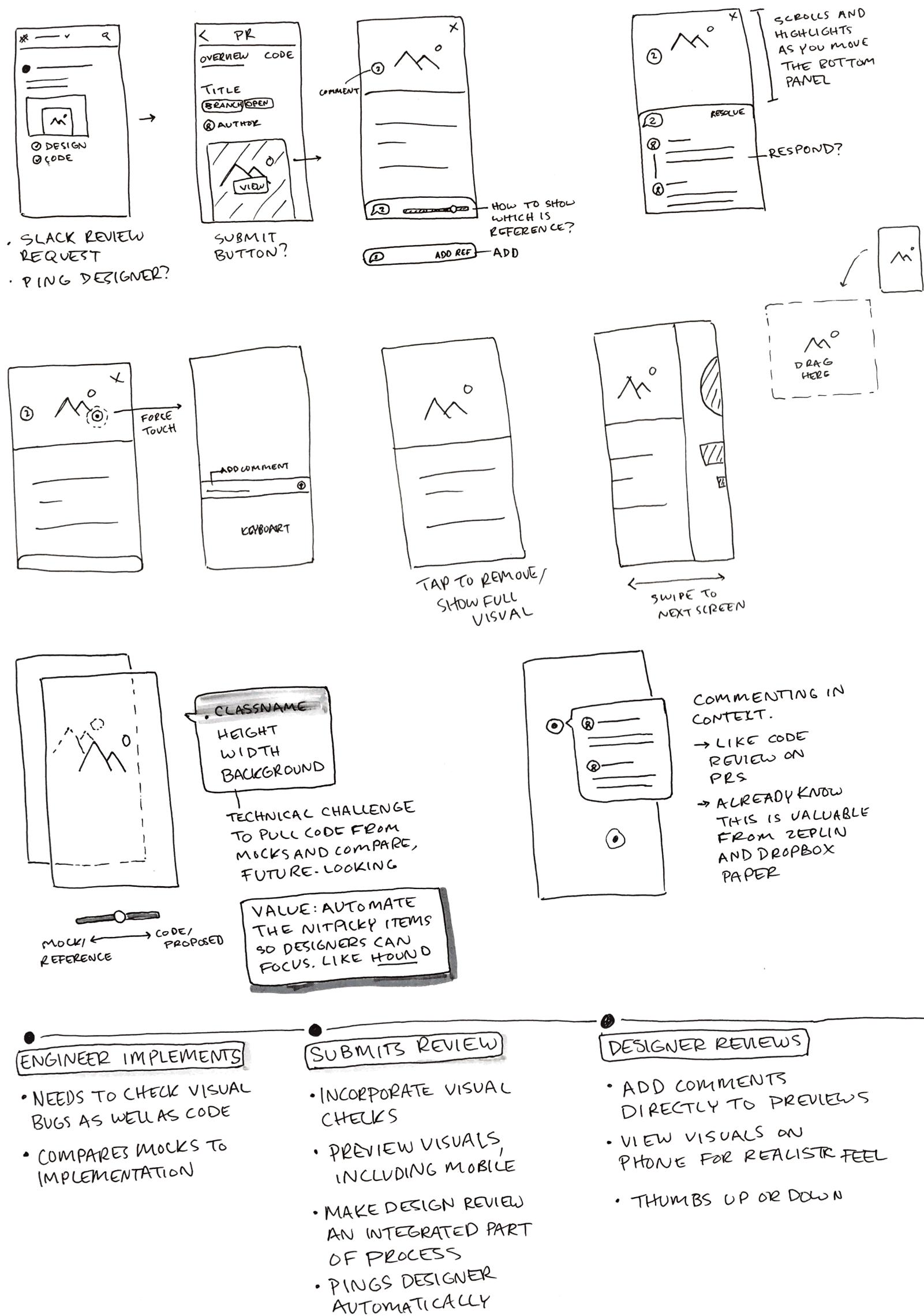
Ideation / Concept 3: Visual Reviews in PRs

Code review processes currently do not include design checks, even when the code is changing the design.

This concept explores updating the Pull Request flow to include automated and manual visual checks. Some of the value includes:

- Automatically tagging designers for visual reviews.
- Including visual changes alongside code changes.
- Collaboration tools for better communication.
- A potential focus on mobile to improve the quality of feedback. Viewing mobile work on an actual device is closer to the real thing and will improve feedback.

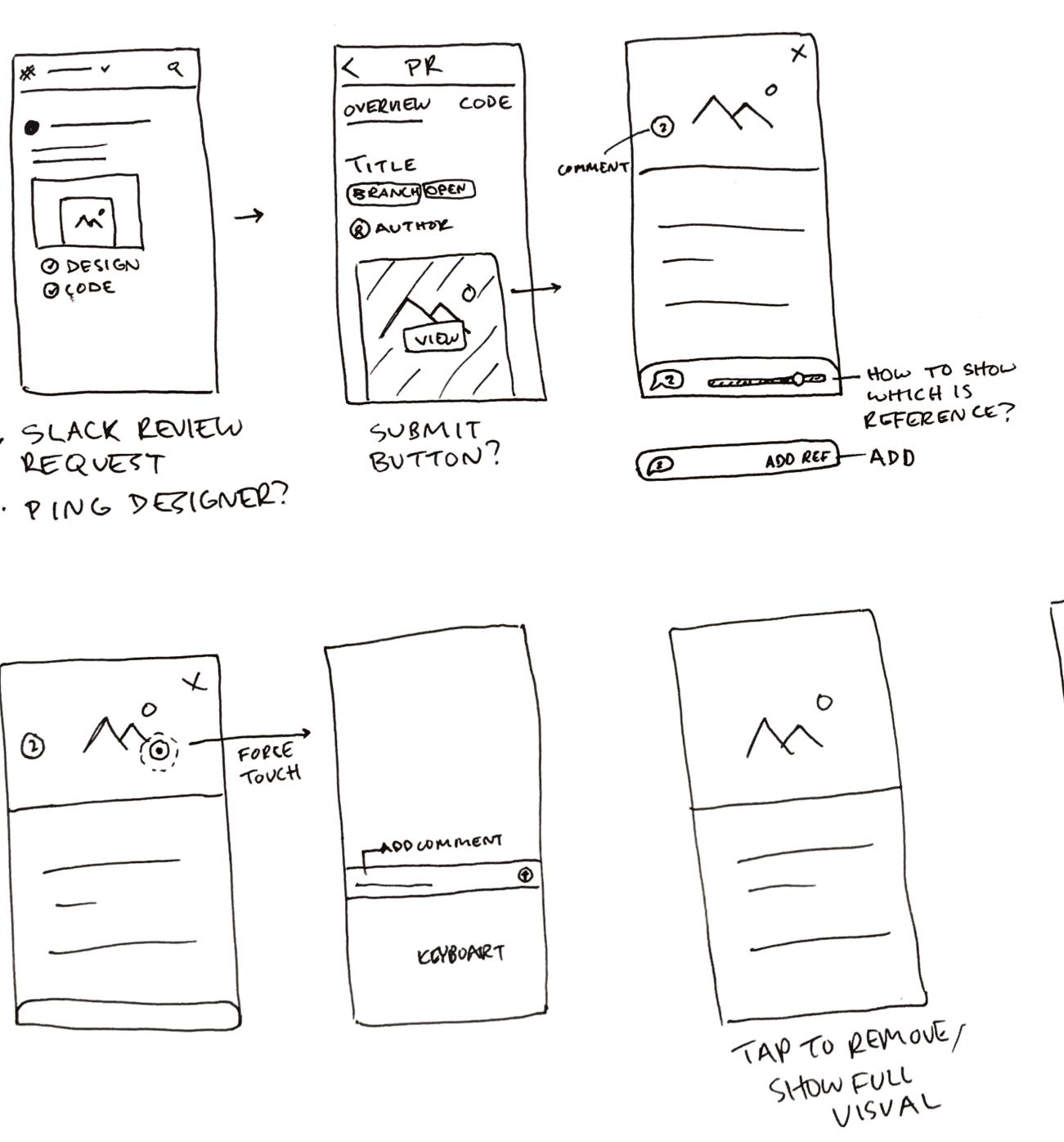


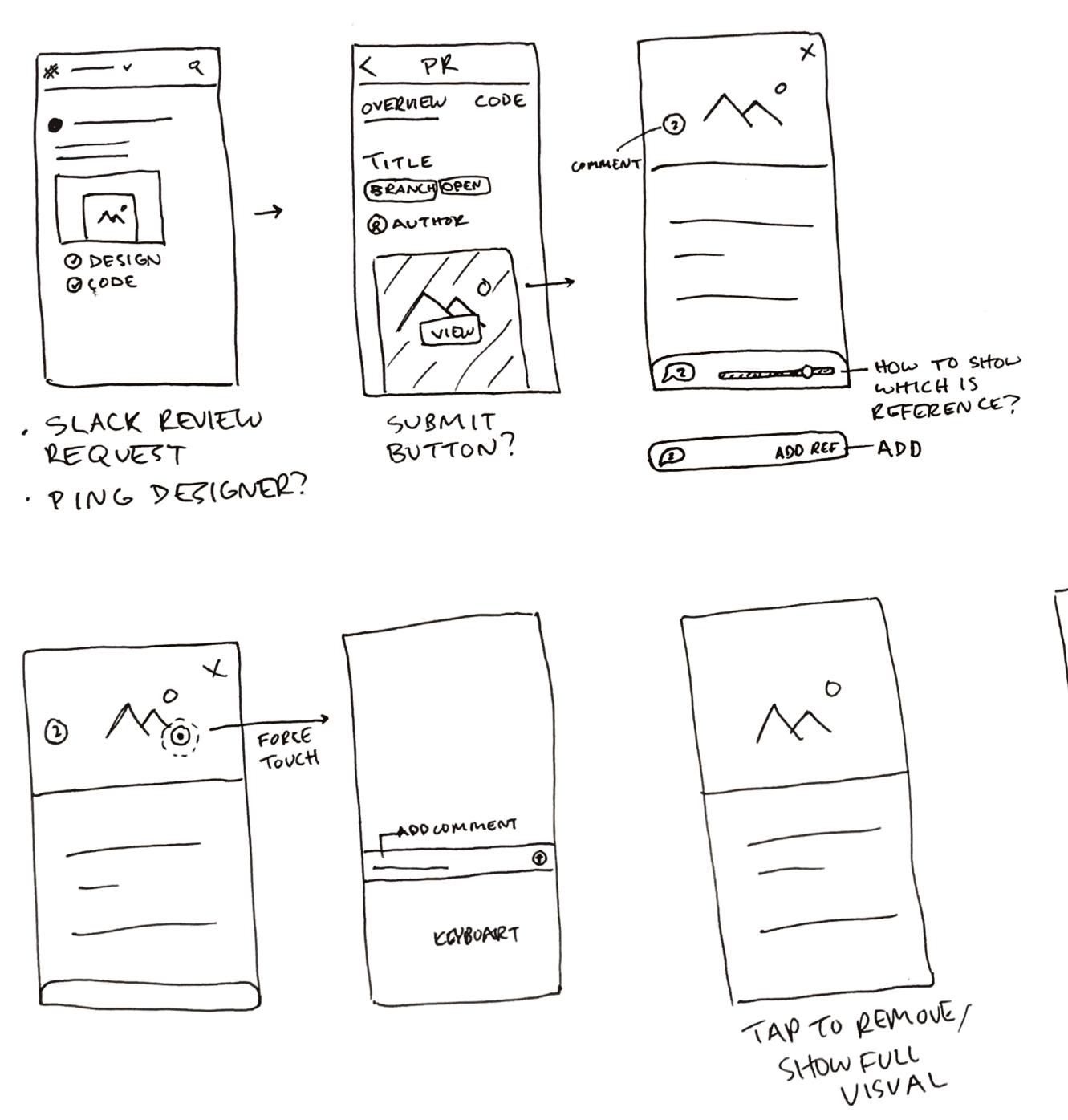


Ideation / Chosen Concept

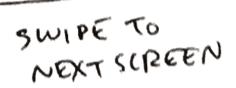
### I ultimately chose the third concept: Visual Reviews in PRs

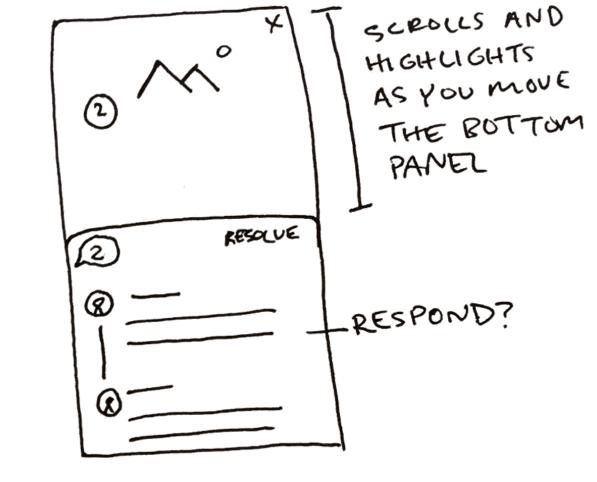
I decided to do a native version to show how it could optimize feedback for mobile work.











Wires and Flows / Full Diagram

For a first pass at this feature, I scoped the experience to the designer's perspective and established three main points in the user experience:

- 1. A "hook" to alert the designer that a review needs attention.
- 2. A redesigned Pull Request flow that includes checks for visuals.
- 3. A feature that allows designers and developers to check the accuracy of the visuals by comparing the implemented version to the reference mocks.

As an add-on, I decided to redesign the list of PRs in the main repository to apply the new visual styles to the entire flow.

