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About Me

My name is Ava Chen and I am a Graphic Communication major concentrating in UX/UI and minoring in Psychology. I am passionate in creating usable and efficient solutions that not only satisfy user’s needs, but keeps them wanting to learn more. I will receive my Bachelors of Science in 2022. I hope to carry out my mission as I work full-time at Roblox Corporation after graduation.
Abstract

Smartwatches such as the Apple Watch and Samsung Watch have become a vital bridge between today’s fast-paced digital and physical world. According to a recent report done by the International Data Corporation, smartwatches grew 54.3% in 2018, signaling to developers that these devices aren’t going anywhere. Because of the smartwatch’s popularity, there is an opportunity to develop innovative solutions for apps on the Apple Watch. As a UX/UI concentration at Cal Poly, I have only designed interfaces for web and mobile devices, allowing me to have more space for additional functionality. I want to present myself with a new challenge by designing a smaller interface that only allows for limited features. I intend to apply the concepts and skills I have learned in the Graphic Communication program to develop efficient and usable solutions.
Problem Statement

Currently there is no Gmail app for the Apple Watch. Other competitors such as Outlook and Apple Mail have already developed applications for the watch interface. As of 2020, Gmail had over 1.8 billion users worldwide and continues to grow as the world’s #1 email platform. Furthermore, the Gmail app on iPhone ranks #1 in Productivity on the Apple App Store. It is surprising that Gmail has not developed a watch interface, especially since over half their user base are younger individuals (18-29) who are at least familiar with utilizing the Apple Watch.
Project Objectives

Project Management
Create a Gantt Chart and WBS to visualize the timeline of this project. Check off subtasks as I go. Ensure that I am submitting my assignments, activities, and check-ins on time.

Accountability
Host feedback sessions with mentor to get advice on certain areas and expert approval. Execute user testing for my app to identify frictions in the user experience.

Research
Identify Apple Watch trends and behaviors. Observe other competitors and make note of features, user complaints, interactions, etc. Conduct a user survey that gathers user behaviors on the Gmail app.

Design
Create a fully prototyped, high-fidelity design that matches Gmail branding guidelines. Demonstrate knowledge in Figma. Conduct user testing and get feedback.
Timeline

Weeks 1-4
• Project Planning
• Background Research
• Mind Maps
• User Survey
• Competitive Analysis
• User Journey Maps

Weeks 4-5
• Affinity Maps
• Clustering
• How Might We Questions
• Action Items

Weeks 6-7
• Branding Guidelines
• Information Architecture
  High Fidelity Wireframes
• Senior Project Presentation

Week 8
• Task-Based User Testing
Phase 1: User Research
Background Research

A study done by Creative Strategies investigated user behavior on the Apple Watch. Less than 20% of Apple Watch owners use their device to make phone calls and only 50% of users report answering phone calls on their device. Many of the users regularly check messages and emails as well as track workouts.

On the other hand, less than 50% of users use their devices to send texts or scribble messages. With the lack of a keyboard, users have limited options to respond to a message or email on their Apple Watch. Some of these options include preprogrammed responses and voice input for text entry, but these can be inaccurate and difficult to use. The most efficient method of text input has been handwriting, where the user writes the word with their finger on the screen. However, some users reported strongly disliking this feature because of the higher chance of errors.

In conclusion, common behavior on the Apple Watch consists of quick glances that last no more than a few seconds. This means that users would rather passively read notifications than interact with the interface. Users are hesitant to use input methods or the microinteractions offered because there is a high chance for permanent errors.
Why does the Apple Watch stand out among its competitors such as LG Urbane, Fitbit, and Android Wear? These watches have many similarities including battery life, customizable watch faces, and a fairly accurate heart monitor. The difference is in how the devices behave in order to give the user information on-the-go. The Android Wear attempts to predict what the wearer sees around them, which can annoy users and provide inaccurate results. On the contrary, the Apple Watch takes a more passive approach and only notifies the user when they receive a notification. Wearable technology should give the user just enough information to keep them in the loop but not too much, so the user’s eyes are not glued to their wrist.

