EazyTrack: Exploring Next-Gen Technology and User Experience Design to Help Relieve Stress

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EazyTrack
Exploring Next-Gen Technology and User Experience Design to Help Relieve Stress

Kaiyi Dong

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Masters of Fine Arts in Visual Communication Design

Rochester Institute of Technology
College of Imaging Arts and Sciences
School of Design
Rochester, NY
December 12, 2018
Title

EazyTrack: Exploring Next-Gen Technology and User Experience Design to Help Relieve Stress

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December, 2018

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Abstract

In this competitive society with the pace of people’s life speeding up, stress is inevitable. Too much stress though will bring negative effects on people’s physical and emotional wellbeing. According to a survey the American Psychological Association conducted from 2007 to 2016, very few actions are being taken to prevent or relieve stress effectively even though an increasing number of people have realized that stress has an impact on health and wellbeing.¹ Untreated chronic stress can contribute to severe health problems including anxiety, insomnia, muscle pain, high blood pressure, and a weakened immune system.² Today, there are many stress trackers or guides on the market to help people solve this problem. However, most of these products lack effective solutions for a user’s individual situation and need design improvements from both a user experience and a visual design perspective to help solve people’s daily problems. This leaves a great opportunity open to help people with mental stress issues through wearable technology.

The mission of this thesis project is using data visualization and user interface design to first, help people determine their stress level and second, to provide customized scientific methods for relieving that stress. The final project is an interactive prototype of a mobile application that works with a wearable device which tracks data related to the user’s stress. Overall, the project aims to create a tool with a friendly user experience and attractive visual elements for people with stress issues. It will help them to understand their stress and to manage it in an easier, intuitive and accessible way.

Keywords:
stress, mobile app, wearable technology, user interface design, interaction design, user experience, data visualization, relaxation therapies

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¹ The online survey of 2,020 U.S. adults 18 and older, conducted by Harris Interactive for the American Psychological Association, has been taking the stress pulse of Americans since 2007.

Introduction

Situation Analysis

There are so many due dates, deadlines, frustrations, and urgent demands in this competitive society that stress feels like a normal part of modern life. Beyond a certain point though, excessive and chronic stress can affect people’s life in many ways, both physically and emotionally.¹ Physical symptoms can manifest, like aches and pains in the body, rapid heartbeat, indigestion, and even dizziness. Emotional effects may result in many negative feelings, including moodiness, irritability, depression, inability to concentrate, and low self-esteem.² People usually lack an awareness of their stress and don’t know how to deal with it, which overall may cause serious consequences to society when it keeps growing and happening to so many people over time. It is very important to find a way to help people become aware when their stress levels are out of control and teach them how to manage it.

---

1 Struggling with stress? https://www.nhs.uk/conditions/stress-anxiety-depression/understanding-stress/

2 Stress is so Commonplace it Has Become a Way of Life https://www.stressstostrength.com/stress-is-so-commonplace-it-has-become-a-way-of-life/
Currently, there are various guides and products on the market to help people to relieve stress, including books, online resources, and mobile apps. But they all have some drawbacks. Books can provide comprehensive knowledge but may not be attractive to read—the content cannot be updated and the material is not customized for different users. Websites are more interactive than books, but the content is still not customized for each user. Some websites have stress level tests or questionnaires which require the users to go through a longer process to get their answer. Also, with poor user-friendly interface design, users easily get overwhelmed by too much text.

Compared with books and websites, mobile apps are more relevant, interactive and joyful to use. People are not restricted to certain places as long as they have phones in their hands. However, many of the current stress apps can still use improvements. Most apps with wearable devices can detect stress levels in real time. However, there’s a lack of professional relaxation therapy and customized content for individual users’ situations. The functions of most apps are monotonous, making them unappealing to use. The design of user-interface needs to be improved visually to make it more user-friendly. Designers should think more carefully about the use of colors, typography, and the layout of interface.
This thesis project is an interactive prototype of a mobile application used in conjunction with a wearable device to track a user’s stress level and provide customized relaxation therapy and advice for different user scenarios.

For the broader community, the goal of this thesis project is to help people with stress issues learn more about their stress situations and to learn actions they can take to lessen the stress in an interactive, intuitive, and accessible way. For the field of design, this project has explored user interface design for biofeedback and relaxation purposes, including data visualization, user experience design, and interaction design.

The entire design process was guided by relevant research, which included user experience design, data visualization, interactive design, and stress management information. The aim of research was to answer the following questions:

- Can people relieve stress by themselves when they know their stress level and have methods to cope with it?
- When people are experiencing intense stress, what kind of visual communication is suitable for them?
- How can we make data visualization more attractive and interactive for people to use?
- From a user-friendly perspective, how can wearable technology that works in conjunction with a mobile app help people relax in an effective way?
Survey of Literature

**Stress Management**

**A Comparison of Stress Management Techniques in Stress Reduction**
By Michelle Schreckengost Vosmera

This research was conducted to determine if stress management methods are effective in decreasing stress, if various stress management techniques are more effective, and if stress management classes should be an educational requirement.

**The Relaxation and Stress Reduction Workbook**
By Martha Davis

This book teaches how to relax the body and mind in an increasingly high-speed world with intuitive and detailed, yet simple, techniques. It introduces very useful relaxation techniques based on the latest studies and draws from a large amount of reliable treatment methods, including relaxation, autogenics, self-hypnosis, visualization, and mindfulness and acceptance therapy.

**Stress Management for Life: A Research-Based Experiential Approach**
By Michael Olpin

This book explains how to manage and prevent stress and focuses on emphasizing experiential learning. The author encourages people to personalize information in text through practical applications and a “tool box” of stress-release resources, including online stress-relief audio. It also directs people to learn to understand and manage stress by thinking about stress-related topics in a real-life context. The book motivates readers to deal with stress in a way that accommodates their lifestyle, values, and goals.

**Clinical Handbook of Emotion-Focused Therapy**
By Leslie S. Greenberg, PhD, and Rhonda N. Goldman, PhD

This book teaches people to control their emotion instead of allowing their emotions to rule them though emotion-focused therapy (EFT). The authors gathered many experts to provide extensive EFT research and applications for all common mental health issues, including depression, anxiety, interpersonal trauma, personality disorders, and eating disorders.
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<th>Mobile Design Pattern Gallery: UI Patterns for Mobile Applications</th>
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<td></td>
<td>By Theresa Neil</td>
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<td>This book provides practical reference to 70 mobile application design patterns, illustrated by more than 400 interfaces from current iOS, Android, BlackBerry, WebOS, Windows Mobile, and Symbian apps. The book walks readers through different design patterns in 10 separate categories, all of which are meant to help solve common design challenges. The pattern categories are Navigation, Forms, Tables, Search, Tools, Charts, Invitations, and Help.</td>
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<td>By Steven Hoober, Eric Berkman</td>
<td>This book collected and researched 76 great practices for everything from printed pages and displayed information to the use of screens, lights, and sensors. The authors teach designers to catch-and keep-the user’s attention with practical techniques. Readers can learn core principles for designing valid user interfaces along with various common design patterns for interactive design on all types of mobile interface. There is a discussion about design problems and solutions in each pattern, along with variations, interaction, and presentation details.</td>
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<th>Essential Mobile Interaction Design: Perfecting Interface Design in Mobile Apps (Usability)</th>
<th>Essential Mobile Interaction Design: Perfecting Interface Design in Mobile Apps (Usability)</th>
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<td>By Cameron Banga, Josh Weinhold</td>
<td>The authors share valuable lessons from their years of experience designing more than one hundred mobile apps for different types of clients. They initiated a guide which teaches readers the critical skills that lead to the best results. The guide shows readers how to:</td>
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<tr>
<td>• Think through designs instead of just putting all UI elements together.</td>
<td>• Allow an explicit design process to emerge from the app.</td>
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<tr>
<td>• Try to make wireframes of the app more effective.</td>
<td>• Make visual design appealing but without compromising usability.</td>
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<td>• Collaborate effectively with programmers.</td>
<td>• Ensure the app is accessible to everyone.</td>
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<td>• Collect useful feedback and understand what it means.</td>
<td>• Learn valuable ideas from the most popular current apps.</td>
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<td>• Keep learning new design tools for more successful work.</td>
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**User Experience Design**

**The Design of Everyday Things**

By Don Norman

This book explains that the rules to make a good, usable design are simple: make things visible, develop natural relationships that connect functions and control, and make smart use of limitations. The goal of this book is to guide users effortlessly to the right direction, on the right action, at the right time.

