
Melon: Final Report

Let Melon to put off your procrastination habit

Team:

Brandon Kim

Sylvia Wu

Echo Zhang

Team:

Brandon Kim: Prototyping, user research, task analysis, usability testing

Sylvia Wu: Prototyping, user research, digital mockup, task analysis, usability testing

Echo Zhang: Prototyping, user research, digital mockup, task analysis, drawing storyboard, usability testing

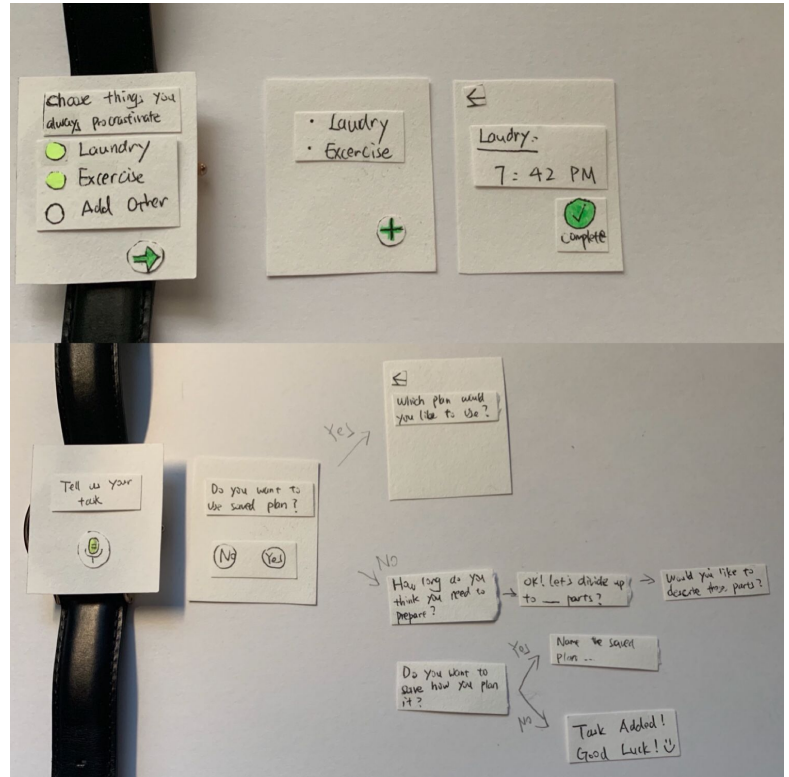
Problem and Solution Overview:

Procrastination, a tendency to delay and to avoid doing important work, seems to be a problem that frequently frustrates people nowadays. People who suffer from procrastination have trouble organizing their daily lives and achieving their goals, especially with personal and social goals that don't have deadlines. Even though a lot of planners and to-do list applications exist in the market, most of them are designed for people who already know what they want to do and how to achieve their goals. Melon, however, provides a solution for procrastinators to gain more control of their time, and help procrastinator to plan better. Melon is a smartwatch application that can help users identify and organize personal goals and tasks, plan to-dos and break big goals into smaller, manageable steps to promote the users to take actions. Users will be motivated to start on things that they have been procrastinating for a long time and gain self-improvement while still keeping track of other tasks they have. With the help of Melon, we hope all people will be able to improve their ways of managing plans and overcome procrastination.

Initial Paper Prototype:

Overview

Our paper prototype modeled the interface of the smartwatch app we wanted to create. The critical aspects of the design centered on the ability to create a new task, break the task into parts, identify and keep track of tasks the user always procrastinates, and manage and organize the to-do list. We considered the factors of a small smart watch screen, and didn't include any typing or complex interaction. One feature we included in this prototype is allow user to save and reuse their plans for tasks because planning tasks could take a long time especially with the interface we had.



Task 1: Manage frequently procrastinated tasks

On the first time setup, the app asks the user to select or customize some tasks they frequently procrastinate, like laundry or cleaning. Then they can click the arrow to finish setup.

The main screen of the app will display the user's to-do list, including the tasks they always procrastinate and tasks they have added (like assignments). From here the user can tap on an item in the to-do list to jump to the detail screen which shows the name, the deadline(if any), the plan and steps(if any), a complete button to mark it as finished, and an arrow to navigate to the main screen.