Researchers are concerned with whether or not the smartwatch industry is sustainable in the long term. According to a study that follows 79 smartwatch novices over a 14-month period, users who have abandoned their smartwatch reported that there was a mismatch of expectations for the technology and what it can actually offer. Consumers perceive smartwatches as useful based on their similarities with the smartphone. Novice users tend to use their Apple Watch for timekeeping purposes whereas expert users prefer notification capabilities.
During my research phase of the project, I felt overwhelmed with the various aspects I wanted to tackle for this project, especially in such little time. Utilizing the mind map strategy helped me organize a collection of information and structure it in a meaningful and efficient way. Seeing my diagram helped me prioritize what aspects I wanted to focus on the most for this project.
User Survey

Email Notification Behavior

Apple Watch Users

• Apple Watch users will most likely read the sender & subject of the email notification.
• Apple Watch users will hardly ever use the interactions available to them.
• “What changes based on whether or not the information is important would be following up on my actual phone or laptop to read more/ respond”

Non-Apple Watch Users

• 38% of respondents would read the sender, subject, and body of the email notification
• “To be able to read it (the email), even if it’s very small and not so comfortable, sometimes emails are urgent and it can be helpful to read it now to prepare the answer when we could write it”
User Survey

Microinteractions

Apple Watch Users

• Apple Watch users will hardly ever use the interactions available to them.
• Only 2 of 11 respondents actually flagged/deleted emails on their Apple Watch

Non-Apple Watch Users

• 59% of respondents who did not own an Apple Watch wanted to perform some type of action when receiving an email notification on their Apple Watch
• “Mark read/unread, a quick reply option, and maybe a pin option? or remind me later?”
User Survey

Input Options

Apple Watch Users

• 25% of respondents mentioned input options as a helpful way to respond to emails on the go.
• “The screen size would be too small for a keyboard, so a voice-to-text recognition for ‘writing’ emails on the go through the smartwatch would be a plausible substitute.”

Non-Apple Watch Users

• 0% of survey participants respond to emails on their smartwatch

Image Credits: iDownloadBlog
Competitive Analysis

Competitors

- **Outlook Mail**
  - 4.9 stars
  - 9k ratings

- **Apple Mail**
  - 2.6 stars
  - 5.5k ratings

- **Spark**
  - 4.7 stars
  - 61.8k ratings

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<th>Outlook Mail</th>
<th>Apple Mail</th>
<th>Spark</th>
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<td><strong>Notifications</strong></td>
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<td>View Message button</td>
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| **Inbox Interface**    |              |            |       |
| Shows multiple inboxes |              |            |       |
| Displays various categories (example: unread, flagged, VIP) |              |            |       |
| Inbox emails include email sender, email subject, and body text |              |            |       |
| Individual email interactions: Load More, Reply, Reply all, Mark as Unread, Flag, Archive, Delete |              |            |       |
| Note: Outlook include Note to Self and integrates the calendar into the app |              |            |       |

| **Input Methods**      |              |            |       |
| Dictation              |              |            |       |
| QWERTY (Quicktype) Keyboard |            |            |       |
| Scribble               |              |            |       |
| Emails                 |              |            |       |
| Suggestions            |              |            |       |
| Apple Watch Keyboard   |              |            |       |
| Choose Language        |              |            |       |
| Send a new message     |              |            |       |
| Customize reply subject|              |            |       |

