



# Protosight

insights for your prototypes

a mobile app created by

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## Protosight Goals

Protosight is a mobile app that lets users conduct remote and unmoderated usability testing on their prototypes. The app has two main users, the creator, and the test participant. To help address some of the pain points and goals each user has when it comes to usability testing, Protosight aims to do the following:

- 1) Allow user experience (UX) students (or the creator) to conduct usability tests on their prototypes and provide them with the data needed to guide iterations and validate design decisions.
- 2) Create a clear and efficient test experience for the participants.

## Background

### *What Is Usability Testing?*

Usability testing is used to identify problems in the design of a product, uncover opportunities to improve, and learn about the target user's behavior and preferences (Moran, 2019). During a test session, the test creator will ask a participant to perform predetermined tasks using a specific user interface (Moran, 2019). As the participants complete each task, their behavior and feedback are observed and documented.

Usability tests can be carried out in-person or remotely and be moderated or unmoderated. Each approach offers its own pros and cons, and the approach the test creator employs will depend on several factors such as study goals or recruitment limitations. Our decision to offer remote and unmoderated usability testing with our app was due to its increased demand following the pandemic and quarantine measures.

### *Determining App Goals and Features*

Before creating Protosight, we interviewed UX students and their test participants to understand their experience with usability tests and identify pain points across their test journey. We used these findings to determine the goals of our app and ideate features to implement.

After speaking with five UX students who had conducted at least one usability test on their own, we discovered three goals they all shared when it comes to usability testing:

1. Frequently test their prototypes throughout the design process  
(usability tests are often done sparingly as it can take a long time to conduct)
2. Test with many representative users  
(it can be difficult to find test participants)
3. Gather the insights needed to improve their designs

(UX students or the creators were not always sure what insights they needed to collect to improve their designs)

From our conversations with three test participants, it was evident that they all shared two goals when completing usability tests.

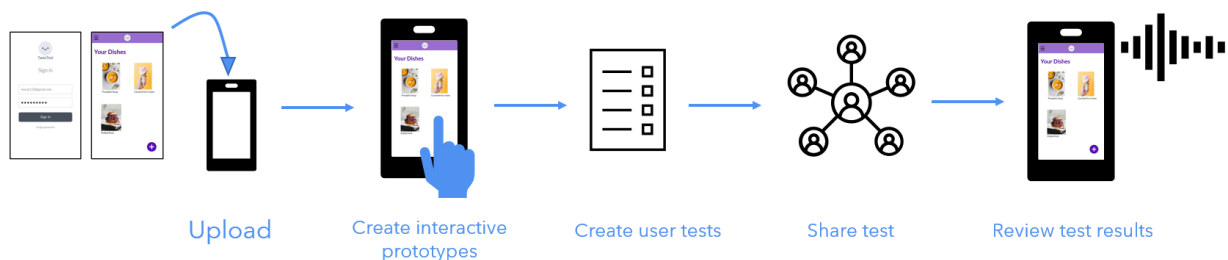
1. Accurately follow all test instructions (test instructions were often confusing)
2. Complete the test efficiently (completing tests sometimes felt too long)

Once we ideated a list of potential app features based on our secondary research and interview findings, we consulted with Terry Constantino, a subject-matter expert, to help us review and prioritize our list of features based on the value it provides to our users and the technical feasibility.

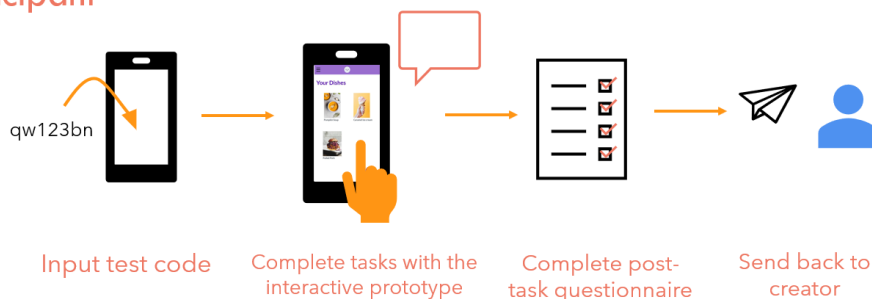
## Statement of Functionality

The functionality of Protosight was designed to help our users achieve their goals and minimize their pain points. Below is a high-level illustration of the creator and participant user flow. The image is followed by the functionality description for each stage of the user flow.

