Wearther: An iOS Mobile Application For Women

Ting Kang

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Wearther:
An iOS Mobile Application
For Women

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Master of Fine Arts in Visual Communication Design
School of Design | College of Imaging Arts and Sciences
Rochester Institute of Technology

December 12, 2013
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| Thesis Approval        |                                             |
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Table of Contents

05 Abstract
06 Introduction
07 Review of literature

12 Process
12 Target Audience
12 Persona
13 Flow Chart
14 Wireframes & Workflow
15 App Icon
17 Color
19 Typography
21 Logo
23 Navigation
24 Photo Editing
25 Section 1: Dress Time
26 Section 2: Wardrobe
27 Section 3: Log
28 Section 4: Settings
29 Issue
31 Prototype

33 Usability testing
35 Conclusion
36 Bibliography

37 Appendix
Abstract

Have you ever wondered what to wear for the current weather and later when you go outside you confirm that you were too optimistic about your ability to endure the cold?

Wearther: an iOS Mobile Application for Women is an iOS Mobile Application designed to help women choose the proper outfit that matches the weather outside. It is an interaction design and visual design project.

Unlike other dressing related application, “Wearther” is not a clothing organizer or a fashion adviser. It is not a weather app either, although it emphasizes weather. The concept of this project is to analyze real fabric information and then to suggest proper clothing from the user’s personal wardrobe based on weather condition. The application provides two options for the user to add their clothing items into the Wardrobe section: from photo and scan barcode. Users can set the time that they are preparing outfits for, and then the application will provide a pool of proper clothing based on the weather condition at the selected time. After wearing the outfit, the user can log how she felt about the outfit. The application will then learn from the user’s feedback to adjust and provide more personalized suggestions next time.

Keywords
Weather; Clothing; Outfit; iOS; Mobile Application

Thesis Project URL
http://txk8922.cias.rit.edu/thesis/fin/wearther.html
Scientists at the National Center for Atmospheric Research (NCAR) conducted a national wide survey and found that around 90% of adult Americans obtain weather forecasts on a average frequency of more than three times each day. This survey also shows that many people use weather forecasts for deciding what to wear (“Weather forecasts”, 2009).

In recent years, weather forecasts have become more and more thoughtful and human. They not only predict temperature but also report air quality and offer travel tips according to the weather condition. Some even suggest people wear a shirt or sweater tomorrow. However, the proper type of clothing is the most detailed information the weather forecasts are able to provide to help people in dressing decision-making. They are not able to directly suggest suitable clothing based on individual’s wardrobe. It still leaves the individual herself to choose clothes and match them with the temperature, which can be a time-consuming and tiresome process.

This is the major headache I have to cope with every night before going to bed. Sometimes I am too tired and want to go to sleep as soon as possible, I postpone the decision making to the next morning. But the price is I will have to get up a few minutes earlier. In an attempt to solve this headache for myself and for people who are like me, I came up with the idea of designing a mobile application to help people find the proper outfit to wear at their selected time based on the weather condition easily and enjoyably.

The project consists of four stages: research, design, prototype, and evaluation. The design stage is the main focus. Through the user interface design and the user experience design, this project intends to deliver aesthetically pleasing experience with high-level of usability. The end product is an interactive iPhone/iPod touch prototype created with Axure.
Review of Literature

Mobile Application

**Cloth**
By Clothes Minded

Cloth is an iOS application for the iPhone and iPod touch that people can use to save, categorize, and share their favorite outfits.

The latest version of this app added a new feature that shows outfits based on the temperature. And its blurb is “Download Cloth and start organizing your wardrobe today.” These show that the original intention and core of this app is to keep an organized record of people’s daily dressing and share it with others; “weather” is just an auxiliary feature. Its main role is a wardrobe organizer. In contrast, the core of my thesis project is the relationship between “weather” and “clothing”. Thus, the emphasis and starting point are different.

