



IT'S TIME FOR A
SMARTER WATCH

Project Proposal for
THE DIAL
Smartwatch

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Team Roles

Thomas Verstraete - UX Designer, Graphic Designer, Writer, Editor.

Tyler Hutek - UX Designer, Usability Tester, Writer, Editor

Andrew Jarvis - Project Manager, UX Designer, Research Test Subject, Editor

Project Manager - Delegates tasks to group members, maintains focus on the project.

UX Designer - Developed the user interface for The Dial OS and applications.

Graphic Designer - Developed visual look of the reports.

Writer - As the name implies, the author of the text.

Editor - Review and rewrite the recorded information.

Usability Tester - Moderate and record usability testing sessions.

Research Test Subject - Performed usability testing for other groups.

Product Description

The Dial is a smart watch for everyday users that brings the everyday functions of a smart phone to a simple and quick interface right to your wrist.

Product Concept Statement

There are tasks we perform on our phones that take 5 seconds: checking the time, looking to see the next appointment, or reply to a text. It takes less time to do than pull out a phone, unlock it and find the app that handles it. The Dial brings these functions right where you need it.

The convenience of the Dial is two fold. First, having the device out and easily accessible. A phone is often left in a bag or pocket and when it rings you dig for it and never in the first place you look. If you have the Dial you can keep your phone in a more secure location because you don't need to keep it immediately at hand and easily lost. The other convenience of the Dial is the user interface. The interaction the user will have with the device is designed specifically to eliminate the feeling of using it so they can focus on the tasks.

Technical Summary

The Dial is a smartwatch which brings the tasks you need quickly to a convenient place. It can be used as a stand alone device to access email, text messages, contacts, calendars, and other basic functions you need on a regular basis. Or it can be used in conjunction with your phone to answer calls, or view information or control functionality that can be sent to the watch.

The audience for this device will follow the similar timeline of the smartphone. The early adopters will be power users and tech enthusiasts. The focus of the product is for a power user. Those that use their phone to perform tasks all day long. The Dial will take many of the quick 5 second tasks and make it more convenient and to allow the smart phone to do the task that take more time. In the same way that smart phones took some of the functionality from a laptop, like email, calendars, and to do's and made it portable, the Dial will take some functionality from the smart phone and make it more convenient. In today's world the smartphone power user is now everyone with a smartphone. Just as the smart phone started as a business/luxury device and is now as ubiquitous as the television the Dial will become the device we can't live without.

The software and hardware are designed in parallel to maximize the overall effectiveness of the device. The Dial's physical design and hardware take the best part of what a watch is and where technology is going. Even if we don't own a watch we still have an emotional connection to a traditional faced watch. The Dial uses standard watch features like a round face, standard wristband connection, and a side dial traditionally used for winding the watch. The technology behind the watch uses these design features as the standard input/output interface. The touch screen will be a 40mm diameter, 300 pixels/inch screen. The speakers, microphone, and cameras are built into the device and are seamlessly integrated into the overall design. The winding dial is the volume control by rotating it and a mute button by pressing it in. The wristband is used for external expandable storage and power. It plugs into ports on the top and bottom of the device. The Dial will connect wirelessly to a phone, computer, external speakers or a network using Bluetooth, WiFi or optional 4g LTE networks. The overall design goal is to make the device at first glance look more like a watch than a connected smart device.

While in standby mode, a watch face will be displayed with the choice of a digital or analog display. This leads us into the software which is designed to utilize the design and power of the hardware. First and foremost, the operating system is designed to make the functions of the device easy and seamless. The main interaction will be with the touch screen for control and voice recognition technology for input and some control features. The round touchscreen allows the user to have more space for interaction and control. The center of the screen is reserved for applications, with the outer edge for system level operation. The overall design goal of the software is to give the user quick access to what they need, when they need it.

The Dial is not just another device that connects to the Internet and can send and receive email. It is designed to fit into our everyday lives, focusing on being there when we need it. Technology is becoming less a piece of furniture and more integrated into our everyday lives. We are now at the cusp of that change and the Dial is designed for the future.

Contextual Inquiry

To better understand potential users of our product we conducted a contextual inquiry. This is a method of gathering detailed descriptions of specific user activities to better the design and development of a system. Our inquiry consisted of four methods, a survey, interviews, observations in public and news article research.