**Simple and Usable Web, Mobile, and Interaction Design**

By Giles Colborne

This book shows how to drill down and simplify user experiences when designing for digital screens and applications. It explains why simplicity is appealing, explores the principle of simplicity, and demonstrates proven strategies to achieve simplicity. Remove, hide, organize and replace have become guidelines for designers, those who learn simplicity through a variety of examples and case studies where the results speak for themselves.

**Don’t Make Me Think**

By Steve Krug

The book’s proposition is that a good product or website should allow users to fulfill their intended tasks as quickly and as directly as possible. The author indicates that people are good at “satisfying”-taking the first available solution to their problem-and that the design should take advantage of this. He frequently cites Amazon.com as an example of a well-designed website in the book, because it manages high-quality interaction with a simple and clear interface (even though the site is becoming bigger and more complex every day).

**Measuring the User Experience**

By William Albert (Author), Thomas Tullis

In this book, the author shares his extensive experience to teach people how to conduct a usability test and how to gather usability metrics within budget. The book also shows how recent technologies have made usability testing easier and more effective to collect a broad range of data about user feedback.
**Wearable Technology**

**Wearabledevices.com**  
http://www.wearabledevices.com/devices

This website focuses on the latest wearable devices and technology, and people can read the latest research, learn basic theories, and explore device analysis. People can get a deep understanding of wearable technology from all different aspects on this website.

**Designing for Wearable Technology**  
By Kennedy, Sinead  
https://medium.com/ui-collection/designing-for-wearable-technology-67e8e24073a9

This article explains that designing for wearable technology is a complex subject integrating UI/UX design, interaction design, and industrial design. The author shares her thoughts about how to apply traditional design principles to wearable devices by analyzing the trend of UI/UX design and wearable technology.

**Wareable**  
https://www.wareable.com/

People can get the latest news and features about wearable technology from this website. It also provides articles and reviews on the many different types of wearable devices. Each report analyzes a product for certain variables like usability, interface design, and the reliability of the tracker.

**Designing for Wearables: 11 Things to Keep in Mind**  
By Nick Babich

This article discusses 11 principles that should be kept in mind when designing for a wearable device. The author based these principles on the wearable’s screen size, sensors, interaction, usability, and capabilities. With these 11 principles, the author believes that an effective interface can be designed to enable a user to complete a desired task quickly and easily.
Design Process

Approach

The project is a mobile application used in conjunction with a wearable device to track a user's stress data. The design goal is to use next-gen technology and user experience design to help people recognize and relieve stress.

The design process is based on the following steps:

- Determine target audience and design a survey questionnaire to learn their needs and preferences for a stress relief app.
- Investigate similar products on the market and analyze their advantages and disadvantages as reference.
- Research and study stress issues and what actions should be taken to minimize those issues.
- Brainstorm and finalize the content of the mobile application.
- Create user flow and wireframes of the app.
- Design the user interface and other visual elements.
- Develop an interactive prototype.
- Conduct usability testing and collect feedback.
- Make refinements based on evaluation.

The final project is an interactive prototype developed using Principle. There is a demo video, edited with Adobe After Effects and Principle, which gives users a better understanding of the entire user flow. All the assets are designed in Adobe Illustrator and Sketch.
Target Audience

The survey conducted by The American Psychological Association, shows that there has been a decrease in stress levels for most Americans, but that young adults ages 18 – 33 have stress levels above the national norm. They are also more likely to have depression and anxiety.¹ According to the results, the target audience of this project was young adults (18 – 33 years old) who were concerned about stress issues and had a desire to keep a healthy physical and mental state.

Researchers interviewed the target audience with a questionnaire and collected answers based on the following questions:

- What is your attitude to stress?
- What are your needs when you are under high stress?
- What kind of design style do you prefer?

See appendix for survey questionnaire.

Research conclusion:

- The majority of the target audience was aware that stress has negative effects on their health and life. They expressed desire to take actions to prevent and manage that stress effectively. They wanted to know their real-time stress levels and their stress fluctuations over the course a day.

- Their common coping method when confronting high stress included listening to music, exercising, taking a walk, meditating, or reading a book. The survey also found that a higher proportion of the target audience would seek social support from their family or friends.

- Most of target audience expected to see a design that was simple and clean-looking with soft colors. They did not want too much text on the screen and looked for visually stunning graphics.

¹ USA TODAY. Who’s feeling stressed? https://www.usatoday.com/story/news/nation/2013/02/06/stress-psychology-millennials-depression/1878295/
Investigation of Existing Products

There are many similar stress-relieving products on the market today. The thesis candidate conducted research on some of them to analyze the advantages and drawbacks, as well as to get inspiration for functionality.

**The Pip** is a small device shaped like a water drop with a biosensor that can track people's emotional state and teach them to manage stress with engaging apps. The app gives feedback of the user's changing stress level through sound and visual effects.

Pros:
- Gives accurate, real-time feedback about the user's stress level.
- Sets session goals and shows achievements to motivate users.
- Keeps a journal that notes the user's thoughts and moods during the session, which can help users learn what affects their stress levels with intuitive visualized data charts and graphs.
- Provides intuitive visualized data charts and graphs

Cons:
- Lacks notifications or any other functions to alert users if they are feeling tense.
- The screens of the apps are all horizontally-oriented so users have to hold their phones sideways all the time.
- There is no explanation about what data is tracked.
- It lacks useful guidance on how to reduce stress.

**Spire** is a clip-on device used in conjunction with a mobile app that not only track steps and calories but also monitors the user's respiratory patterns, helping to reduce stress and improve sleep by breathing. Users can set goals for three areas within the app, which are calm, focus, and activity.

Pros:
- The app displays a real-time breathing wave, which helps users to control their breathing effectively.
- It gives notifications to users when they are stressed and helps them to focus.
- It is a well-designed and user-friendly iOS application.
Cons:
• The data only syncs up when the app is opened on the user’s iPhone.
• The goals set within the app are rigid. For example, users can only choose integral steps per day, nothing in between.
• It is difficult to know what each vibration means.
• It is too reliant on the phone—users can’t interact with just the device.

**Embrace** is a smart band designed for convulsive seizure monitoring. It also analyzes stress levels, physical activity, and quality of sleep. It is functional with the help of two apps: the Alert App and the Mate App. The Alert App will notify the user’s caregivers when Embrace detects unusual events. The Mate App visualizes the data and generates an analysis and record via the user’s daily rest and physical activity.

Pros:
• The app setup process and device connection is easy.
• The data collection is continuous and analyzed in real-time.
• The device will vibrate gently to send a signal that the user is experiencing a high level of stress.

Cons:
• There is no option to view recent data.
• It does not provide self-help guides for users to manage stress.
• The Mate App doesn’t have a consolidated data view.

**Bellabeat Leaf Urban** is a wearable leaf-shape device designed for woman to track steps, sleep, ovulation, and pregnancy. It also has a focus on stress relief. The device monitors users’ breathing and helps them with meditation-style breathing exercises, which is included in the accompanying app.

Pros:
• The user’s lifestyle data is presented simply and clearly in the app with different colors for activity, sleep and meditation.
• The user can view their data and information from every single day by using the calendar along the top of main screen.
• The breathing exercises are categorized by the user’s experience level.
Cons:
- The app doesn’t have a community, so users track their data solo.
- Users must sync the data manually by tapping the device.
- There are no phone notifications to inform the user about their status.

**Garmin Vivosport** is a wearable fitness tracker that monitors heart rate variability and presents a real-time stress level score on the touch screen. With the companion app, users can sync and share their data to an online community. The tracker can also help users relieve stress through a guided breathing exercise.

Pros:
- It’s easy to identify each activity by using cards in different colors.
- Users can personalize their dashboard to display the data and activities they want.
- Users can share their stats to the online community and connect with each other for encouragement. They can also compete in challenges.

Cons:
- The screen of the device is too small to read notifications or messages.
- Users can’t compare their current data with past data beyond one week ago.

**Summary**
By analyzing advantages and drawbacks within similar products on the market, the most important functions a wearable product must have can be concluded as follows:
- Stress data tracked by the wearable device should be accessible in real-time on the mobile application.
- The device should alert the user when their stress becomes too high.
- The app should provide self-help guides for users to manage their stress.
- The users should be able to share their stats with others.
- The design should have a simple layout and simple colors.