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|                        |              |            |       |
| Customize notifications  |              |            |       |
| Choose which inbox to receive notifications from |              |            |       |
| Includes Mark as Read    |              |            |       |
| Includes Flag            |              |            |       |
| Includes Reply All       |              |            |       |
| Includes Archive         |              |            |       |
| Includes Delete          |              |            |       |
| Includes Dismiss         |              |            |       |
| View Message button     |              |            |       |
| Note: No button for dismiss but can swipe down to dismiss |              |            |       |

| **Input Methods**      |              |            |       |
| Dictation              |              |            |       |
| QWERTY (Quicktype) Keyboard |            |            |       |
| Scribble               |              |            |       |
| Emails                 |              |            |       |
| Suggestions            |              |            |       |
| Apple Watch Keyboard   |              |            |       |
| Choose Language        |              |            |       |
| Send a new message     |              |            |       |
| Customize reply subject|              |            |       |

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|                        |              |            |       |
| Customize notifications  |              |            |       |
| Choose which inbox to receive notifications from |              |            |       |
| Includes Mark as Read    |              |            |       |
| Includes Flag            |              |            |       |
| Includes Reply All       |              |            |       |
| Includes Archive         |              |            |       |
| Includes Delete          |              |            |       |
| Includes Dismiss         |              |            |       |
| View Message button     |              |            |       |
| Note: Spark shows pinned messages first. Snooze feature is enabled |              |            |       |

| **Input Methods**      |              |            |       |
| Dictation              |              |            |       |
| QWERTY (Quicktype) Keyboard |            |            |       |
| Scribble               |              |            |       |
| Emails                 |              |            |       |
| Suggestions            |              |            |       |
| Apple Watch Keyboard   |              |            |       |
| Choose Language        |              |            |       |
| Send a new message     |              |            |       |
| Customize reply subject|              |            |       |

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Journey Map

Based on user survey, background research, and competitor analysis, I created a journey map to visualize the user flow from discovery to long-term use. I identified possible pain points in the user flow that need to be addressed in my design solutions. I put much of the focus on the onboarding or first use experience, ensuring that users will not feel overwhelmed when using the watch app.
Smartwatch Newbie

What are their key goals and needs?

- What do they think is important?
- What do they feel is important?
- What do they know is important?
- What do they assume is important?
- What do they expect is important?

What are they struggling with now?

- What do they find difficult to do?
- What do they struggle to understand?
- What do they have trouble with?
- What do they need help with?
- What do they need support with?

What tasks do they perform?

- What do they do regularly?
- What do they do occasionally?
- What do they do occasionally?
- What do they do infrequently?
- What do they do never?

Journey Steps

- What step of the experience are you describing?
- What is the current stage?
- What is the next stage?
- What is the previous stage?
- What is the final stage?

Discovery

Why do they even start the journey?

- What are their reasons for starting?
- What are their motivations?
- What are their goals?
- What are their expectations?
- What are their fears?

Registration

Why would they use Grad?

- What are the benefits of using Grad?
- What are the drawbacks of using Grad?
- What are the advantages of using Grad?
- What are the disadvantages of using Grad?
- What are the risks of using Grad?

Onboarding and First Use

How can they feel successful?

- What are the key steps for success?
- What are the key challenges for success?
- What are the key benefits for success?
- What are the key risks for success?
- What are the key barriers for success?

Sharing

Why would they invite others?

- What are the benefits of sharing?
- What are the drawbacks of sharing?
- What are the advantages of sharing?
- What are the disadvantages of sharing?
- What are the risks of sharing?

Outcome

Describe how the life and experiences of the customer change and they used the product/service.

- What are they able to do now?
- What can they think about doing?
- What can they not do now?
- What can they do not need to do?
- What can they not do at all?

What changed in my environment?

- What have they learned?
- What have they forgotten?
- What have they remembered?
- What have they done?
- What have they stopped doing?

Feedback

What could we improve or introduce?