The idea of my project is to analyze the fabric information of the clothing stored in the wardrobe section and then suggest suitable clothing based on the weather condition; whereas, the Cloth app simply pulls users’ previous dressing history. It records the temperature at the time the user is taking the picture of what she/he is wearing. This app tags that weather information to the picture. When the user would like to know what to wear, the app checks the temperature metadata associated with the user’s previous outfits and displays those that matches the current temperature.

Due to the way the Cloth app functions, there are two limits in suggesting outfits: first, user must store the picture of their dressing at that present moment -- not before-hand or afterwards -- because what the app tags is the weather of the moment the user takes the picture and this is the metadata it will use later to filter outfits when making suggestions; secondly, since the app only pulls user’s previous dressing history, this means the suggestions the user gets from the app is always what they already wore in the past and will not get new combinations.
In contrast, my project suggests tops, bottoms, and shoes and then allows the user to switch between different items to build the outfit herself dynamically; whereas, the Cloth app only shows the picture of whole outfits that you wore: there is no outfit building functionality.

Also, my application can learn from the user’s feedback to adjust suggestion. Users are asked to log how they feel after they wear the outfit: whether it's too cold, slightly cold, just right, slightly warm, or too warm. The longer my application been used, the more accurate and personalized the clothing suggestion will be. The Cloth app does not have such intelligence.

Books

**Fabric for fashion: a comprehensive guide to natural fibers:**
Clive Hallett; Laurence King Publishing 2010

This book provides comprehensive information about both plant and animal textiles. It is detailed yet easy to be understood without having a lot of knowledge of the fashion industry and clothing materials. The book covers the whole production process from manufacturing to final product, from classics to today's top design line, and from raw material to finishing products. The variety of the descriptions and photographs introduced the fabric world to me and made me more comfortable with creating an application related to fabric and clothing.
Tapworthy: Designing Great iPhone Apps  
*Josh Clark; O'Reilly Media 2010*

This book is a perfect “manual” for mobile App designers especially for iOS App designers. This book covers the whole process from initial ideas to the finished design. It also includes all the background secrets of famous App, like Facebook App. It helped me understand the importance of the user experience and guide me through every tap of my App.

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Sketching user experiences:  
**getting the design right and the right design**  
*Bill Buxton; Elsevier/Morgan Kaufmann 2007*

This book covers the best process to design and encourages me to keep trying by using the simplest method to get the max user enjoyment. It inspired me with innovation, management, and communication of every design process. Many great creative ideas and examples are used to illustrate the importance of the design flow. This book generates the best explanation from a sketch to a prototype.
Designing the User Interface:  
Strategies for Effective Human-Computer Interaction  
Ben Shneiderman, Catherine Plaisant; Prentice Hall 2009

This book focuses on the HCI (Human Computer Interaction). It is full of good examples and great tips. This book also covers the latest recent interaction designs, which gives a hinge of what’s popular and what’s not and why. The wide variety of topic makes it stand out for other interaction designing tools. I learned practical principles and guidelines and applied them in producing high quality interface designs for my thesis project.

Websites

Axure RP Training  
http://www.axure.com/learn

It is the official series of video and text tutorials offered by Axure, and this is where I learned Axure step by step. The core training comprises of six tutorials: “My First Prototype”, “Working With Pages”, “Widgets & Masters”, “Building Interactions”, “Introducing Dynamic Panels”, “Conditions, Values, & Variables”. It is definitely a perfect resource that leads Axure beginners into the Axure world.
Axure Forum

This is where I continued my study of Axure for creating an iPhone app prototype. Axure forum is a vigorous community where Axure users help each other, share tips, tricks and examples, discuss feature requests, and report bugs. There is a sub-forum dedicated to Mobile Prototyping.
Process

Target Audience

This application targets at people who often could not quickly establish an accurate connection between temperature in the form of abstract numbers and outfits in the form of concrete and physical items. Since normally females tend to be more concerned about dressing, the main group of user is expected to be females.

Gender: female
Age: 16 – 40
Language: English
Device: iPhone or iPod touch.