Based on the results above, the initial features of the project was generated: A wearable device with a round screen that can monitor the user’s stress level by tracking body metrics. It will allow users to view their data on a companion mobile application and relieve their stress through guides provided in the app. Users will be able to connect with each other at any time and share their stress data.
The four main functions of the app were determined by the features discussed above and a combination of a user’s stress needs and the best advantages of wearable technology paired with a mobile device. Figure 1 shows the concept of how the functions were set.

The four main functions are:

**Tracking stress level**
Based on my research of which biometrics are used to measure stress for realistic results, there are four body metrics that will be tracked together to measure stress level: heart rate, blood pressure, skin temperature, and muscular tension.¹ A real-time stress level score is calculated from this data.

**Timeline**
This will show the user’s current stress level and stress scores for activities they post. It will also record actions they take in order to display stress level pattern changes. The recording of stress levels is an important part of self-coping—it helps users become aware of triggers that cause their stress level to change.

---

Social
There are some experts that say that people with strong social support are more able to deal with problems on their own by improving their self-esteem and sense of autonomy.¹ Research also suggests that providing social support to friends and family may be even more important than receiving it.² Social function is an important build consideration, including the ability to connect with friends, view activity posts, share stress level scores, and encourage others.

Stress Relief Guide
After researching different stress reduction techniques, I chose six methods for the application that are categorized in two sections: Therapy and Recommendation.

Therapy
- Meditation
  This is a quick-fix way to help people reduce their stress and relax physically and mentally. Different scenes with sounds for meditation are provided in the app for the user to choose from.

- Guided Imagery
  This is the concept of relaxing by picturing calming environments. Mikellides’s research claimed that chromatic strength could cause excitement or relaxation, so illustrations that represent pleasant and serene environments are used to help users imagine places where they would feel relaxed.³

- Relaxation Tips
  In order to have more effective stress relief techniques introduced in the application, there are some relaxation tips included in this part that can be practiced daily.


Recommendation

• Books
According to a study at the University of Sussex, reading can reduce stress by 68%. It’s a good method for concentrating and escaping from worries. Within the app, three book options will be provided each day based on the user’s preferences.

• Music
Music therapy has shown a lot of health benefits for people with stress issues. When coping with stress, the right music not only relaxes people’s bodies but also their minds. The app will play music randomly based on the user’s preferences.

• Place
Getting moving is an important stress reliever, and it can also serve as a helpful distraction from people’s daily worries. The app will recommend exciting places and events near the user’s location.

A mind map (Fig. 2) helps to organize a user’s needs, the app design, and the functions of the application. It also visually presents brainstorm ideas and the overall thought process.

![Figure 2 Mind Map](image-url)
Flowcharts

User Flowchart

A user workflow diagram based on the mind map that presents how the mobile application works with the wearable device and which also shows how the main structure of the application is designed to go through the four functions: Stress Tracking, User Timeline, Social and Stress Relief Guides.

Figure 3 is the user flowchart used in the final project.

Figure 3 User Flowchart
Once the user flowchart was determined, a process flowchart was created according to the main functions and deep research of user needs (Fig. 4). It integrates the user workflow, visualizes the entire process in detail, and illustrates required actions when using the mobile application.
The flowchart indicates the structure of this application, which consists of five main parts: Onboarding, Home, Friends, Relax, and Account.

1. **Onboarding**
   This part is basically an introduction about the application and tells the user how to start using the app step-by-step. The first step is connecting the device to their phones via blue tooth. After connecting, the user can sign in to their account (first-time users will need to create a new account). When the user chooses to sign up, they will be asked some questions about their personal preferences in order to provide customized stress relief guides and a better user experience.

2. **Home**
   There are four functions that can be accessed on the home screen: Timeline, Dashboard, Relax Techniques, and Trend. The Timeline function records the user’s actions and the corresponding stress levels. The Dashboard shows the user’s current stress level and other related body metrics. The Relax Techniques function is designed to recommend some stress relief actions to take based on the user’s current stress level. Users can view their stress level changes via the trend function and get to know how their stress level changes over time.

3. **Friends**
   Users can view friends’ activities and their stress levels in this section. Other social functions like writing comments, sending support when friends’ stress levels are high, chatting with friends, and adding new friends are included.

4. **Relax**
   This section is divided into two parts: Therapy and Recommendation. Therapy includes meditation, guided imagery, and relaxation tips. The Recommendation part includes books, music, and nearby exciting places and events.

5. **Account**
   This part is the user’s personal center. They can edit their profile, change personal preferences for relaxation suggestions, view books and music lists, and manage device and application settings.
App Design and Implementation

**Wireframes**

After the determining the content and entire process of the application, an initial wireframe was created (Fig. 5 – 6). A parallel navigation bar was designed for the bottom of screen where the four main functions are placed: Home, Friends, Relax, and Account. The screen of the home page is visually divided into two parts for the first version. The upper half shows the user’s current stress level, body metrics, and relax techniques. The user can switch between these three by swiping the screen left and right. The lower part shows the user’s activity timeline. The corresponding screens of the wearable device are also designed here as well (Fig. 7).

![Wireframes](image-url)
Figure 6 Initial Wireframe – 2

Figure 7 Initial Wireframe – Wearable Device
With the preliminary content layout and navigation built up, a pilot test of the initial version of the wireframe was carried out to test the usability of the application. According to the collected feedback, the problems mainly focused on the Home screen. They can be summarized as the following three points:

- People feel confused about which content each of the three dots on the upper half of the screen indicates.
- Most people think that current stress levels and information of body metrics should be shown on the same screen.
- The interaction of the relax techniques isn’t very user-friendly since it takes more steps to select between different techniques. People would also like to see all of the techniques at one time.

Therefore, the wireframe of the home screen was revised based on the feedback from the user test. The layout changed but still consists of three parts: Timeline, Dashboard and Relax Techniques. Unlike the initial version, each part now takes up the whole screen on. Users can switch between each part by using the tab navigation at the top. The Timeline screen shows the user’s activity and postings. The user’s current stress level and body metrics information are combined together on the Dashboard screen, and the Relax Techniques screen lists different stress relief advice all at once. This revision makes the layout of the interface more intuitive and creates more efficient interaction.
Initial wireframes:

![Initial Wireframe – Home](image)

Revised wireframes:

![Revised Wireframe – Home](image)

*Figure 8 Initial Wireframe – Home*

*Figure 9 Revised Wireframe – Home*
A user workflow was created according to the user flowchart and the revised version of wireframe (Fig. 10). It gives a better understanding of the connections between each screen and presents the steps of each interaction.
Color

The choosing of the color palette was based on the app’s content, and the research of color psychology. Since blue has been proven to have a tremendous amount of stress relieving power, a soothing gradient of blue hue was used as the primary application color, which can give the user a feeling of peace and calm. In order to keep the consistency of the visual style, a soft and neutral shade of blue was selected as the main color for the illustrations. Green is known as one of the most comforting and quiet colors that attracts harmonious feelings, and it can help people stay calm and refreshed. So green was used for the navigation and all of the buttons. Low-saturated light blue and green were chosen as the shades for the illustrations. Two different shades of gray were used for titles and text, while white was used for the background.

![Figure 11 Final Color Palette](image-url)
Font

When selecting font, the ideal typeface should have the following features:

- Legibility
- Simple and modern look
- Friendly feeling
- Abundant weight variation (from light to bold to distinguish the content hierarchy)

First, the range of typeface was narrowed to Sans Serif to meet these requirements. Then several typefaces were chosen to test out on the background in the same color and with the same text which is used in the application.

Proxima Nova was the selected typeface. Besides all the features mentioned above, Proxima Nova has great flexibility and versatility. It is plain and minimal, allowing the content to speak for itself. The regular weight is used as the main body text and the button text, while the extra bold is used for titles and selected statuses.

Proxima Nova Regular

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
1 2 3 4 5 6 7 8 9 0
! @ # $ % ^ & * ( ) - +

Proxima Nova Extrabold

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
1 2 3 4 5 6 7 8 9 0
! @ # $ % ^ & * ( ) - +
App Interface Design

The final interfaces was designed based on the research, user testing, and tutor review. It illustrates the layout and visual style of the application. The layout was designed to keep the information and components clear on the screen. Also, a parallel navigation was designed so the user can easily access each function. As for the visual style of this interface, the thesis candidate kept it simple, clean and straightforward. The visual style is uniform throughout the design system of the whole project and suitable for the subject matter.

