

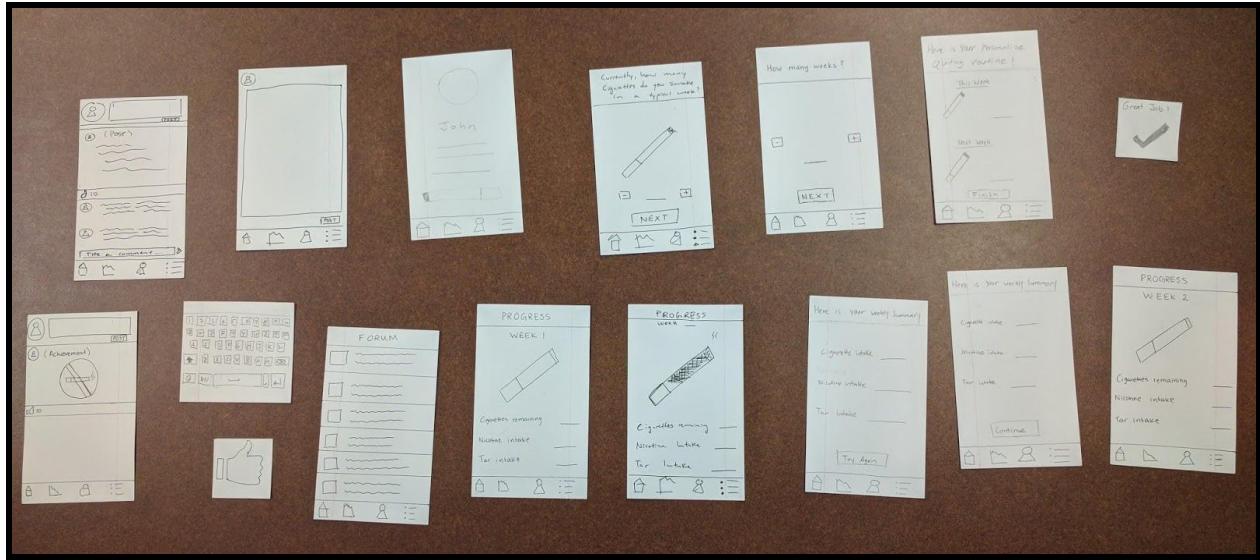
Cease

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Problem and Solution Overview

Smoking is a habit that millions of people engage in across the world. It causes a myriad of deadly health problems to smokers and their loved ones via second-hand smoke. Most people who attempt to quit rely on willpower alone to do it, which is often unsuccessful. We designed a solution to make it as easy as possible to help smokers quit. With the use of a smart filter and a community based application, our solution will give smokers the tools to set and track their cessation goal as well as a support group to easily quit smoking.

Initial Paper Prototype



Frame by frame overview of the Cease application that includes nicotine and tar tracking, a social network for quitters, a forum to seek information, and a live feed that features the highlights.

Task 1:

The first task involved in creating personal smoking cessation plan and tracking amount of chemical intake from smoking cigarettes. During the initial setup phase, the user is asked to fill out some background information about number of cigarettes they currently smoke. The first design had plus and minus buttons for user to input the number throughout the application. After filling out information about current smoking amount, the user is asked to set number of weeks

that they will want in order to reach their cessation goal. Once all of the information required from user is filled out, the application provides the user with a recommended cessation plan. When the plan is created, the user is navigated to the screen that shows current progress towards the goal. The image of cigarette appears on the screen to indicate the number of cigarettes that users have smoked. Throughout the week, the user can visually see how much they are progressing towards their goal and see specific statistics displayed right below. On the last day of the week, the user can successfully reach the goal or fail. In case where user meet the goal, the achievement badge is given. Otherwise, the user can try again the same goal the next week.

Task 2:

The task two involves browsing through buddy social network and making interaction on news feed screen. The user can perform several actions when they are at news feed screen. The first action that a user can perform is the write a post that is shared to the user's friend. This can be done by tapping on the textbox displayed on top of the screen. The user can input text using familiar "qwerty" keyboard. The second action that user can perform is to react to their friend's achievements or post by double tapping on the content, which triggers the "thumbs up" to overlay the screen. The third action that user can perform is to comment on his/her friend's post. The user can tap on the text box that has his/her profile picture attach on the left to write a comment. The input method is mainly the "qwerty" keyboard that is displayed on the screen.

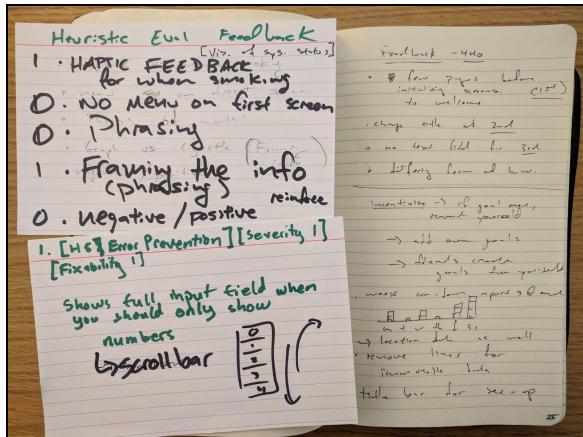
Key Features:

Some of the key features that were included on the initial paper prototype were plus and minus button to input numbers on setup page, cigarette image that displays the current progress in respect the the weekly goal, news feed page that allows user to see his/her friend's achievements and posts, and double tap on the screen to react to the post. These are the main features that we focused on during testing. The initial paper prototype is designed make any actions more intuitive in order to reflect on the principle of "recognition rather than recall".

