CSC 591 - USER EXPERIENCE

SUMMARY REPORT

TEAM NICOTRAX

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About Nicotrax

Nicotrax is a company that is focused on eliminating the number one cause of preventable death in the United States which is smoking. The unique feature of Nicotrax is their system which consists of a sensor equipped hardware case to store cigarettes paired with an Android application that tracks smoking activity automatically. Using a smoker's smoking activity, Nicotrax would tailor a customized cessation plan for the smoker. Nicotrax would also connect a smoker with the required resources that would help to quit smoking.

Initial surveys and Evaluations

An initial survey was conducted by **Nicotrax**, which asked the survey participants certain questions such as What makes them want to smoke? What are the ideal features that a cessation product should have? What information should a cessation product track? etc. Based on the results of this survey, the **Nicotrax and the DXLabs teams** had developed wireframes showing how the UI of the application should look like.
The link - https://projects.invisionapp.com/share/D6287CU4Y#/screens - contains the wireframes. These wireframes depict the complete functionality of the application.

Prototype Development - Phase I

After the initial wireframes were ready, the initial prototype of the application was created. Below are the screenshots for some of the important screens that were developed during the 1st phase of the prototype development
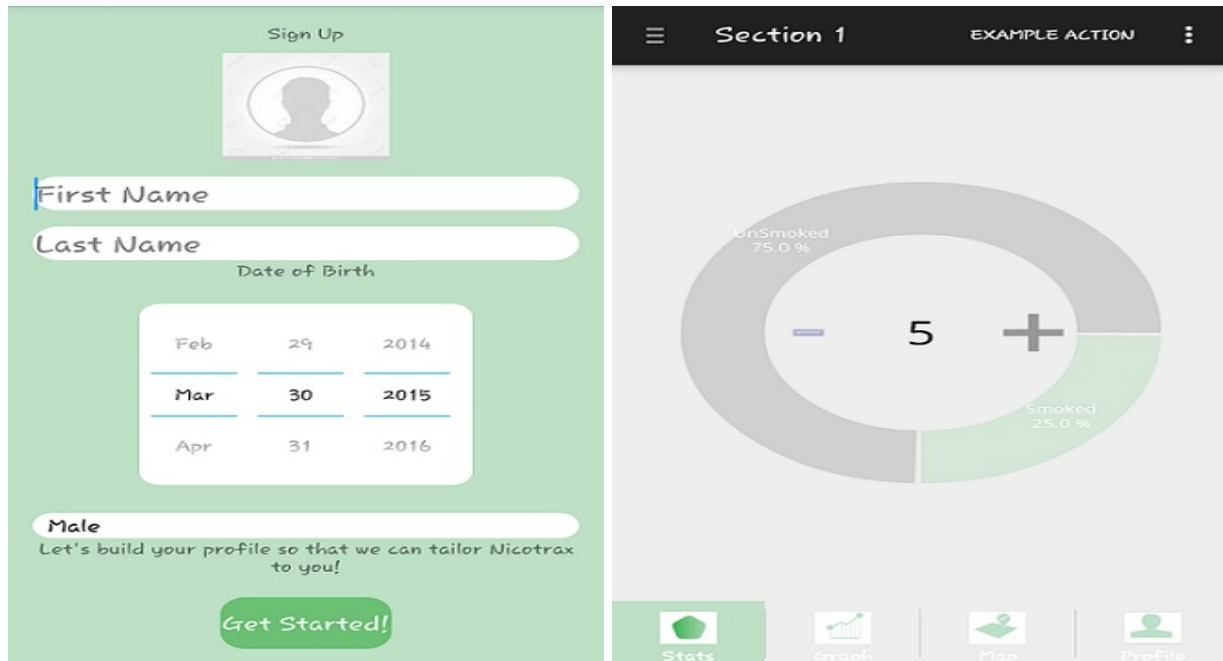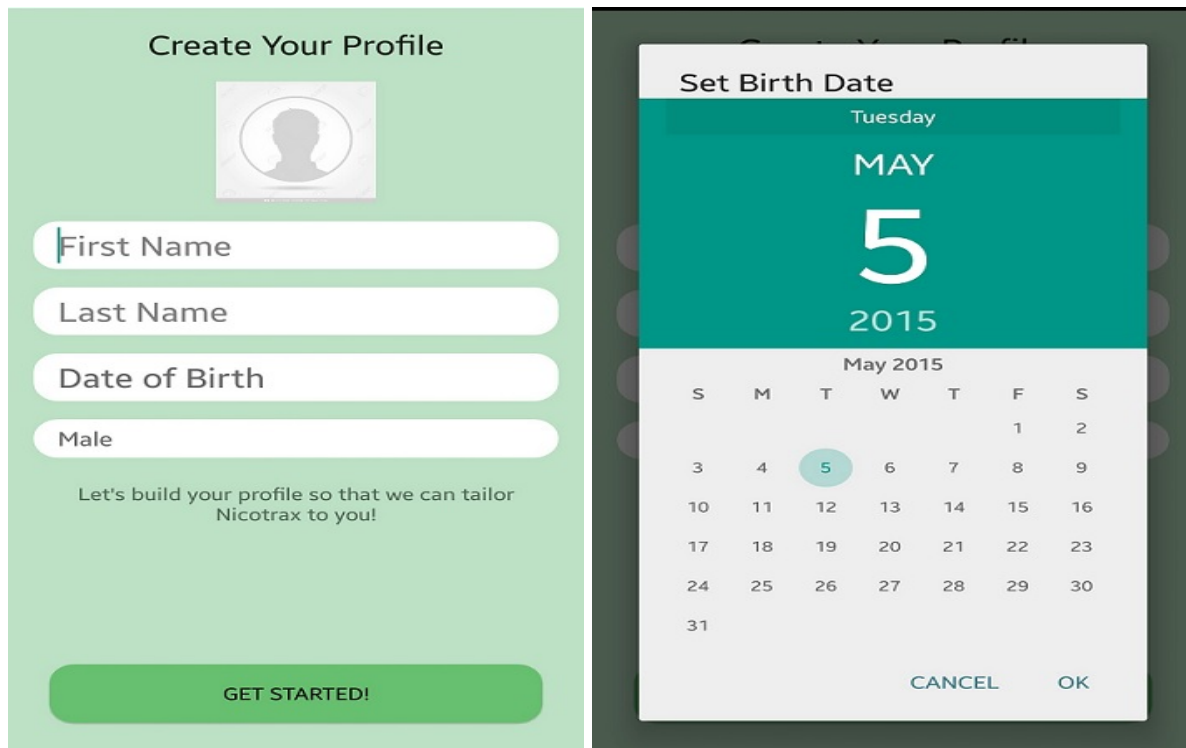
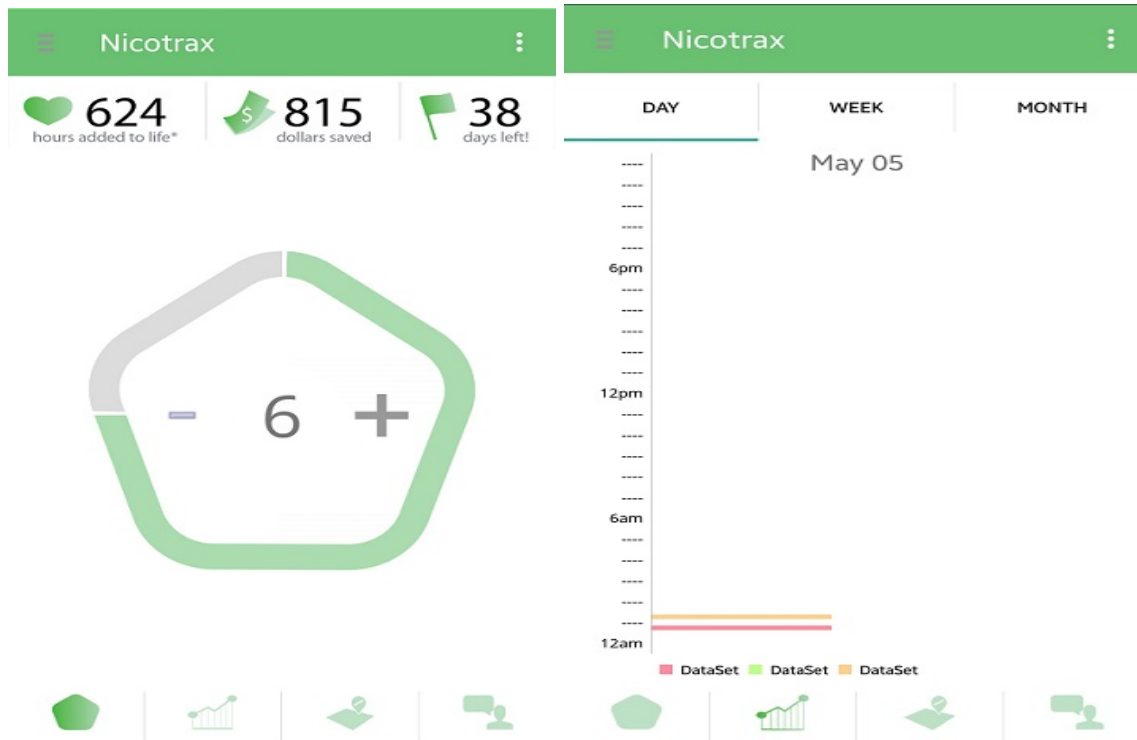(Left Screen - Profile Details, Right Screen - Dashboard of the application).
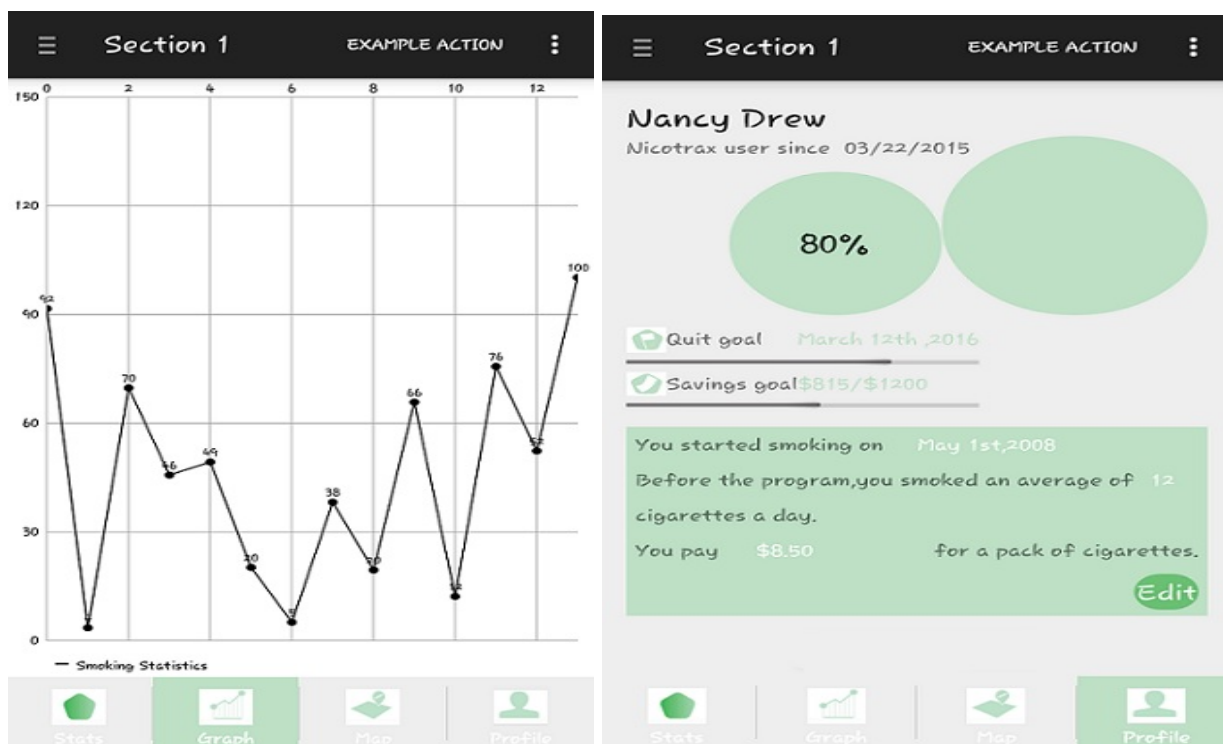
(Left Screen - Graph of the daily smoking history of a smoker, Right Screen - Profile Page of a Nicotrax User)