Persona

Name: Emma Geller
Gender: female
Age: 20
Language: English
Device: iPhone or iPod touch.
Occupation: Sophomore at Rochester Institute of Technology, majoring in Sociology and Anthropology
Interests: Reading, Writing, Traveling, Watching movies, and Shopping.
Weakness: Easy to get panic on seeing numbers.
Strength: Attention to detail and Responsible; Good at writing sensitive prose.
A sentence describing herself: I am a person with alldoxaphobia.
Flow Chart

The main structure of this application is four sections: Dress Time, Wardrobe, Log, and Settings.

Figure 2: sketch of the flow chart
Wireframes and Workflow

Figure 3: first version of the wireframes & workflow
After the wireframes were done, I started to create the app icon as a brainstorming starting point for the visual design. The theme of the project is weather and clothes, so the main idea I had when creating the logo was to combine the weather icon (rain, cloud, or sun) with the hanger as the abstract interpretation of the application. And since I wanted to pursue minimalist as the style of the whole project, I tried to use simple shapes in my logo design. Below are the variations I created. Later I flipped the hanger hook to the right to match the direction of the letter “r” in the name of the app (WeatherWear). After I chose the color scheme, I changed the color of the app icon to the main cyan color. Also, later when iOS 7 was released with a new grids system for app icons, I redrew the icon around the new grids system and tweaked the color a little bit to match the iOS 7 icon look.

Figure 4: App Icon iterations
Figure 5: App Icon displayed on Home Screen of Apple iPhone 5s
The target audience of this app is young females from 16 to 40, thus I decided to use feminine color scheme. I also asked myself what kind of color tone I, as one of the users, expected to see in an app about weather and dressing. The answer was: something bright that brings me a good mood. Then, I opened the folder on my Pinterest that I’m using to store pictures and colors I like, and gained inspiration from the following pictures:

Figure 6: Images from Pinterest. Creative Commons license
I selected cyan a color as the main color, because it feels refreshing, cool, and clean, which is how I feel about weather and nature. Salmon is used for “call to actions” (CTA) buttons, because the big contrast between this color and cyan can easily draw people’s attention. I also chose light cyan and light grey as background colors and dark brown as the text color.

Figure 7: My Initial Color Palette

Figure 8: Final Swatches of the App
Typography

I was looking for a typeface (or two font families at the most) that is thin, simple, elegant, a little fun and relax, but not too round, and a little condensed, so I picked nine typefaces to try out.

The main color I chose was cyan, so I needed to see if the thin typeface was still easy to be read when it’s white on cyan and in small size, and if it was still elegant and clean in big display size. Also, the app is about temperature, I needed to test the glyph of the typeface. Last, I needed to check how it looked as a body text in dark brown on light grey.

After all the comparisons, I decided to use Roboto Regular and Light as the main body text and District Pro Thin as the big display text (marked in the box). Please see the figure on the next page.
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Figure 9: typefaces candidates
Logo

The app icon was created, but only a graphic shape is not enough for branding purpose. The full logo also needed a text title on it to shout the brand out. Since this app is all about suggesting suitable outfits according to the weather condition, “WeatherWear” is the most proper title for it. Also it should reflect the color scheme of the app, so I decided to use cyan or “Weather” and salmon for “Wear”. Those two colors are the main colors throughout the whole app.

However, when it came to the logo design stage, I realized it’s not easy to place “Weather-wear” and the icon together. I first put the icon and the title in two lines, but the title looked too long comparing with the icon. I tried to reduce the font size to make it narrower, but still the whole logo felt unbalanced (figure 10). Then, I tried to break “Weather-wear” and stack “Weather” and “Wear” (figure 11). The length problem was solved but then the logo seemed bloated vertically. Finally, I decided to combine “Weather” and “Wear”, considering their first three letters happen to be the same. When I put the icon and “Wearther” together, I felt this was the logo I was looking for (figure 12).
Navigation

In native mobile applications, there are two approaches for the main navigation: side slide-out navigation and bottom tab bar. The reason I chose bottom tab bar over slide-out navigation was that this application did not have more than five sections and thus a slide-out navigation seemed like overkill. And, I used lines and inverted colors to match the iOS 7 design style.