View full wireframe mocks here  $\rightarrow$ 

**User Flow and Interactions** 

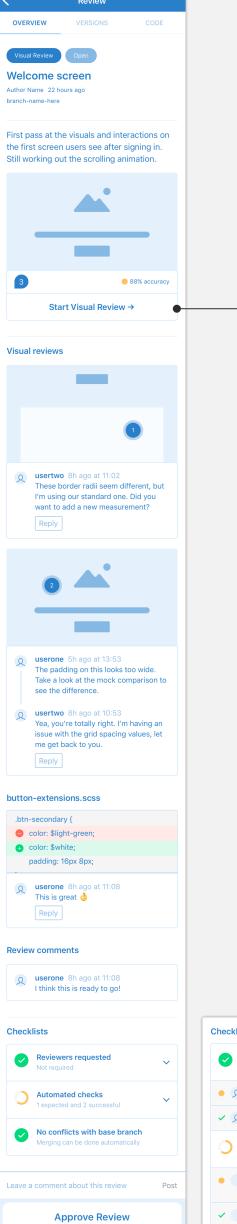
**Overall Flow** 

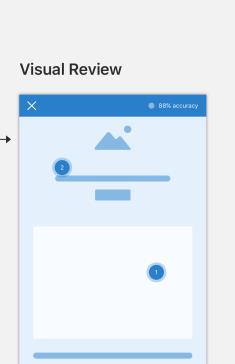
Repo, All Pull Requests

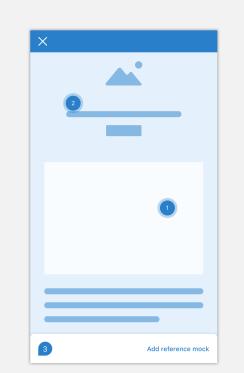
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### Slack notification





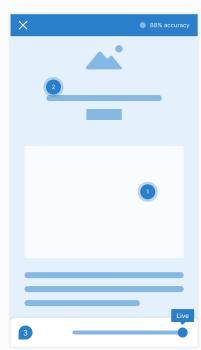


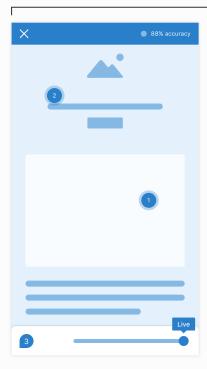


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### "Visual Review" Feature Interactions

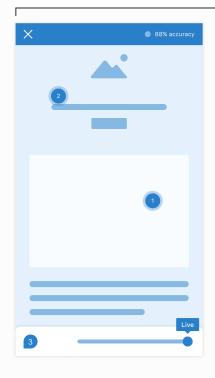
### Main Screen

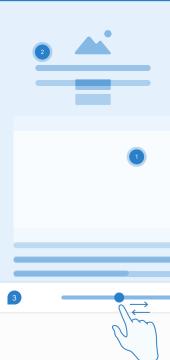






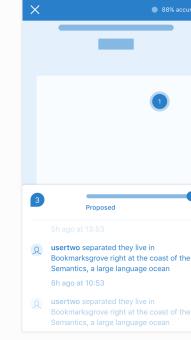
### **Reference Comparison**





### Viewing Comments









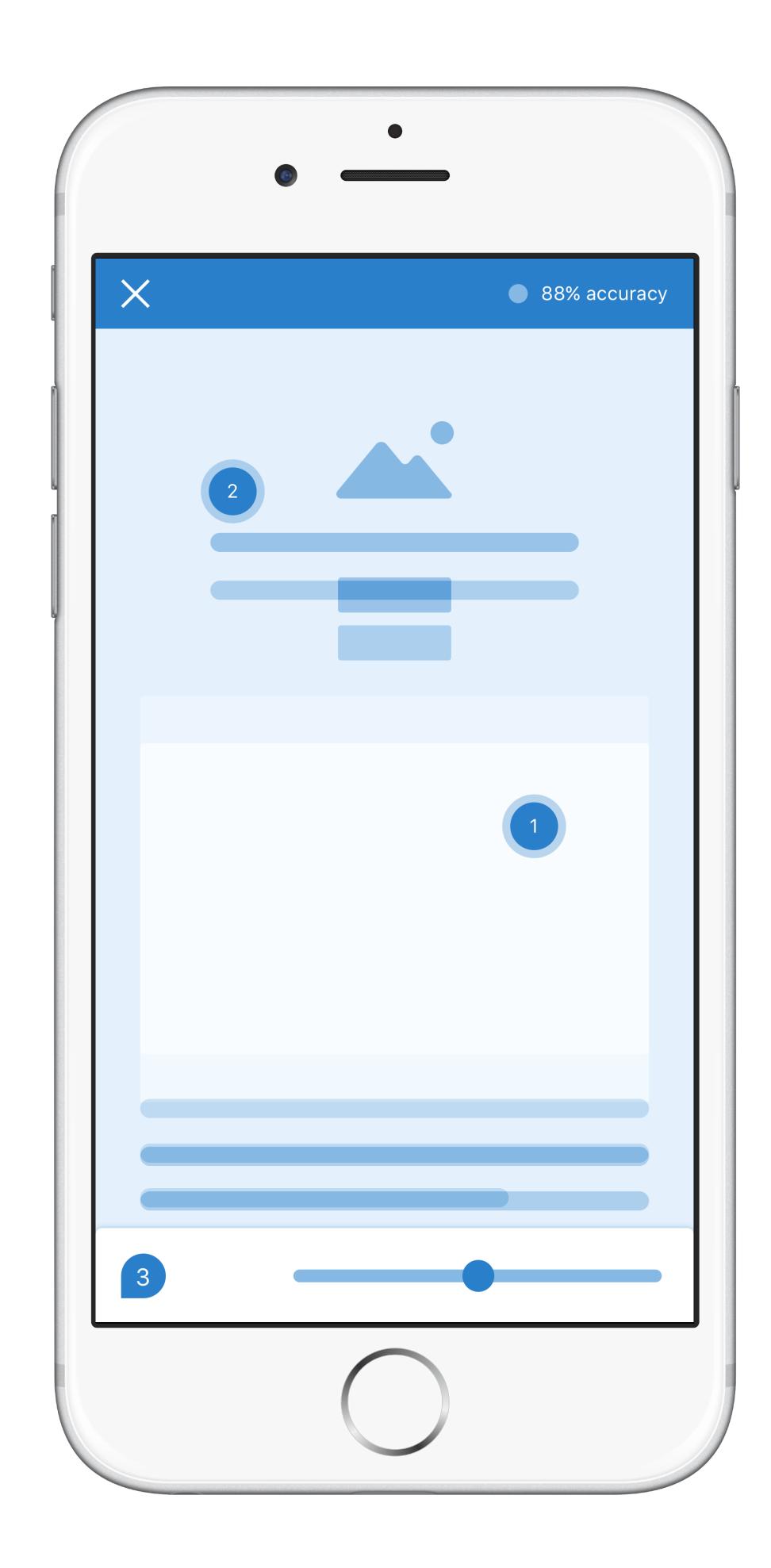
Wires and Flows / Interactions

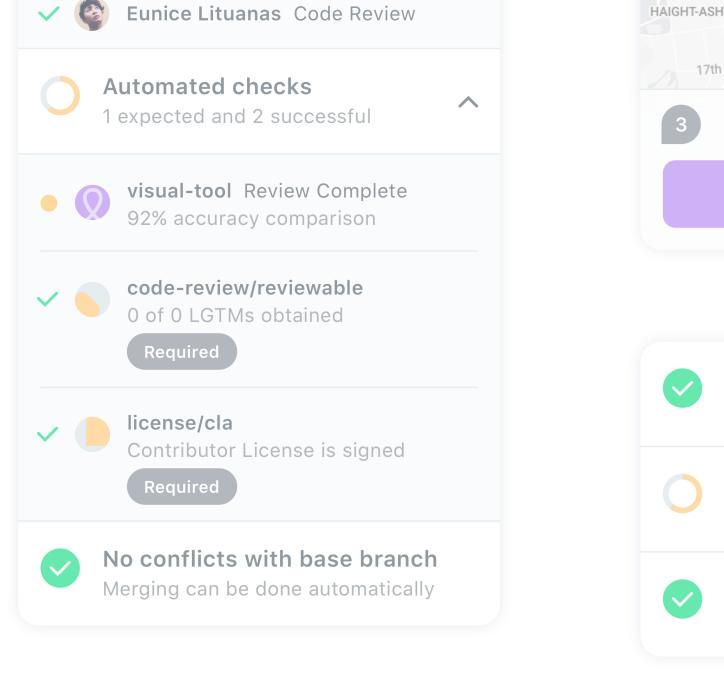
I decided to prototype the interactions for the "Visual Review" feature before moving on to visual design. Since this feature would rely heavily on interactions, it felt important to work out some of the issues before moving forward.

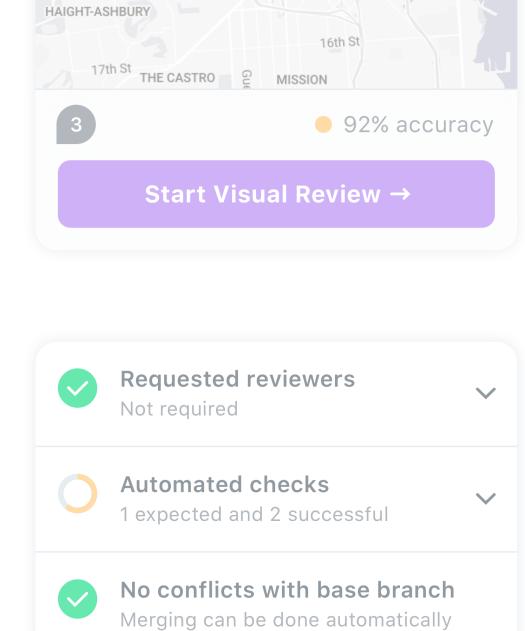
One improvement I made after prototyping was that I realized that the navigation bar on this screen was too heavy and obscured the view.

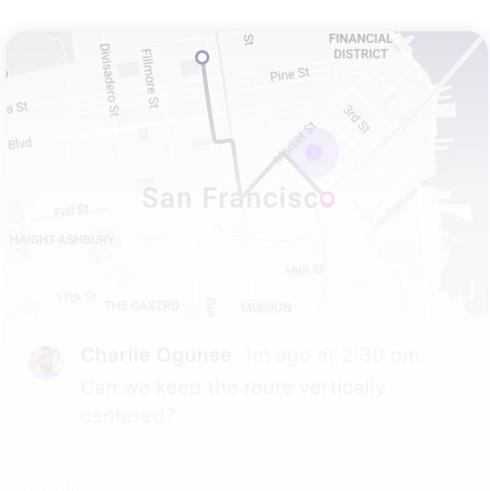
I also realized how future-facing the automated "best guess" code feature was when playing around with an actual prototype. I decided to make sure the final design would hold up without this feature and use it to establish future direction.