Prototype Development - Phase II

After getting valuable feedback on the screens from Dr. Watson, our class, during the critiques and professional psychologists, the user interface of the application was modified during the second phase. Below are the screenshots of the same screens in the refined prototype.

(Left Screen - Profile Details Screen, Right Screen - Pop-up that appears when a new user tries to enter his Date of Birth).

(Left Screen - New Dashboard of the application, Right Screen - Graph of the daily smoking history of a smoker with timings)
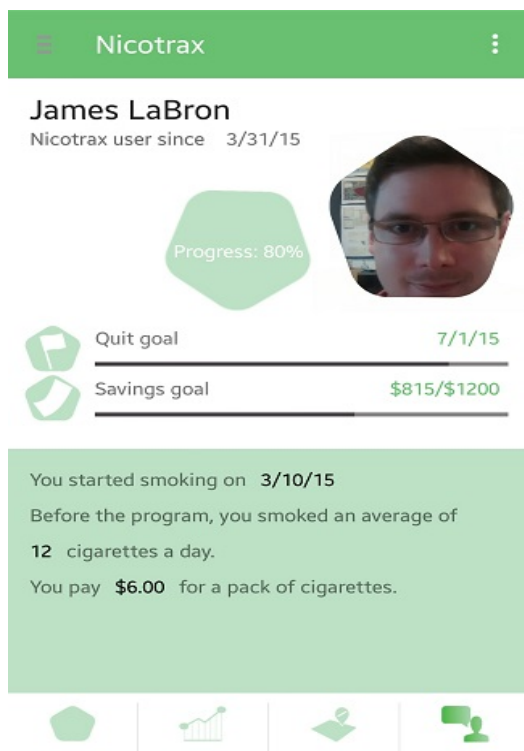
(Profile Page of Nicotrax User)

Final Evaluation Survey

A survey was conducted to evaluate the initial prototype. The goal of this survey was to determine whether the prototype achieved the experiential goals that were decided upon before developing it. In this survey, 4 parameters were measured concerning the user interface - Aesthetics, Emotions, Usability and Understandability and Completeness. Standard surveys like **PANAS (Positive and Negative Affect Schedule)** and the **SUS (System Usability Scale)** were used to measure emotions and usability and understandability respectively. A link to the survey that was conducted on the UI can be found here - http://goo.gl/forms/J1ht0zHEQX.

Summary of Evaluation Results

A survey was conducted with 12 participants to evaluate the prototype that was created. The participants were given a task to complete and then they were asked to complete a questionnaire assessing aesthetics, emotions, usability and understability, and completeness of the application. The task sequence that the participants were given is described below :