For the first-time user, there is a three-step splash screen that presents the main features and functions of the app (Fig. 14). There are illustrations and brief instructions on each screen to guide users and help them understand each function thoroughly before using it.

![Figure 14 App Splash Screen](image-url)
The instructions for connecting the device are the first steps for the user to start using the app (Fig. 15). To make connection between the device and the cell phone, the user needs to turn on the Bluetooth on their phone and simultaneously hold the button on the device. In order to give the user a better understanding of the pairing process, there are three screens with illustrations to show the instructions and process step-by-step.

Figure 15 Connect the Device
After connecting with the device, the user must sign in or sign up for a new account (Fig. 16). When the user chooses the sign-up option, they are asked a series of questions to help the app provide the user with tailored relax advice based on their preferences (Fig. 17). The dots at the top of screen indicate the progress of the survey. Users can skip this part and provide answers later in their personal profile.

**Figure 16 Sign In/Sign-Up**

**Figure 17 Questions Asked**
A first-time user will be shown a user tutorial before they begin to interact with the app (Fig. 18). It introduces the functions of each button on the navigation bar. Each icon (button) will have a card with a brief instruction of its function. Users can swipe between each card. The tutorial can also be watched again from Account Settings.

Figure 18 User Tutorial
Home is the first screen that users will see after they log in. This is where they can see what their stress level is and learn how to deal with it. There are three tabs at the top of the screen: Timeline, Dashboard, and Techniques.

**Timeline:**
The header shows the user’s current stress level. The body of the timeline records the user’s activity posts. The number in the circle at the left side of each posting panel shows the corresponding stress level. Different color shades of circles represent different levels of stress. Lighter colors mean lower stress levels while darker colors mean higher stress levels. (Fig. 19)

**Dashboard:**
Users can access their current stress level and other related body data via the Dashboard. The left part of the top panel shows the current stress level number, and the diagram on the right part of the top panel shows the stress level more visually as a meter. There are two lines in the diagram, a yellow one and a red one. If the stress level reaches the yellow line, the user needs to pay attention and lower their stress level if possible. If the stress level reaches the red line, it indicates the stress level is extremely high and that the user needs to take immediate action to relieve it. The other four tracked body metrics are showed in the bottom panel. (Fig. 20)

**Techniques:**
Different stress relief advice is provided on this screen based on the user’s current stress level. It could be music and book recommendations, helpful stress-relieving actions, or nearby places to visit. (Fig. 21)
Users can access their stress level changes through the icon on the right corner of the Home screen. With the tabs on the top, users can view their stress level changes hourly, daily, and monthly (Fig. 22 – 24). The line chart presents the stress level fluctuations during the day, while the bar chart illustrates the average stress level of a day or a month. Users are able to drag the X-axis left to right to see different times. Listed below the graph are the other tracked body metrics and user’s activities during the time they selected to view. When users swipe the screen up, the graph will be hidden to allow more space for other information. However, the X-axis will still be locked towards the top to indicate the associated time (Fig. 25).

Figure 22 Stress Trend – Hourly

Figure 23 Stress Trend – Daily

Figure 24 Stress Trend – Monthly

Figure 25 Stress Trend – X-axis Locked
The second function on the navigation bar is Friends. Users are able to view friends’ activities in event tabs and view the corresponding stress level of the posting in the little circles to the left of the names (Fig. 26). Users can also find their friends easily in the list tab. All contacts are saved in alphabetical order and there is a horizontal bar on the right side of each name indicating the real-time stress level of that person. Users can use the search tool at the top of the screen to easily search their friends’ names (Fig. 27). The icon on the upper right corner of the screen can be used to add new friends. By clicking the name tab of their friends, users can view their friends’ personal pages, (Fig. 28) and they can also chat with them using the icon on the upper right corner of each personal page (Fig. 29).

![Figure 26 Friends – Activities](image)

![Figure 27 Friends – List](image)

![Figure 28 Friends – personal page](image)

![Figure 29 Friends – Chatting](image)
The third section on the navigation bar is Relax. It has two parts: Therapy and Recommendation. Under the Therapy tab, users are able to do meditation, see stress-relieving images from the chill gallery, and get effective tips for relaxation (Fig. 30). Users can also get recommendations for books, music, and great places nearby based on their preferences under the Recommendation tab (Fig. 31).
There is a list of meditation themes for users to choose from, and they can view the video and listen to the sound of the theme they choose (Fig. 32). Users can also pause the video and just play the sound to meditate. Users can change between different themes by swiping the screen left and right (Fig. 33). There will be an instruction screen for the user’s first time entering the meditation screen (Fig. 34).

Figure 32 Meditation Themes

Figure 33 Meditation

Figure 34 Meditation – Instruction
Chill Gallery uses the concept of guided imagery relaxation through picturing a soothing environment. Users can choose illustrations that represent pleasant and serene spaces to help imagine a scene where they would feel relaxed. They can view the illustrations one by one in the cards mode (Fig. 35) or view them all at once in the list mode (Fig. 36). When an image is selected, it will enlarge to full screen and play simple animation (Fig. 37).
Different types of relaxation tips are classified by stress level ranges. The suggested tips that will be shown depend on the user’s current stress level. Tips can be recorded and saved in the user’s timeline after they have completed them (Fig. 38).

Figure 38 Relaxation Tips
There are three books that will be recommended each day based on the user’s average stress level and their preferences (Fig. 40). By clicking each book, the user can view the introduction, save it to their book list, and get the link to purchase the book (Fig. 41).

Music will be randomly chosen and played according to the user’s preferences. Users can add music they like to their lists (Fig. 42).
The application provides many different options of places to go. The user can search locations at the top, and places or events near the location will be shown below based on the user’s preferences (Fig. 43). By clicking each place, the user can view detailed information and save it to their list (Fig. 44).

Figure 43 Place Recommendation  Figure 44 Place Information
The fourth section on the navigation is the Account. It has three parts: Profile, Device, and Settings. In the Profile, the user can manage their personal information, change their avatar, and update preferences about stress relief methods like what colors they like, preferred music types, favorite book genres, and places they like to go. They can also view their list of books, music and places that they’ve saved (Fig. 45).

Users can manage all settings related to the wearable device in the Device tab, including how frequently they want to track their stress levels, whether or not they want to allow alarms, and choose time zone and country (Fig. 46).

The application’s general settings can be changed in Settings. The quick introductory tutorial — named Eazy Tour — can be found and viewed here at any time (Fig. 47).
The first screen of the wearable device shows time, date, temperature, and the user’s real-time stress level. A blue bar in the middle also visually illustrates the stress level (Fig. 48).

The user can swipe to the right to see the screens for the other four tracked body metrics. By spinning the wheel, the corresponding data will display in the center (Fig. 49). Users can swipe again to see stress relief techniques on the next screen. These techniques are based on the user’s current stress level and shown on different cards which can be viewed and selected by scrolling up and down. Once the user taps a card, they can view the more detailed information on their phone (Fig. 50).

When the user’s stress levels go beyond a normal range, the device will send an alarm and ask them if they want to cope with their stress right away. Users can then click “See Techniques” and either view the relax techniques on the phone or choose “Maybe Later” if they don’t want to handle their stress at that time (Fig. 51).
After the completion of the interface design, the thesis candidate started on naming the app and designing the app icon. The name and the icon needed to communicate the concept of the application and be consistent with the visual style of the interface. The brainstorm of the naming started with several keywords whose meanings were based on “relax” and “track.”

### Names based on “Relax”:
- Relaxime — Relax + Me
- Relave — Relax + Live
- Feasy — Feel + Easy
- Chillax — Chill + Relax
- iChill — i + Chill

### Names based on “Track”:
- Easy Track
- Stress Tracker
- Stress Watcher

After collecting feedback and advice from tutors and people who have grown up in different cultures, I decided on “Eazy Track” for the application name, because it has a straightforward yet innovative meaning.

The design of the icon is based on the app’s name and the color palette of the interface design. It’s designed in the shape of a capital E and Z, which represent the name Eazy Track, and the green arrow in the middle of the logo stands for tracking. The primary color is a blue gradient, which maintains consistency with the interface design. The final logo works systematically with the content and the entire design of the application.

*Figure 52 App Logo*
Since the knowledge of building a fully functional mobile application is beyond the Visual Communication Design studies program, the thesis candidate had two options for the final project: an interactive prototype or a demo video. Although it might have been easier and more efficient to create a demo video, an interactive prototype would have more user interactions and experiences, meaning it could provide more accurate usability testing results. Therefore, the final form of the project is an interactive prototype, which was created in a prototyping application named Principle.