### Creator



### Participant



## Creator user flow

### 1. Upload

- Create an interactive prototype by uploading pre-designed prototype images from their phone. Prototypes can be low to high-fidelity.

## 2. Create interactive prototype

- Select clickable areas and link the areas to other images (also known as hotspot creation).
- Once the interactive prototype is complete, creators can play through their prototype.
- They can also delete their entire prototype.

## 3. Create user tests

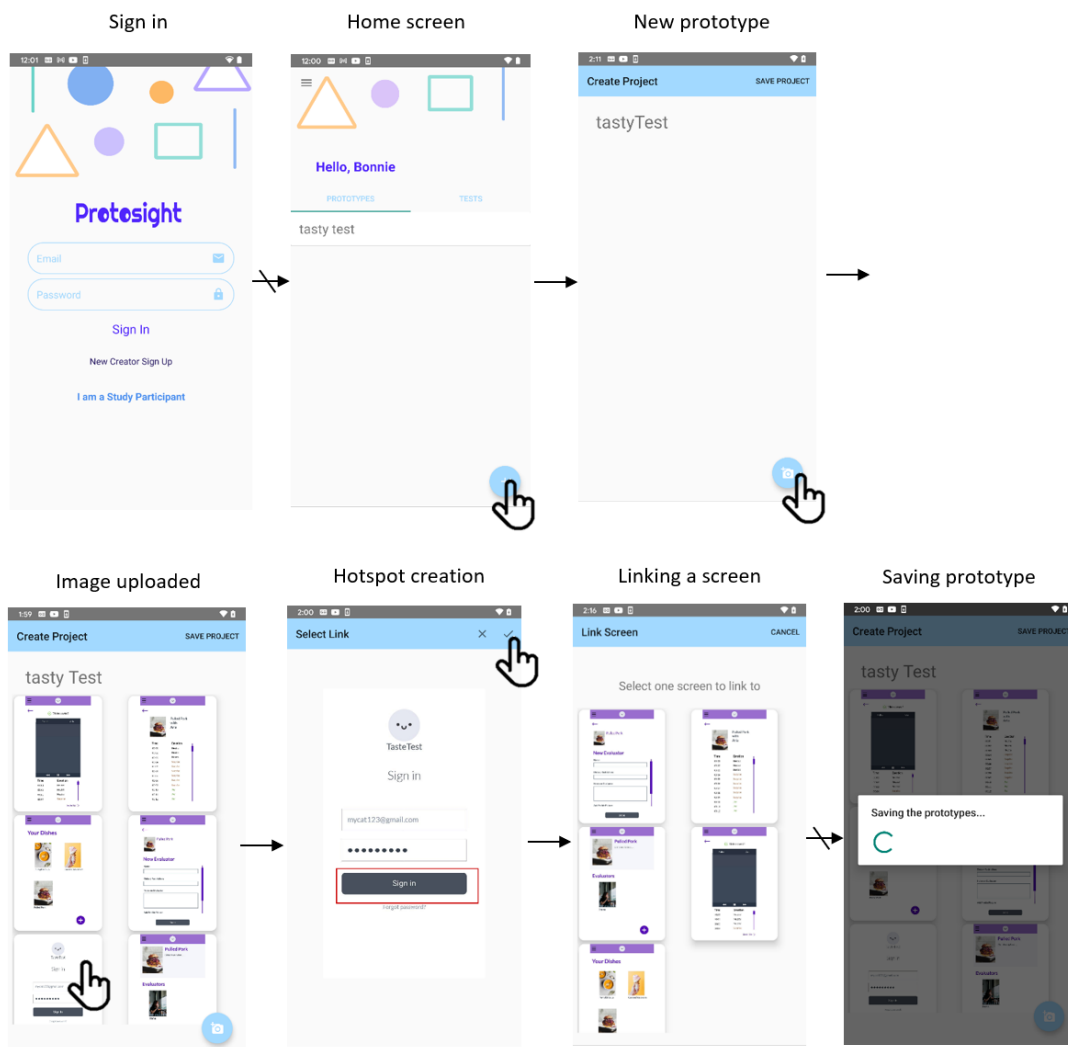
- Creators can create tests for a specific prototype
- Each test can have up to 3 tasks, with each task containing the user scenario, user task, goal screen of the task, and up to five post-task questions.