Task 1: Open the Android Application.
Task 2: Sign up and Log in.
Task 3: Answer all the onboarding questions.
Task 4: Look at the main dashboard about the smoking details for the current day.
Task 5: Interact with the main dashboard to add/subtract number of cigarettes smoked.
Task 6: Look up the graphs of daily view, weekly view and the monthly view.
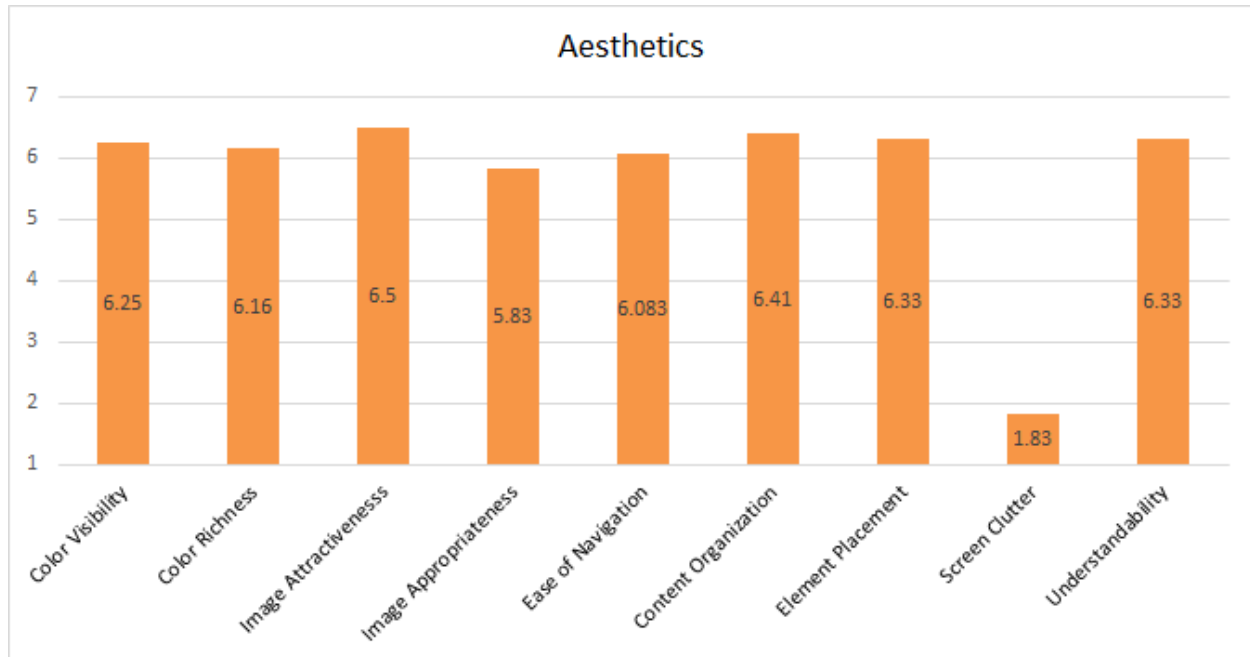Task 7: Look up the User's profile page.