Task 2: Make goals more manageable

The add button on the main screen will begin the process of adding a new task. By tapping on the microphone button on the screen, the user will be able to set a name by using voice input. Once our application process the user input information, it will ask the user if he wants to uses a saved plan for this task. In other words, if the user has already broken a task into subgoals, the prior structure will be saved for the same type of future task.

If the user selects yes, he/she will then be able to choose a saved plan of subgoals to apply to this new task. If the user selects no, he/she will then go through the process of dividing up the task. The user will input the total time he/she thinks he/she needs in order to complete the task, the number of parts he/she wants to divide up to, and then confirm the plan. The user will also be able to choose if he/she wants to save and name the plan for future usage.

Testing Process:

Our initial testing process was to ask our participant to go through each step our design supported: the setup for new users, including adding new items to the list of repeating procrastinated tasks, adding new items to the to-do list, creating plans for tasks added to the to-do list, and working on/completing a task from the list. We then observed them as they tried to complete each of these tasks. We used this process with our first participant, a senior student majoring in Informatics at UW. We chose her as our participant because she wears a smartwatch, so she had experience relevant to our design.

After this first test, we got a better feel for running a usability test. We had some trouble getting insight from our participant because they asked for help very quickly after getting stuck, so we made sure to explain to future participants that we would not offer much help, and that we wanted them to work on their own, even if they were stuck. We also implemented some feedback from our participant about the testing process regarding our questions, and rewording some of the tasks we asked her to complete.

Our new process was similar, but including more explanation of the process at the beginning to establish how the test would be run to make sure the participant would work for a bit on their own before asking for our help. We also changed some of our tasks to reflect changes in our prototype.

After this second test, we found that some of our new tasks were a bit too general and the participant had trouble with them. Specifically, they were stuck for a while when just asked to “add a new task to the list,” they could not come up with a name easily on their own. For the next test, we gave some example scenarios. We found that providing less help was more helpful for us and we were able to learn about why the participant became stuck at certain parts.

For the third test, we used the same order as before of the new user setup, then adding tasks with and without plans. We also added in some smaller tasks to test new functionality in the prototype like editing the steps in a plan. This time we provided some example scenarios to add tasks, like “you need to buy more index cards to make a paper prototype for your class” to prompt the participant to work through our supported tasks.

Through the process of usability testing, we were able to improve our process a lot through experience. Even though we had learned the principles in class, they were much more clear once we had experienced the issues with the process. We also found that asking the participants for feedback about the testing process in addition to about the prototype was very helpful and helped us to find some problems we did not notice just by observing them.

Testing Results:

We iterated through different versions of paper prototypes by having heuristic evaluation, usability testing, and design critique. The most important and crucial feedbacks we got during the processes are described below, and the detailed information are found in the appendix.

Heuristic evaluation:

After doing the heuristic evaluation, we realized that the main problems we have are issues with visibility of system status and match between system and the real world in some of the question wordings. We mainly found the following problems with our prototype:

- Match between system and the real world: The participants are confused about what to answer for some of the problems: For instance, the question “Let’s divide up into ___ parts” confused the participant about what type of answer(numbers, words, etc) they should put into the field. To solve this, we changed the wording of our problem to be more clear.
- Visibility of System Status: For some of our buttons, they are not as visible as we thought. Therefore, the user expect the feedback of tapping the button or the button should look more tappable. For instance, when participants tap the microphone button, we didn’t provide a recording screen to show the feedback to the participant. To solve this problem, we added a feedback screen and made the buttons more visible.
- User control and freedom: We assumed the user would have to answer all the problems that we ask, however, we realized some of the questions are not applicable for different types of tasks. For instance, we asked participant about how long they need to prepare for each task, even if they don’t need to prepare tasks like doing laundry. To solve this, we changed these types of questions to be optional.

Usability Test #1:

For the first usability test, we mainly focused on how user felt about the all the questions the application asked, and seeing if the user flow was clear and user friendly. We found for some of the questions, the wording was not very clear and understandable. In addition, some of the answers to the questions did not necessarily need to be recorded. We found following screens have problems, and modified them after the first usability test.

- Divide up task screen: Participant was concerned about having to tap the microphone button for simple adding the date answer. We changed it by removing the microphone button and letting the user use a scroll panel to pick the number of parts.
- Time to prepare screen: Participant was confused about what type of answer they should input to the question, and concerned about if they need to tap the microphone button for simple number answers. We then changed the wording of the question, and added a scroll bar for participant to input the number.