- Post
- Display the simple
- Onboarding stop
- Company response
- Implement changes
Sources


Phase 2: Problem Defining
To organize my survey results and research findings, I created an affinity map. Affinity mapping helps designers to organize information during a brainstorming session. I first began by creating post-it notes of different ideas and insights that came up in my research. I used a specific emoji to symbolize that the post-it was a repeated or similar idea. Once I was finished gathering all the information, I began to cluster the ideas in loose categories based on the survey questions.
Smartwatch owners: user behavior with emails

- Users don’t open the smartwatch email app very often
- Users look at the email sender when getting notifications
- Users will usually read the subject of the email notification
- Users usually will not read the short snippet of the email notification
- Users will never reply to the email notification
- Users will never flag the email notification on the smartwatch

Smartwatch newbies: what they think they would do

- Passively read email notifications
- Respond to email notifications
- Stop using their phone and avoid distraction
- Swiping through information
- Set event notifications and read on smartphone at another time
- Small conversations such as deleting, marking, or opening emails

Smartwatch newbies: what they would want

- Voice to text recognition for writing emails on the go
- Star/flag, mark unread, pin option to highlight emails
- Prioritized responses
- Priority feature of high to low
- Delete emails at a glance (maybe a select all, maybe swipe)
- Easy to control, especially with big hands
- Subject, sender, time/date, body clearly
- Simplicity is key
- Text zooming, easy to read the body of the email
- Gestures, allowing swiping
- Include which inbox the email was sent in
- Customize notifications
- Would rather have an option to archive emails rather than delete

Smartwatch newbies: what they wouldn’t want

- Ability to type on the watch
- Anything length or hard to read
- No clutter, no weird colors, clean, breathable design
- Spam emails
- Easy to control, especially with big hands
- Don’t need to see full email addresses, just short nicknames or abbreviations
- Full attachments
- Reply, forward, delete
- Create email chains, potentially these cc’s or if there are a lot of people included
HMW to Action Items

Looking at the survey results and research, I noticed that many of the user’s responses were focused on email notifications on the Apple Watch. With the guidance of my mentor, I decided to design solutions centered around Gmail’s email notification system on the Apple Watch.

As a result, I began to create themes more accurately categorize information and narrow down the focuses for my project. The four themes or categories I created were: Email Notifications, Microinteractions, Email Notification UI, and Input Methods. From there, I wrote 2-3 How Might We questions to generate ideas for my designs. Then, from these How Might We questions, I created four solid action items to focus on for my design phase.
Phase 4: Action Items

Notification System
a. Simple notifications that follow other existing email systems b. DEFAULT VIEW: Include notifications that are important, exclude spam/promos c. Ability to customize notifications in Settings

Microinteractions
a. Flag email/Mark as important b. Delete/archive emails (will be in trash for 30 days) c. Ability to reply to emails d. Gestures: Swipe left, right, or down → What are the possible actions with these gestures? *** Possible On-boarding?

Notification Interface
a. include sender, subject b. snippet of the email c. Actual Inbox → only showing flagged/flagged emails

Input Methods
a. Input Methods will be available once the user goes into the watch app or clicks on the email notification b. QWERTY, Phone to keyboard, etc. c. Gesture that allows an email ready to be composed on the iPhone
Phase 3: Design
Branding Guidelines

Colors

Brand Colors

Primary / #DC4437

Secondary / #FFFFFF

Category Colors

Important / #FFBD40
Promotions / #16A085
Social / #3F82ED
Forums / #954BEB
Updates / #D57A2D

Black Colors

Header Text / #000001
Subtitle / #333333
Body Text / #828282
Inactive / #6AA0A8

The quick brown fox jumps over the lazy dog.