Principle is a helpful tool for designing animated and interactive working prototypes. It allows designers to create various transient animation and gestures, which met my requirements for the final prototype. Principle also generates files that can be opened on any Mac computer, allowing multiple users to easily experience this project during the usability testing.

![Prototype Development – 1](image)
Figure 54 Prototype Development – 2

Figure 55 Prototype Development – 3
**Usability Testing**

The usability testing and evaluation played a crucial role in improving the user experience of the project. Two tests, face-to-face observations and a survey questionnaire, were conducted during the design and prototyping process. There were also continuous refinements made throughout the entire evaluation. People ages 18 – 33 from different backgrounds were included in the process. The goal of the tests was to see if first-time users could easily understand the app’s entire working flow, data visualization results, and interface layout.

The first usability testing was conducted after finishing the interactive prototypes. The participants included ten students from RIT and 5 peers from Mango Languages. They were asked to complete the following six tasks:

1. Go through the onboarding process.
2. Browse your activities and post a status to your timeline.
3. View your current stress level and other tracked body metrics and see how your stress level changes over time.
4. Find two methods you like for relieving stress—one in the Therapy section and another in the Recommendation section.
5. View your friends’ timelines and chat with them.
6. Manage your Account Settings.

The participants were told that the application they were testing was only a prototype and not a fully functional product. After the test, the participants were asked to fill out a survey form to evaluate the application (Fig. 55).
Eazy Track Usability Test Survey

* Required

Email address *

Your email

What is your age range? *

- 18-23
- 24-29
- 29-33
- Other:

Do you think there's a need for this app? *

1 2 3 4 5

Definitely not Yes, absolutely

My overall feeling about the interaction of the application is... *

1 2 3 4 5

Frustration Satisfaction

How is the method of structuring and organizing content within the application? *

1 2 3 4 5

Confusing Very Clear

What is your feeling of the visual design of the application? *

1 2 3 4 5

Not effective for me Nice and Clean

Dose the application bringing an idea from concept to concrete via prototype? *

1 2 3 4 5

Definitely not Yes, absolutely

I would like to use the product to know and relieve my stress *

1 2 3 4 5

Completely Disagree Completely Agree

Any commons and suggested improvements?

Your answer

Thank you!

Send me a copy of my responses.
Evaluation and Refinements

In summary, the test results were very positive. 95% of the participants felt the overall design and idea were very effective and could be a helpful tool in their daily life. 80% of participants rated the interaction design a level 4 on scale where level 1 represents frustration and level 5 represents satisfaction. 75% of them said the content is clear and easy to navigate, while 25% were a little confused when using the app. 100% of the respondents said the design of the interface was visually attractive. 90% felt the application bringing an idea from concept to concrete via prototype. 85% expressed a willingness to use the application to track and relieve their stress.
Some valuable comments and suggestions for improvements were collected from the participants.

Advantages:
- “The app looks wonderful, nice color palette, good idea overall!”
- “The overall design looks comfortable and peaceful, while keeping it consistent.”
- “It is very appealing visually and is also very calming!”

Disadvantages:
- “The icons at the top of the Home screen are confusing, not clear what they are represented for.”
- “The instruction of the navigation isn’t clear enough and can’t be reviewed later from somewhere else.”
- “There are too many steps of the onboarding process, if there’s a button to skip or a progress bar shown would be great.”
- “Some text is too small to read.”
- “It’s better to use less text.”
- “Rather than the carousel view, would like to browse all the chill images at one time.”

After carefully reading, analyzing and taking these suggestions into consideration, several design details were revised and the interaction on the prototype also adjusted for better performance.
Based on the usability test results, several design revisions were made.

Many participants indicated that they felt confused about what each icon at the top of the Home screen meant, so the thesis candidate replaced the original icons with text to make it clearer for users to switch between different functions.

Moved the stress circle to left beside the user’s name (Fig. 58).
Another user tutorial was created with introduction pages and detailed explanations about each icon on the navigation bar. Like before, this tutorial could be reviewed anytime on the Account Settings page, named Eazy Tour.
A progress bar and a skip button were added at the top of the user preference setup screen. This screen allows users to see which step they are at and gives them the ability to skip this stage (Fig. 60).

In order to provide a mode to view all the chill images at one time, a switch tab with a Cards and a List button was added. This lets users switch between either mode as they browse the images (Fig. 61).
Creating a demo video was one of the valuable feedbacks received from the thesis defense. Because the application has lots of functions, the prototype is very detailed and requires many clicks to experience the whole application. In this case, a demo video allows people to get a better understanding of the entire process at the thesis show. It showcases the user interfaces and main features of the application, and it also shows how the mobile app works with the wearable device.

The video was developed in After Effects.
Figure 63 Video Implementation
After finishing the design and prototype revisions and developing the demo video, the thesis candidate presented the project at the 2016 Visual Communication Design Winter Thesis Show. This was when the second usability test was conducted with an evaluation survey (Fig. 64) that asked for feedback on the performance of the following aspects:

1. Usability
2. Interaction Design
3. Information Architecture
4. Visual Design
5. Prototype Development

According to the positive feedback collected from the thesis show, most people were interested in the project. After making revisions, the design-related aspects all had better performance, including visual design, clarity of information, interface layout and usability. The feedback also indicated that the demo video and prototype demonstrated the app function clearly and thoroughly. Nine out of ten people said they would like to download and use this app if it were launched.

Also, many great suggestions were received for further improvement of the project. These are some items that can be accomplished and developed in the future:

- Trying to involve the timeline more in terms of relieving stress
- Creating more chill images
- Adding a function for finding a therapist
- Generating weekly reports based on the user’s stress level changes and presented with professional analyses and advice
- Allowing users to save their favorite or most frequently used methods to relieve stress, and making that an easy-to-use option
## EazyTrack

### Evaluation Form

<table>
<thead>
<tr>
<th>Category</th>
<th>Question</th>
<th>Rating Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usability</td>
<td>Can the application be used to achieve the end goal?</td>
<td>Disagree 1 2 3 4 5</td>
</tr>
<tr>
<td>Interaction Design</td>
<td>Does the application making a pleasant and non-frustrating experience?</td>
<td>Not at all 1 2 3 4 5 Yes, definitely</td>
</tr>
<tr>
<td>Information Architecture</td>
<td>How is the method of structuring and organizing information within the application?</td>
<td>Ineffective 1 2 3 4 5 Effective</td>
</tr>
<tr>
<td>Visual Design</td>
<td>How is the look and feel of the application?</td>
<td>Ineffective 1 2 3 4 5 Effective</td>
</tr>
<tr>
<td>Prototype Development</td>
<td>Does the application bringing an idea from concept to concrete via prototype?</td>
<td>Disagree 1 2 3 4 5 Agree</td>
</tr>
</tbody>
</table>

**Any another comments?**

- 
- 
- 

**Thank You!**

*Figure 64 Evaluation Survey*
Conclusion

This thesis project aimed to increase people’s awareness of their stress levels and help them to manage it in an easier, more intuitive and accessible way. It also sought to fill the gap in existing wearable health products and to solve problems from both the user experience and visual communication perspectives. According to the results of the usability testing, the project met this goal. The design system takes many different user scenarios into consideration, helping users to always find an appropriate method to relieve their stress. This project can be of great help to the current general public, and it also provides a solid model for UI/UX design in mental health applications.

This project provided the thesis candidate with a great experience in visual and user experience design. Throughout the process of designing and developing this project, visual design and prototyping skills were enhanced, and project management skills were improved. For instance, the candidate learned about appropriate visual styles for people with stress issues, how to design and visualize data in multiple time frames, and how to use Sketch and Principle to design an application from mockup to prototype.