Figure 14: Bottom Tab (active tab: Dress Time)

Figure 15: Bottom Tab (active tab: Wardrobe)

Figure 16: Bottom Tab (active tab: Log)

Figure 17: Bottom Tab (active tab: Settings)
Photo Editing

I took the pictures of the clothing items myself and retouched them in Photoshop.

Figure 18: Photo Before Editing

Figure 19: Photo After Editing
**Section 1: Dress Time**

This is the first screen the user would see after she logs in or signs up. The current location and current weather condition of this location are shown by default. The user can swipe left to view the weather of a later time (up to next 24 hours). By tapping “Get Suggestions”, the user sets the time and the clothing suggestions provided on the next screen will be based on the weather condition of the time she selected.

![Figure 20: Dress Time Screen](image-url)
Section 2: Wardrobe

This screen shows every item the user added into this app and the items are grouped according to their types first and then categories. The user can tap the photo to view and edit its detailed information. If there is no item, the user can tap the plus icon on the header bar and will be taken to the “Add An Item” screen where it provides two options for the user to add an item: by taking photo or by scanning barcode. If the user chooses to scan barcode, the fabric information will be obtained directly through barcode; if chooses to add from photo, the user will need to enter the fabric information manually.

Figure 21: Wardrobe Screen
Section 3: Log

This screen records the outfit the user used and in what weather condition the outfit was wore. The user can tap the calendar icon on the header bar to navigate to a log of another day. If she wants to know the last time she wore the exact combo she is choosing, she can tap “Last time I wore this outfit” to view the log on that date. The most important feature in this section is getting feedback from the user on the outfit she chose. Tapping on “How I Feel” will take the user to the “How I Feel” screen where the user can rate the entire outfit as well as let the application know whether she felt too cold, slightly cold, just right, slightly warm, or too warm in each item. She can also add additional comments or thoughts about the outfits.

Figure 22: Log Screen
Section 4: Settings

On this screen, the user can choose to upload a picture as her profile image. Unit of measurement conversion is provided. The user can also turn on or off the location services. Tapping on “Log Out” button will sign out of the current account and take the user to the Log In/Sign Up screen.

Figure 23: Settings Screen
Issue

The main issue I encountered at the UI design stage was the “How I feel” screen. The next page shows the versions I created.

For a quick differentiation, I decided to use colors to represent different feelings: the main cyan for “too cold”, the main salmon for “too warm”, light cyan for “slightly cold”, light salmon for “slightly warm”, and white or brown for “just right”.

Comparing Figure 24-1 with 24-2 and 24-3, within limited spacing tapping requires more efforts than sliding, so I chose to use sliders to provide an easier way for the user to give feedback on how they feel with the outfit. The problem with Figure 24-2 is that the user may be confused by the color chips. She may think this is asking about the color of the clothing item. Thus, I decided to use gradient.

After several iterations under professors’ guidance, I finally came to the best treatment (Figure 24-7). The rectangle marker with the triangle pointer echoes the selector on the Dress Time screen as well as that on the Outfit Suggestion screen.
Prototype

Because a fully functional native mobile application requires advanced programming skills that are outside the scope of the Visual Communication Design studies, the final product of my thesis is an interactive prototype created with Axure RP Pro 7 Beta. Axure is one of the leading UX and Prototyping tools in the industry.

Unlike other convectional methods that produce static images and simply link them together, Axure is much more than just clicks. It can bring the designs to the next level by creating highly functional, rich prototypes with conditional logic, dynamic content, animations, drag and drop, and calculations. One can select an event like a OnClick, OnMouseEnter, or OnKeyUp, add a case and choose an action like Open Link, Set Widget Value, or Show Panel, and configure the options for the action. Also, Axure prototype is generated in HTML and JavaScript, and thus can be viewed in IE, Firefox, Safari, Chrome, or any other browsers. iOS app prototypes created in Axure can be viewed on desktop or directly on iPhone/iPod touch/iPad.