SF Compact
Information Architecture

Notification Design

Microinteractions

Input
Key Features

Customizing Email Notifications

Email notifications on the Apple Watch mirror iPhone email notifications by default. Users can choose to create their own notification system for their Apple Watch. Gmail gives users the freedom to choose which category of emails they would like to receive notifications for and what the notifications should look like.
Key Features

Increasing Visibility of Microinteractions

Buttons are large and visible for users with clear and recognizable icons. Users can quickly accomplish small actions that boost productivity and overall satisfaction. More interactions are available once the user clicks on the notification to read more. Google Calendar is also integrated through a microinteraction. Users can quickly tap to add an event to their Google Calendar.
Key Features

Effortless Transition from Watch to iPhone/Laptop

Starred email notifications on the Apple Watch will notify the user on their iPhone. Once the user opens the Gmail app, their starred emails are clearly visible in a section to the top of the screen. Users will be able to see what important emails they missed while away.
Key Features

Hassle-Free Input Options

Input methods are a required feature from Apple Inc. But we can make them easier and more accessible. Customize preprogrammed responses. Start a draft and write it later on iPhone or Laptop. Favorite your preferred input methods instead of choosing an option every time.
Key Features

Overcoming Complexity with Undo

Gmail is famously known for their undo option after sending an email. Undo options are presented after every action done by the user on the Apple Watch. Tap “undo” and Gmail will unsend/undo an action. Leave it alone, and we will know its permanent.
The final step in my project was to conduct user testing. Because of the tight project timeline, I chose task-based user testing because it would still get me quality results in a short amount of time. I created three main tasks I wanted to ask users to perform: “How would you go about customizing your email notifications?”, “How would you go about starring an important email?”, “How would you reply to an email notification?”. I interviewed 5 users, which varied between novice and expert Apple Watch users. In all my user interviews, users were able to easily identify the star icon and perform the task with ease. There was some hesitation when trying to customize email notifications due to the large amounts of texts and descriptions. Overall, users were able to use my design solutions easily.
Project Reflection
Final Thoughts

What Went Well

My Gantt Chart helped me to complete tasks in my senior project because it required me to consider every step in the project from start to finish. It forced me to be organized and keep track of the different steps I needed to take to complete the deliverables successfully. Scheduling meetings with Professor Ma and Professor Yang (my mentor) ahead of time held me accountable for my project. Since I needed to show a deliverable or give an update, I treated these meetings as soft due dates. This helped me to continuously work on the project throughout the quarter.

Tips for Completing the Project

Using tools and templates helped me save time and focus on the contents of my project. For example, I used Miro as the main tool for my user research. Miro made it easy for me to create post-it notes and paste them on the screen. I didn’t have to worry about creating boxes or customizing shapes and could instead work on brainstorming and users’ responses to my survey.
Challenges

One challenge I faced was narrowing the focus of my senior project. In the beginning, I struggled to write survey questions that would produce the answers I was looking for. I was unsure if I should focus on email user behavior or Apple Watch user behavior. With the help of my mentor, I decided to focus on both areas and split up users based on if they owned an Apple Watch or not.

I struggled to make decisions that would help the project move forward. I am used to making design decisions that are not only backed by research/evidence, but also by my peers who are also working on the project. I can brainstorm with them, and bounce ideas off them. Working on a UX project by myself was difficult for me because I had difficulty turning my insights into action items. I was unconfident if the decisions I made were the right decisions for the project. Nevertheless, I followed through with the project and was able to produce some efficient solutions.
Final Thoughts

What I would do differently

I would have liked to focus more on user testing during this project. I think that my project started slow, which left little time for any user testing. If I had more time for this project, I would have tried to do A/B testing to confirm some of my design decisions. I would have loved to get more participants to interact with my solutions so I could get more feedback. In addition to this, I would have reduced the number of subprocesses in the research phase. I saw this Senior Project as an opportunity to do some UX processes I had never done before. While this still helped me learn more about UX, it also altered my project timeline and was ultimately irrelevant to my overall project goals.

I would have also liked to host user interviews instead of a user survey. User interviews are better for getting qualitative data, which I would have preferred. Although the survey was very helpful in my research, some participants misunderstood the written questions, and I was not able to get the answers I was truly looking for. If it had been a user interview, I could have tried to rephrase the question or ask a more pointed question to get to the point.