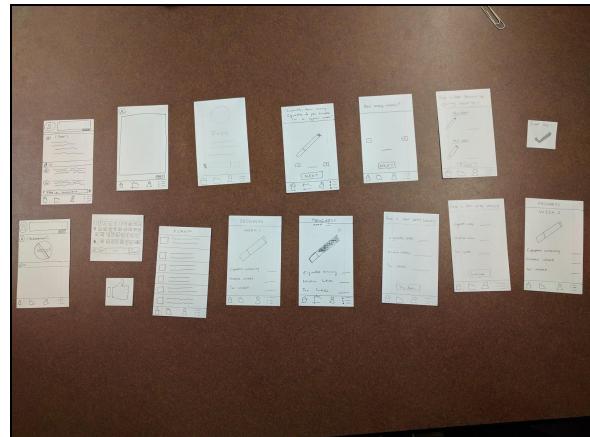
Testing Process

The testing process was mainly divided into two phase, the heuristic evaluation and usability test. The heuristic evaluation was conducted by participant who had HCI background whereas the usability test was targeted towards potential users of the design solution.

Heuristic Evaluation



Heuristic Evaluation notes



Overview of Cease application

The goal of the heuristic evaluation was to get feedback to see if any aspect of our design violated the listed of heuristics discussed during the lecture. Our first heuristic evaluation was facilitated by all of our group members and conducted by a member from parental tracking group. Since it was the first time we facilitated the heuristics evaluation, it was a bit disorganized in a way where we did not have a designated person who explained the tasks. The main feedback that we got from the first heuristic evaluation was the lack of functionality to quickly increase or decrease the counter widget, navigating around during the initial setup phase, and weakness of using cigarette image as an indicator for progress.

The second heuristic evaluation was done in more organized way in which one person was designated to explain the task and another person was designated to mock the functionality of the paper prototype. The SimParking team participated as a conductor for our second heuristic evaluation. Some of the feedbacks that we received during the second evaluation process overlapped with those from the first evaluation. These included weakness of using cigarette image as an indicator and problem with navigating around during the initial setup phase. The evaluators commented that overall tone of the application was a bit too negative and suggested that the application should rely more on the positive reinforcement.

Usability Test

For each usability test, we had the participants complete a series of tasks which include:

- Completing the smoking plan setup
- Navigating and describing the features in the progress page
- Posting to the social news feed
- Liking a post/achievement in the news feed
- Commenting on a post/achievement in the news feed
- Viewing the user profile

- Navigating to the forum

We facilitated total of three usability, which were done on participants who might be our potential users. Based on the experience that we had from the heuristic evaluation, for all of the usability testing, we designated the roles before going into actual testing. We had one person explain the tasks, another person to mock the functionality, and one for taking notes. This way, we were able to facilitate testing more effectively.

The first usability test was done with Computer Science student in the CSE labs. This allowed us to get the perspective of the average person who might be taking advantage of our design. His input showed us that we needed to edit the cigarette graphic that is shown in the progress page to better reflect the remaining number of cigarettes.

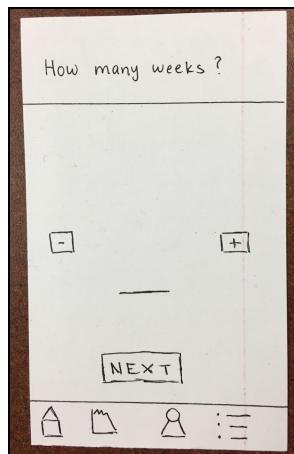
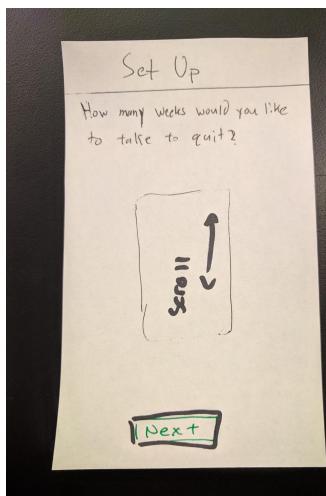
The second usability testing was done with student who is currently an active smoker. This allowed us to get the perspective of a person who would actually use this application to quit smoking. In addition, the level of exposure to technology for this student was average where he uses smart phone occasionally, but never had any deeper exposure to technology. The participant pointed out that he was little confused of what he needed to post as a user and commented on lack of categorization on the contents displayed.

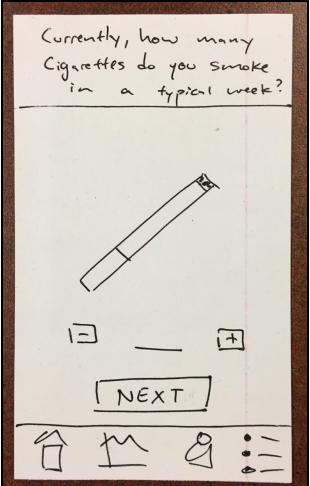
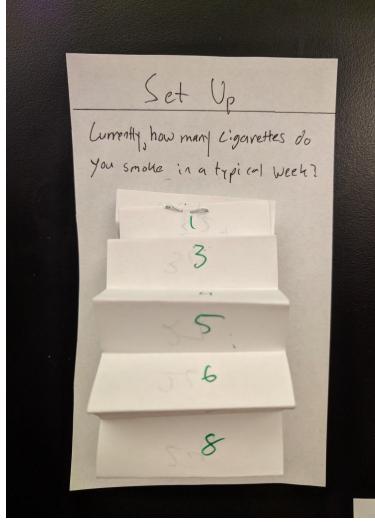
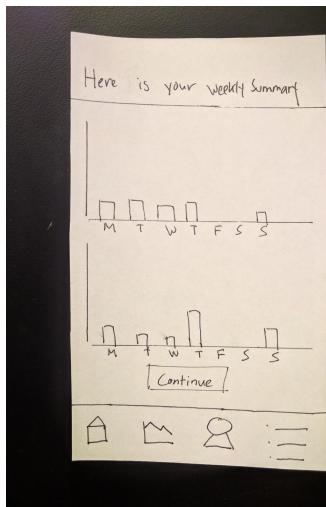
The third usability test was done with a student studying informatics who is an occasional smoker. We chose this candidate because his major has given him experience with technology and design. He also has experience with smoking and is able to give us more personal insight than a non-smoker. Like the previous participants we talked to, this one also commented on the simplicity of the interface. He suggested that instead of having the cigarette get shaded as the user smokes, he recommended that we show a cigarette burning away. In addition, he pointed out that action that is required for reacting is not very intuitive.