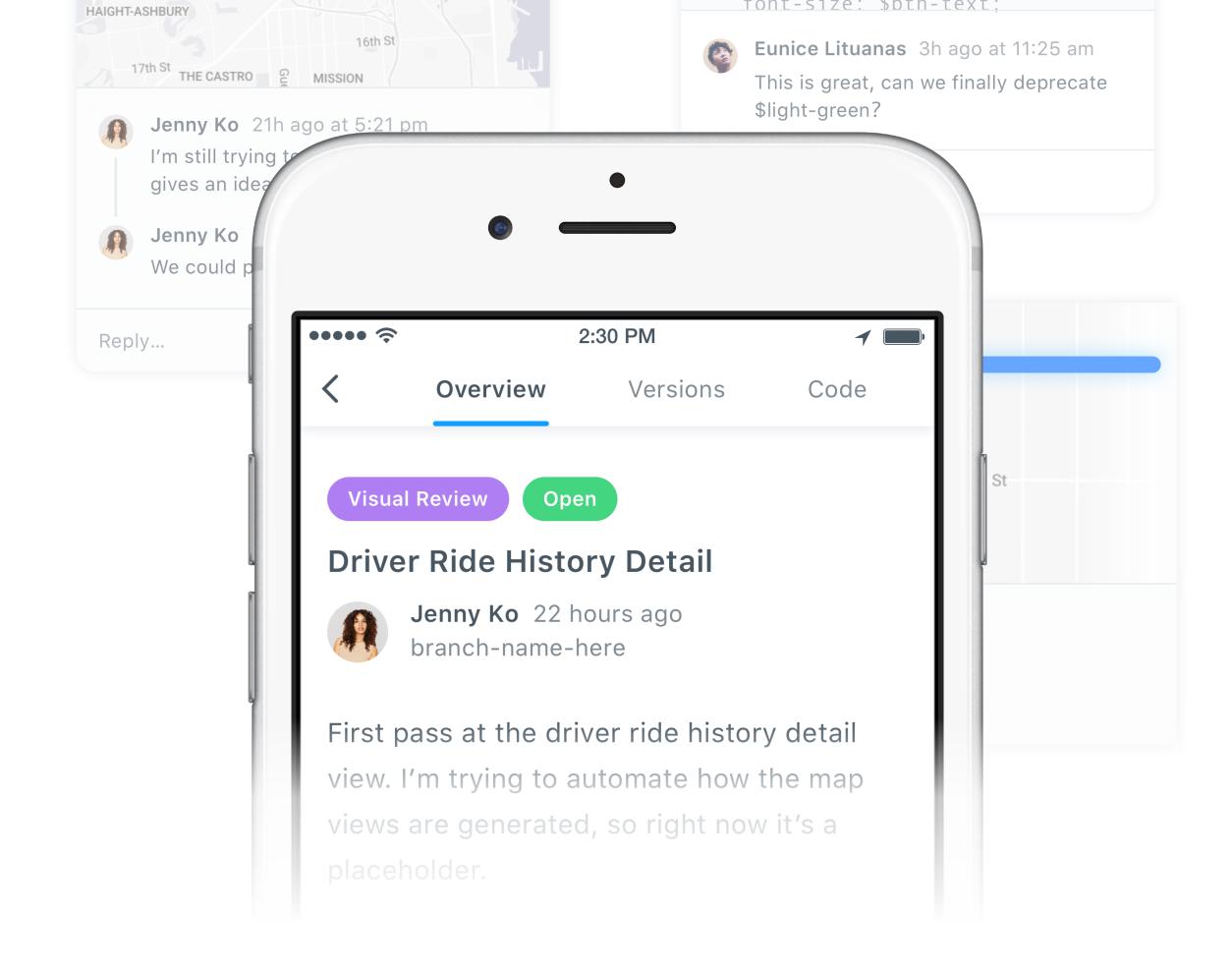
View prototype with interactions here →





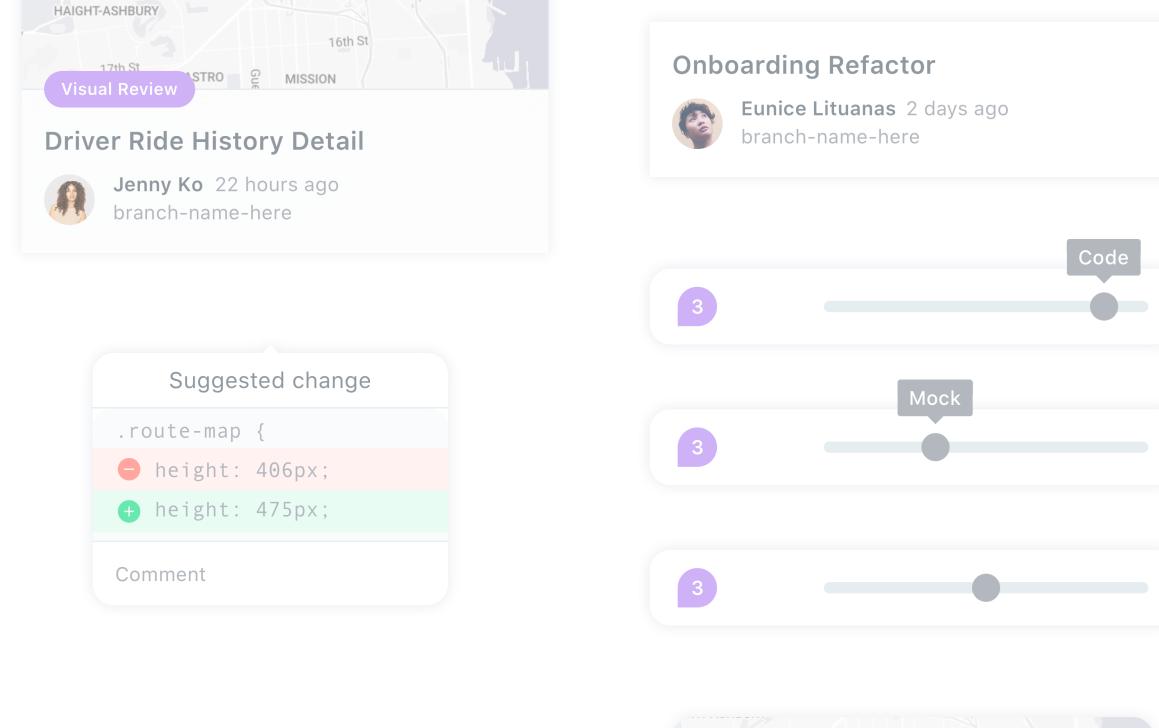






# Final Design Visual Reviews for PRs

The following is a walkthrough of the final design for the Visual Review feature.

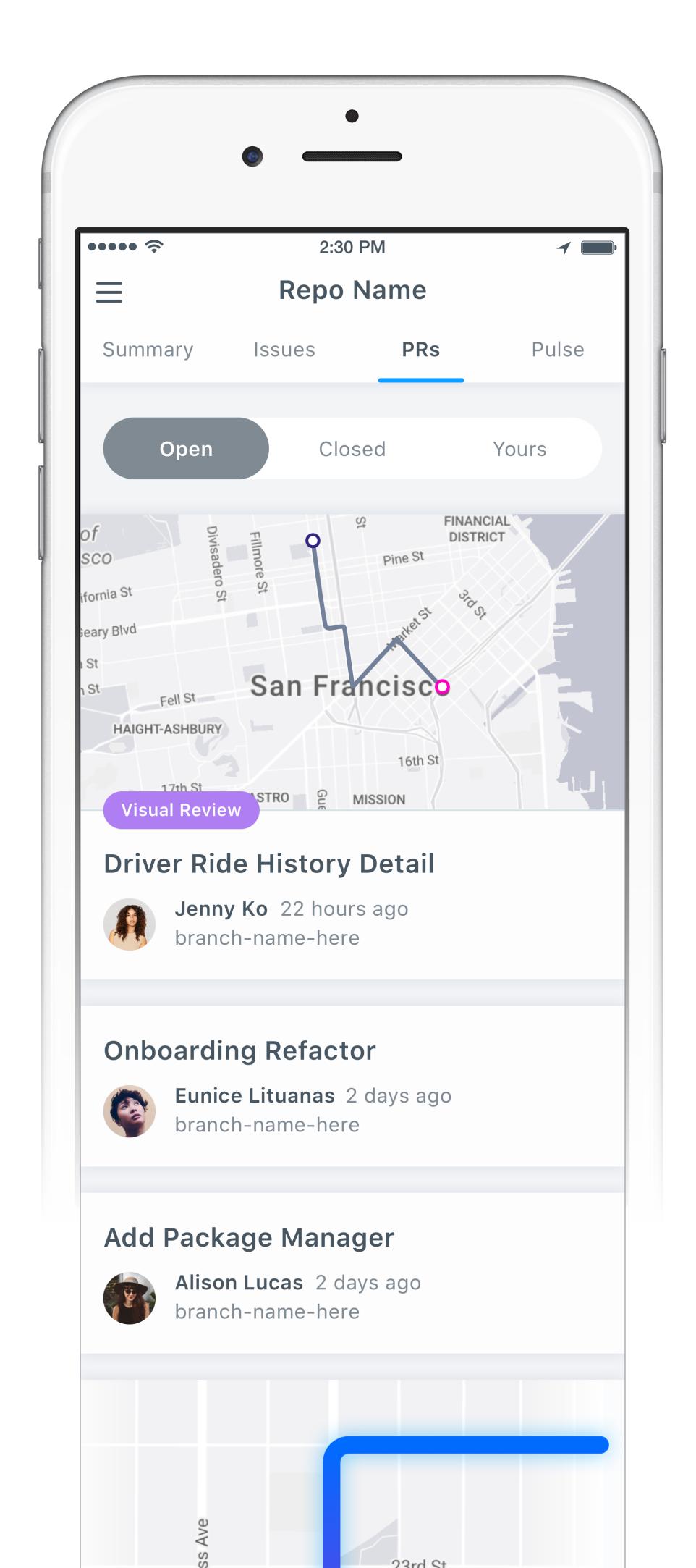


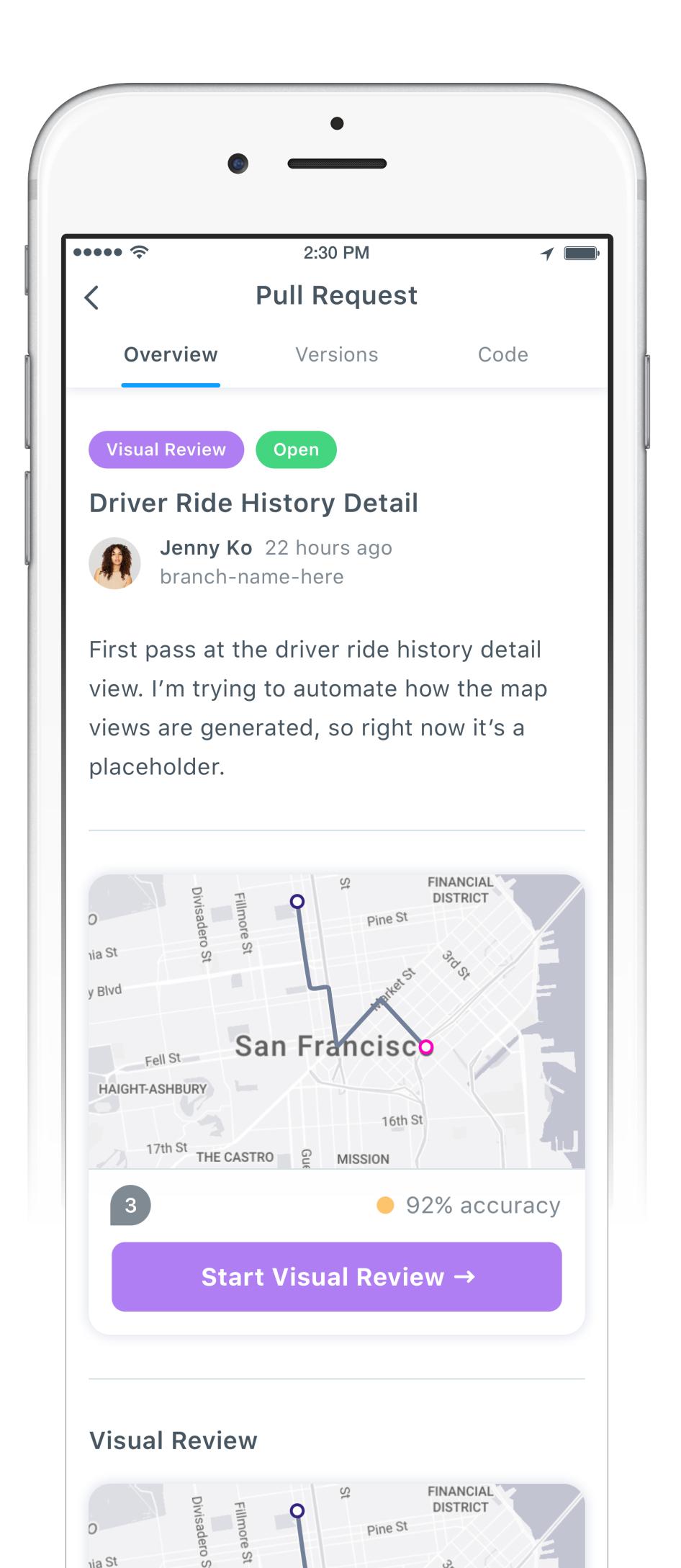
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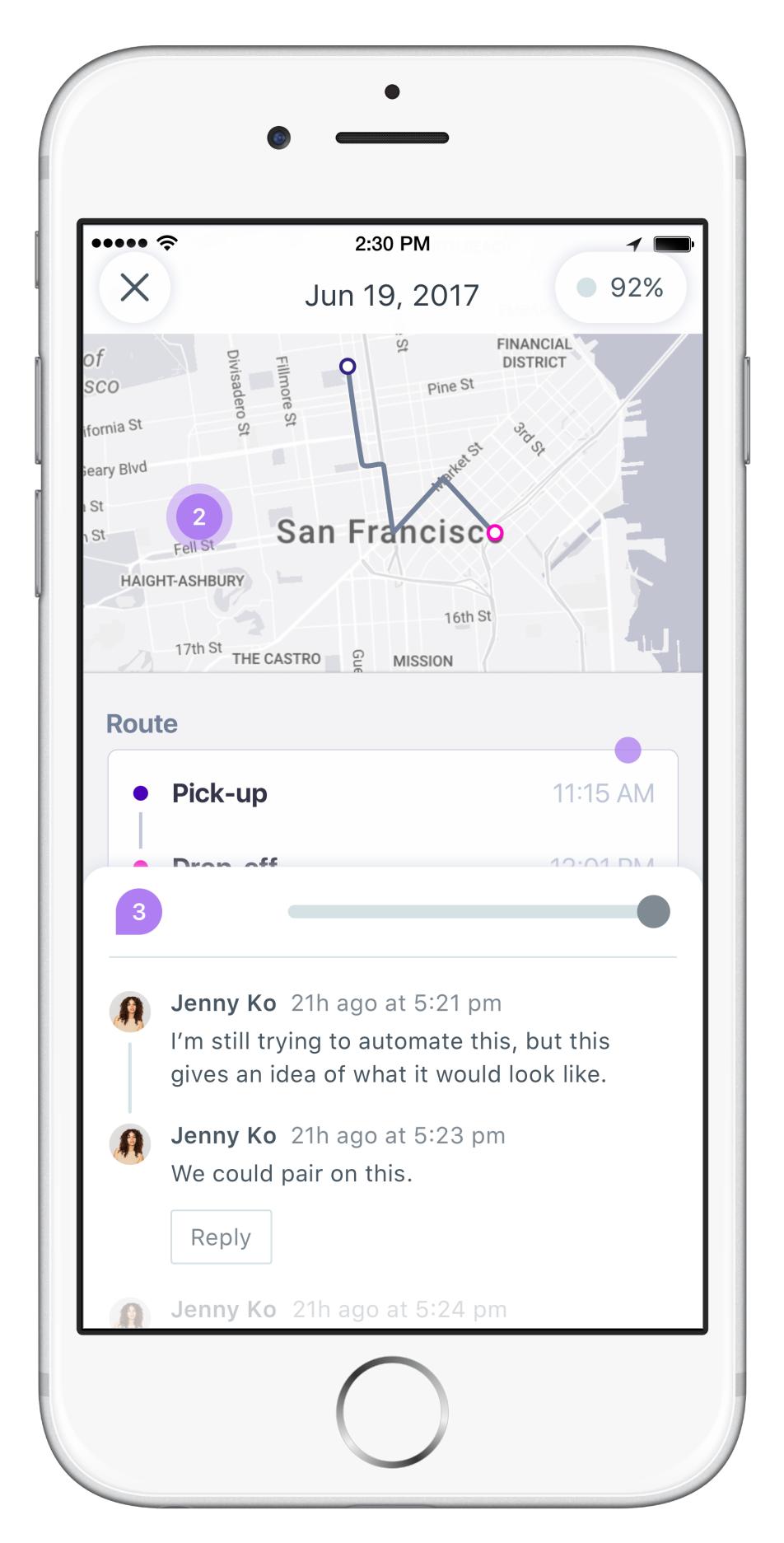
17th St THE CASTRO

oute

Pick-up







Visual Review feature

Final Design / Slack Entry Point

Scenario: An engineer just submitted a PR for a feature that includes design work. The designer was included in the list of reviewers as a "visual reviewer".