Our survey consisted of questions that relate not to the use of smart watches as there are few people that currently own them but about the person's smartphone use. Smartphones are the closest common technology to the new smart watch field and they can work in conjunction with each other. We asked the basic questions such as age, gender, technology experience to get a feel for who took the survey. To get an understanding of what technology they currently use we asked if they owned a watch, if they did what kind, if they owned a smartphone, and what kind they owned. The information that got to the heart of the survey was to ask about the particular activities they used on their phone, duration of general use, and frequency of use. These are the questions that can inform the functions and usage of the Dial smartwatch.

For the interviews we decided to pick two of the most likely users of a smartwatch, a young person interested in new technology and a business person who is interested in ways to better perform their job. For both interviews we started with the basic survey questions and then delved deeper into the motivations for their technology use. We asked questions to better understand why, or how they used their phone, computer, or other devices. If we understand why people use their devices the way they do then we can build our product to better suit those needs.

We went to two locations to observe the use of peoples smartphone use. The first is a communal hang out of young people and the other is a fitness facility. In the communal hang out we were able to observe peoples everyday smartphone use. One of the key features of the wearable technology is to track fitness, which is why our other location was a fitness facility. Making observations here gives us an understanding of how individuals use technology in their fitness regime.

Lastly, with smart watches making the news we were able to gather information written by technology pundits and journalists. This gave us an insight into how the industry is reacting to this up and coming technology. This also gives us a list of the current competitors, how they tackled some problems and commentary about their effectiveness.

Work Activity Notes

Work activity notes are a concise way of displaying information gathered from surveys, interviews, and observations. By gathering this information it helps to emphasize features which might have been overlooked otherwise.

O1 - People pulled their phone out of their pocket often, or picked it off the table to look at.

O2 - The time people looked at their phone was between 10-15 seconds

O3 - People were texting frequently

O4 - Few people used their phone for calls in Kirkhof

O5 - People who were relaxing tended to use their phone for longer periods of time

O6 - People checked their phone just as often when in a group or alone

O7 - Many people used their smartphones to listen to music

O8 - People who use armbands for their phones struggle to view phone functions

I1.1 - "I am on the road a lot"

I1.2 - "I frequently receive email and text messages"

I1.3 - "My text messages are generally short"

I1.4 - "I am always looking to streamline work to help clients"

I1.5 - "I often get calls and messages while at client offices"

I1.6 - Like to keep tasks and events organized

I1.7 - He has a : laptop, laptop accessories, smartphone, analogue watch, and car GPS

I1.8 - His company uses Microsoft outlook for email, but he prefers Gmail

I1.9 - "I use Skype to talk to my family when on long trips"

I1.10 - He frequently checks weather and traffic information

I1.11 - He often uses his phone for less than 5 minutes at a time

I1.12 - Interested in the fitness aspect of wearable technology

I2.1 - He owns a smartphone

I2.2 - His smartphone platform is Android

I2.3 - "I use Android for the customizability"

I2.4 - He had a windows phone

I2.5 - He watches Youtube on his phone

I2.6 - He checks his phone several times an hour to look at the time and check for emails

I2.7 - He uses his phone primarily to browse the Internet

I2.8 - He doesn't use his phone for cloud storage

I2.9 - He doesn't own a tablet

I2.10 - "My favorite color is dark blue"

I2.11 - He used to own a watch, but stopped wearing it once he bought a smartphone

I2.12 - He doesn't like to wear anything that stands out

I2.13 - He is interested in wearable tech, and using wearable tech

I2.14 - He is interested in wearable technology

I2.15 - He is interested in the quantifying things in his life such as what distance he walked

I2.16 - He has heard about the new smart watches

I2.17 - He isn't interested in purchasing a smart watch because he thinks that the features aren't worth the cost and are a gimmick

I2 - He would want a smart watch to control music and view notifications

S1 - 54% of people have advanced technical experience while 46% have expert technical experience

S2 - 92% of participants were male and 8% were female

S3 - 92% of participants were age 18-25 and 8% were above 40

S4 - 53% of participants own a watch, of which 57% are analogue, 28% have a digital watch, and 14% have a smart watch

S5 - 76% of participants own a smart watch

S6 - 30% of participants who own a smartphone have an iOS device, while 60% use Android, and 10% use a Windows phone

S7 - The majority of our smartphone using participants make calls, send text messages, listen to music, check the time, create reminders, take photos, browse the Internet, and check the weather on their phone

S8 - Some of our smartphone using participants play games, create to-do lists, use the calendar, and watch videos on their phone

S9 - The top 5 activities done by participating smartphone users are sending text messages, checking the time, listening to music, making calls, and surfing the Internet.