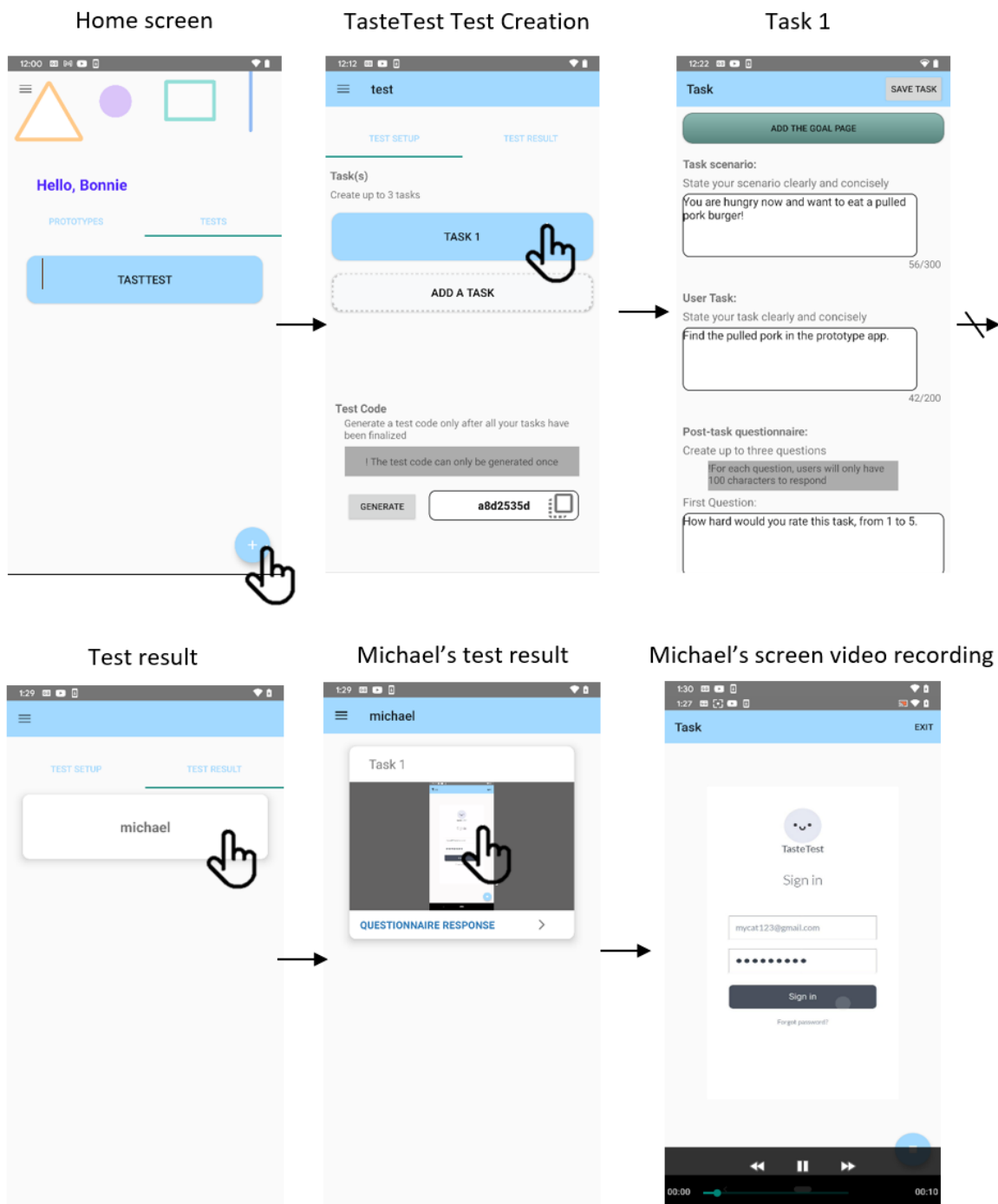
## 4. Share test

- Each test will be associated with a unique code that can be sent to participants.

## 5. Review test results

- Creators can view the test results. Each test result will contain a video of the recorded screen session along with the participant's voice (from the think-aloud) and the post-task questionnaire responses.