Throughout our testing process, we had to refine the ways we administered tests in order to yield the best possible feedback. One way to do this was to come up with a defined list of tasks for the participant to complete. We realized that giving the user objectives to complete would help show us flaws in our design when it came to clarity and usability. We also refined the way that we talked the participant through the tasks and interface. We reduced the amount of details that were provided to the participant and let them navigate the interface on their own. This allowed us to identify more visual issues that could confuse the user.

Testing Results

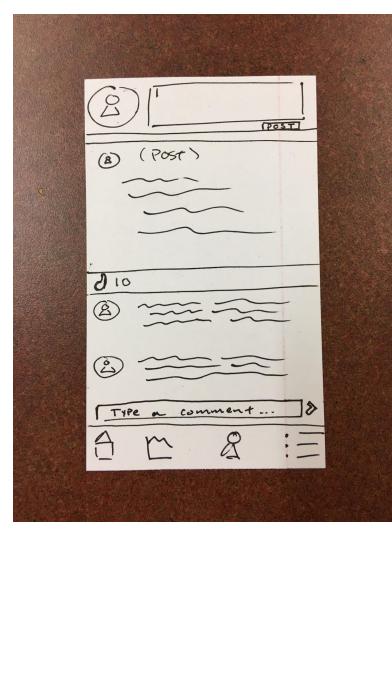
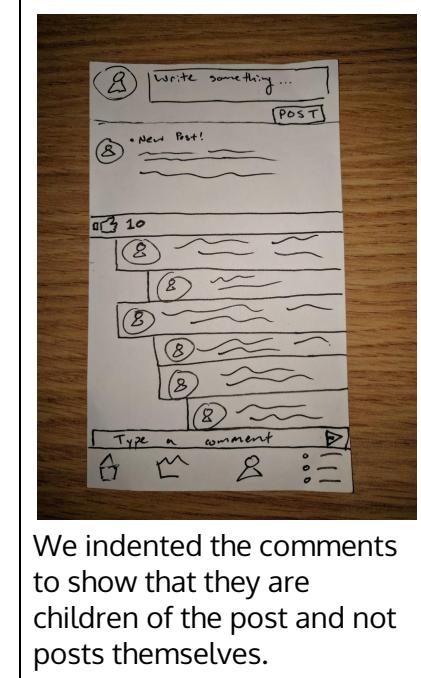
Heuristic Evaluation Issues

Before	After	Description
N/A		<p>Help & documentation: No menu on first screen (Severity 1)</p> <p>Our application did not have an opening screen that would display when the user first opened the application. This made it confusing when the setup abruptly starts. We added in a title screen that welcomes the user and prompts them to begin the setup process.</p>
		<p>Flexibility & efficiency of use: Confusing phrasing of instructions (Severity 1)</p> <p>The instructions in the setup phase that prompt the user to enter in their current cigarette consumption and intended quitting time frame were not clear enough to the evaluators. We revised the prompts to make it clearer what was intended from the user. We also added headers to the setup screens with the</p>

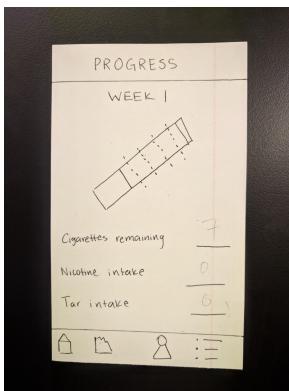
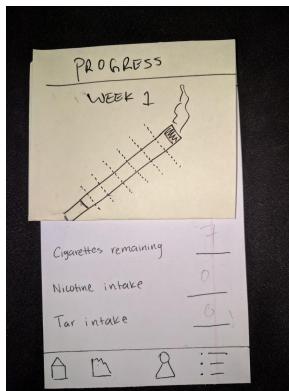
		<p>text and removed the bottom selection bar.</p>
		<p>Flexibility & efficiency of use: Wrong input field (Severity 1)</p> <p>During the setup phase, we prompt the user to enter in numbers, and allowed them to do so using a +/- button or manual entry. Our evaluators pointed out the number could be too high for a +/- button and that our manual entry keyboard allowed the ability to enter in letters. To fix this we changed the number entry mechanism into a scroll wheel which allowed easy selection of large numbers.</p>
N/A		<p>Recognition rather than recall: Detailed weekly rundown (Severity 2)</p> <p>One of the evaluators recommended that we provide more information in the rundown that is displayed at the end of each week. The screen currently shows cigarette, nicotine, and tar consumption. They recommended we add a bar graph that would show how many cigarettes the user smoked on each day in the week. This gives the user more information and allows them to cut back on high smoking days. This is displayed in the rundown if the user scrolls down to the bottom.</p>