S10 - 20% of smartphone using participants check their phone roughly once an hour

S11 - 30% of smartphone using participants check their phone several times an hour

S12 - 50% of smartphone using participants check their phone constantly (every few minutes)

S13 - 40% of participants use their phone for less than 5 minutes at a time

S14 - 40% of participants use their phone for 5 minutes at a time

S15 - 41% of participants use their phone for roughly 10 minutes at a time

S16 - 10% of participants use their phone for 30 or more minutes at a time

- Q1 - “[A smartwatch] needs to mesh into your life; it needs to have a long battery life; and it needs to not be annoying. It needs to just work in your life.”
- Q2 - “The best computer you have is the one sitting in your pocket. Pebble and smart watches should be things that take advantage of that. They should also take advantage of other devices [sitting around your house].”
- Q3 - “Researchers who are guessing the impact of this mind-boggling, new industry are coming up with figures that are all over the map. Some of the more ambitious predictions are seeing the shipment of more than 100 million wearable devices in 2014 and as many as 485 million by 2018.”

Work Roles

Analyzing the results of the contextual inquiry we are able to develop only two broad work roles. A work role is a category or title of users who represent a set of tasks. The open ended functionality of a smartwatch uses the same types of work roles a computer or smartphone would use, which are related to personal or business use. A smaller peripheral work role for a smartwatch would be a developer of the applications on the device.

The personal work role uses the device for some aspects for everyday use. These include making calls, text messaging, personal calendars, to do lists, et cetera.

The business work role does many of the same tasks as the personal work role but in the context of an occupation. This also includes job specific tasks that can be developed as installed applications.

The developer work role is a software engineer that writes programs to be downloaded to the device.

User Classes

In order to give context and an idea of the demographics the user classes describe in broad terms the type of people who will be a smartwatch customer.

Middle age to older business person: Working in the same industry for many years and has a depth of knowledge in a specific field. Their experience with technology stems from how it is used in their jobs and not from a personal interest in learning. Their training in any technology comes from their companies IT department. Their use of a smartwatch would come from their companies initiative, not their own.

Young technology enthusiast: Could be anything from 9 years old to early twenties. Their interest and education in technology is personally driven, although their access to technology is

mostly determined by their parents or friends.

App developer: Technologically more educated than the other user classes with their primary drive to use the smartwatch is for development. They can be either self taught or college educated in software engineering.

Athlete: Spends much of their time exercising and enjoys keeping track of their workout routines. Has no predetermined level of technological education.

Active stay-at-home parent: Has kids that have multiple activities that determine their schedule and routine. In addition to the chores around the house they have errands to run. Has no predetermined level of technological education. Attempts to be very organized to keep track of all the household activities.

Traveling Consultant: A business professional who is either on the road or in an airplane for much of the day. They seek out technology to help them work and better serve their clients. Their devices need has to be portable and multi-functional.

Personas

A persona is a refined version of a user class. It takes the previous properties of a class and gives it specific attributes such as age, gender, and lifestyles to help create a person who would use the smartwatch. These attributes are gathered from observations and surveys to create accurate attributes. Each persona has certain aspects to help differentiate from each other and to cover several needs and uses of a product.

Todd Smith is a 43 year old is a the CEO of a company for the past 5 years. He only learns how to use technology when his job requires it. He owns a smartphone and uses it to have constant access to his email for keeping in contact with employees and clients. He also has poor eyesight.

Hellen Kaye is a 19 year old college student who is a History major. She likes to own the latest advancement in technology. Rarely using her smartphone for email and phone calls, she instead mainly using it for texting and browsing the Internet.

Kip Perry is a 24 year old smartphone app developer who graduated from Grand Valley State University. He enjoys developing programs for smartphones, but has started to look into developing apps for the upcoming smart watches. He enjoys learning how to use new technology and develop for it. He has a day job at a company in IT.