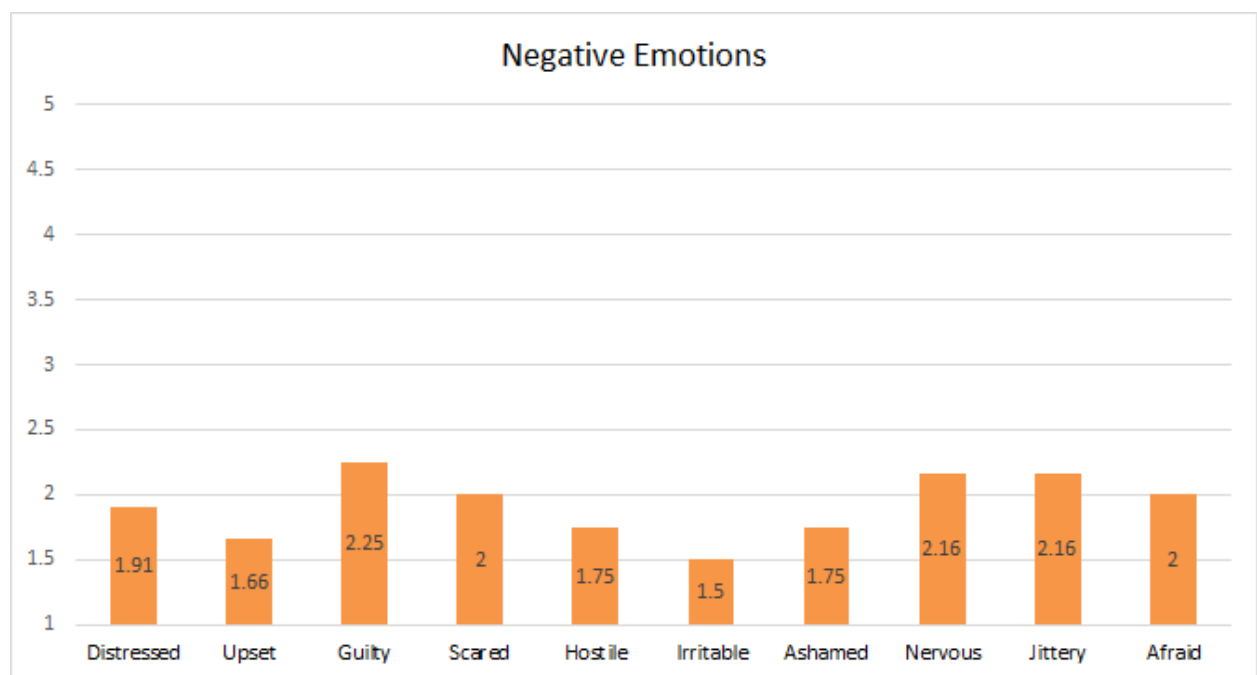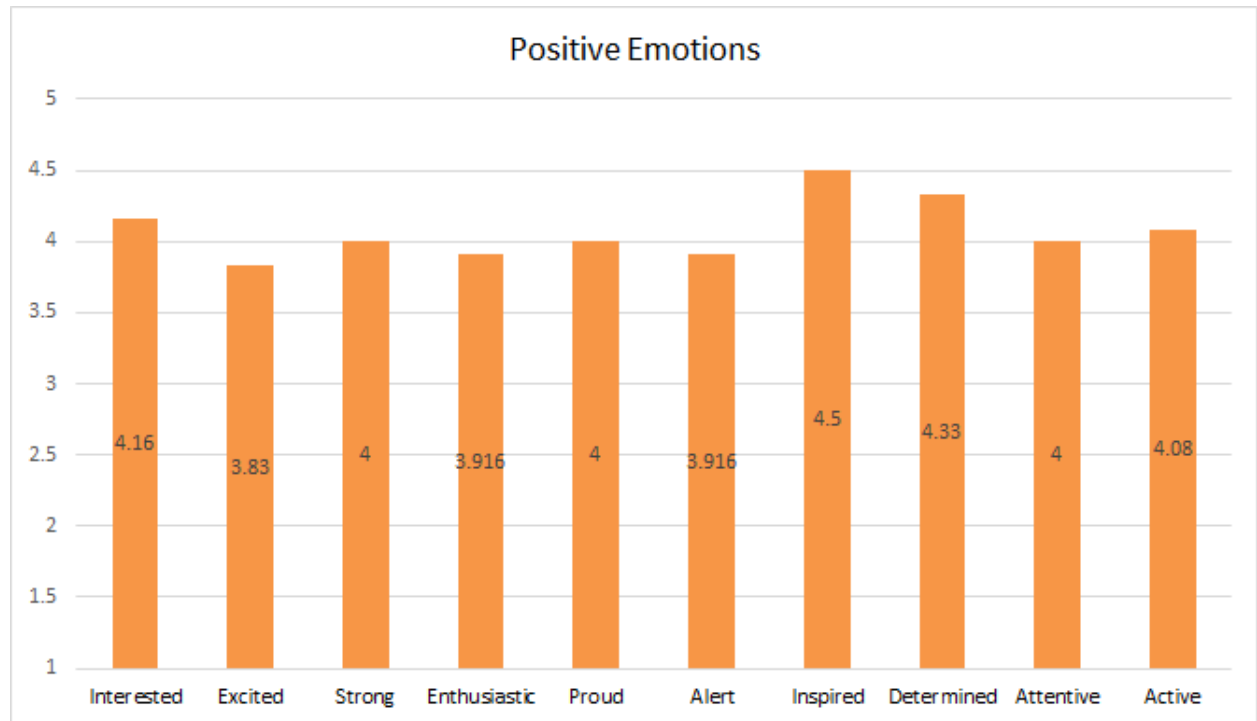The summary of the results of the survey is described below :