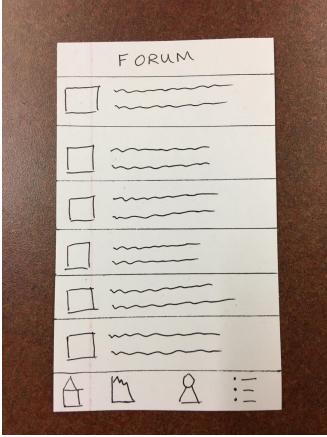
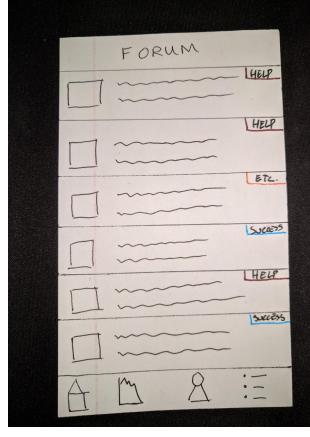
Feedback - Usability Test 1

Before	Description	After
	<p>Aesthetics and minimalistic design, negative (severity 1): More detail on Cigarette Image</p> <p>Our usability testing participant commented on the fact that the cigarette image we use to display weekly cigarette consumption was not very clear. He could not tell what the shaded and unshaded parts of the cigarette represented.</p>	
	<p>Good information display (positive)</p> <p>One positive aspect that the participant pointed out was the various types of information that are collected for the user. He talked about how it was very helpful that nicotine and tar consumption was also being measured and that any additional information would simply clutter the screen.</p>	N/A

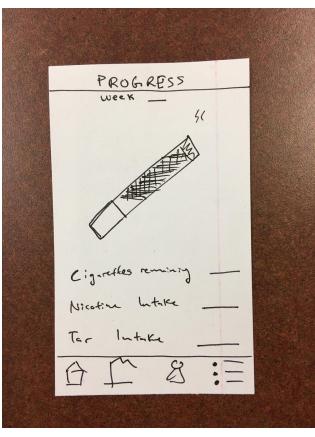
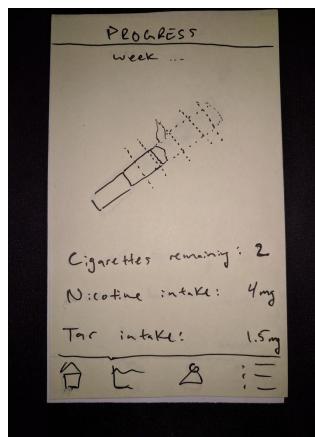
	<p>Aesthetics and minimalistic design, negative (severity 1): Lack of clarity on post or comment</p> <p>When completing the task to make a comment on a post, our participant pointed out that it was hard to differentiate between posts and comments.</p>	
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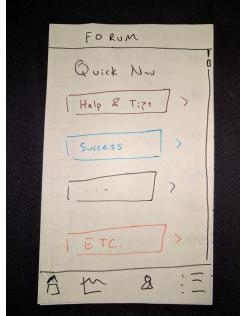
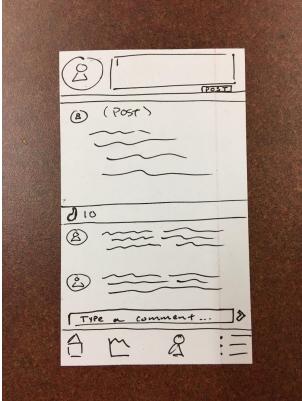
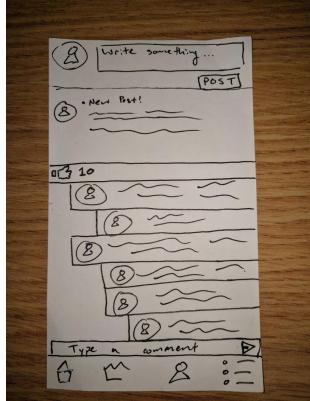
Feedback - Usability Test 2

Before	Description	After
	<p>Aesthetics and minimalistic design: negative, severity 0</p> <p>The participant mentioned that the scale on the cigarette image is a bit small to make out.</p>	 <p>To fix this, we increased the visibility of the notches on the cigarette image.</p>

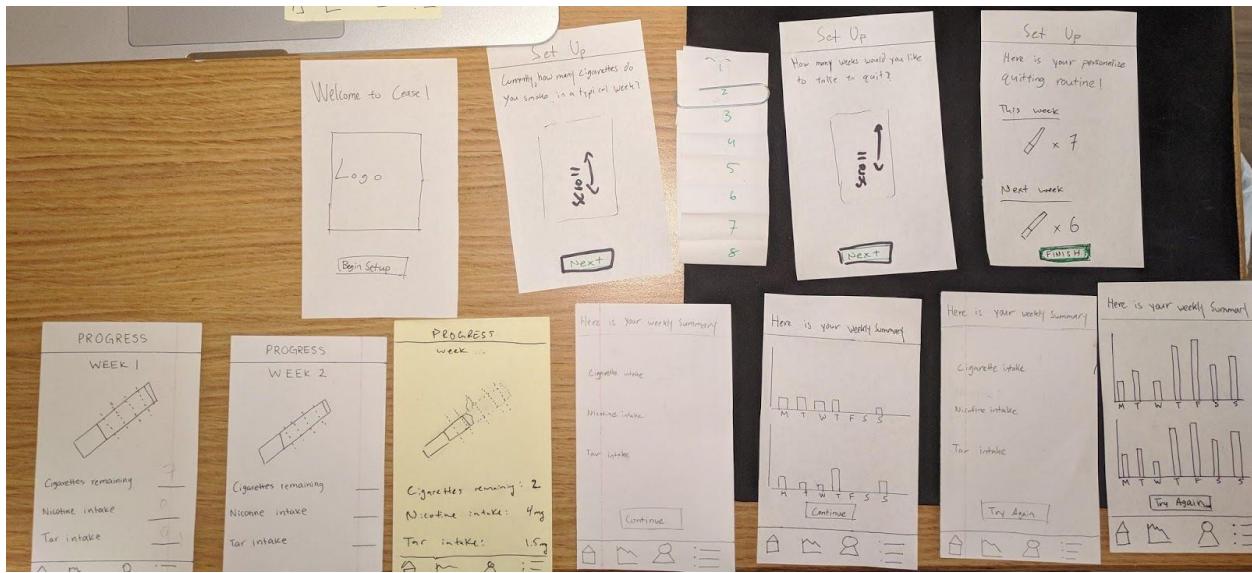
	<p>User control and freedom: negative, severity 1</p> <p>The participant mentioned that a categorical layout and an upvote system may be more intuitive and pleasing.</p>	 <p>To amend this, we've added tags to each thread, so that we can categorize the forum.</p>
None	<p>Positive feedback:</p> <p>The participant mentioned that the UI is very simple and easy to use. Because it shares common design patterns with major social networks, the application is very straightforward.</p>	None