It is because of its powerfulness and capability, creating a highly functional, rich prototype in Axure is not as easy as most people think. To develop interactive prototypes in Axure, one will need to have a good understanding of the tool and its features. Comparing with other simple click-through mockups prototyping tools, Axure requires more logical thinking.
I started to learn Axure by watching the one-hour core training video tutorials first and then ten advanced tutorials on its official website. In the advanced section, there are a video tutorial and several articles specifically for iPhone App Prototype. It is a good starting point in learning how to create an iPhone App Prototype, but it is limited for me in that my project involves more complex interactions.

When I was creating the prototype and stumped by some complex interactions, I first searched for similar questions been asked and answered in the Axure forum on Axure website. If it didn’t return any related results, I posted my questions. I discussed technical issues with new learners and also got inspiration from experienced Axure Fu Masters. Axure staff also reply posts and create Axure examples to help Axure users tackle puzzles.

Sometimes when trying to mimic complex interactions, it can be even harder to develop it in Axure than actually code it. To the left is a screenshot of my attempt to make the slider on “How I Feel” screen work like a real slider. Besides the sliding movement, I also needed to make sure the user won’t be able to drag the handle off the slider bar and I wanted the handle to be positioned to a certain area when user drops the handle. Also, when the slider is positioned over a specific area, the text under the slider bar needs to change based on the position. After long time of thinking, researching, and trying, I figured it out and am very satisfied with the result.

Another issue I had with prototyping in Axure was the relatively long loading time of the prototype. Although Axure is strikingly different from other prototyping tools which are fully dependent on images, a large amount of images are still required as part of the assets. This means high quality images affect the loading time of the prototype. One of the feedback I got from the user testing was about the long loading time. After I optimized the images and cleaned up the logic codes, the performance of the app was largely improved. The elements appear on the screen progressively only when the internet speed is very slow.
User Testing

Location: Coffee Bean & Tea Leaf store in El Segundo, CA
Time & Sessions:
session 1: noon to 1:23 pm on Nov 18
session 2: 12:18 pm to 1:27 pm on Nov 19
Participants: 20 females 24 – 38
   Attempt with 36 people, 9 refused,
   7 not iOS and iPhone users.
Participants Occupation: Professionals
Device: iPhone 5
Testing protocol: Retrospective Think Aloud
Cost: $200 ($10 Coffee Bean Gift Card for each participant)

Process
1. Approached target audience.
2. Briefly introduced myself and the project.
3. Inquired about the mobile operating system and device the user
   normally uses. Continued the testing with iOS and iPhone user only
   (Since the app is designing for and running on iOS and iPhone, testing
   with people who are unfamiliar with this operating system and device
   will affect the accuracy of the testing results).
4. Explained the purpose, task, and process of the testing.
5. Sat down with one user at a time and watched her interacting with
   the app.
6. Interviewed the participant.

Task: browse the Wearther app and use it to choose an outfit for a
weather condition and log how you feel about it.
Task completion time: 1 – 3 minutes
Testing Participants were informed the application they were testing
were a prototype not a fully functional live product.
Interview questions

1. Do you think there’s a need for this app? (if not, why?)
   - 13 participants expressed “Yes. I love this idea.”
   - 3 participants said “Yes. Some people would need it.”
   - 4 participants said “No, because there’re some similar apps out there.” (after explaining the difference between the existing similar apps and the Wearther app, two participants were convinced and looking forward to try the actual product)

2. Will you use it when it’s out? (if not, why?)
   - 10 said yes. 6 said it depended on whether it’s free or not. 4 said no and they have a good idea on what they want to wear.