Throughout the entirety of this project, the thesis candidate realized that multiple rounds of testing and revisions were necessary in order to design an application with an optimal user experience. Most importantly though, this experience allowed for the further exploration of how design can be used to solve problems and improve people’s physical and psychological health and overall, their quality of life.
Appendix

A. Original Thesis Proposal
B. Target Audience Interview Form
C. Usability Test Form
D. Evaluation Form with Results
Original Thesis Proposal

Mobile Stress Reliever
Exploring Next-Gen Technology and User Experience Design to Help Relieve Stress

Kaiyi Dong
Thesis Planning
Rochester Institute of Technology
College of Imaging Arts and Science
School of Design
Visual Communication Design
October 23, 2016
Thesis Proposal for Master of Fine Arts Degree

Thesis Title
Mobile Stress Reliever
Exploring Next-Gen Technology and User Experience Design to Help Relieve Stress

Submitted by
Kaiyi Dong
23 October 2014

Committee Approval
Chief Advisor
Daniel DeLuna, Associate Professor
School of Design
College of Imaging Arts & Sciences

Signature of Chief Thesis Adviser

Date

Associate Advisor
Chris Jackson, Professor
School of Design
College of Imaging Arts & Sciences

Signature of Associate Advisor

Date

Associate Advisor
Shaun Foster, Assistant Professor
School of Design
College of Imaging Arts & Sciences

Signature of Associate Advisor

Date

MFA Thesis Candidate
Kaiyi Dong

Signature of Candidate

Date
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Abstract

In our daily lives, people can be stressed for many different reasons, and in this competitive society, with the pace of people’s lives speeding up, people usually don’t have enough time to deal with their stress, which result in an increasing number of people overlooking their mental health. Those who always feel stressed may not be efficient at their job, creating a vicious circle that accentuates even more worries. In more serious cases, this may cause distress – a negative stress reaction. Distress can lead to physical symptoms including headaches, upset stomach, elevated blood pressure, chest pain, and problems sleeping. Research suggests that stress also can bring on or worsen certain symptoms or diseases. So finding a way to help people get rid of their stress is very important.

The objective of this thesis is to use wearable technology and social media to appeal to more people to pay attention to their mental health. Some methods of relaxation will also be introduced to help release stress.

For the final thesis project I will explore user interface design and user experience design to build a Next-Gen concept for a mobile application. The project will be a prototype for a interactive mobile application that works in conjunction with a wearable product that monitors body functions for helping people know their stress level and cope with it.

Key words

Interaction Design
User Experience Design
Stress
Wearable Technology
Relaxation Therapies
Social Media
Next-Gen
Problem Statement

Modern life is full of hassles, deadlines, frustrations, and demands. For many people, stress is so commonplace that it has become a way of life. But beyond a certain point, stress starts causing major damage to people’s health, mood, efficiency, relationships, and quality of life. People usually don’t have enough time to deal with their stress, which results in an increasing number of people overlooking their mental health.

On the other hand, it is necessary to get concern from families and friends when someone is stressed. Sharing with others about stress is an efficient way to relieve it. Friends help people deal with stress better. Some studies show that people with close friends have a greater ability to fight disease than people who are solitary.

Currently, there are some existing applications about guiding people to relieve stress, but in most cases, the methods used are monotonous and the design of the user interfaces are not friendly and have a bad visual style. As a result, they’re not commonly used.

For my thesis, I’m going to design a user interface (UI) concept for a user friendly interactive mobile application used in conjunction with a wearable technology smart device to visualize tracked data related to a user’s stress level.

To the broader community, through visualization of data and interactivity, my thesis will help people understand and cope with their stress in an easier, interactive and accessible way.

To the field of design, I’m going to explore information design to visualize tracked data and emotional user experience design for relaxation techniques.

**Selected Key Questions:**

1. What do people want to do most when they are stressed?
2. What is the relationship between visual, psychologies and relaxation?
3. When people are in intensive stress, what kind of visual communication is suitable for them?
4. When people are in intensive stress what do they desire to express?


Survey of Literature

**Journal Articles**

**Positive Mental Health and Mental illness.**
By Gilmour, Heather
Health Reports, Vol. 25, September 2014

This article based on the Health Continuum Short Form administered in the 2012 Canadian Community Health Survey – Mental Health (CCHS-MH), research the probability of people aged 15 or older having mental disorders.

**Stress Level Measuring Device**
By Takara Atsunori

A stress level measuring instrument compares a base-line pulse value with other pulse values of the subject. The instrument includes a device for calculating the mean pulse frequency, a device for determining the basic pulse frequency, a device for comparing the basic pulse frequency and the base-line pulse frequency, a device for calculating the stress level, and a display.

**A Comparison of Stress Management Techniques in Stress Reduction**
By Vosmera, Michelle Schreckengost

This research was conducted to determine if stress management programs are effective in reducing stress, if various stress management techniques are more effective, and if stress management classes should be an educational requirement.

**Emotion Control, Stress and Healthy**
By Lok, Chiu-Fen, Bishop, George D.

This study examined the relationship of four types of emotional control, rehearsal (mental rumination), emotional inhibition, aggression control, and benign (impulse) control, to perceived stress as well as psychological and physical health complaints.
## Survey of Literature

<table>
<thead>
<tr>
<th>Journal Articles</th>
<th>Fantasy Relaxation Technique</th>
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<tr>
<td>By Gunnison, Hugh</td>
<td></td>
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This article examines the benefits of fantasy relaxation technique (FRT). Effective modification of unwanted behavior; Self-relaxation aspect of FRT; FRT for college student with anxiety.

<table>
<thead>
<tr>
<th>Shavasana — Relaxation Technique to Combat Stress</th>
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<tbody>
<tr>
<td>By Geetanjali Sharma</td>
</tr>
<tr>
<td>Volume 11, Issue 2, April 2007, Pages 173–180</td>
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The present study was undertaken on 60 young adults of both sexes to determine if Shavasana could be an effective tool to combat stress. Stress was experimentally induced by cold pressor test (CPT) and effect was observed by recording its effect on cardio-respiratory parameters viz. systolic blood pressure, diastolic blood pressure, pulse rate, respiratory rate and rate pressure product. The study was divided into three setups.

<table>
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<th>Next-Generation Wearable Networks</th>
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<tbody>
<tr>
<td>By Ashok, R.L., Cincinnati Univ</td>
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<tr>
<td>Computer (Volume:36, Issue: 11</td>
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Increased research in microelectronics, wireless communications, and human-computer interaction, particularly augmented-reality applications, has made a symbiotic system technically feasible.

<table>
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<tr>
<th>Entwining Psychology and Visual Arts: A Classroom Experience</th>
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</thead>
<tbody>
<tr>
<td>By Sara Bahia, José Pedro Trindade</td>
</tr>
</tbody>
</table>

The purpose of this paper is to show how activating perception, imagery and creativity facilitate the mastery of specific skills of visual arts education. Specifically, the study aimed at answering two questions: How can teachers enhance visual and creative expression; and What criteria should be used to evaluate specific learning of visual arts skills?
Survey of Literature

Books

Feeling good: the New Mood Therapy
By Burns David D.

This book outlines the remarkable, scientifically proven techniques that will immediately lift your spirits and help you develop a positive outlook on life.

This is Your Brain on Joy: A Revolutionary Program for Balancing Mood, Restoring Brain Health, and Nurturing Spiritual Growth.
By Daniel G. Amen, Earl Henslin

This book will help people take advantage of the latest neuroscience research—combined with biblical insights—to bring more joy and love into your life.

EFT and Tapping for Beginners: The Essential Eft Manual to Start Relieving Stress, Losing Weight, and Healing
By Rockridge Press
Callisto Media an imprint of ePUB Direct on Jun 27, 2013

This book introduce the EFT is a simple, effective, noninvasive, and drug-free way to use your body’s own healing mechanisms to overcome physical and emotional pain.

Mental Health Today: A handbook
By Catherine Jackson, Kathryn Hill

This is a handbook for all those new to mental health work or seeking to develop their skills who want to know more about underpinning policies and best practice. Based broadly on the standards in the national service framework for mental health, the book presents contributions from some of the leading figures in the mental health arena.
Survey of Literature

Books

The Myth of Mental Illness: Foundations of a Theory of Personal Conduct
By Thomas S. Szasz
HarperCollins, Jul 12, 2011

This book revolutionized thinking about the nature of the psychiatric profession and the moral implications of its practices. By diagnosing unwanted behavior as mental illness, psychiatrists, Szasz argues, absolve individuals of responsibility for their actions and instead blame their alleged illness.

Mental Health and Personalisation: Themes and Issues in Recovery-Based Mental Health Care and Support
By Daisy Bogg
Pavilion Publishing on Aug 17, 2010

This book claims personalization in mental health services is a subject that encompasses many areas and meanings, from social inclusion principles through to a simple direct payment, and as such this handbook aims to assist service users, carers and professionals to work through the themes and issues as related to recovery based mental health care and support.

Creative Visualization: Use the Power of Your Imagination to Create What You Want in Your Life
by Shakti Gawain
New World Library on Nov 1978

Creative Visualization is the art of using mental imagery and affirmation to produce positive changes in your life. It is being successfully used in the fields of health, business, the creative arts, and sports, and in fact can have an impact in every area of your life.