The designer gets pinged when the GitHub integration posts the PR in Slack. This is the quick entry point to the PR.

The "users" are:



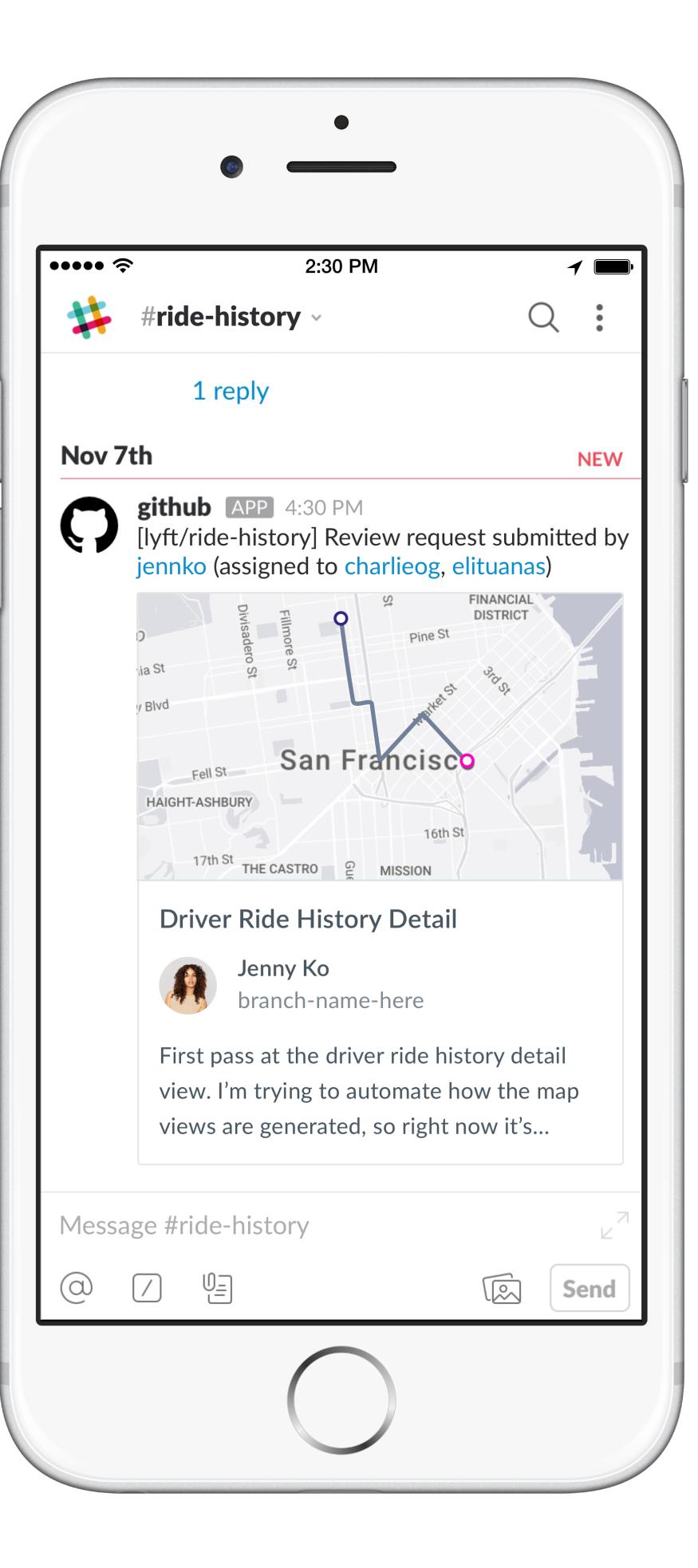
Jenny Ko, PR author



Charlie Ogunse, Designer



Eunice Lituanas, Developer

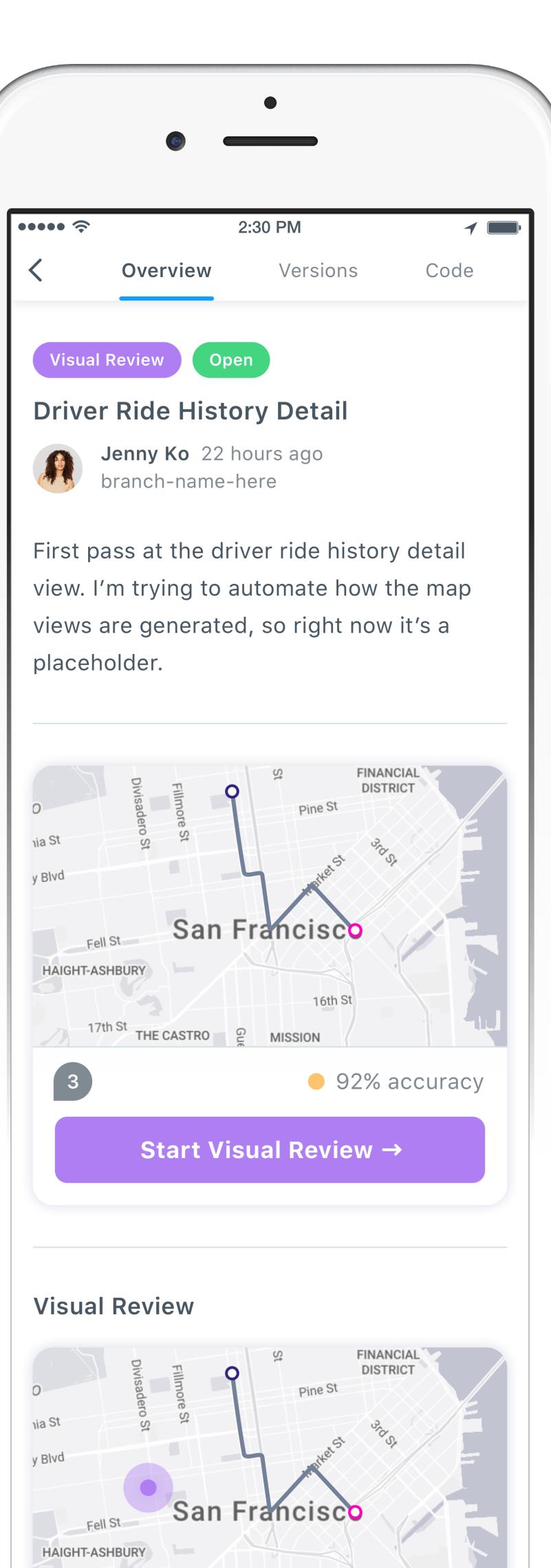


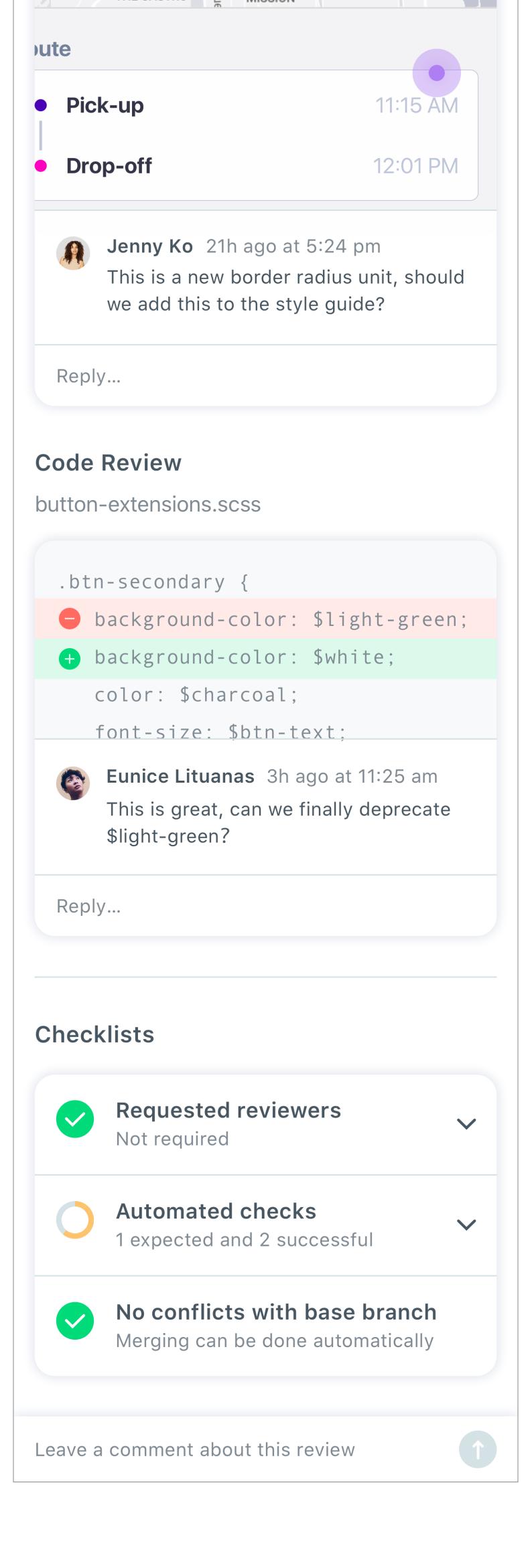
Final Design / Pull Request With Integrated Visual Review

This is the redesigned PR screen that the designer sees. It includes:

- An up-front summary section with an overview.
- A Visual Review feature incorporated into the main experience with a clear call-to-action, increasing its integration into the development process.
- Updated comment blocks for code and visual feedback.
- An updated checklist module that includes visual review checks.

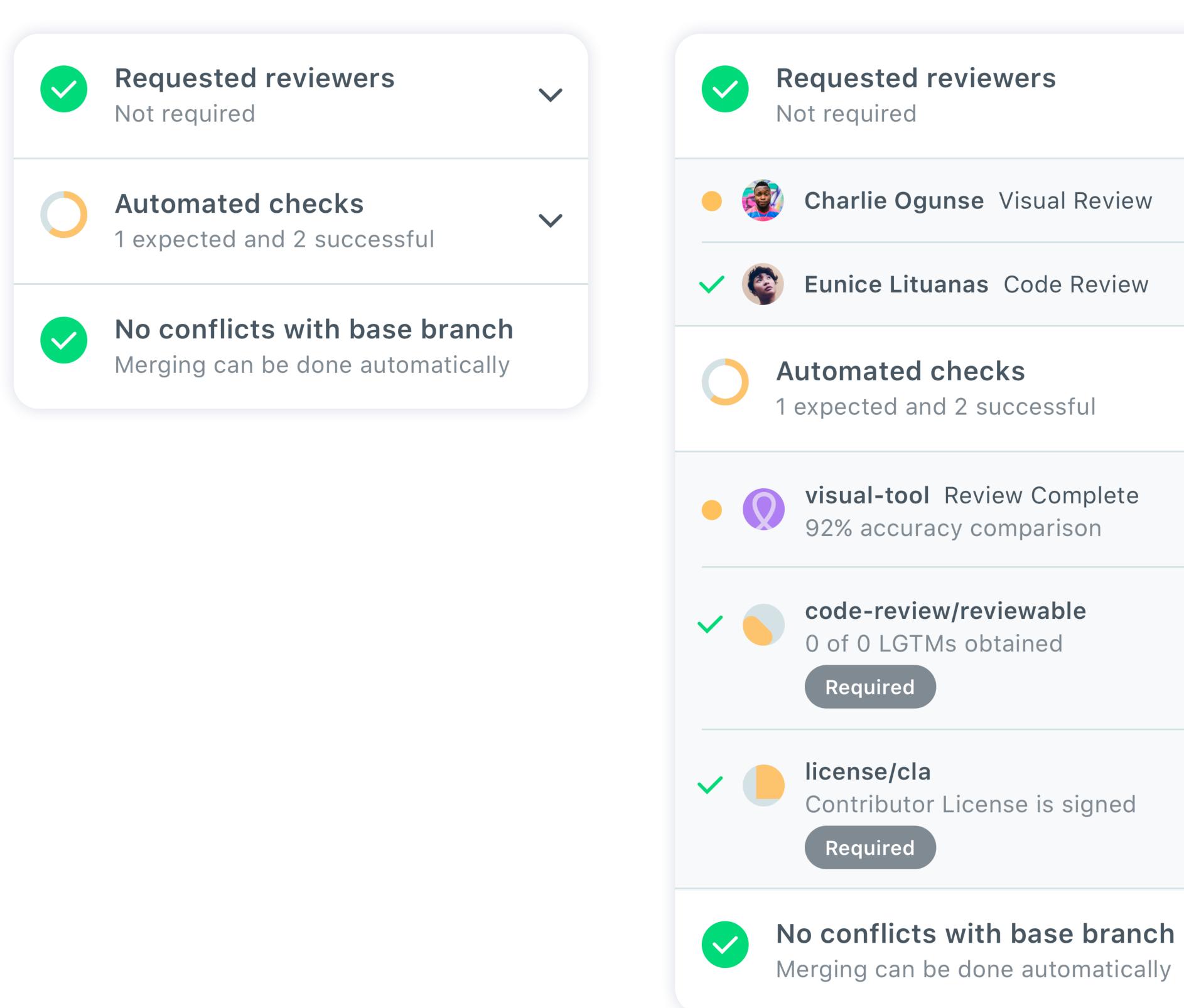
View a detailed PR anatomy here  $\rightarrow$ 





### Final Design / Pull Request Checklist

This is a closer look at the updated checklist module, which includes visual review features.