3. Do you find it easy to use?
   - 16 said yes. 4 wished the loading time is less.

4. Do you like the look and feel of it?
   - 18 said yes.

5. Are you willing to recommend it to others?
   - 17 said yes.

6. Any questions or comments?
   - It would be good to be able to share the outfits.

To sum up, the test results were quite positive. 90% of the participants felt the app was useful and helpful; 80% showed interest in installing the app on their device once it is on the market; 80% said the app was easy to navigate and use; 90% found the app visually appealing; 85% expressed their willingness to recommend the app to others. Based on the results, I optimized the images that were used in the prototype and the loading time was thus reduced. Also, in the future I would like to add social networking into this app so that the user can share her selected outfits with others.
Conclusion

Wearther: An iOS mobile application for Women is designed to provide young females suggestions of proper outfit to wear in specific weather condition based on the analysis of the fabric information of the clothing. The goal of this project is to make the “outfit choosing according to weather” process easier and enjoyable. Based on the user testing results, I believe that I achieved this goal.

In the future, I would like to extend this project by adding social network elements: sharing with others to give and get feedback - detailed comments or just likes; posting the chosen outfit or log to users’ social networks, or simply sharing via email or messages.

Also, I sensed its commercial value. Suitable outfits linking to merchant sites can be suggested to the user, when she doesn’t have suitable clothing stored in the Wardrobe (section of this app) according to the weather condition. Based on the ratings collecting on the “How I Feel” section and the frequency of wearing the same outfit/clothing, this app can analyze the habit and taste in dress of the user and then suggest similar clothing items for purchase, which is another possible business opportunity.

Last but not least, I plan to improve my programming skills and hope one day I could develop this application by myself.
Bibliography

Books


Online Resources


Thesis Proposal

Weather-Wear:
An Interactive Mobile Application For Women
Weather–Wear: An Interactive Mobile Application For Women

Ting Kang

Computer Graphics Design
School of Design
College of Imaging Arts and Sciences
Rochester Institute of Technology
# Thesis Proposal
for the Master of Fine Arts Degree

Rochester Institute of Technology  
College of Imaging Arts and Sciences  
School of Design  
Computer Graphics Design

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| Committee Member | Professor Jeffrey Sonstein  
Associate Professor, Information Sciences & Technologies |
Abstract

My thesis *Weather–Wear: An Interactive Mobile Application For Women* is an interaction and visual design project.

Unlike other existing similar projects which either merely pull people’s dressing history or simply display fashion outfits on professional models, the concept of this project is to analyze real fabric information and then suggest proper clothing from the user’s personal wardrobe based on real-time weather data. It will learn from the user’s feedback to adjust suggestion.

The end product will be a mobile application that visually displays the proper clothing and allows users to build their outfit(s) to wear based on the current temperature. Through user interface design and user experience design, this project will deliver aesthetically pleasing user experience with high-level usability.

My goal is to utilize interaction and visual design skills I have learnt to help people find the proper outfit(s) for the current weather conditions easily and enjoyably.
A nationwide survey conducted by scientists at the National Center for Atmospheric Research (NCAR) has found that close to nine out of ten adult Americans obtain weather forecasts an average of more than three times each day. The survey result also shows that many people use weather forecasts for deciding what to wear ("Weather forecasts", 2009).

However, that is more often a tough decision to make. Weather Forecasts do not directly suggest proper clothing based on each individual's wardrobe. Although hourly “feels like” temperature is provided, it is the individual herself's own job to coordinate the Arabic number with her outfits in the wardrobe. Take me as an example, I still find myself wondering and hesitating in front of my closet about what to wear after checking the current temperature. It can be impossible to know if the clothes are properly for the temperature, until one puts them on and goes outside to confirm. Thus, matching the outfit with the temperature is time-consuming and troublesome.

In an attempt to solve this problem, I would like to design an interactive mobile application to help people find the proper outfit for the current temperature easily and enjoyably. My design problems will be how to represent and organize information in such a way as to facilitate perception and understanding (Information Design), how to specify the appropriate mechanisms for accessing and manipulating task information (Interaction Design), and how to make the application aesthetically appealing and engaging (Visual Design) as well as easy and enjoyable to use (User Experience Design). My research will focus on the relationship of user interface design to users’ interaction with the application.
Survey of Literature

Existing work

Cloth
By Clothes Minded

Cloth is a mobile application for users to save, categorize, and share their favorite outfits. Their latest update enables the app to show outfits based on the temperature outside.