Natural Relaxation Techniques
by Miriam Kinai
Miriam Kinai on Jul 1, 2013

Natural Relaxation Techniques teaches you how to relax and relieve stress using biological and organic stress management strategies.
Survey of Literature

**Books**

**Minding the Body, Mending the Mind**
by Joan Borysenko
Perseus Book Group on Nov 13, 2007

This book continues to be a classic in the field, with time-tested tips on how to take control of people’s own physical and emotional wellbeing.

**Design For Interaction**
By Dan Saffer

This book describes effective approaches to interaction design, with information on developing a design strategy, conducting research, analyzing the data, creating concepts, and testing and deployment.

**Seductive Interaction Design**
By Stephen P. Anderson

This book takes a fresh approach to designing sites and interactions based on the stages of seduction. This designed book examines what motivates people to act

**The UX Book: Process and Guidelines for Ensuring a Quality User Experience**
By Rex Hartson, Pardha Pyla
Elsevier, 2012

Process and Guidelines for Ensuring a Quality User Experience aims to help readers learn how to create and refine interaction designs that ensure a quality user experience (UX). The book seeks to expand the concept of traditional usability to a broader notion of user experience; to provide a hands-on, practical guide to best practices and established principles in a UX lifecycle; and to describe a pragmatic process for managing the overall development effort.
Design Ideation

Structural Flowchart
Design Ideation

Using Process Flowchart

- Tacking Stress
- Connect to APP
- Analysis Data
- Get Result
- Recommendations
- Share With Others
- Therapy
Design Ideation

Mood Boards
Design Ideation

Personal Style
Design Ideation

Sketches
Design Methodology

**Target Audience**
The target audience for my thesis project will focus on people who are often under stress. The specific audience is students and office workers.

**Approach**
I will research mental health and relaxation therapy, focus on the relationship between visual, psychology and relaxation. In addition, I will study and analyze the existing design project about relaxation therapy.

1. Make a process flow chart of the application.
2. Finalize the content and design the wireframe of the application.
3. Design the user interface and other visual elements.
4. Make the interactive part of the app.
5. Design the demo video of the application.
6. Upload the demo to collect feedbacks.
7. Make adjusts based on the feedback.

**Project Description**
My project will be a prototype for an interactive mobile application. It works in conjunction with a wearable product that monitors body functions for helping people know their stress level and cope with it. The product will track people’s stress level and visually illustrate the data using information design in the application. The items to be tracked will be heart rate, breath rate, muscle tension and skin moisture, and then the app will produce a comprehensive visual result that in the values in an infographic. When users have more data recorded, the application will generate graphic charts to show the change of users’ stress level, which can help them to know and manage their stress.

Based on user’s stress level, the application will make some recommendations to users for relaxing themselves via their personal preference, like films, music, books, activities or peaceful parks nearby. People can sync the application with their Facebook or Twitter account, so the application can have the access to know the users’ preference.
Design Methodology

**Project Description:** For the social part, if users are linked to friends through social media, they can see their friends’ stress level (users can set permissions), so that people can know if their friends are stressed or not, or send a message or picture to express concern. The application will also list other users who have the similar stress level, so they can make new friends or comfort each other. Users can also post status or photos to record their feelings.

Users can choose the way they like to relieve their stress based on their conditions. I would like to create some relaxing scenes, I prefer to create abstract pictures based on the knowledge of shape symbolism and color therapy, and allow users to imagine the scene they like. The pictures will be categorized by different colors for users to choose from through their color preference. There are also some nature sound to help users to relax, and there will be a guide to eye exercises – it can protect and release the stress of eyes.

**Project Description:** There will be four parts of the application:

- **Body tracking:**
  Get to know users’ stress levels

- **Social function:**
  Know other people’s mood status
  Show concern to friends
  Post status or photos with friends

- **Recommendation:**
  Recommend films, music, books, activities, parks, malls on sale, good restaurants and so on.

- **Relaxing by self**
  Abstract visual scripts
  Nature sound
  Eye exercises
# Implementation Strategy

| Format               | A prototype for a mobile application concept  
<table>
<thead>
<tr>
<th></th>
<th>A motion graphic demo approximately 1 minute in length</th>
</tr>
</thead>
</table>

**Deliverables**

This thesis project requires understanding and caring about stressed people and also a solid knowledge of graphic and interactive design. I have received a large amount of training in graphic design, and I can handle the skills in interactive design. I have done deep research on my subject. So I have both research and technical foundation to design and develop this thesis project.

For the developing and testing of the application, the design of the project will be accomplished by utilizing a variety of software applications. The application icon, graphic elements, interface will be created in Adobe Illustrator and Photoshop. For the body tracking product, I will design the user interface. The prototype of the application will be designed in Flash. The whole concept of the project will be a approximately 1 minute demo video designed in Adobe After Effects. Printed works, including the posters and cards will be laid out in Adobe InDesign.

The project’s breadth and scope will cross the fields of psychology and visual communication design, which requires strategies and skills to manage the visual translation into two academic fields. I will use the design as a tool to translate the complex physical and psychological concepts into simple visualized information while keeping the veracity and accuracy of the contents.

| Software         | Adobe Creative Suite  
|------------------|------------------------|
|                  | Illustrator            
|                  | Photoshop              
|                  | After Effects           
|                  | Flash                  
|                  | InDesign                |
Dissemination

The project will be promoted through many different venues. I will upload the demo video to the website and distribute it via Twitter, Facebook, Google+ or any other social media.

The thesis defense will be reformatted as a presentation for conferences such as Imagine RIT in May, 2015.

I will also leave printed copies with RIT Archives and the Graduate Visual Communication Design program as well as submit electronic copies to the RIT Archives, Digital Media Library.

Lastly, I will submit my final project to design competitions as well. These may including the following:

The Mobileys Awards
IxDA – Interactive Design Awards
HOW Magazines Interactive Design Awards
Adobe Design Achievement Awards
iF communication design award
IMA – Interactive Media Awards
Evaluation Plan

When I complete the visual design of the project, the effectiveness of the application will be evaluated with a concept test. I will find a small group of target audience members to participate in the test. The interface and the layout will be showed on the mobile device to them, and questionnaires will be given with specified questions for their feedback and their expectations for this project. Revisions will be made based on the feedback of this test.

After the completion of the demo video, I will upload it to Internet, and distribute it via social media to get feedback. Another questionnaire relevant will be given to the viewers to get feedback. Qualitative and quantitative data will be collected from the questionnaire.

Also my project will be displayed at Imagine RIT in May, 2015, for both demo and interactive part, I will interview students and other faculties after they have a experience on the project. Feedback will continue to be collected via online questionnaires and other contacts. Refinement will be made based on the feedback.
## Pragmatic Considerations

<table>
<thead>
<tr>
<th>Budget</th>
<th>Thesis Show</th>
<th>Dissemination</th>
<th>Publishing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Purchasing research materials</td>
<td>Entry fees for design competitions</td>
<td>Proposal (2)</td>
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<td>Hiring proofreaders for my thesis</td>
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<td></td>
<td>$ 300</td>
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## Timeline

**Thesis Timeline**  
By Kayi Dong  

### Thesis Title: Mobile Stress Reliever  
Exploring Next-Gen Technology and User Experience Design to Help Relieve Stress

<table>
<thead>
<tr>
<th>Month</th>
<th>October</th>
<th>November</th>
<th>December</th>
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<th>February</th>
<th>March</th>
<th>April</th>
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<td>Finalize coping methods section’s content</td>
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Bibliography


http://www.arttherapyblog.com/


http://www.helpguide.org/articles/stress/stress-management.htm

http://www.lef.org/protocols/emotional-health/stress-management/page-01
### Thesis Project
**Target Audience Interview Form**

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<tr>
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<td></td>
<td>Gender:</td>
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<table>
<thead>
<tr>
<th>Questions</th>
<th>What is your attitude to stress?</th>
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<tbody>
<tr>
<td></td>
<td>What will you do when you feel stress?</td>
</tr>
<tr>
<td></td>
<td>What are your needs when you are under high stress?</td>
</tr>
<tr>
<td></td>
<td>Do you use any app to relieve your stress?</td>
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<tr>
<td></td>
<td>What kind of design style do you like for a stress relief app?</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Another Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Thank You!</th>
</tr>
</thead>
</table>
Usability Test Form

Eazy Track Usability Test Survey

* Required

Email address *

Your email

What is your age range? *

- 18-23
- 24-29
- 29-33
- Other:

Do you think there's a need for this app? *

1 2 3 4 5

Definitely not

Yes, absolutely

My overall feeling about the interaction of the application is... *

1 2 3 4 5

Frustration

Satisfaction

How is the method of structuring and organizing content within the application? *

1 2 3 4 5

Confusing

Very Clear

What is your feeling of the visual design of the application? *

1 2 3 4 5

Not effective for me

Nice and Clean

Dose the application bringing an idea from concept to concrete via prototype? *

1 2 3 4 5

Definitely not

Yes, absolutely

I would like to use the product to know and relieve my stress *

1 2 3 4 5

Completely Disagree

Completely Agree

Any commons and suggested improvements?