Usability Test #2:

Since we made a lot of changes based on the first usability test, for the second usability test, we focused on if new screens would confuse users more, and if the new screens were more efficient. After doing the usability testing, we found that our participant did not understand some of our concepts very well, and we also found some other user control problems. We found following screens have problems, and we modified them after the first usability test.

- Choose things you always procrastinate screen: The participant thought they were supposed to add every task on the first screen “Choose things you always procrastinate”. The participant was confused about the difference between these tasks and ones added through the todo list view. We added an introduction screen to explain this feature for first-time users. The goal of this feature is to always keep something on user’s to-do list, so we will resurface this selection screen when there are not many tasks on the list.
- Detailed and edit task screens: One of our participants thought clicking a task from the todo list would allow them to edit it, but it just took them to the detail/completion screen. The participant expected the tasks could be edited after added to the list, so we changed the arrows on task list to a checkmark button to complete tasks from the list view, and added an edit button in the detailed view. We also updated the detail view of tasks to state the due date and possible sub-tasks.

Usability Test #3:

For the third usability test, we were still focused on how the participant feels about the new screens we modified. After doing the usability testing, we found some of the editing feature is not visible enough, and some other user control problems. We found following screens have problems, and we modified them after the first usability test.

- Add Task Detail Screen: The participant thought they needed to create a plan for every task. We think this is because it was not clear that they could create a task without subtasks. The “Plan this Task” button also might cause confusion that it means “add this task to the to-do list”. Therefore, we changed the wording to be “Add a plan” to emphasize that this is optional.
- Edit Task Name Screen: On the subtask edit view when making a plan, the participant had trouble finding how to edit the name, and instead the participant deleted the task then made a new one. After a hint, they realized that clicking the text would allow them to input it again. To make that more obvious, we added a microphone button near the name so that the participant can edit the name by tapping that button.

Design Critique:

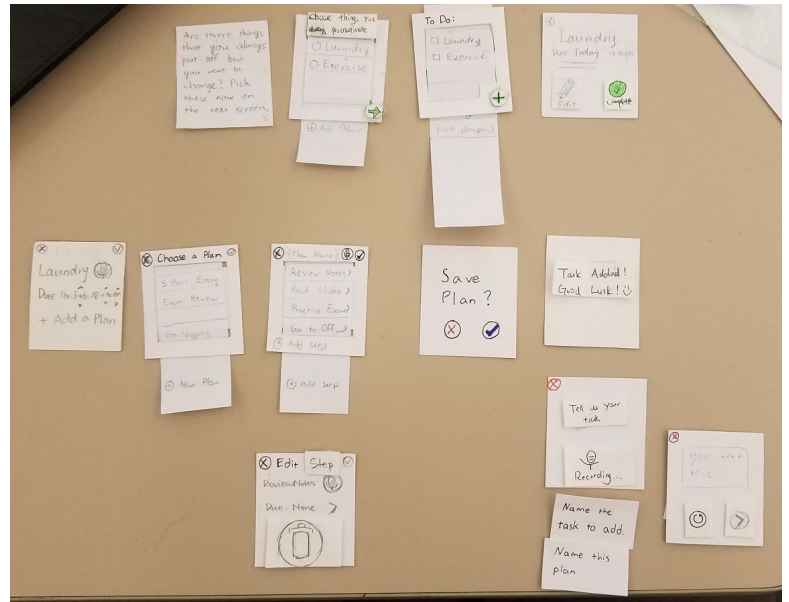
We received different feedbacks from the participants, and also by presenting the project to our quiz section. One of the main feedback we think is really valuable is to instead of having a lot of questions and recording answers for the adding the task process, we would combine the questions and have users to use scroll bar or other forms to input the answer.

Final Paper Prototype:

Overview

Our final paper prototype implemented several changes we derived from our usability testing. Most noticeable was the change from a series of yes/no questions to screens allowing each action, with an option to not do this instead. This helped to speed up the interaction of adding tasks. We also rearranged some buttons to keep the “x” for cancellation consistently in the corner. Some inputs were changed to use a slider interaction rather than relying entirely on voice like our initial prototype because it turned out this was faster than

speaking to enter information like numbers or dates. This version included more scrolling screens to better fit lists of information within the small screen of a smart watch.