How this app works is that whenever the user snaps a shot of what she/he is wearing, the app will automatically tag the picture with the current temperature. When picking out an outfit, the user can select the weather tab, and the app will check the temperature metadata of your previous outfits and display those that match the current temperature.

My thesis project differs from the Cloth app in three main aspects:

1. The concept of my project is to build an algorithm to suggest clothing based on its fabric information and real-time temperature; whereas, the Cloth app simply pulls users’ previous dressing history.

In my project, the fabric information is collected when the user is adding an item into her wardrobe. User has two options to add clothing: scan barcode or snap a picture of the item. If choose to scan barcode, the fabric information is obtained directly through the barcode; if choose to snap a picture, the user needs to enter the fabric information manually.
2. My project will suggest separate items for upper body, lower body, and feet and then allows the user to switch between different items to build the outfit herself/ herself dynamically; whereas, the Cloth app only shows the picture of whole outfits that you wore: there is no outfit building functionality.

3. My project will learn from the user’s feedback to adjust suggestion. A poll such as “was your outfit too warm, cold or just right?” will be given to the user at the end of the day. The longer my application has been used, the more accurate and personalized the clothing suggestion will be. The Cloth app does not have such intelligence.

Weatherobe
By iSource S.A.

Weatherobe is another clothing suggesting mobile app. However, the outfit suggestion is not based on individual’s wardrobe. Pictures of models in fashion outfits are displayed according to the weather. Also, it is based on daily weather forecasts rather than real-time weather data. Thus, Weatherobe does not directly suggest the proper clothing based on her/his own wardrobe for the current weather conditions. User is unable to build the outfit either.

Web Application

Daily Dress Me
http://dailydressme.com/

Daily Dress Me is basically a version of Weatherobe. Pictures of professional models in fashion outfits are displayed for one week according to the weather. Daily Dress Me does not directly suggest the proper clothing based on her/his own wardrobe for the current weather conditions. User is unable to build the outfit either.
**Wevther**

http://www.wevther.com/

Wevther is another web application suggesting separate items based on that day’s weather. Similar to Daily Dress Me, the items being suggested are not from the user’s own wardrobe. Wevther also incorporates online shopping. When clicking on each item, the user will be taken to the merchant’s website where the user can buy the item. To a large extend, the purpose of Wevther is to advertise clothing rather than suggest what to wear. My project will also provide such feature, but the user has the choice to opt out.

**Weather Wardrobe**

http://www.weatherwardrobe.com/

Weather Wardrobe is a lightweight weather based clothing suggesting web application. It only suggests the proper category of the clothing in plain text. No image is provided.

**Resources**

**Books**

*Fabric for fashion: a comprehensive guide to natural fibres*

Clive Hallett; Laurence King Publishing 2010

This book introduces clothing industry vocabularies and explains the particular qualities of different fabrics. It will be a very good introductory book and reference for me to understand different fabrics and to analyze fabric information of clothing.
Tapworthy: Designing Great iPhone Apps
Josh Clark; O'Reilly 2010

This book takes the reader through the entire design process of creating a tapworthy app. It will help me develop my ideas from initial concept to finished design. I also will be able to learn how to build an effortless user experience that rewards every tap and to explore the secrets of designing for touch.

Sketching user experiences: getting the design right and the right design
Bill Buxton; Elsevier/Morgan Kaufmann 2007

This book covers sketching and early prototyping design methods and contains full of case studies, examples, exercises, and projects. It will help me think outside of the box and build quick experience prototypes by using innovative techniques.

Designing the User Interface: Strategies for Effective Human-Computer Interaction
Ben Shneiderman, Catherine Plaisant; Prentice Hall 2009

The book is often considered as “the bible of UI”. It covers theoretical foundations, expert reviews, usability, and numerous UI examples. By reading this book, I will be able to learn practical principles and guidelines needed to develop high quality interface designs.