Your answer

Thank you!

Send me a copy of my responses.

SUBMIT
# Evaluation Form with Results

## EazyTrack

### Evaluation Form

<table>
<thead>
<tr>
<th>Category</th>
<th>Question</th>
<th>Rating</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Usability</td>
<td>Can the application be used to achieve the end goal?</td>
<td></td>
<td>Disagree 1 2 3 4 5 Agree</td>
</tr>
<tr>
<td>Interaction Design</td>
<td>Does the application making a pleasant and non-frustrating experience?</td>
<td></td>
<td>Not at all 1 2 3 4 5 Yes, definitely</td>
</tr>
<tr>
<td>Information Architecture</td>
<td>How is the method of structuring and organizing information within the application?</td>
<td></td>
<td>Ineffective 1 2 3 4 5 Effective</td>
</tr>
<tr>
<td>Visual Design</td>
<td>How is the look and feel of the application?</td>
<td></td>
<td>Ineffective 1 2 3 4 5 Effective</td>
</tr>
<tr>
<td>Prototype Development</td>
<td>Does the application bringing an idea from concept to concrete via prototype?</td>
<td></td>
<td>Disagree 1 2 3 4 5 Agree</td>
</tr>
</tbody>
</table>

**Any other comments?**

---

**Thank You!**
# EazyTrack Evaluation Form

Kaiyi Dong  
Visual Communication Design

<table>
<thead>
<tr>
<th>Category</th>
<th>Question</th>
<th>Rating (1-5)</th>
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<td>Usability</td>
<td>Does the application can be used to achieve the end goal?</td>
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</tr>
<tr>
<td>Interaction Design</td>
<td>Does the application making a pleasant and non-frustrating experience?</td>
<td>3</td>
</tr>
<tr>
<td>Information Architecture</td>
<td>How is the method of structuring and organizing information within the application?</td>
<td>5</td>
</tr>
<tr>
<td>Visual Design</td>
<td>How is the look and feel of the application?</td>
<td>4</td>
</tr>
<tr>
<td>Prototype Development</td>
<td>Dose the application bringing an idea from concept to concrete via prototype?</td>
<td>5</td>
</tr>
</tbody>
</table>

**Any another comments?**

I like the concept of the application. I’d probably download it.  

However, if it’s stress-relaxing, it’s better to use less text.  

It’s a bit too detailed/complicated for me (I have to decide what to choose all the time).  

Overall, I really like the idea.  

The song goes really well with the video. It would be great to make it more relate to less stress.  

**Thank You!**
EazyTrack

Evaluation Form

Kaiyi Dong
Visual Communication Design

12/21/2016

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
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<tr>
<td>Usability</td>
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<tr>
<td>Interaction Design</td>
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<td>How is the method of structuring and organizing information within the application?</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Prototype Development</td>
<td>Does the application bring an idea from concept to concrete via prototype?</td>
<td>5</td>
</tr>
</tbody>
</table>

Any other comments?

See above comments.

Thank You!
EazyTrack
EazyTrack Evaluation Form

Kaiyi Dong
Visual Communication Design

<table>
<thead>
<tr>
<th>Category</th>
<th>Question</th>
<th>Rating</th>
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<tbody>
<tr>
<td>Usability</td>
<td>Does the application can be used to achieve the end goal?</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
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<td>Does the application making a pleasant and non- frustrating experience?</td>
<td>1 2 3 4 5</td>
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</tr>
<tr>
<td>Prototype Development</td>
<td>Does the application bringing an idea from concept to concrete via prototype?</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

Any another comments?

App. looks wonderful, nice color palate, good idea. Overall, I can see how this could help relieve stress. I would caution how stress levels are "gamified" because it looks like you are rewarded for having higher stress levels, like the calming, GIFS a lot!

Thank You!
# EazyTrack Evaluation Form

**Kaiyi Dong**  
Visual Communication Design

| Category                  | Description                                                                 | Rating
|---------------------------|-----------------------------------------------------------------------------|-------
| Usability                 | Does the application can be used to achieve the end goal?                   | 5     
| Interaction Design        | Does the application making a pleasant and non-frustrating experience?      | 4     
| Information Architecture  | How is the method of structuring and organizing information within the application? | 4     
| Visual Design             | How is the look and feel of the application?                               | 5     
| Prototype Development     | Does the application bringing an idea from concept to concrete via prototype? | 5     

**Any other comments?**  
Great idea, I think a few items can be made clearer, such as how the timeline works in term of relevance stress.

**Thank You!**
EazyTrack
Evaluation Form
Kaiyi Dong
Visual Communication Design

Usability
Does the application can be used to achieve the end goal? 1 2 3 4 5

Interaction Design
Does the application making a pleasant and non-frustrating experience? 1 2 3 4 5

Information Architecture
How is the method of structuring and organizing information within the application? 1 2 3 4 5

Visual Design
How is the look and feel of the application? 1 2 3 4 5

Prototype Development
Dose the application bringing an idea from concept to concrete via prototype? 1 2 3 4 5

Any other comments?

Thank You!
EazyTrack Evaluation Form

Kaiyi Dong
Visual Communication Design

Usability
Does the application can be used to achieve the end goal? 1 2 3 4 5

Interaction Design
Does the application making a pleasant and non - frustrating experience? 1 2 3 4 5

Information Architecture
How is the method of structuring and organizing information within the application? 1 2 3 4 5

Visual Design
How is the look and feel of the application? 1 2 3 4 5

Prototype Development
Dose the application bringing an idea from concept to concrete via prototype? 1 2 3 4 5

Any another comments:

Like the color palette, looking comfortable & peaceful, while keeping it consistent.

Nice job!

Thank You!
# EazyTrack Evaluation Form

Kaiyi Dong  
Visual Communication Design

<table>
<thead>
<tr>
<th><strong>Usability</strong></th>
<th>Does the application can be used to achieve the end goal?</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
<td><strong>Interaction Design</strong></td>
<td>Does the application making a pleasant and non-frustrating experience?</td>
<td>1</td>
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<tr>
<td><strong>Information Architecture</strong></td>
<td>How is the method of structuring and organizing information within the application?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td><strong>Visual Design</strong></td>
<td>How is the look and feel of the application?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td><strong>Prototype Development</strong></td>
<td>Does the application bringing an idea from concept to concrete via prototype?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Any other comments?  

It is very appealing visually and is also very calming. I like the colors and cute graphics.

Thank You!
## EazyTrack Evaluation Form

Kaiyi Dong  
Visual Communication Design

<table>
<thead>
<tr>
<th>Component</th>
<th>Question</th>
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<td>Interaction Design</td>
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<td>Information Architecture</td>
<td>How is the method of structuring and organizing information within the application?</td>
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<tr>
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<tr>
<td>Prototype Development</td>
<td>Does the application bringing an idea from concept to concrete via prototype?</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Any other comments?  

I like the whole style of this project. It is so fresh and a lots of detail functions.

Thank You!
# EazyTrack Evaluation Form

**Kaiyi Dong**  
**Visual Communication Design**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
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<td>5</td>
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<td>Prototype Development</td>
<td>Does the application bringing an idea from concept to concrete via prototype?</td>
<td>5</td>
</tr>
</tbody>
</table>

Any other comments?

Nice icon, really like it!!!

Thank You!
# EazyTrack Evaluation Form

**Kaiyi Dong**  
Visual Communication Design

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Usability</strong></td>
<td>Does the application can be used to achieve the end goal?</td>
<td>4</td>
</tr>
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</tbody>
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**Any another comments?**

- Very clean & neat UI Design.  
- Love your illustrations!  
- Good Work!!

**Thank You!**
Bibliography