Task 1: Manage frequently procrastinated tasks

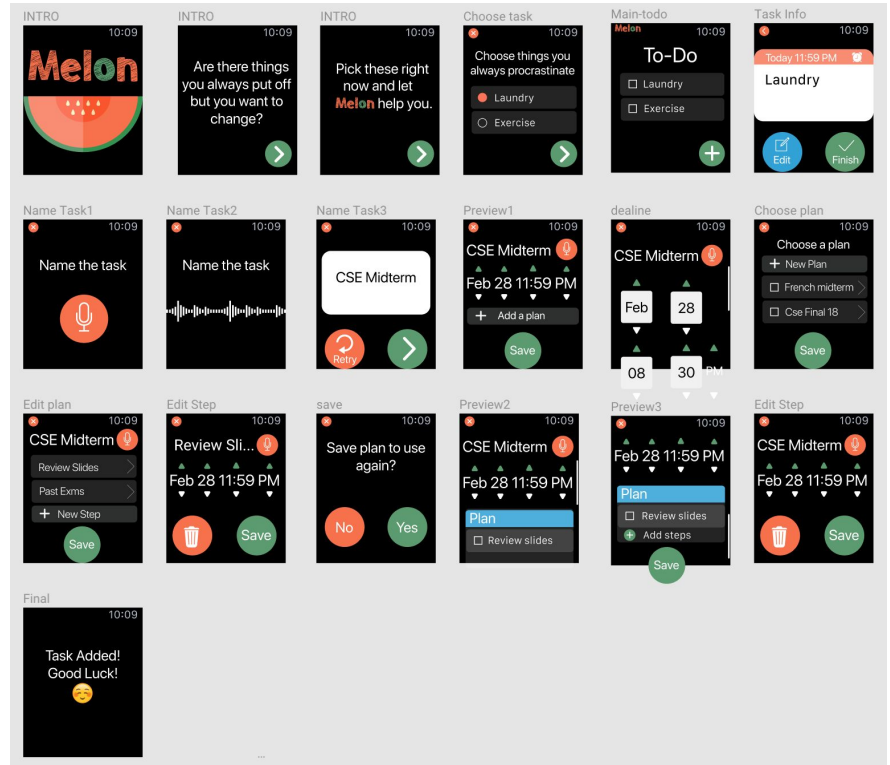
This task remained very similar to the initial design. We did add an explanatory screen that would be displayed first to explain the purpose of picking some tasks here, as this was a major confusion point in our testing. The user is then presented with a list of tasks commonly procrastinated regularly, with the option to add their own as well. These are used as initial tasks to populate the to-do list, and give alternative tasks to choose against to-do list items.

Task 2: Make goals more manageable

Our second task was changed pretty dramatically. When adding a new task, the user is asked to name the task through voice input, and is then shown a task details screen where they can edit parts of the task. Here they can add a plan to it, change the name, and enter a due date. There is also the option to cancel this flow if they decide not to add the task. The date can be entered by sliding the different elements of the date displayed, like month and time. Tapping to add a plan will bring the user through the process of creating a plan for the task. First, they are presented a list of their previously saved plans so that they can reuse them as a starting point, or create a new plan. Selecting a plan will bring them to the edit plan screen, which shows the plan's name and its steps. Creating a new plan will bring the user to a blank version of this screen where they can edit one from scratch. From this view, the plan's name can be set, and steps can be added, or existing ones edited by tapping them. Editing a step allows the name to be changed, a due date set, or the step deleted. After creating their plan, the user may be asked if they want to save it if it is new or changed from the template they loaded. They can now see the preview of the task again, where they can confirm their task or edit the details again.

Digital Mockup:

For the digital mock up, we focused on refining the overall high-fidelity design, and trying to figure out a way to make every screen user friendly with small screens. When converting to a digital prototype, we realized the screen was smaller than we had thought. To solve this, we added an additional interaction for screens that have a lot of buttons and interactions, where tapping on an element like this would expand it, giving larger targets to tap on. We also tried to make every button as big as we can, so the user will not having trouble tapping the



button. In addition, we also decided to go back to the idea of after tapping the add plan, the user will choose to tapping the microphone to record the task name. We think this will be easier for user to think about their task name, and record it. We also chose to make some application-wide changes. We chose to include the time in the top right corner of the screen to stay consistent with other Apple watch apps, as well as changing some of our icons and colors to be more consistent as well.

To support the first task of selecting things that participant has always procrastinated for the first time user, the participant will launch the Melon app with the welcome screen of the logo and name, and then the tutorial will help him/her understand the reason we ask the question for the next screen. The participant will see the end of our tutorial by asking them to pick the things they always procrastinate. After the participant select the tasks that he/she always procrastinates, these tasks will be added the initial To-Do list.