Mobile JavaScript Application Development
Adrian Kosmaczewski; O'Reilly 2012

This book introduces the most powerful JavaScript frameworks available
Today: jQuery Mobile, Sencha Touch, and PhoneGap (Apache Cordova). By reading this book, I will further determine which framework is best for my project and will also learn tips, tricks and tools to test and debug my application.

Online Resources

**HTML5 - Develop HTML5 Windows Phone Apps with Apache Cordova.**

This article introduces Apache Cordova and explains how it can be used to develop applications for Windows Phone. Although I may not build the application for Windows Phone eventually, I can gain basic knowledge of Apache Cordova from this article. Apache Cordova is a platform for creating native cross-platform mobile applications using HTML, css, and JavaScript.

**Inspired UI - mobile ui patterns**
http://inspired-ui.com/

This website is a showcase of mobile ui patterns - splashscreens, login, sign up, profiles, chat, walk throughs etc. It is a good place to get inspiration for my visual design of my thesis.

**Mobile Patterns**
http://www.mobile-patterns.com/

This website is a library of iOS and Android application screenshots. It is another good GUI resource to reference.
Design Ideation


Information & Interaction Design
For the Information & Interaction Design process, I will take the User Centered Design approach. I will first study and specify the context use case, specify the user and organizational requirements, then produce design solutions, and evaluate designs with users against requirements.

Visual Design
The principal in this application is clothing and the purpose of this application is to make the clothing deciding process easy and enjoyable, therefore, the visual design should be clean and at the same time engaging. I will explore the typographical and minimalistic design style for this application.
Below are my initial wireframe samples:
Methodological Design

My thesis will be an interactive mobile application project.

The project consists of four phases: research, design, development, and evaluation. Design phase is the main focus.

Because a fully functional native mobile application requires advanced programming skills that are outside the scope of the Computer Graphics Design studies, the final product will be a prototype of a native application with fully completed visual design and interaction design.

I will use Apache Cordova to package the prototype written in HTML, CSS, and Javascript. Real-time weather data will be parsed. I plan to include five pieces of clothing for upper body, five pieces of clothing for lower body, and five pairs of shoes (fifteen items in total) to demonstrate the functionalities. Users will have the choice to build five sets of outfits.
Implementation Strategies
Target Audience

Since normally females tend to be more concerned about dressing, the main target audience will be female users.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Primary target group will be age of 16 to 40</td>
<td>English-speaking people</td>
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Dissemination

I will put the project on my portfolio website and will look for opportunities to cooperate with companies to commercialize it.

I will also submit my project to major design competitions.

American Design Award  
Student Annual Design Contest  
International Design Award  
HOW Interactive Design Awards
Evaluation Plan

Empirical Usability Testing method will be used to evaluate this project. Real users will be recruited to sit down and play with my project. I will be watching how they interact with this application. Retrospective Think Aloud Protocol will follow afterwards.

Evaluation will be carried out twice. One is at the completion of Information & Interaction Design. A prototype of wireframes will be evaluated with real users; the other is at the completion of the Visual Design. The final prototype with fully completed design will be evaluated with real users.

Design iterations will be made based on users’ responses, experiences, and problems.
## Pragmatic Considerations

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<tr>
<th>Item</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Research Books</td>
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<td>Web Hosting Service</td>
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<td>Usability Testing</td>
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<td>Documentation</td>
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<td>Competition entry fees</td>
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# Timeline

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<tbody>
<tr>
<td>1h March, 2013</td>
<td>Thesis Proposal draft</td>
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<td>User Profile</td>
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<td>Contextual Task Analysis</td>
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<td>Thesis Proposal final version</td>
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<td>Wireframe Design</td>
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<td>Workflows Design</td>
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<td>Conceptual Model Mockups</td>
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<td>Typography, Logo, Icon</td>
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<td>May–August, 2013</td>
<td>GUI Design</td>
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<td>October, 2013</td>
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<td>Usability Testing</td>
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<tr>
<td>November, 2013</td>
<td>Thesis Defense</td>
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<tr>
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<td>Thesis Show</td>
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Bibliography

Books


Online Resources