Zachary Lohr is a 30 year old cashier who enjoys staying in shape in his free time. He enjoys running to keep in shape and uses his smartphone to keep track of how far he has run. Additionally, he uses a heart rate monitor to keep track of his pulse. Although he is open to learning

new technology, he is hesitant to use it if it appears too complicated.

Jamie Devyn is a 25 year old stay at home parent with a 2 year old child Susan. They enjoy being able to take photos and videos of Susan but tend to miss some opportunities. Making to-do lists are a necessity to help keep the house in order. Although Jamie constantly makes calls and looking up new recipes, they rarely use their phone for email. She doesn't enjoy taking time to learn new technology because it takes time away from taking care of Susan.

Max Barnabas is a 29 year old traveling consultant who is often away from home. He has had a smartphone since he started his job as a traveling consultant. He uses it constantly to keep in contact with clients through both calls and email. He keeps his phone on a clip attached to his belt so he can get to it quickly. This has caused him to drop or lose many phones over the years. He uses his GPS on his phone to help navigate when on the road.

Scenarios

The following scenarios describe the specific activities and events that a specific persona performs with a smartwatch. This helps to understand how a user will interact with the product and will guide the design of the interface. We are going to use Max Barnabas as the character in the scenarios.

Max is woken up in the morning by the sound of an alarm from his watch charging next to his bed. He shuts it off and sits up. Pulling the watch off the charger he looks at the time and reluctantly gets up and puts the watch on. While making his morning coffee he checks the weather for the day on his watch. He then checks any emails, calls or text messages he might have gotten overnight. Seeing none he is happy and decides to go for a quick run before heading off to work. In his full running gear he steps out of the house to smell fresh morning dew. He checks his heart rate on his watch and hits record to monitor his heart rate while running. He then goes to his run tracker and has that record the distance, speed and duration of his run. He then starts some music and heads out. Getting back from his run he stops the music and both recordings. He is now ready for his day.

While on the road between clients Max is listening to music and keeping his eyes on the road. He receives a text message and his smartwatch lets him know that it is from one of his clients. He gets the watch to read it to him and then replies using voice dictation. This reminds him to sent a text message to his wife saying he will be home late today. He tells the watch to send a message saying that to his wife. Later while in stop and go traffic on a busy street a different client calls to set up an appointment. He gets his watch to answer the call and he talks to her through a bluetooth headset he keeps on his ear when driving. While talking he accesses his calendar and

sees that he is free to make the appointment. When done he hangs up with the watch. Right after he accesses his calendar with specific gestures and sets the appointment with voice commands.

While at a clients office he is talking casually about family and shows them a picture of his kids by getting to the picture app on the watch and finding a good picture. He shows it to the client who smiles and says “cute family.” Later when they have gotten to talking about business, the watch vibrates. He glances down at the watch to see he has an email from his boss reminding him to email his expense report to the office. He was able to see the email without disrupting the conversation with the client. When he gets back to his car sends out a reply email saying “I will be back to the office soon.” He turns on the music to play in the car with his watch and drives back to the office.

Task Analysis

To understand the step by step process of completing a task we use Task Analysis. These steps will help to understand the processes of interaction with the smartwatch. With the idea that the smartwatch is taking up the quick 5 second tasks of a smartphone these interaction are specifically developed to be short and easy.

1) View Time

Goal: Check the time

Trigger: Desire to know what time it is

Sequence of actions:

- User looks at watch

- Watch displays time

2) Answering a Call

Goal: Answer a phone call

Trigger: Someone calls you

Sequence of actions:

- Watch alerts user of incoming call

- User answers call by touching watch

- User has conversation with caller

- Call complete user interacts with watch to hang up

3) Make a Call

Goal: Start a phone call

Trigger: User wants to make a call

Sequence of actions:

- User touches watch
- User navigates to the phone dialer
- User enters the phone number to call by either voice or text

A phone call is started

4) Reply to a Text

Goal: Reply to a text message

Trigger: Receives text message

Sequence of actions:

Watch alerts user to message

- User touches watch to see message

Message is displayed

5) Send a Text

Goal: Send a text message

Trigger: User wants to send a text message

Sequence of actions:

- User touches watch
- User navigates to text messages
- Text message groups are displayed
- User selects to compose a message
- User selects a recipient from a list of contacts
- User uses voice input to create a message
- User selects send

A text message is sent

6) Reply to an Email

Goal: Read and reply to a new email message

Trigger: You received an email

Sequence of actions:

Watch alerts user of new email

- User touches watch

Message is displayed

- User reads message
 - User presses reply
 - User uses voice input to create response message
 - User touches watch to send reply
- Message is sent

7) Send an Email

Goal: To send an email message

Trigger: User wants to send an email

Sequence of actions:

- User touches watch
 - User navigates to email messages
- Email messages are displayed
- User selects to compose an email
 - User selects a recipient
 - User uses voice input to create message
 - User selects send

An email is sent

8) Answer a Video Call

Goal: Answer a video call from someone

Trigger: Someone video calls you

Watch alerts user of incoming video call

- User answers video call by touching watch
- User has video conversation with caller
- Call complete user interacts with watch to hang up

9) Make a Video Call

Goal: Make a video call to a person

Trigger: Desire to make a video call

- User touches watch
- User navigates to the video call app
- User selects from a list of contacts to call
- User initiates call

Video call is made

10) Start Music

Goal: Start playing music

Trigger: User wants to listen to music

Sequence of actions:

- User touches watch to get out of sleep mode
- Access music application
- Click shuffle all button

11) Stop Music

Goal: Stop music that is currently playing

Trigger: User doesn't want to continue listening to music

Sequence of actions:

- User touches watch
 - User presses stop button
- Music stops playing

12) Set Alarm

Goal: Set an alarm

Trigger: User needs to be alerted at a specific time

Sequence of actions:

- User touches watch
- User navigates to alarm app
- User selects a time
- User turns on alarm

13) View Weather

Goal: Check the weather

Trigger: User wants to see what the weather is

Sequence of actions:

- User touches watch
 - User navigates to weather page
- Weather is displayed

14) View Calendar

Goal: Check the calendar for events

Trigger: User wants to see what events are coming up

Sequence of actions:

- User touches watch
- User navigates to calendar app
- Calendar is displayed

16) Add to Calendar

Goal: add an event to the calendar

Trigger: User wants to add an event to their calendar

Sequence of actions:

- User touches watch
- User navigates to calendar app
- Calendar is displayed
- User adds item to the calendar

17) View Pictures

Goal: Look at pictures

Trigger: User wants to view some pictures

Sequence of actions:

- User touches watch
- User navigates to the gallery
- Picture gallery is displayed
- User navigates the gallery to find the picture
- User selects picture to view
- The picture is displayed

18) Take Pictures

Goal: Capture a picture

Trigger: User wants to take a picture

Sequence of actions:

- User touches watch
 - User navigates to the camera
 - User takes a photo
-

19) Track Travel

Goal: Track the distance of a run, walk or bike ride

Trigger: Desire to map athletic activity.

Sequence of actions:

- User touches watch
- User navigates to the tracking app
- User enables tracking

Map is displayed showing location with distance and speed

20) Monitor Heart Rate

Goal: Track and monitor the user's heart rate

Trigger: Desire to monitor one's health

Sequence of actions:

- User touches watch
- User navigates to the heart monitor app
- User enables monitoring

The heart rate of the user is displayed.

Work Environment

A factor that can affect the usability of any product is the environment in which it is used, this is known as the work environment. The smartwatch is a consumer product that is versatile in any environment you would use your phone in. To enable this versatility the watch is designed to be able to give voice commands in quiet spaces where the user has to whisper such as a library and a space where there is background noise such as a restaurant. Also any information for the user can be either read aloud or presented visually. For the more active users the watch is water resistant.

Ideation

The process of brainstorming or ideation began with a homework assignment for each of the team members: think about Max. He is a good representation of someone who will use all the functions our product contains. We were to come to the first ideation session with him in mind. We decided to meet in two different sessions for 3 hours each. The first session was dedicated to the overall system structure or operating system (OS). Working on the OS first forced us to think about how the user would interact with the product as a whole. The second session was dedicated

to the individual applications such as email, text messaging, fitness, etc. We reserved one of the work rooms at the new library to give us a small private space with a white-board to draw and redraw the ideas. The design discussions became pretty heated at times with each one of us having our own ideas of how something should work. The decisions were made by voting. The ability to have quick communication and quick turnaround of thoughts helped push the ideas to become richer and more fleshed out. We documented our decisions by taking pictures of the white-board which we could always refer back to.