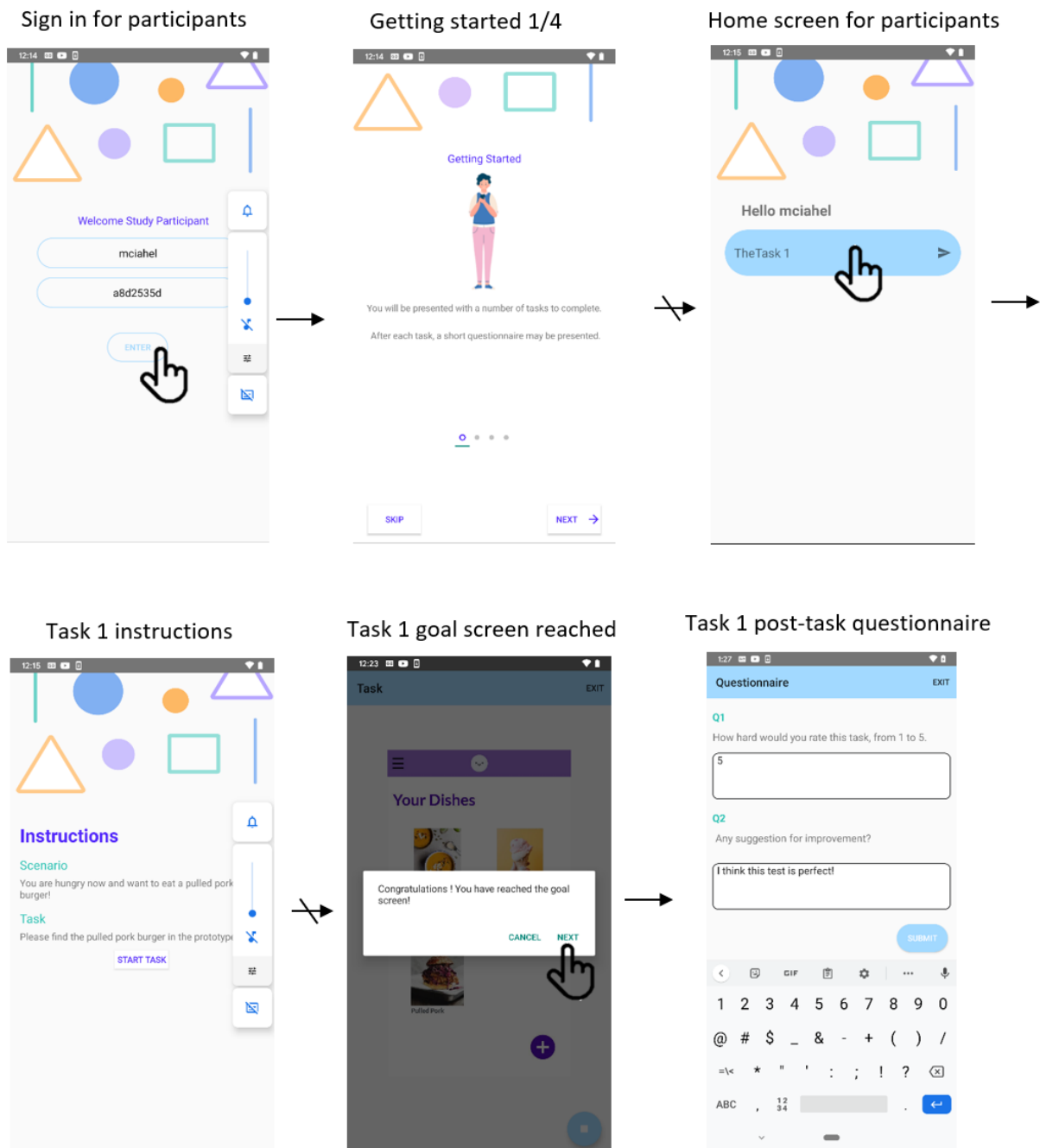
### Participant user flow

1. Input test code
  - Participants can access the usability test using the test code
2. Complete tasks with the interactive prototype

- Screen and voice recording will be enabled for each task. Tap shadows will also appear when the participants interact with the prototype (the screen recording will also capture this).
- Each task can detect whether the participant lands on the goal screen.
- Participants can exit the task anytime by tapping the stop floating button.

### 3. Complete post-task questionnaire

- Participants can fill in the questionnaire after finishing each task

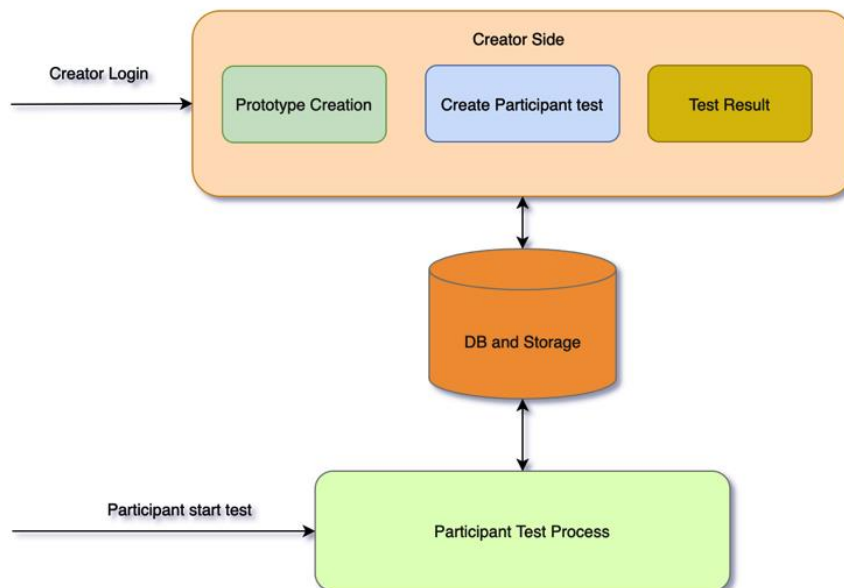


## Protosight functionality limitations

Firstly, the app can only support uploaded images that are 750 x 1334 or smaller. This is because the height and width of the image view are both set to match the parent in order to fit the algorithm and detect the clickable hotspot area. Some of the UI will be cut off if creators upload images that are larger than 750 x 1334.

Secondly, the app does not auto ask the user's permission to start screen recording during the usability test session. If the user of the app does not grant the permission ahead, the screen recording feature will not work, meaning there will be no recorded session video for creators to analyze.