Feedback - Usability Test 3

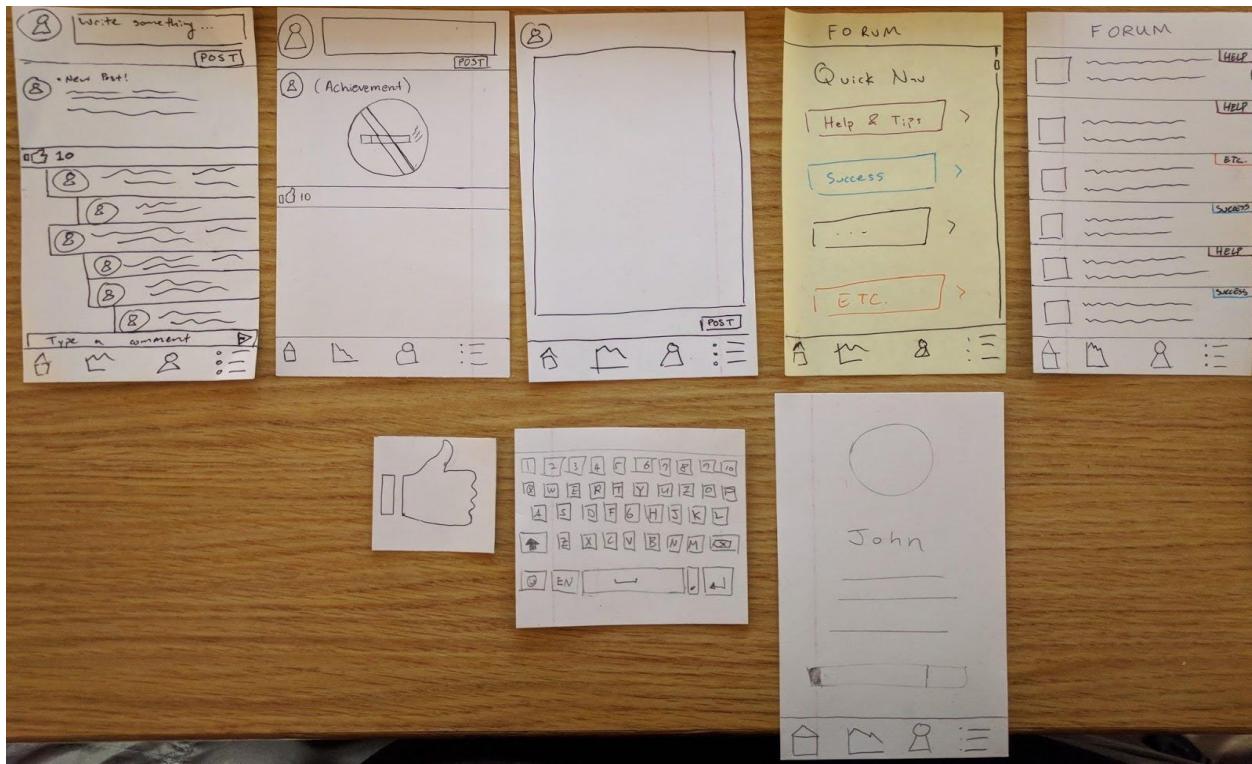
Before	After	Description
	<p>Aesthetics and minimalistic design: negative, severity 0</p> <p>The participant mentioned that it may be more intuitive to show the cigarette image being burned away rather than having a colored overlay.</p>	 <p>The revision we made shows</p>

		a cigarette being burned away proportional to the amount of cigarettes smoked. A semi-visible silhouette of the entire cigarette will be drawn in the background, to provide the relevant context.
No screen before	<p>Aesthetics and minimalistic design: negative, severity 0</p> <p>The participant suggested having a screen before the forum threads to allow for a quicker navigation to certain categories.</p>	 <p>This additional screen exists at the top of the forum screen. By clicking on the buttons, you will redirect to a forum existing of only those tags. By scrolling down, you will see the regular, unsorted forum.</p>
	<p>Positive feedback:</p> <ul style="list-style-type: none"> - The participant liked the minimalistic and simple design. - Navigation was easy. 	
	<p>Recognition rather than recall: negative, severity 0</p> <p>The participant mentioned that our like button was confusing.</p>	 <p>Changed the thumbs up icon.</p>

Final Paper Prototype



The nicotine and tar tracking half of Cease



The social media aspect of Cease

The final paper prototype was built based on the valuable feedbacks that we gathered during heuristic evaluations and usability tests. The modifications on user interface and functionality slightly changed the flow of the two tasks on final paper prototype.