Logo Design

The logo design has gone through several variations as the project has progressed and will until till the end. We are exploring the iterative process when working through the logos for each phase. This has given the group opportunities to try out different styles for the project, and form opinions for the final phase where the most favored logo will grace the cover.



Figure 1.
First Dial Logo



Figure 2.
Second Dial Logo



Figure 3.
Third Dial Logo

Conceptual Design

The conceptual design or metaphor to help explain how an interface will function we used is straightforward: combine a watch and smart phone. The watch informed the physical aspects such as how the user would wear it, the screen shape and size, the dial on the side. With most people aware of smartphone interfaces such as iOS or Android we are able to draw on those “standard” interactions to help with the overall usability.

Design Guidelines

Design guidelines are used to help keep consistency throughout the project. This was especially important with The Dial since we needed to create an operating system and applications that follow the same guidelines. Our guidelines reference three of the major smartphone operating systems and their guidelines.

“Good design requires good compromise” [4]. The whole process of trying to fit the needed functionality into the small space requires compromise. And those compromises need to be weighed against the requirements of the product.

“Make it easy to focus on the main task by elevating important content or functionality” [1]. There isn’t a lot of room on the small screen. So we need to make sure the priority content is the main focus.

“Make important things fast” [2]. One of the guiding principles is that the tasks to perform on the watch are the simple, quick tasks you would perform on a smartphone, but without using the phone.

“Users should always know where they are in your app and how to get to their next destination” [1]. We want the users to be able to quickly and without hindrance move from function to function and application to application. The mental structure of where they are and where they need to go needs to be clean and understandable.

“As much as possible, avoid inconsistent appearances in your UI” [1]. Since there is a lot of information and actions we need to be consistent in the way we present the information to the user.

“Users should always know where they are in your app and how to get to their next destination” [1]. We want the users to be able to quickly and without hindrance move from function to function and application to application. The mental structure of where they are and where they need to go needs to be clean and understandable.

“Pictures are faster than words” [2]. Since text can be difficult to read on a small screen, icons are used in place of words to quickly show users where buttons lead to.

“Communication at its core” [3]. The main purpose of The Dial is to allow quick easy communication with others.

“Content is king” [3]. Filling the interface with lots of extra flair might look nice, but we can not confuse the user. We need to make the content clear and easy to read.

“Regularity favors simplicity” [4]. With the limited space we can not overly complicate the functions and action the user can perform.

“Fluid workflow” [3]. Going to applications should be a smooth experience without having to go through extra obstacles.

“Let me make it mine” [2]. Users like to change their devices to set them apart from others as well as making the interface as comfortable as possible. Since a main part of The Dial is productivity, we want to allow users to change things such as application layout to best suit their needs.

Low Fidelity Prototypes

Our low fidelity prototype displayed the lock screen, application selection screen, and core applications.

Figure 4.

The lock screen has a home icon to go to the application selection screen and three applications which the user will be able to customize.

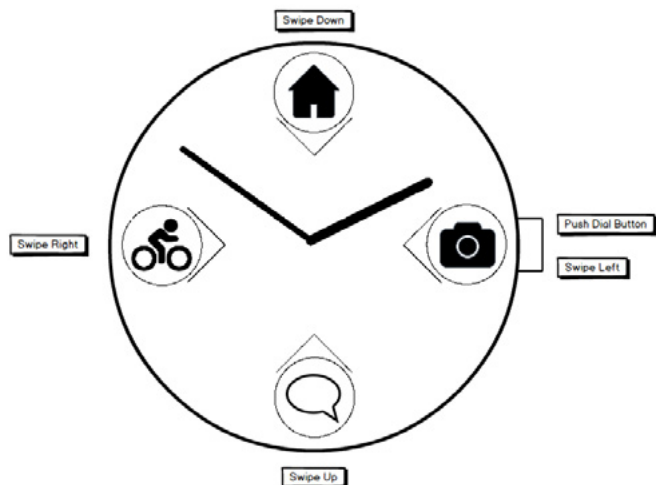


Figure 5.