## Overall Design



**Creator side:** This side consists of functionalities that creators can play with. The descriptions for each block within the creator side are shown below:

**Prototype creation:** The prototype creation block allows creators to build interactive prototypes using their uploaded images. The creators can draw a hotspot on the image they uploaded and select a different image to link the first image to. After linking all the uploaded images, the complete interactive prototype is created.

**Create participant test:** This part allows creators to create usability tests that can be shared with their participants. Each test is based on an interactive prototype that the

creator has completed earlier. For each test, creators can create up to three tasks. Within each task, creators can specify the task scenario, user task, goal screen, and up to five post-task questions.

**Test result:** The result of each usability test is presented and stored on the creator side of the app. For each test participant, the creators are able to view the screen recording for each task, the audio for the think-aloud, the tapping location for each screen, and the participant's post-task questionnaire answers.

**DB and storage:** The database is where everything is stored. It stores information regarding creator info, hotspot data, prototypes, usability test instructions, and test results.

**Participant test process:** This is where participants interact with the interactive prototype and complete the usability test. Participants are able to see the task scenario, user task, and post-task questionnaire that the creators have setup.

## Team Reflection

As a team, we have learned the value of keeping meeting minutes as many decisions and project updates were made during our meetings. We used the meeting minutes to refer on agreed outcomes and as an accountability tool to make clear everyone's responsibility.

Secondly, we also learned to prioritize the features needed for our minimum viable product over the nice-to-have features. Prior to starting the app, we created a project plan and prioritized a list of our features based on feasibility and impact. However, during the app development, we ran into technical challenges that ate up valuable time and forced us to rethink how we were going to implement our planned features. For example, although we initially tried to perfect the prototype creation, we realized it was going to take a long time and there was no guarantee that the feature would work as envisioned. We learned to determine which part of the prototype creation feature was necessary to achieve our app goals (which was linking images and hotspot creation/ removal) and decided to finish that part and move on.

As a specialist, Bonnie learned that adding app components such as a clickable button is not always simple from the technical side, and that it is better to review and understand its feasibility with the programmers prior to changing the app designs and conducting usability tests.

Lastly, as programmers, Kevin and Michael learned about the value of proper UI and the impact this has on the overall UX of the app. When the team was not sure how to design a specific screen or feature, they learned that conducting usability and A/B tests was the best way to determine a user-friendly solution.



For the future, we would like to create a more detailed project plan that provides task-level details on a timeline so that all aspects of a project can be tracked at a granular level. We believe that this will help us efficiently navigate through unforeseen challenges and better adapt to changing timelines.

## Team Member Contributions

The technical part of the app was developed by Kevin Hsu and Michael Liu. The following is a detailed breakdown of their individual contributions:

### Kevin Hu

- Github management including create issues, code review and rebase/merge branches.
- Prototype creation (Finish Independently)
  - o image upload
  - o Image hotspots selection and linking hotspots
  - o Design and build algorithms to do clickable areas detections
  - o Design and build algorithms to connect images given by a set of image hotspots
  - o Implement play mode of prototype on creator side
  - o Implement prototype deletion
- Participant test process (Finish Independently)
- Build a good-looking UI on the participant side (Bonnie designed the UI)
- Enable screen and voice recording
- Capture tapping shadow during each task
- DB design (collaborated with Michael)

### Michael Liu

- Test creation
  - o Enable test creation interface to recognize the current status of the test and render the UI accordingly
  - o Generate a unique code for each test that can be shared with participants to allow their access
- Task creation
  - o Goal page selection
  - o Real time word counting for each typing window
  - o Enable task creation interface to recognize the current status of the task (whether the creator is creating for the first time or as edits) and render the UI accordingly
  - o Responsible for test results presentation

- Present the participant screen and voice recording and post-task questionnaire answers
- DB design (collaborated with Kevin)

## Bonnie Shao

Bonnie was responsible for the five stages of the design thinking cycle, which includes interviewing the UX students and their participants, designing the app prototypes and mockups, and conducting continuous rounds of usability and A/B testing. Presentation slides and scripts for non-technical slides were produced by her as well.