Task 1:

When the participant first installs Cease, a welcome screen is displayed to inform them that they will need to set up process. The set up phase in a way adopted the “process funnel” design pattern in which we reduced many distraction that can navigate users away from the main task. The first of the three setup screens is the application asking the participant to enter how many cigarettes they will typically smoke in a week. The next screen asks the participant for the amount of weeks they would like to quit within. In these two screens, the participants can utilize the scroll wheel to quickly input proper number. The final setup screen displays the overall quitting routine. Only the first two weeks are shown ‘above the fold’. If the participant wishes to see the remaining weeks, they can scroll down. After the initial setup process, the application then begins to track nicotine and tar each time the participant smokes a cigarette. The participant can click on the graph icon anytime they are on the application to view their progress for that week. Each week begins with a full cigarette, with dotted lines to indicate each cigarette smoked. As the week progresses, an image of cigarette slowly burn away to indicate the number of cigarettes available to smoke. A full cigarette means that the participant has all of their cigarettes left for that week. A fully burned cigarette indicates that participant has met their weekly limit. When week ends, there are two possible summary page that participant can end up with. If participant met the weekly goal, they will be able to continue onto the second week. On the other hand, if participant failed to meet the goal, then they have to redo that week.

Task 2:

The second tasks involves the social aspect of Cease in which participant can interact with their friends and peers. One way that participant can utilize this feature is the make a post that gets shared across network of friends. From the home feed, the participant can tap the upper text area to submit a post. When the participant taps the text area, the box resizes so that it fills up most of the screen. The participant can then tap the text area again to bring up the ‘qwerty’ keyboard. The ‘qwerty’ keyboard serves as a main input method. The participant can then review their post, and when finished, can tap ‘post’ button on the bottom right.

Key Modification:

One of the most important modification that we focused on improving was the cigarette image that visualizes how many cigarettes the user has smoked. Throughout our usability testing, we received multiple recommendations on how to display the image so it would convey the message in clearest possible way. As a result, we added add in markings to indicate how many cigarettes have been smoked at each level and add an animation of cigarette being burned away as users smoke.

Another big modification that we found important to implement was displaying elements in the news feed in a organized manner. We revised our design to include a hierarchy among the elements and made symbols more prominent on the screen. We learned that we could not

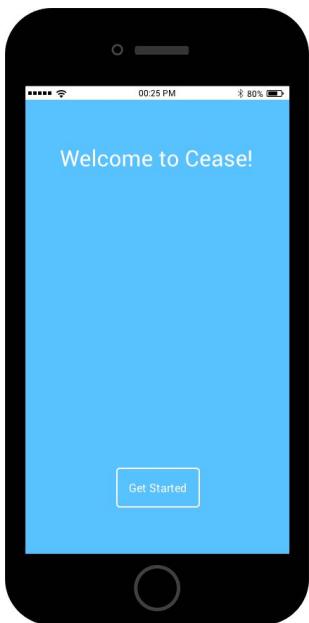
always rely on the users' familiarity with other platforms in order to navigate inside the application.

The final modification was on adding a feature to organize the information. In beginning, we did not have a defined way to display the posts that would be on the forum. With the feedbacks that we received, we added a functionality to sort the items based on different filters. These characteristics are necessary if smokers are going to obtain the knowledge they need to make smarter decisions and quit smoking easier.

Digital Mockup

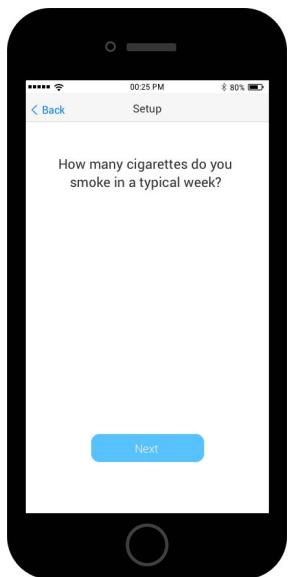
Task 1: Complete the cessation setup and track your progress

Screen	Description
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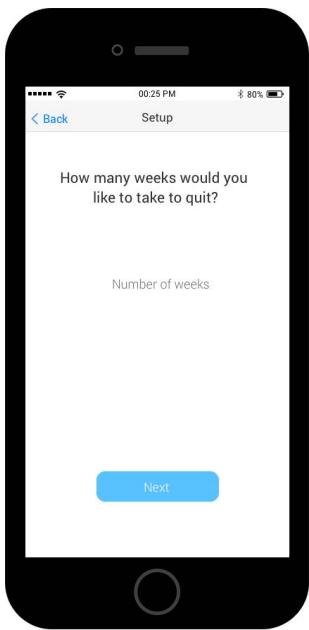


When the participant first installs Cease, a welcome screen is displayed to inform them that they will need to undergo a setup process.

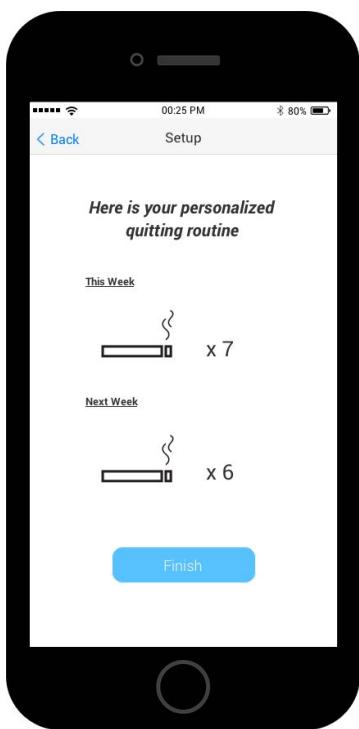
The participant will click on "Get Started", and transition to the next screen.