To support the second tasks of adding a new task to your To-Do list, the participant will add the task by tapping the add button, it will redirect them to the detailed steps of adding a task. Then, the participant is asked to provide a name for the new task with the microphone button. The participant can fill in details for the task by adding a due date, a plan to complete it, or skipping these and just saving the task as-is. After picking a date, participant can choose to add a plan or again save the task as-is or using the existing plan.

Discussion:

We learned during the process of iterative design about how important and effective to use the feedback. Participants in our evaluations and tests saw things we didn't see. Many issues they reported were surprised to us as designers. We learned that we could not predict the way the user would interact with our design, so the best solution is to see what they really think. When we updated the prototype every time, we could really see the improvements. We also learned to target a specific type of participants to get more helpful feedback. We targeted one participant who has experience with smartwatches to make sure our design fits their styles/habits of interaction.

The most important difference between the final design and the initial one is we included multiple ways of inputs. Our initial paper prototype supported only two ways of inputs, voice and yes/no questions. This made our process of input very long, with a long sequence of screens with yes/no questions. And some of our participants in usability testing reported that voice input was very confusing, they didn't know if they should answer in numbers or names. And they felt some of these were unnecessary, like selecting dates or entering a small number. We explored and included how other designs handled these inputs, like the scrolling mechanism for picking dates. This way, we were able to limit voice input to only where freeform text input was needed. Moving away from this voice input cuts down on possible input errors, and makes the design faster to use.

As a result of our usability tests, we changed the flow/logic of our tasks. Our tasks were designed in one single order. So when our participants completed the tasks in an order different than we expected or jumped between pages to explore all the features, they encountered many problems. After the usability tests, we changed the flow of our tasks to allow different orders, quit and skip steps. One major update is the preview screen for adding tasks. This screen is shown after the user input a name, input a due date and input a plan. So the users will always have the chance to see all the information and change it. They can also start from any information first and skip the ones they don't need. We think this update really gives our users more possibility and flexibility in using the design.

Because we followed many aspects of Apple watch's design guideline in our digital mockup and modified our screens based on them, we felt it would be really helpful if we get the chance to do another iteration on the digital mockup. But since apple watch users are familiar with the design guideline and we carried the flow and interaction we've been testing and revising to the digital mockup, we felt confident about the modifications we made.

Appendix:

Usability Test Script - Version 1:

We're designing a smart watch for people who have procrastination habit and want to change the habit, we will make the planning process to be more motivated and organized. In this section, we will test the first version of our paper prototype, in which you will use our prototype to perform the tasks(s) that we will assign you later. Please remember to talk aloud about what you think about the app during the test.

This is aimed to test the product; we are not testing you. If you find something difficult to use, chances are that others will as well, so your feedback helps everyone. This usability test is simply a means of evaluating the product, and to discover any issues we need to address.

If you feel uncomfortable we can stop at any time during the study.

Tasks:

- Imagine you just downloaded our application to your smartwatch, and you are going to create your first To-Do list.
- Please choose the things you always procrastinate, feel free to add any new options.
- Please add a task, for instance, CSE Midterm, Term Paper, or Career Fair.
- Say you want to add steps to your task if it is applicable
- Overall, what parts of our product needs to be improved?

Usability Test Script - Version 2:

We're designing a smart watch for people who have procrastination habit and want to change the habit, we will make the planning process to be more motivated and organized. In this section, we will test the first version of our paper prototype, in which you will use our prototype to perform the tasks(s) that we will assign you later. Please remember to talk aloud about what you think about the app during the test.

This is aimed to test the product; we are not testing you. If you find something difficult to use, chances are that others will as well, so your feedback helps everyone. This usability test is simply a means of evaluating the product, and to discover any issues we need to address.

If you feel uncomfortable we can stop at any time during the study.

Tasks:

- Imagine you just downloaded our application to your smartwatch, and you are going to create your first To-Do list.
- Please choose the things you always procrastinate, feel free to add any new options.
- Please add a task, for instance, CSE Midterm, Term Paper, or Career Fair.
- Say you if you want to use a saved plan
 - Do you understand the saved plan feature?
- Say you want to add steps to your task if it is applicable
- Say you want to delete or redo the process of the adding the task?
- Say you want to save the plan for the task to use later?
- Overall, what parts of our product needs to be improved or changed?