The team communicated frequently over messenger and met weekly to discuss project progress and challenges.

## Specialist Context

From conducting usability tests and the feedback received from representative users, it is evident that Protosight is successful in meeting its goals to help UX students and test participants achieve their main goals when it comes to usability testing.

Currently, most remote, and unmoderated usability testing platforms on the market includes a price tag. Furthermore, many of these platforms do not exist on mobile platforms. Testing on mobile platforms allow mobile products to be tested in its appropriate context and can be more convenient for test participants, which increases the participant pool.

Without a price tag, we hope that Protosight will encourage students to conduct usability tests for their mobile designs so that they have the data needed to guide iterations and validate their design decisions, feel confident about the usability of their product, and create more user-friendly products.

## Future Work

Firstly, we would like to resolve the functionality limitations that includes supporting images that are larger than 750 x 1334 and auto asking the user's permission to start screen recording during the usability test session.

Secondly, we would like to continue working on hotspot removal so that creators can edit their existing prototypes.

Thirdly, for the test results, we would like to track whether the goal screen was reached and the number of participant screen taps and mistaps (see mockups for this Appendix A). This will make the test result video analysis more efficient for creators.

Lastly, based on Protosight's latest usability test results, the existing hotspot creation process is not intuitive for our users. In the short-term, we would like to add a short tutorial or getting started video for the creators. In the long-term, we would like to replace the current UI on the creator's side with the mock-ups seen in Appendix B. These mock-ups were tested with users and are more user-friendly (however, a tutorial video is still needed) and match the current design style on the participant's side of the app.

## Permissions

The Protosight Team agree to have the following material made public:

- Video of final presentation
- Report
- Source code

## Word Count

Total: 2139 0% Penalty

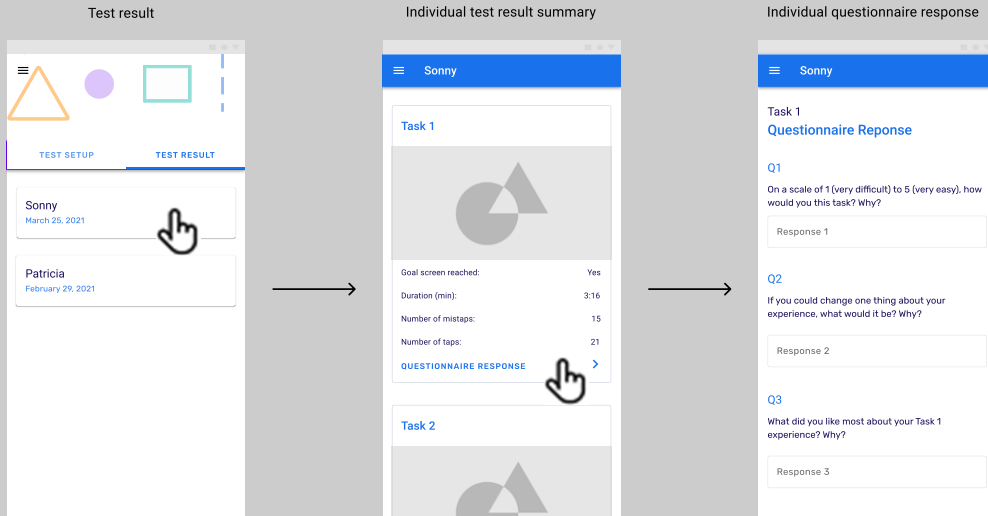
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## References

Moran, K. (2019, December 1). Usability testing 101. Retrieved February 27, 2021, from <https://www.nngroup.com/articles/usability-testing-101/>