### Visual Review Request Assign designers to review visuals

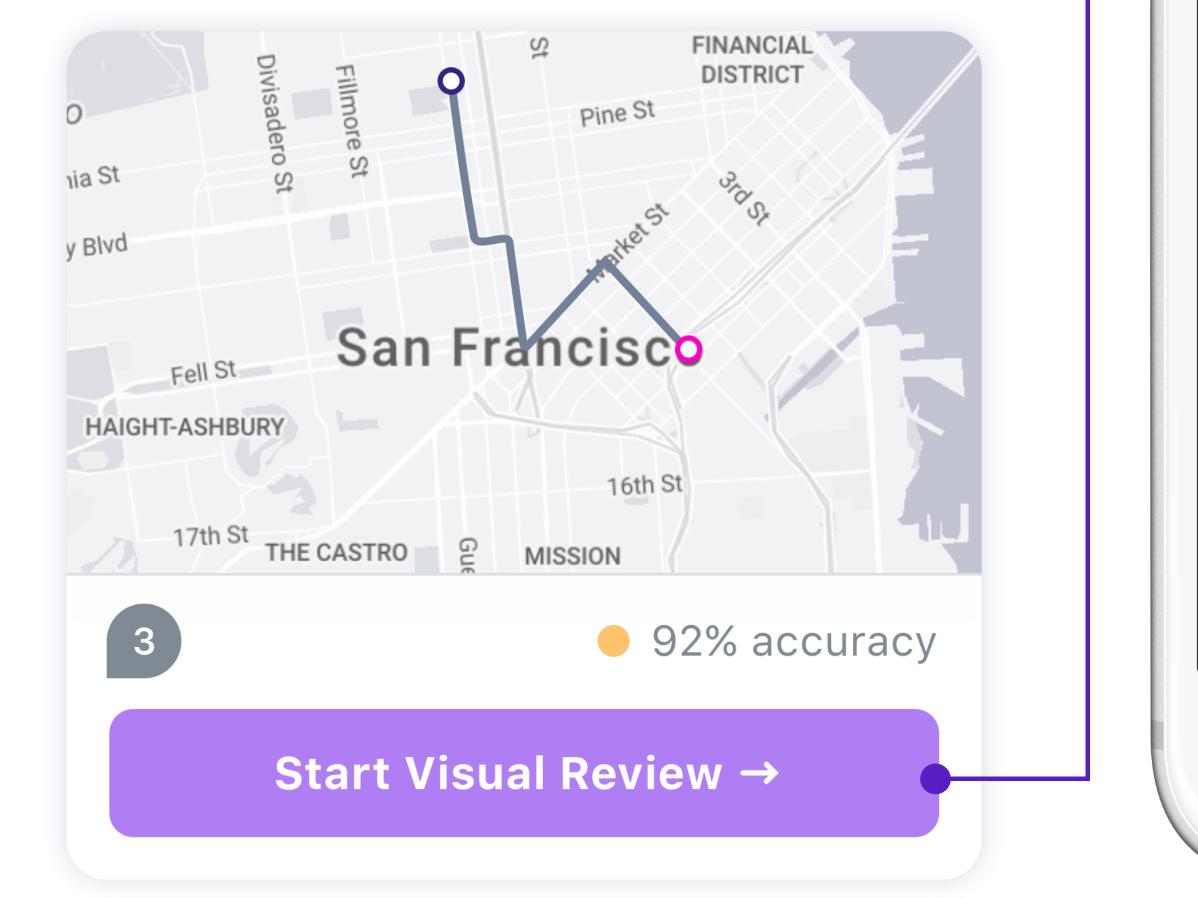
 Automated Visual Comparison Future facing idea

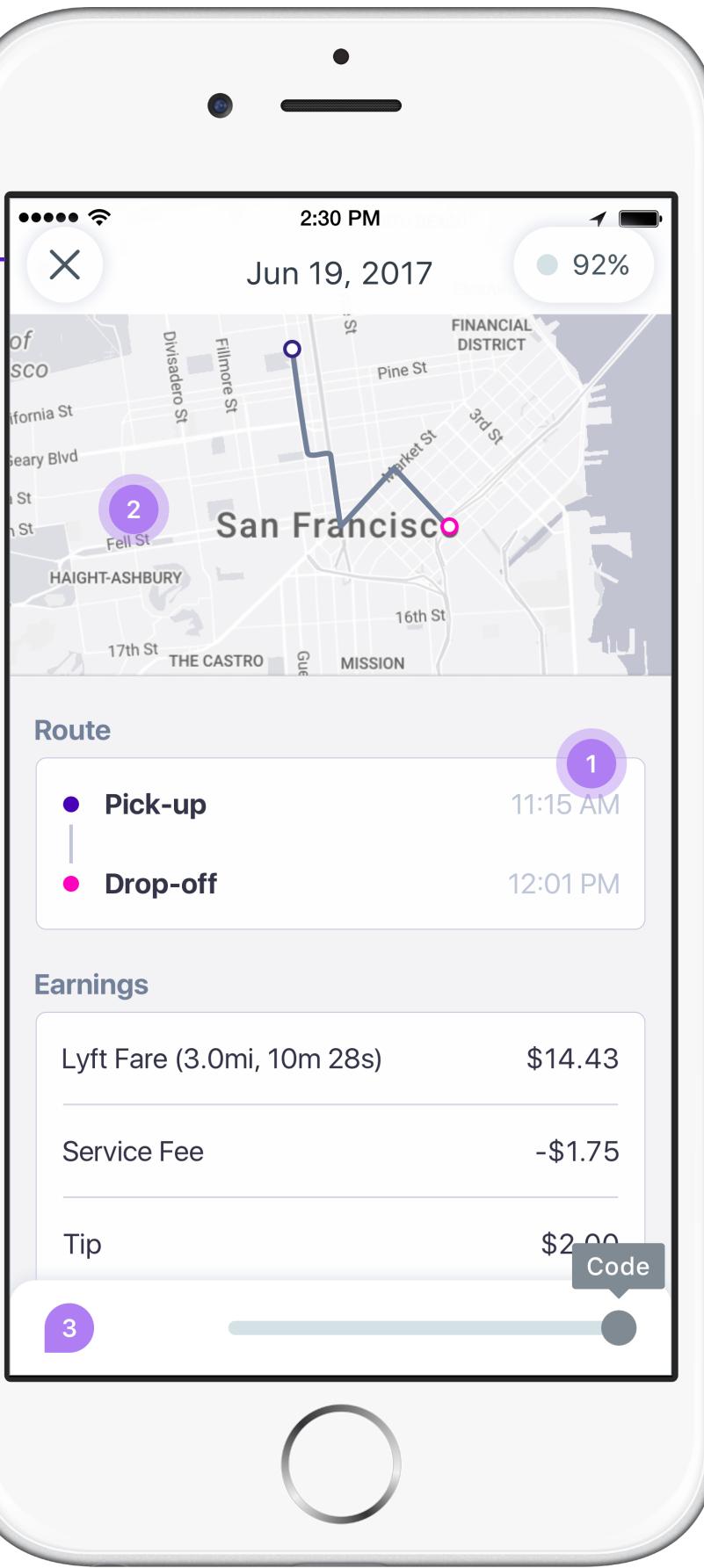
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Final Design / Visual Review Entry Point

The designer can start a visual review by tapping the module on the PR screen. This launches the Visual Review feature.

View a detailed Visual Review anatomy here →

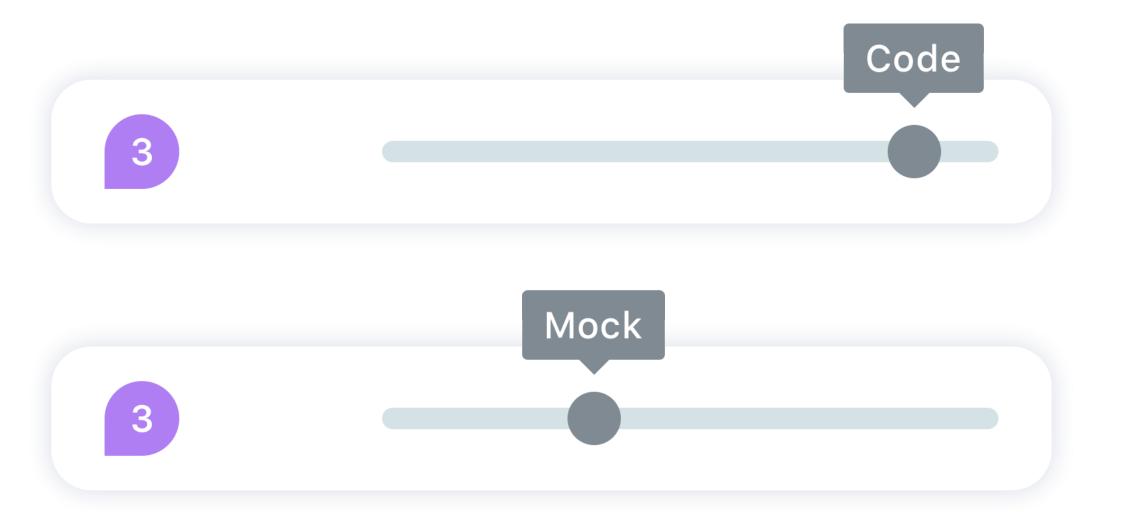


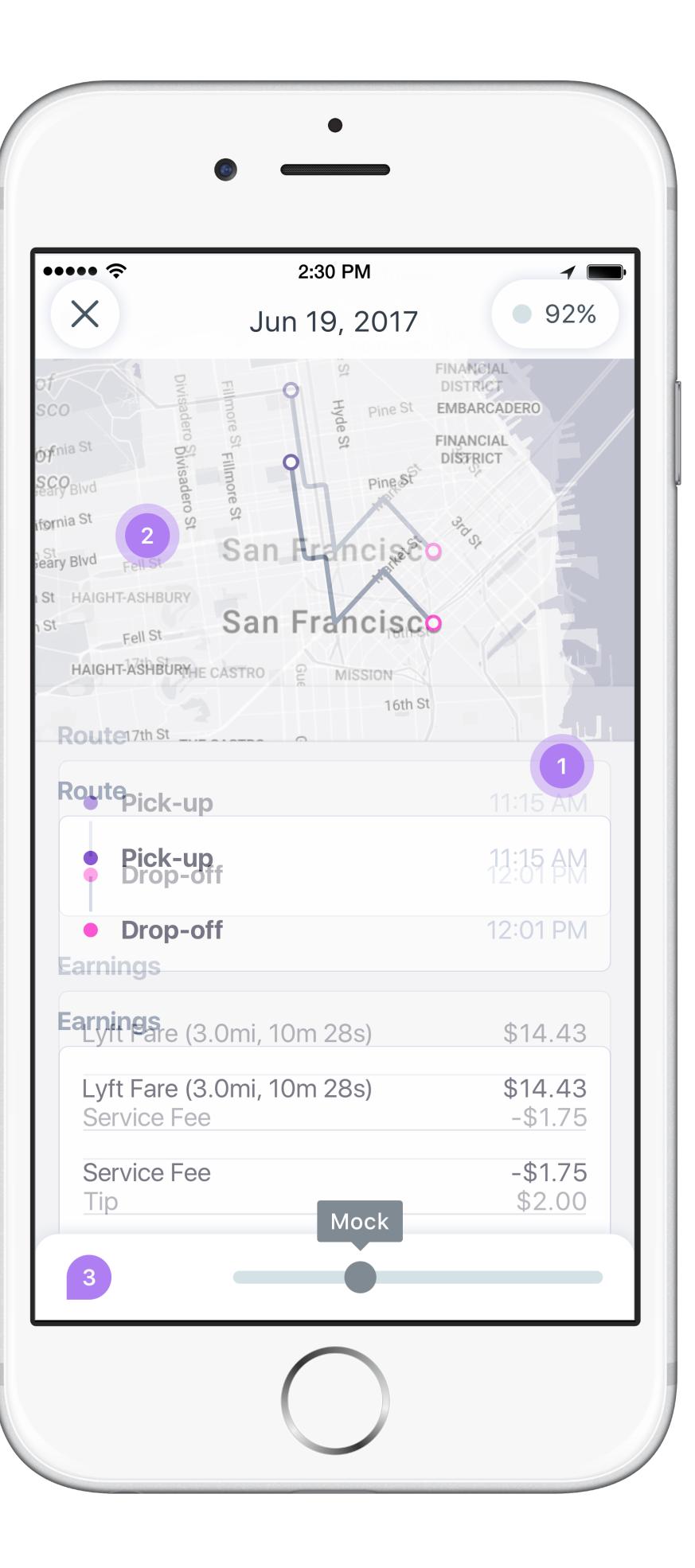


Final Design / Visual Review

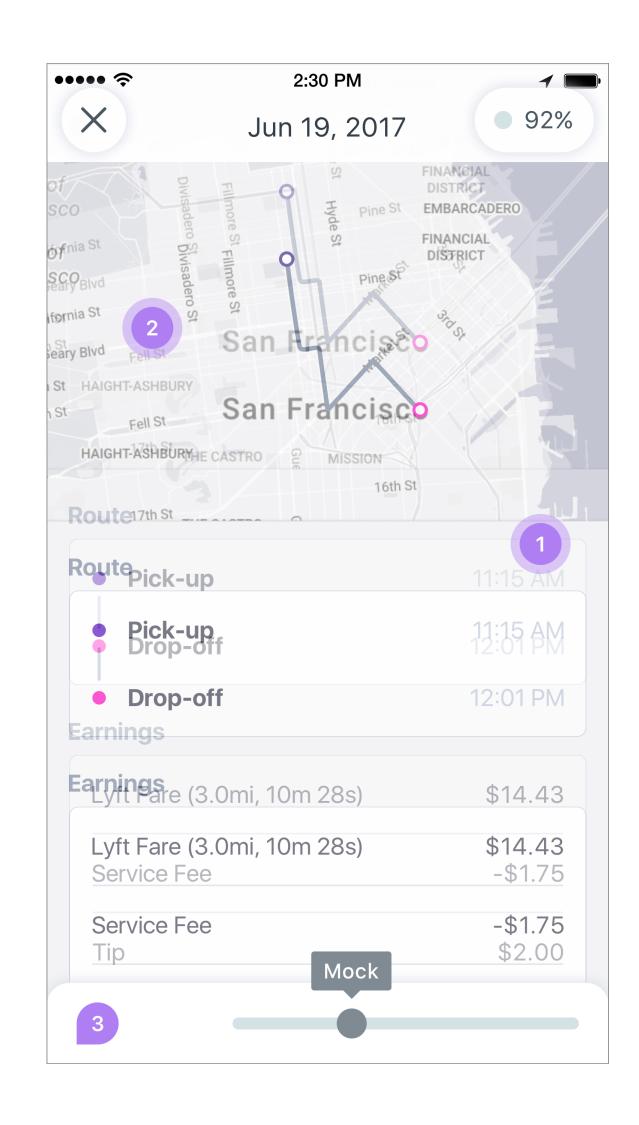
The Visual Review feature includes:

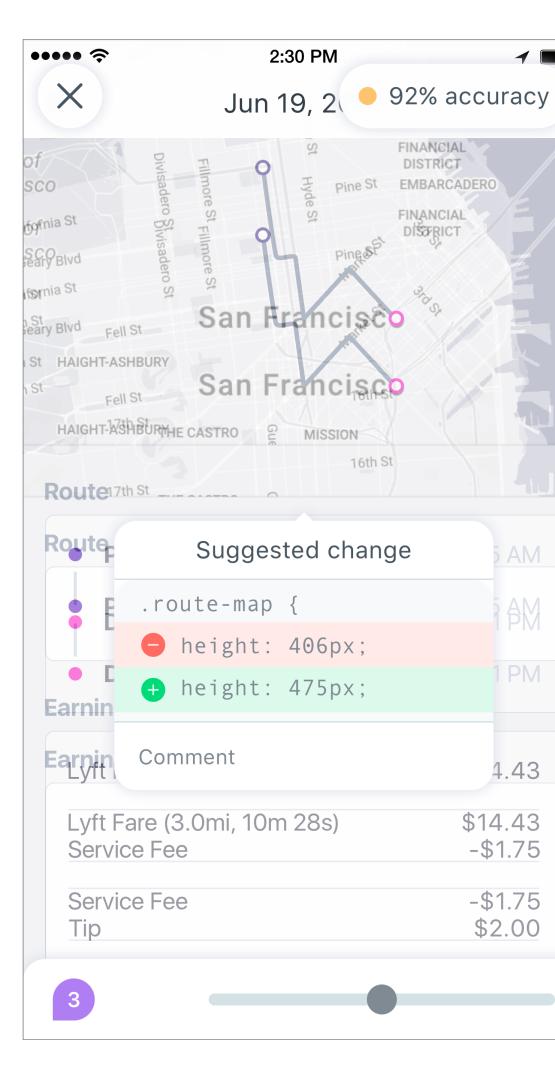
- An "onion skin" comparison between the screenshot and reference mocks.
- Commenting in context.
- The ability to swipe to see more screens.
- A future-facing idea for automatically catching design bugs and suggested CSS updates. This would be out-ofscope for the near term.



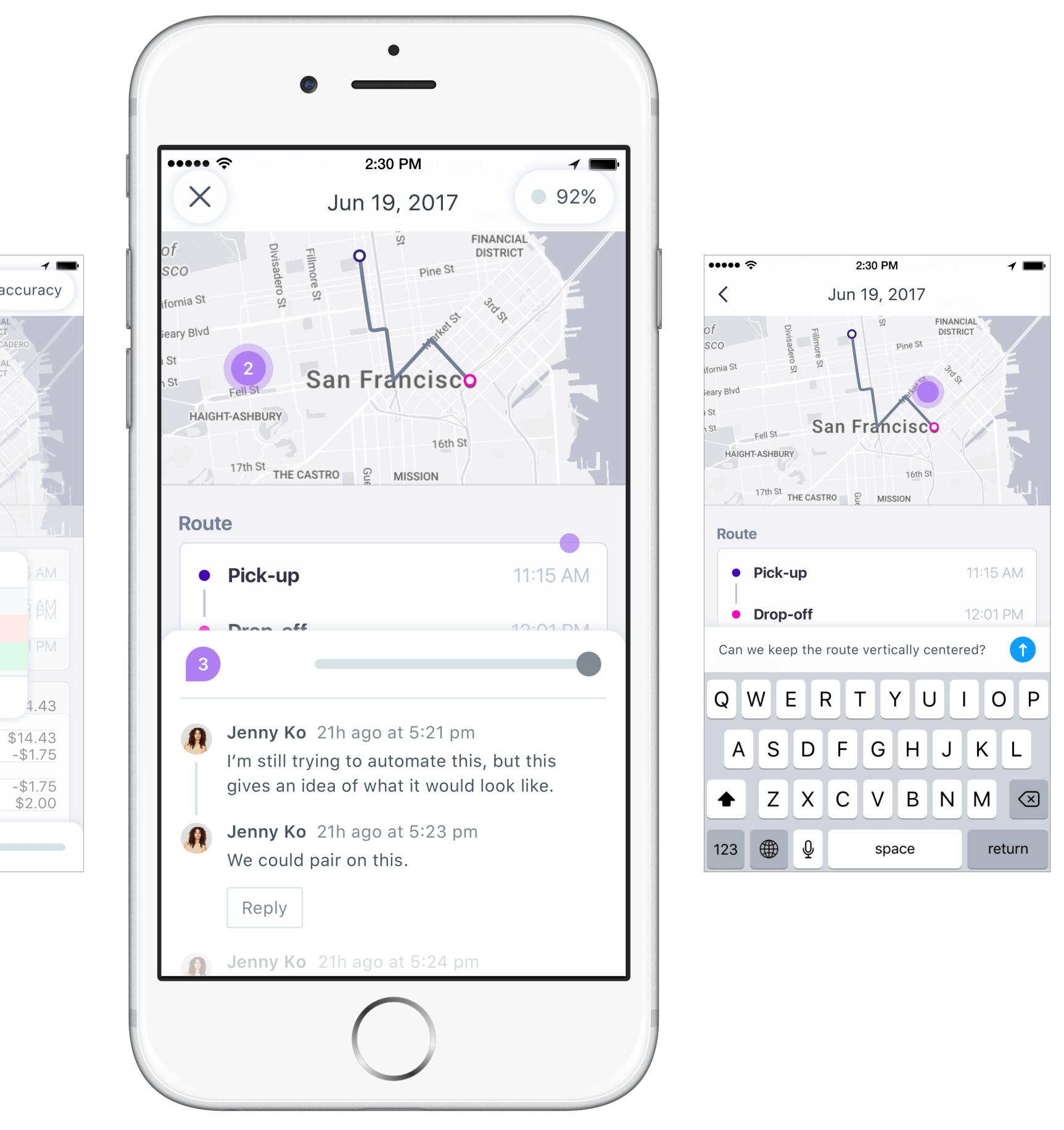


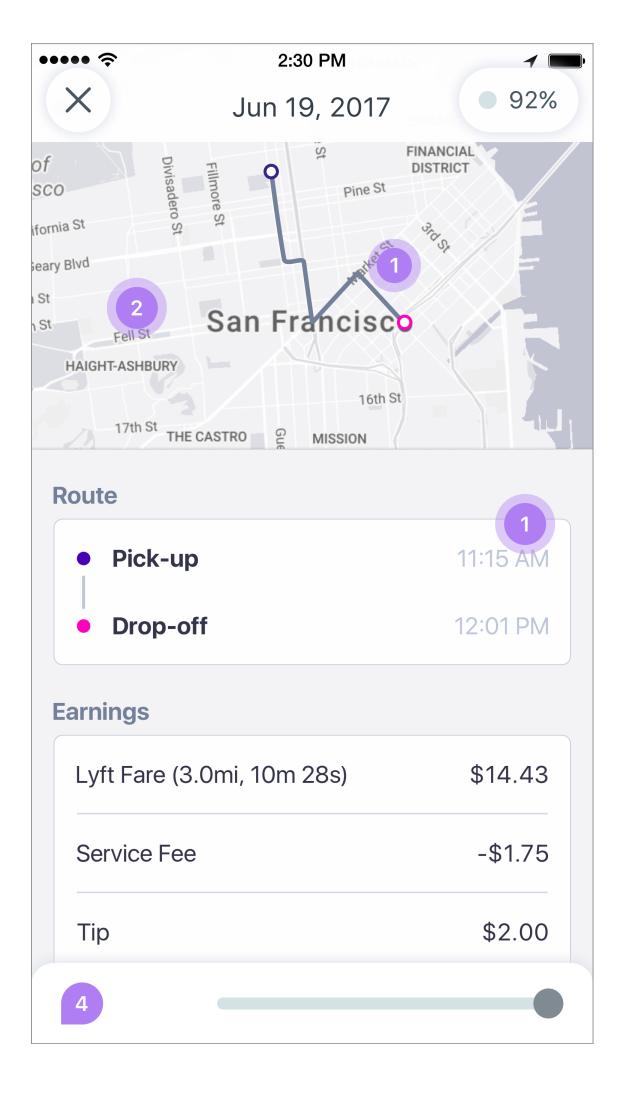
### Final Design / Visual Review Interactions





### View prototyped interactions here →

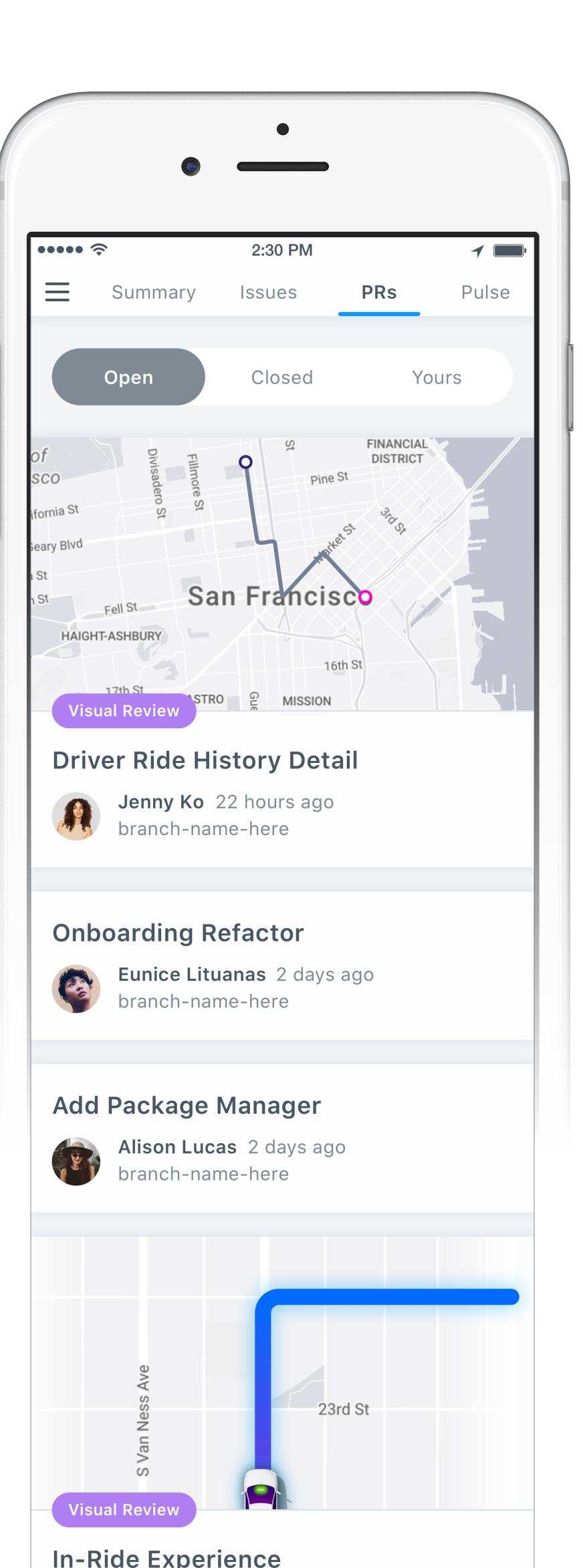






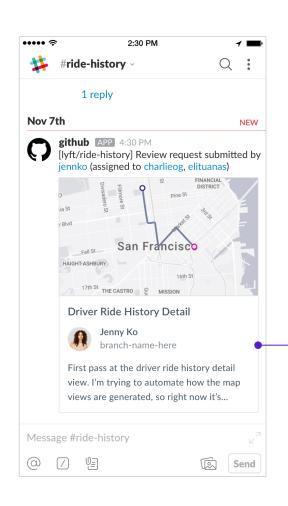
Final Design / Repository List of PRs

The user can also go up a level in the navigation to see the full list of PRs in the current repository.