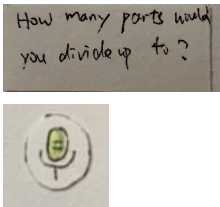
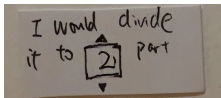
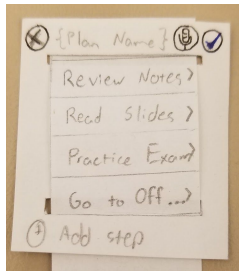
Usability Test Incidents:

Critical Incident #1 Divide Task Into Parts | Severity: 3

During the test, one of our participant paused at this step to re-read and think about the message. She was not sure about her answer so she had to design and count the number of parts she wanted. She also felt weird to use voice input for answering in a single number.

Our participants expected something more than the task we provided. They thought they could divide the task step-by-step while thinking and planning, and they could add/delete parts during the process. But our app forced them to design in their mind and count the number of parts before they could start planning.

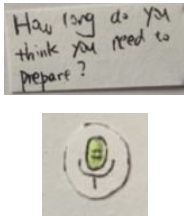
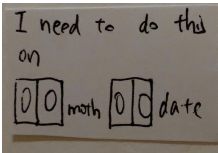
For revision, we re-designed the feature so the users can input their plan step-by step by tap “add step”.

Before 1	Before 2	Revision
		

Critical Incident #2 Replace Recording To Be Scroll Bar | Severity: 3

During the test, one of our participant pointed out that recording the answer is too much work to work on, and she pointed out that some of the questions do not actually need to be recorded to be the response. In this way, it could save time for the user and less effort.

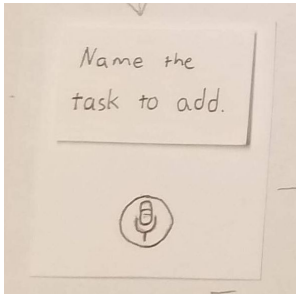
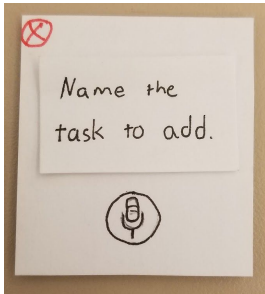
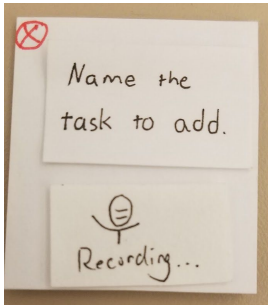
Therefore, we discussed about what questions would not be necessary to be recorded, and replace them with scroll bar or other forms for users to enter the response. We decided to put scroll bar for questions that need a number response, and questions that only need simple yes/no answers, we put buttons for users to choose their response. For instance, when users put their deadlines of the task, instead of telling the watch the number of date you need to prepare, users will have the option of scroll bar to choose which date the task needs to be done.

Before	Revision
	

Critical Incident #3 Input the Task Name | Severity: 4

One of our participant didn't realize they need to press the microphone button to start recording their voice. We had a discussion about this issue, and we thought that this action is actually redundant. The users can start input their voice the moment they opens screen (through "add new task" or through "edit task name"). So we default the input interaction to record immediately.


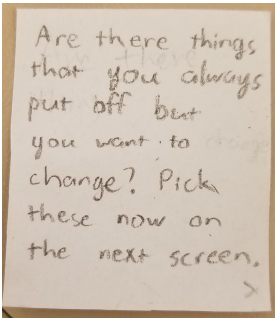
And one participant mentioned they didn't want to add the task right now and want to quit, but they couldn't do it. We added a "X" button to exit the interaction as a revision.

Before 1	Revision 1	Revision 2
		

Critical Incident #4 Add Things Users Always Procrastinate | Severity: 3

One of our participant thought they were supposed to add every task on the first screen “Choose things you always procrastinate”. The participant was confused about the difference between these tasks and ones added through the todo list view, and they wanted a way to get back to this screen once we explained what these tasks were meant for.