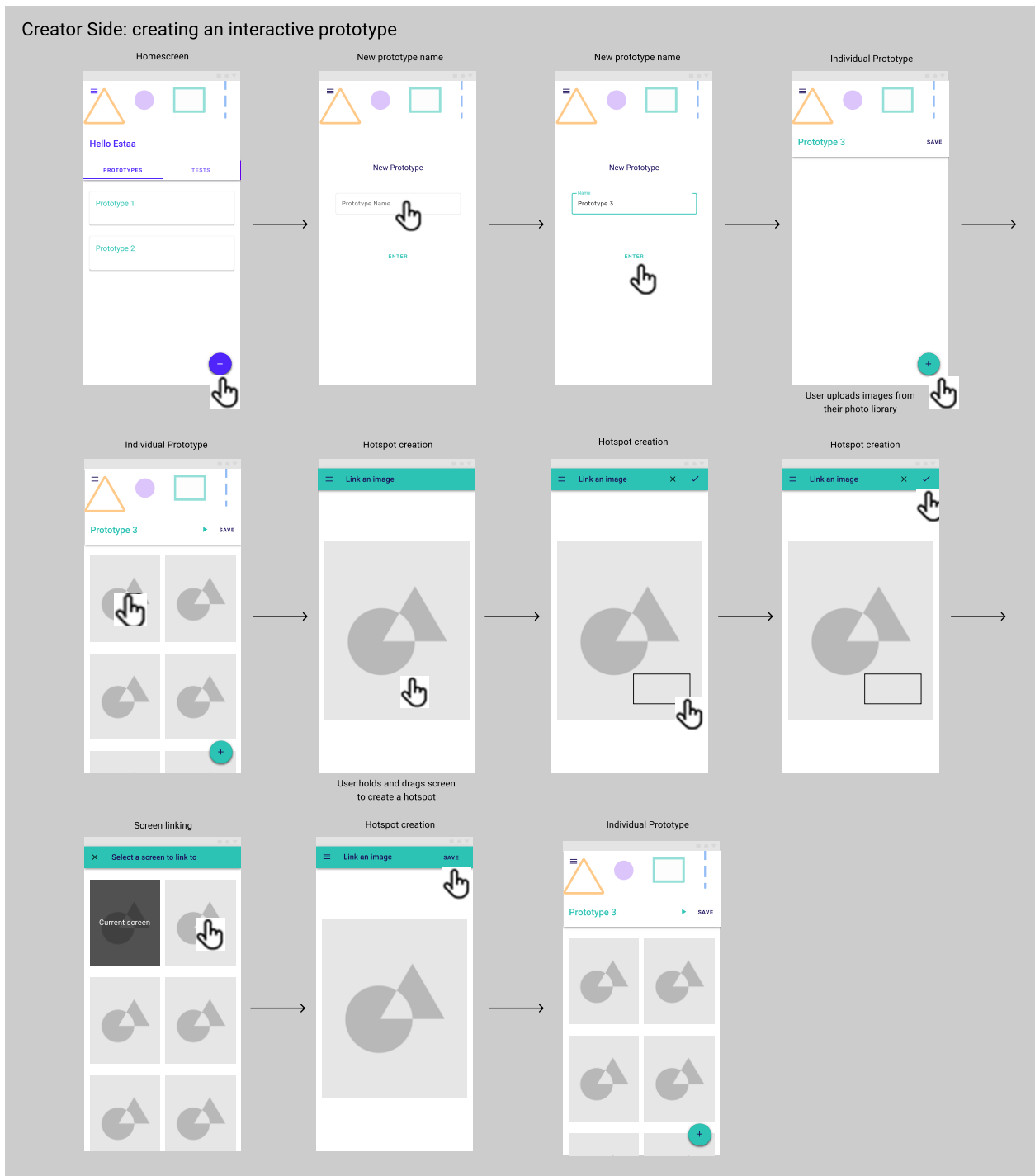
# Appendix A

## Creator Side: viewing test results



# Appendix B

## Creator Side: creating an interactive prototype



# Appendix B continued