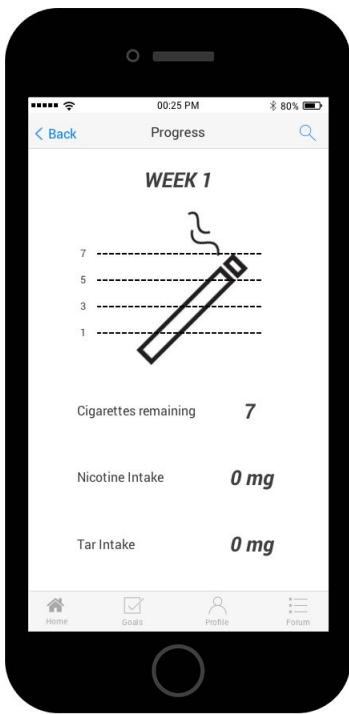
The first of the three setup screens is the application asking the participant to enter how many cigarettes they will typically smoke in a week.



The second screen asks the user for the amount of weeks they would like to quit within. Features a scroll wheel number input like the first setup screen.



The final setup screen displays the overall quitting routine. Only the first two weeks are shown 'above the fold'. If the participant wishes to see the remaining weeks, they can scroll down.

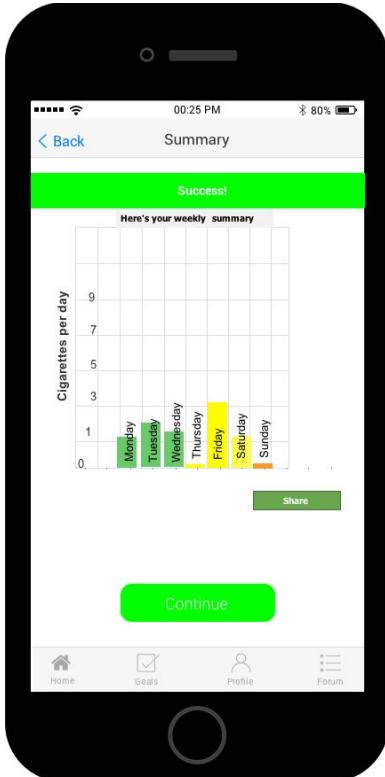


After the initial setup process, the application then begins to track nicotine and tar each time the participant smokes a cigarette.

The participant can click on the checkbox icon anytime they're on the application to view their progress for that week.

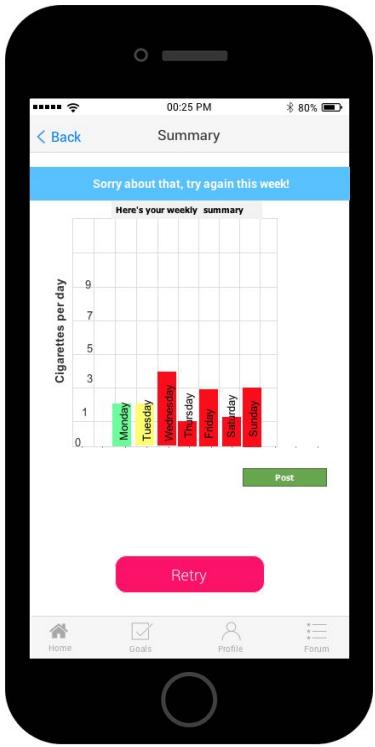
Each week begins with a full cigarette, with dotted lines to indicate each cigarette smoked.

As the week progresses, an image of a cigarette slowly burning away will indicate how many cigarettes left are in the "allowance". A full cigarette means that the user has all of their cigarettes left for that week. A fully burned cigarette means that the user has met their limit.



CASE: WEEK SUCCESS

When the week ends, a weekly summary page is displayed to the participant and if they were successful in maintaining their cigarette intake limit for that week, they will be able to continue onto the second week.

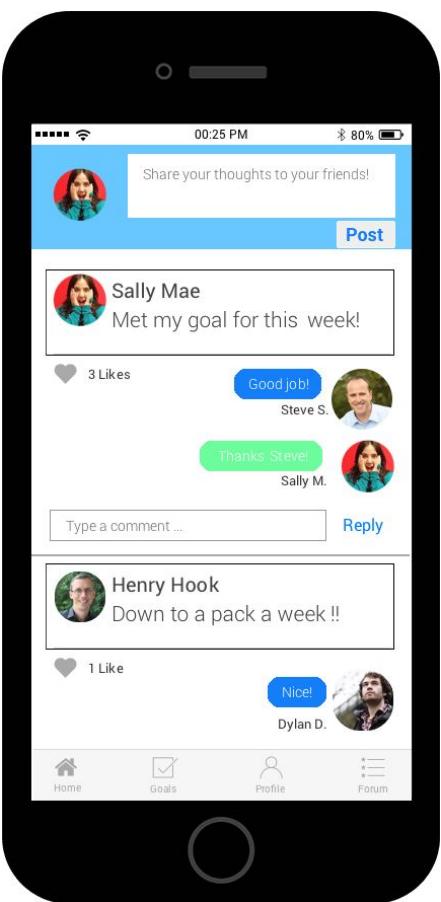


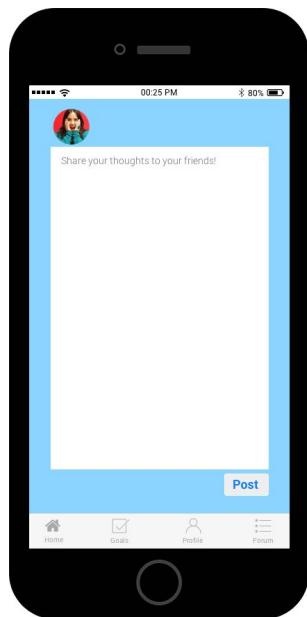
CASE: WEEK FAILURE

When the week ends, a weekly summary page is displayed to the participant and if they were not successful in maintaining their cigarette intake limit for that week, they will have to redo that week.