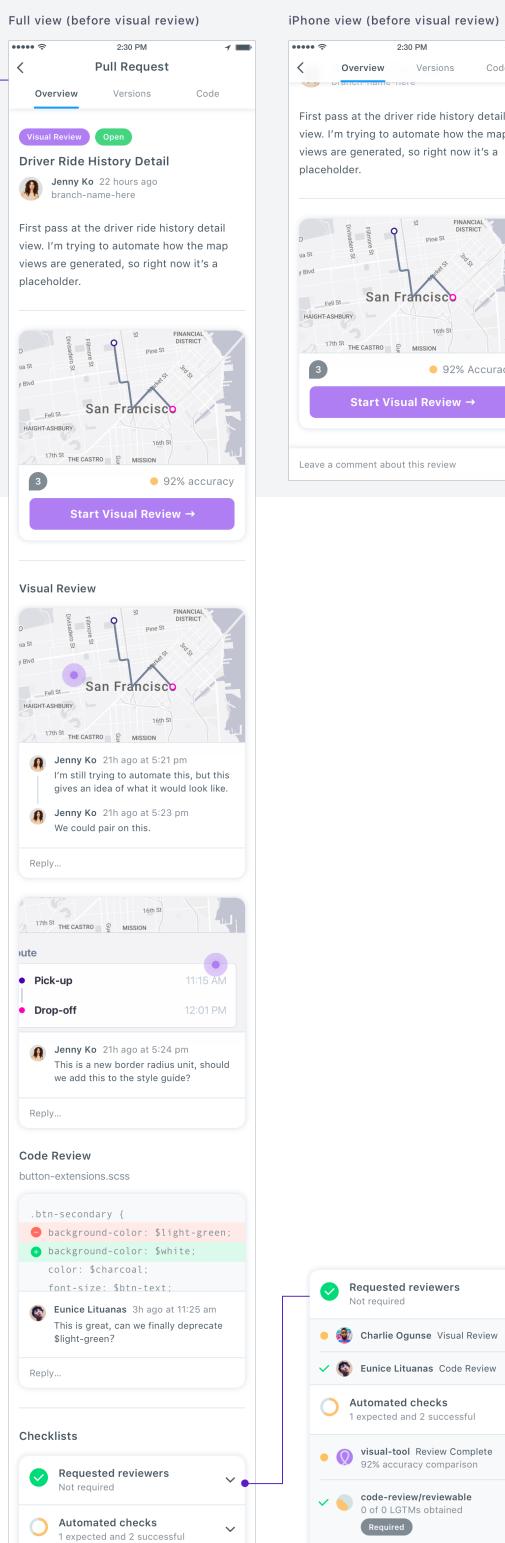


### Final Design / Overall Experience

### Slack Automatic Embed -----



### Pull Request



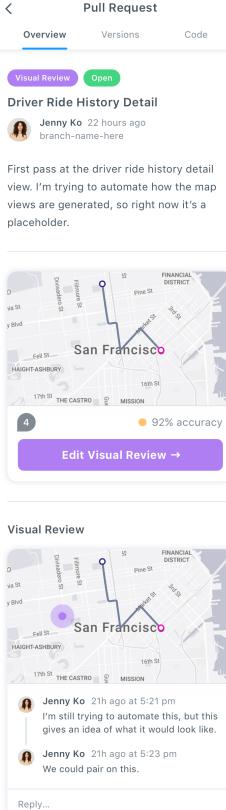
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Leave a comment about this review

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Full view (after visual review)

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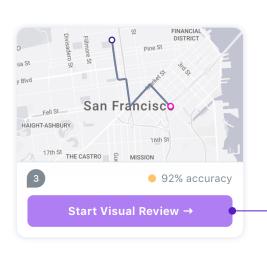
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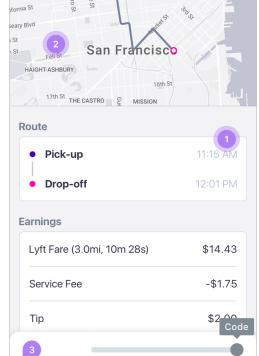
Leave a comment about this review

### Visual Review 🗕

Main screen



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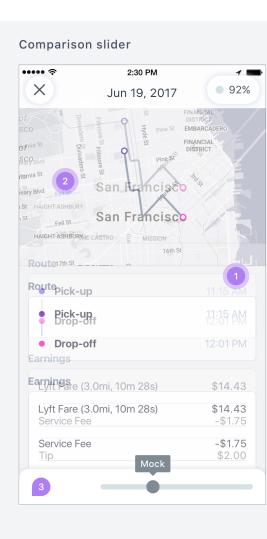
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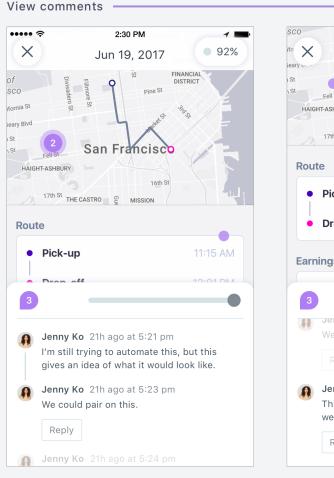
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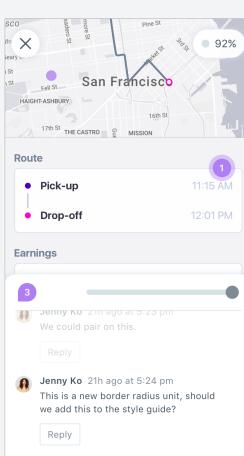
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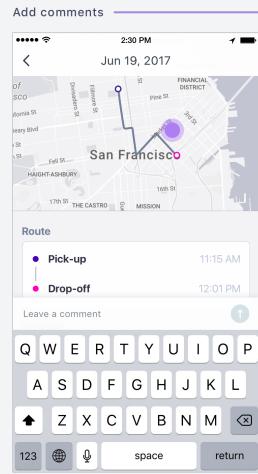
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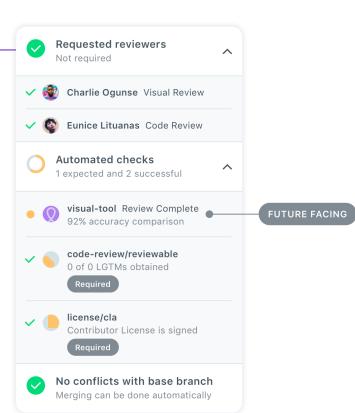


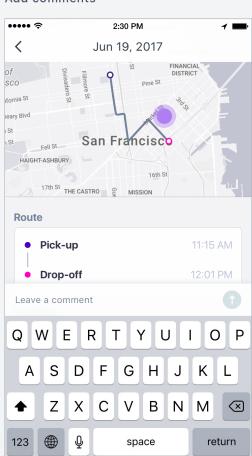




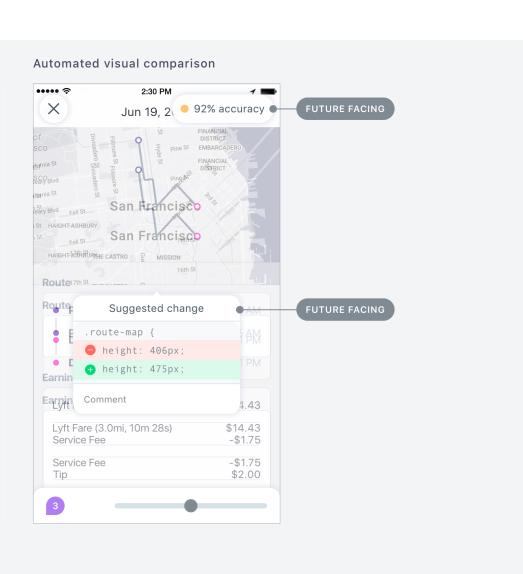


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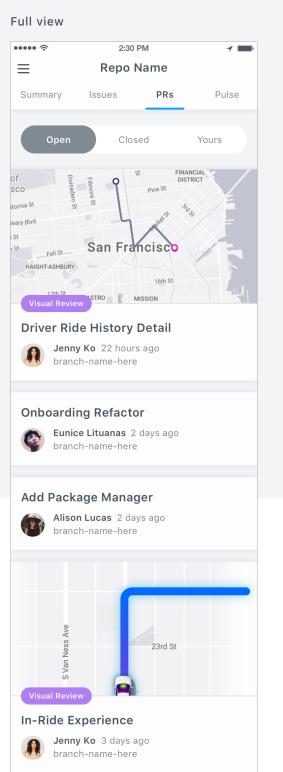


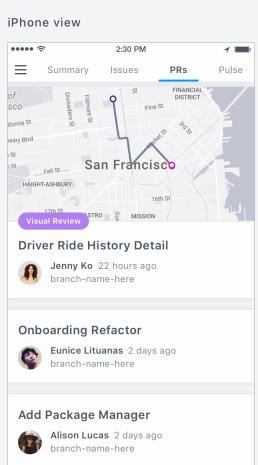






### Repo Main View ("Reviews" Tab)





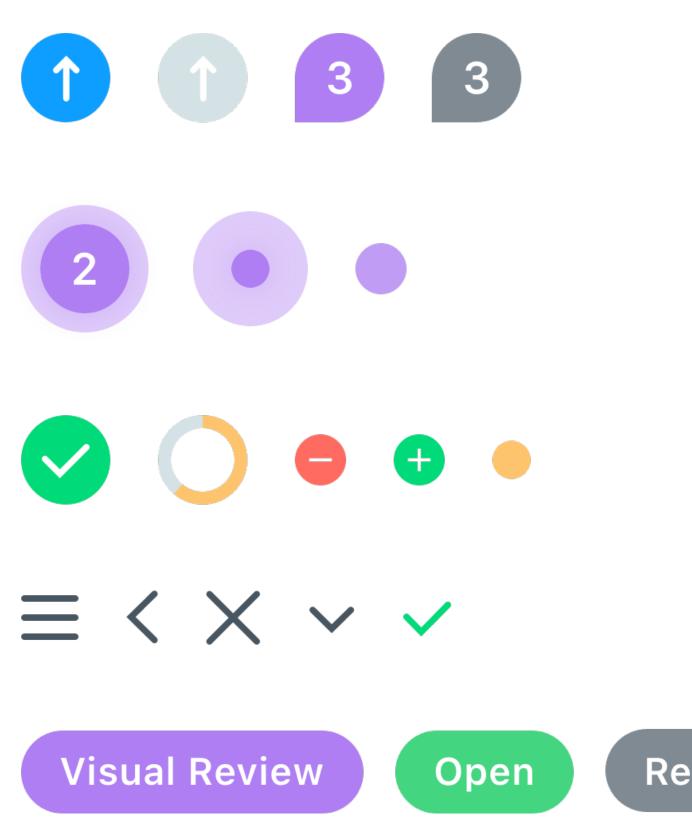
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View all mocks and interactions here  $\rightarrow$ 

### Visual Design / Style Guide

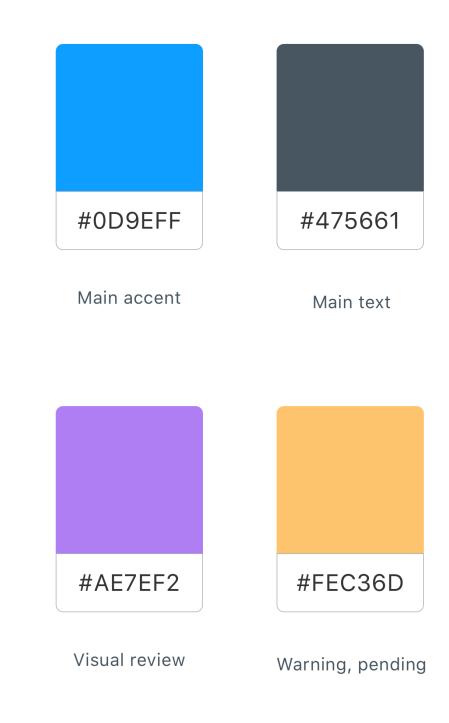
The final design includes an updated color palette, typography, and iconography.



Required

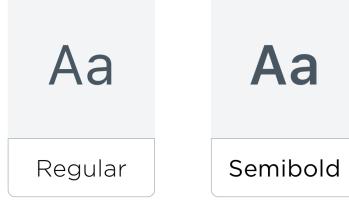
### Style Guide

### **Color Palette**



### Typography

SF UI Text



### Sizes @ 2x

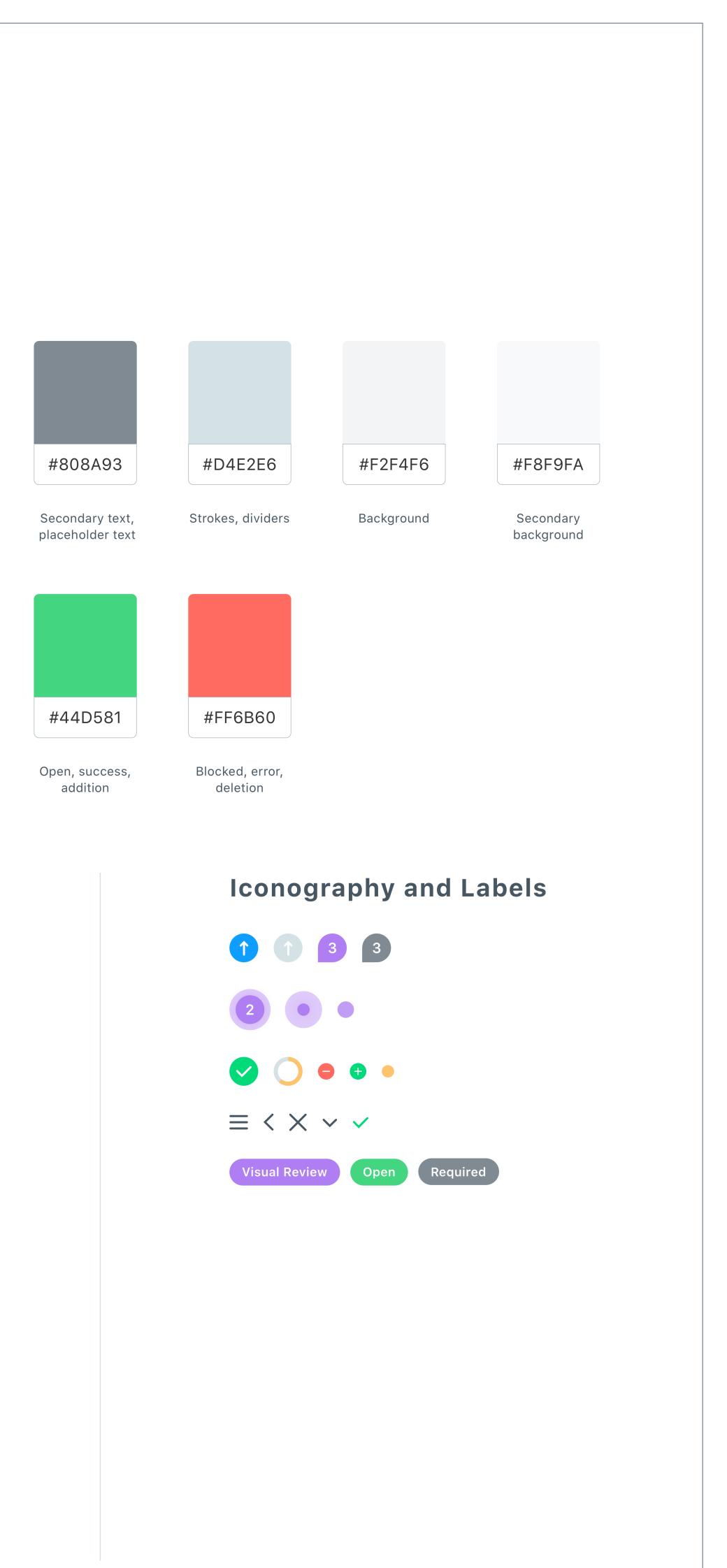
Main headline 36pt (Semibold, 0.4)