1. The users found the application aesthetically appealing. The scores obtained in this section were well above average.
2. The total of the positive emotions score that was obtained through the PANAS survey was - **40.747/50.** This score was above the mean score that PANAS requires to determine that positive emotions are evoked by the application (29.7 with a standard deviation of 7.9).
3. The total of the negative emotions score that was obtained through the PANAS survey was- **19.165/50.** This score was within one standard deviation of the mean score that PANAS requires to determine that negative emotions are not evoked by the application. (14.8 with a standard deviation of 5.4). The reason for this is that some people still feel guilty after smoking, even if they smoke less than their daily average. Also, if a person's health is damaged, then it is natural to feel afraid, jittery, nervous about one's well being.
4. An SUS score of **80.832/100** was obtained. This score was above the average score

which is 68. Therefore, these results suggest that the application was both usable and understandable.

5. The users also felt that the application was complete, in the sense it provided all the resources, that would help the users to quit smoking.

The bar graphs of the scores that were obtained in the different sections of the survey are given below. The vertical axis shows the range in which the user's could answer those particular questions. The horizontal axis shows the parameter that was being measured. The chart title shows the aspect of the application that was measured.

Positive Emotions

Emotion	Value
Interested	4.16
Excited	3.83
Strong	4
Enthusiastic	3.916
Proud	4
Alert	3.916
Inspired	4.5
Determined	4.33
Attentive	4
Active	4.08

Negative Emotions

Emotion	Value
Distressed	1.91
Upset	1.66
Guilty	2.25
Scared	2
Hostile	1.75
Irritable	1.5
Ashamed	1.75
Nervous	2.16
Jittery	2.16
Afraid	2

Usability and Understandability
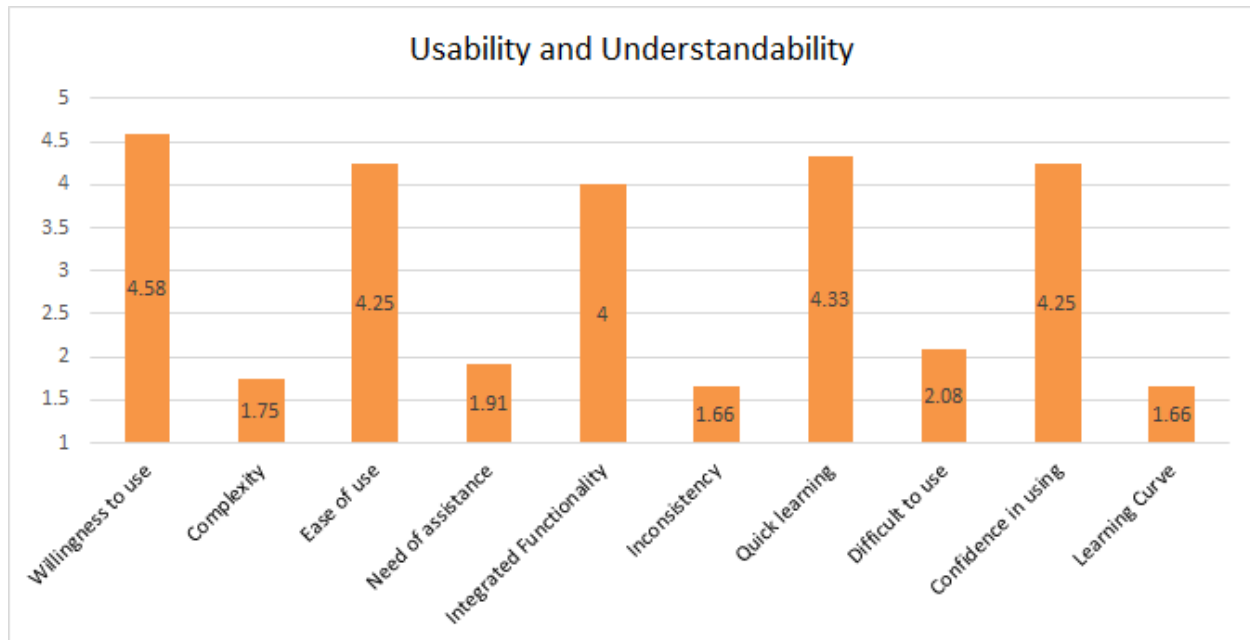
Why the prototype succeeded?