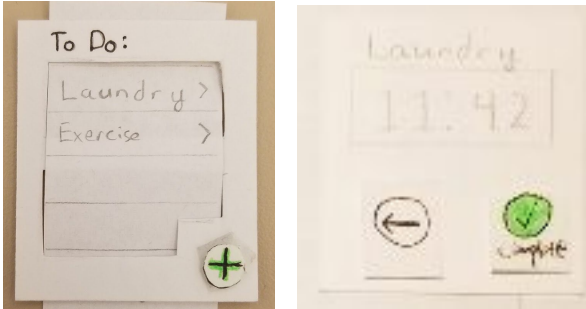
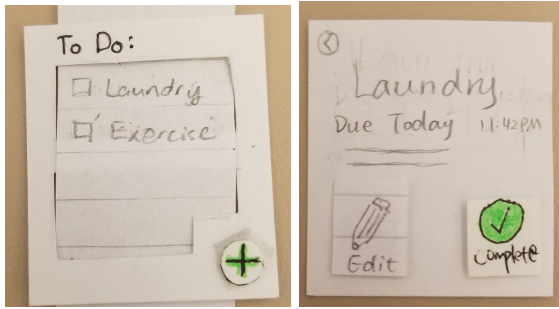
We added an introduction screen to explain this feature for first-time users. And the goal of this feature is to always keep something on user’s to-do list. So we will resurface this selection screen when there are not many tasks on the list.

Before	Revision
	

Critical Incident #5 Detail and Edit Task | Severity: 2

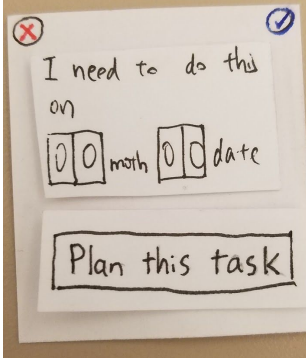
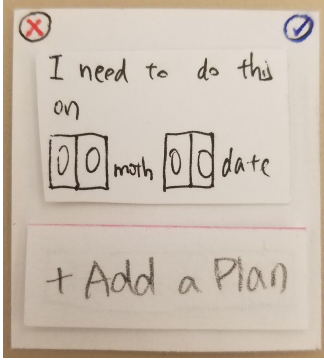
One of our participants thought clicking a task from the todo list would allow them to edit it, but it just took them to the detail/completion screen. The participant felt the detail view looked confusing, and wanted the due date and sub tasks to be visible on this screen as well.

Since the participant expected the tasks could be edited after added to the list, we changed arrows on task list to a checkmark button to complete tasks from the list view, and added an edit button in the detailed view. We also updated the detail view of tasks to state the due date and possible sub-tasks.

Before	Revision
	

Critical Incident #6 Plan Is Not Required | Severity: 4


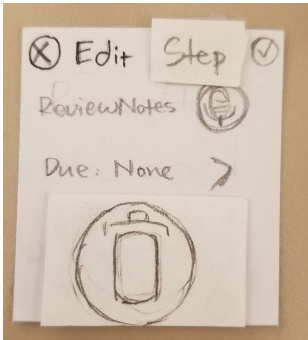
One of our participants thought they needed to create a plan for every task. We think this is because it was not clear that they could create a task without subtasks. The “Plan this Task” button also might cause confusion that it means “add this task to the to-do list”. We changed the language to “Add a plan”, so that it is clear this is something additional.

Before	Revision
 A hand-drawn sketch of a task card. At the top left is a red 'X' and at the top right is a blue checkmark. The text reads "I need to do this on" followed by two boxes labeled "month" and "date". Below this is a rectangular button labeled "Plan this task".	 A hand-drawn sketch of a task card, identical to the one in the 'Before' column. However, the button is now labeled "+ Add a Plan".

Critical Incident #7 How to Edit the Name | Severity: 1

On the subtask edit view when making a plan, the participant had trouble finding how to edit the name, and instead deleted the task then made a new one. After a hint, they realized that clicking the text would allow them to input it again.

To make that more obvious, we added a microphone button near the name and the user can edit the name by clicking that button.

Before	Revision
 A hand-drawn sketch of an "Edit Task" screen. At the top left is a back arrow icon and the text "Edit Task". Below it is a text input field containing "Task Name?". At the bottom are two circular icons: a trash can and a checkmark.	 A hand-drawn sketch of an "Edit Step" screen. At the top left is a red 'X' and at the top right is a blue checkmark. The text reads "Edit Step" followed by "Review Notes" and "Due: None". A microphone icon is positioned next to "Review Notes". At the bottom is a large circular icon containing a microphone.

Contribution Statement:

Brandon Kim: Testing process, final prototype

Echo Zhang: Formating, appendix, digital mockup, testing results

Sylvia Wu: Problem & solution overview, initial prototype, discussion