The application selection screen consists of five applications at a time with a quick access area above the center icon. This quick access area is used to display information such as a missed call or text and allows the user to respond without needing to open the application.

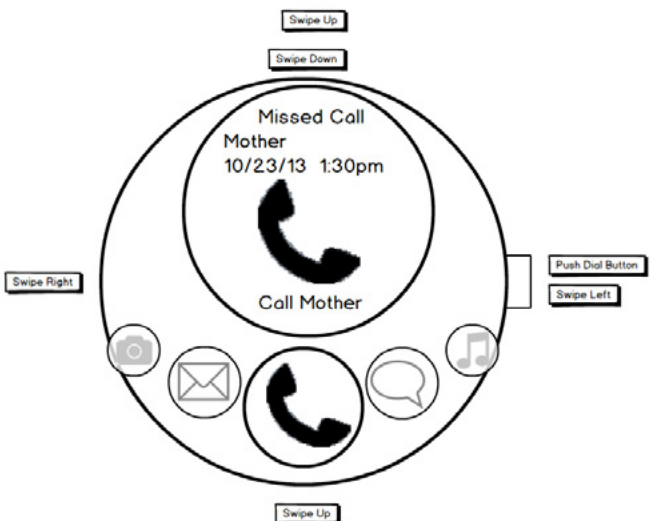
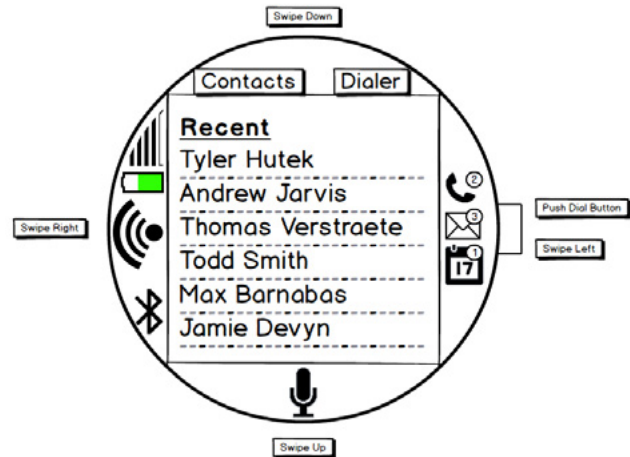


Figure 6.

The phone application displays recently missed calls so a user can make or return a call without going into contacts. If they want to call someone who isn't in this list, the ability to search contacts or manually dial is also an option.



The fitness application is used to help track information such as distance traveled, heart-beat and where they are on a route. A user can start a route or workout from this screen. If a user is already in the middle of a workout they are shown statistics and are given the option to pause or stop their workout.

Figure 7.

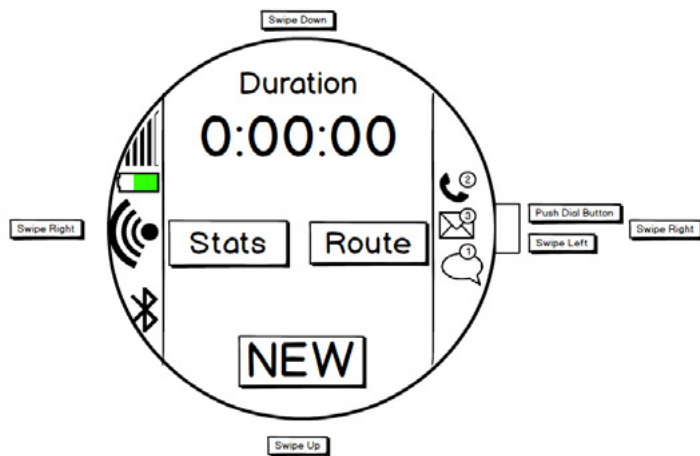


Figure 8.