Secondary headline 34pt (Semibold, 0.39)

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Subhead 28pt (Regular & Semibold, 0.36)

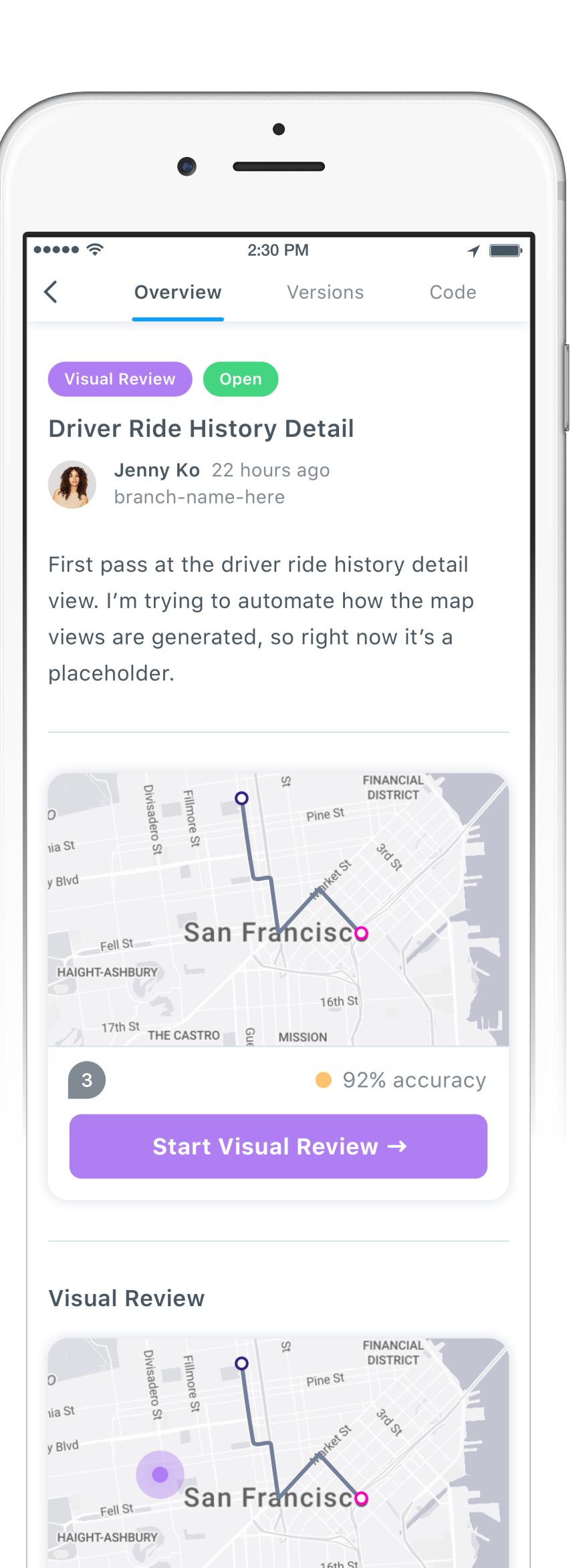
Minimum 24pt, (Semibold, 0.36)



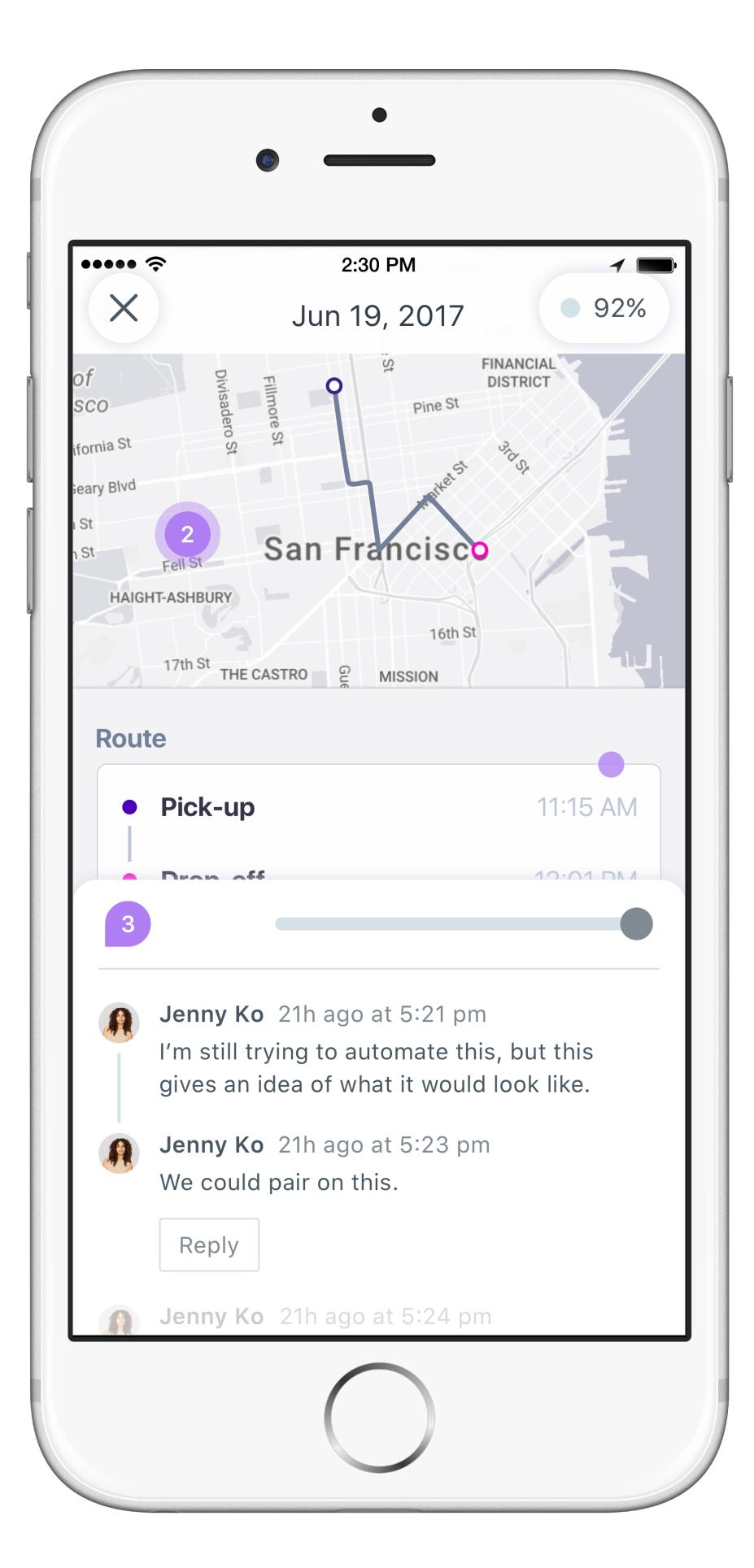
Final Design / **Summary** 

The final Visual Review feature and updated PR flow improve product development work in the following ways:

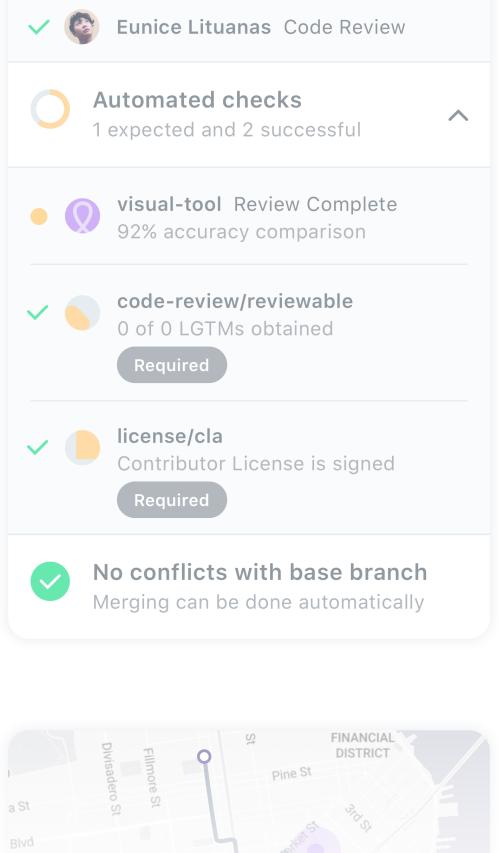
- Normalizes design reviews later in project lifecycles by integrating design into the code review process.
- Provides better tools for communication between designers and developers.
- Makes it easy to preview mobile work on a device as well as provide feedback directly on the visuals.
- Increases the ability to catch design bugs by providing a visual comparison tool.
- Proposes a direction for future improvements that can automate the design QA process. Automated tools have the potential to reduce overhead for teams and increase the quality of design in final products.

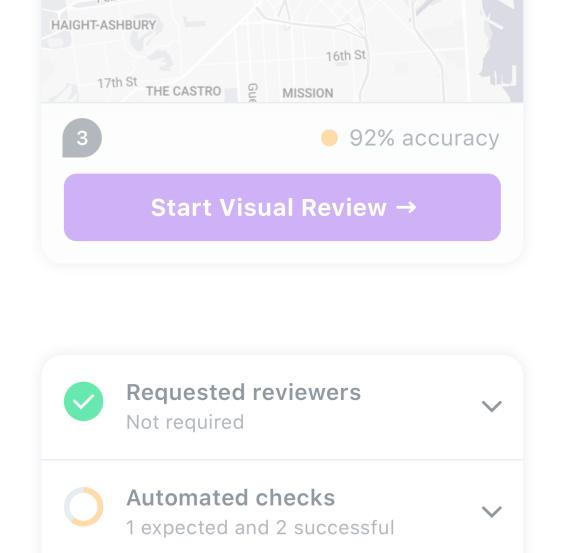


### Supplemental / Index of Links



# All mocks and interactions $\rightarrow$ User research overview → Supplemental materials →



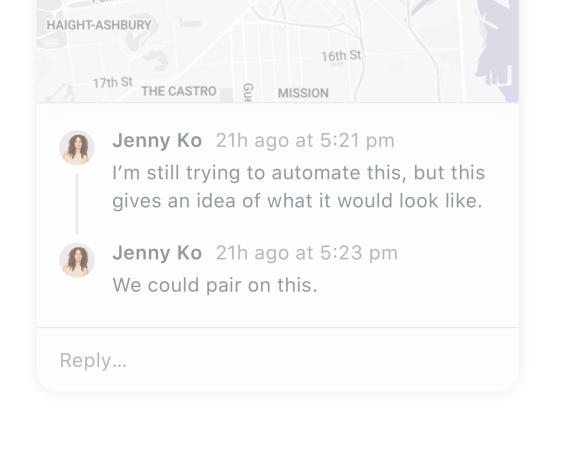


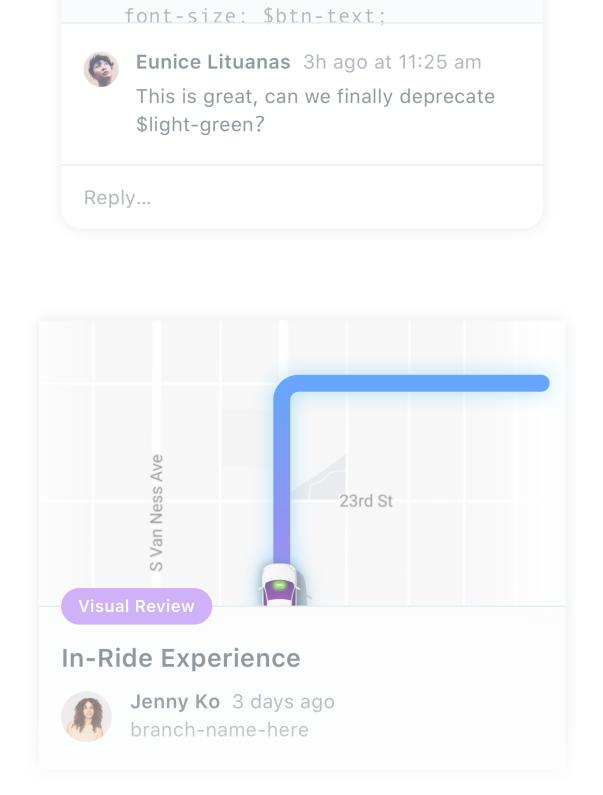
No conflicts with base branch

Merging can be done automatically

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Reply.





# Thank you