We designed the prototype for the Nicotrax application with the help of the Nicotrax and the DXLabs design teams. Our aim was to align our navigation elements along with the expectations of the users. This ensured ease in access and less irritation when users interacted with the prototype.

From the initial prototype, we realised the difficulties faced by the users. Our initial prototype had naive layouts and flow. The onboarding questions were simple and not effective in building a user's smoking history. After meeting with professional psychologists, we realised we needed more specific questions. Therefore, we modified our onboarding layouts to accommodate these changes. Also, we had certain issues with the contrast of the color schemes used, which we changed in our final prototype. Our current prototype has led to achieving all our experiential goals of aesthetically appealing, ease of usability and understandability of the application. Further on, our prototype tries to evoke a sense of positive emotion or accomplishment amongst the users, which in turn creates a sense of belief in our product.

Future Work

In the future, the Map functionality which indicates the hot zones (areas in which the smoker smokes the most) can be implemented to deter the user from smoking or adopting healthier alternatives in these areas. This would be a great value addition to the existing functionality

because people tend to smoke more in certain settings or at certain specific places, for example at parties. Also, as suggested by the class, gamification of the application would be a great thing to look into. This would add to the list of motivations that a user gets currently from the application to quit smoking.

Extra Credit

For Extra Credit we performed some more analysis on our interface.User-centered design is all about creating mobile interfaces that satisfy the goals and desires of the users, and the core of this concept is that a user must be able interact with our application effectively. We evaluated few factors that affect Usability.We performed User tasks analysis to evaluate:

- **Intuitiveness** : How obvious and easy is the system to use?
- **Learnability** : How easy it is for new users to learn to use our system?
- **Preciseness** : How accurate is the system?
- **Affordance** : Are interactive elements evident?

To make sure our content is readable, we evaluated the following:

- **Legibility** : Is text readable?
- **Ease of comprehension** : Is content easy to understand?

For measuring the navigability of our application we evaluated the following:

- **Findability** : Can the components easily be found?
- **Information Architecture** : Is the content organized and categorized well?

And lastly, we evaluated following to determine the visibility of the application:

- **Contrast** : Was there a balance in the contrast of text and background?
- **Color Scheme** : Was the color scheme chosen soothing and uniform?

Taking some input from the paper "Finding the Tipping Point: Visual Metaphor and Conceptual Complexity in Advertising", we also tried to evaluate the visual metaphors and complexity of some of the content we have used in our application.

Lastly, we also applied Fitt's Law (Components at closer distance) and Gestalt Laws to our screen designs to improve the User Experience**.**

References

1) Nicotrax Website - http://www.nicotrax.com/
2) 7 Elements of an Aesthetically Pleasing website - http://www.appliedi.net/blog/7-elements-of-an-aesthetically-pleasing-website/
3) Measuring Usability with the System Usability Scale - http://www.measuringu.com/sus.php
4) PANAS Questionnaire - http://booksite.elsevier.com/9780123745170/Chapter%203/Chapter_3_Worksheet_3.1.pdf
5) Gestalt Law http://en.wikipedia.org/wiki/Gestalt_psychology
6) Fitt's Law http://en.wikipedia.org/wiki/Fitts's_law
7) Visual Metaphor and Complexity- http://www.tandfonline.com/doi/full/10.1080/00913367.2014.920283