For example, if a participant went over their weekly allowance of 15 cigarettes, they will have to try again the following week to limit themselves to under 15.

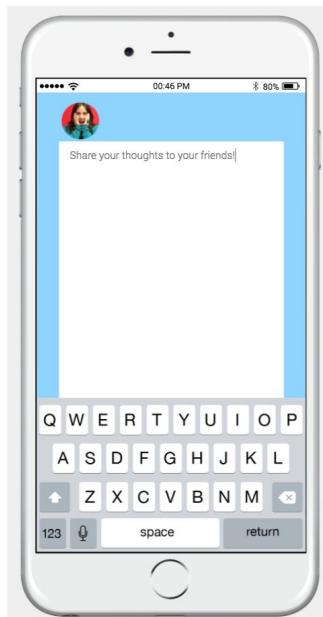
Task 2: Making a post to your social network

Screen	Description
 A smartphone screen showing a social network application. At the top, there is a blue header bar with a placeholder "Share your thoughts to your friends!" and a "Post" button. Below this, the main feed displays two posts. The first post is from "Sally Mae" with the message "Met my goal for this week!". It has 3 likes and a comment from "Steve S." saying "Good job!". The second post is from "Henry Hook" with the message "Down to a pack a week !!". It has 1 like and a comment from "Dylan D." saying "Nice!". At the bottom of the screen, there is a navigation bar with icons for Home, Goals, Profile, and Forum.	From the home feed, the participant will tap the upper text area to submit a post to their Cease network.

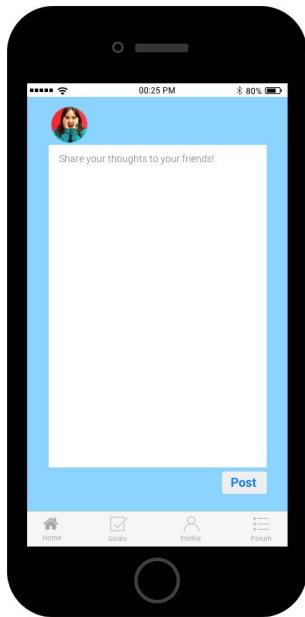


When the participant taps the text area, the box resizes so that it fills up most of the screen.

The participant will then tap the text area again to bring up the qwerty keyboard.



The participant then uses the keyboard to type a post, and when they are finished, they will tap the enter key or tap the text area to close the keyboard.



(textarea with text entered)

The participant will then review their post, and when finished, will tap the 'post' button on the bottom right.

Decisions and Changes in Implementation

There were a lot of changes to the design when we moved to a digital mockup. Because of the options available in Justinmind, we changed the style of our application a bit. For example, in the initial setup pages, we wanted to have a scroll wheel for the number input, but we settled for a numeric text input.

We were also unable to display the burning animation that would occur to the cigarette image in the progress screen. This was due to the fact that animating this was not easily possible in the prototyping software we used.

In the forum screen, we added a sort by button, a messages button, and tabs because the buttons were easy to make.

Overall, the majority of the changes we made were aesthetic and minimal.

Discussion

What did you learn from the process of iterative design?

Throughout the process of our mini iterative design process, we learned many valuable lessons. The first big thing that we learned from series of iterative design is that our intuition does not necessarily matches with that of other people. A lot of features that we thought was intuitively designed were turned out to be the opposite after going through testing. For example, we would never have figured out that our initial design of cigarette image that indicates the weekly progress is very confusing to a lot of people. In addition, just the act of re-thinking about the design over and over really helped us to catch small details that we might have overlooked. Overall, the process of iterative design taught us to be more careful about minor details that can bring huge impact to our users.

How did the process shape your final design?

Looking past at the previous design iteration, we can see that a lot have changed. Our initially design merely contained self tracking aspect of the smoking, excluding much of the social aspects that we integrated to our current design. By going through different process of the design that was covered in lectures and with numerous feedbacks from TA's and peers, we were able to come up with features that shaped our final design. Almost all of the critiques that we received played some role in shaping of our final design. We found the feedbacks from smokers especially helpful since they are the potential users of the application that we designed.

How have your tasks changed as a result of your usability tests?

As far as our task goes, there was no significant change in terms of the functionality as result of the feedbacks that we received from usability testing. The result of the usability tests however did cause a lot of aesthetic changes. For example, one of the common feedback that we received was problem with navigation during the initial setup phase. To solve this issue, we added a welcome screen and removed the navigation bar that might be distracting for the users who need to be focused on the current task. In addition, the series of usability tests led to several modifications of the cigarette image that we display on the progress screen. In the end, the usability tests really helped us narrow down the problems that we need to fix immediately and these changes were reflected on the final design.

Do you think you could have used more, or fewer, iteration upon your design?

As we were taught in class, more iteration is not always the best approach. I believe that the number of iterations that we had was appropriate for the given time frame and scale of the project. It really allowed us to focus on important details of the design without wasting our effort on other minor details. Although we can't say the design that we have is perfect, we are glad

that we were able to narrow down our design process and come up with solid solution at the end.