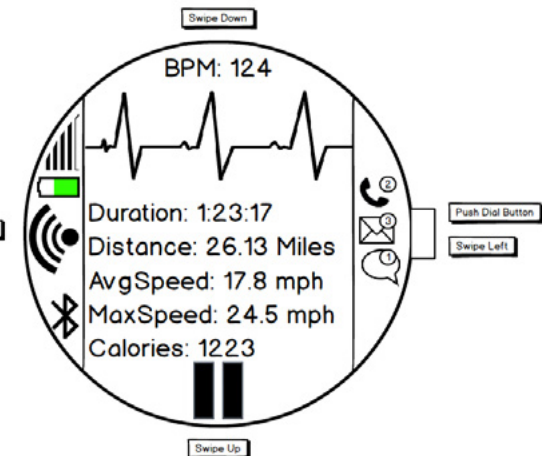


Figure9.

The texting application shows the current conversations and any unread text messages. If a user wants to compose a text to a new recipient, they can tap the microphone to say the name of the person and what they want the text to say.

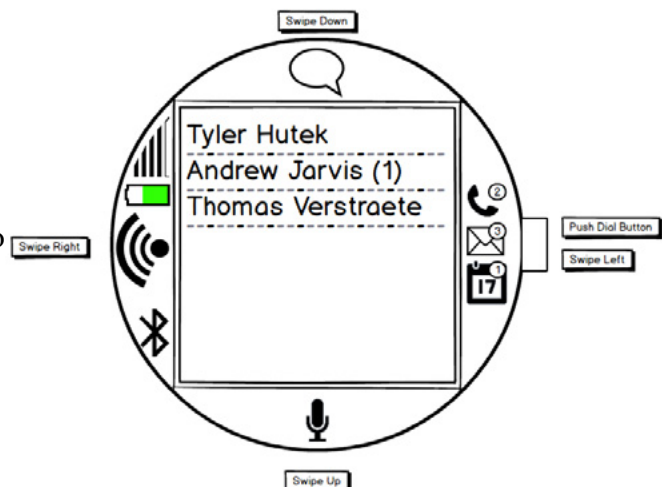


Figure 10.

The message center can be accessed at any time by swiping to the left and displays recent notifications. This allows the user to quickly reply to notifications without having to navigate the application selection screen to reply to a text or call someone back.

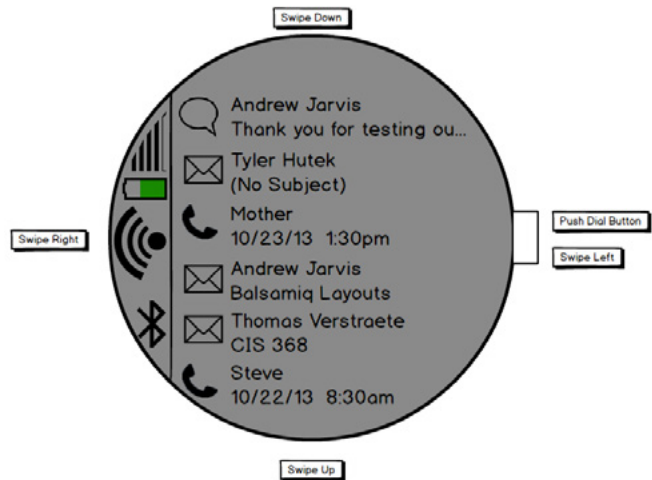


Figure 11.

This is a prototype we considered to use for application selection. While we liked the ability to display all applications on only 3 screens, it didn't allow any interaction with an application unless you entered it.

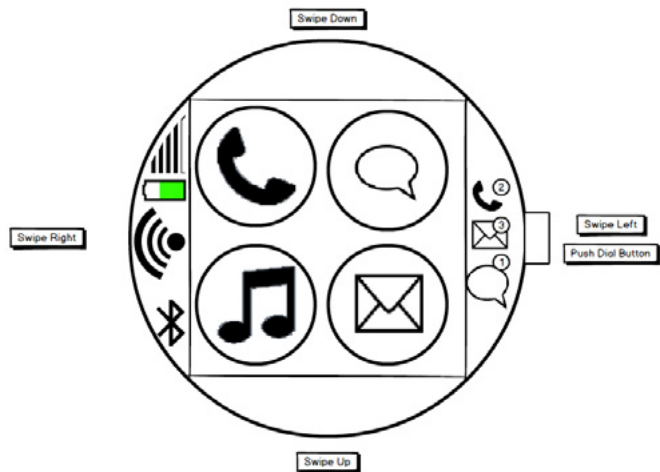
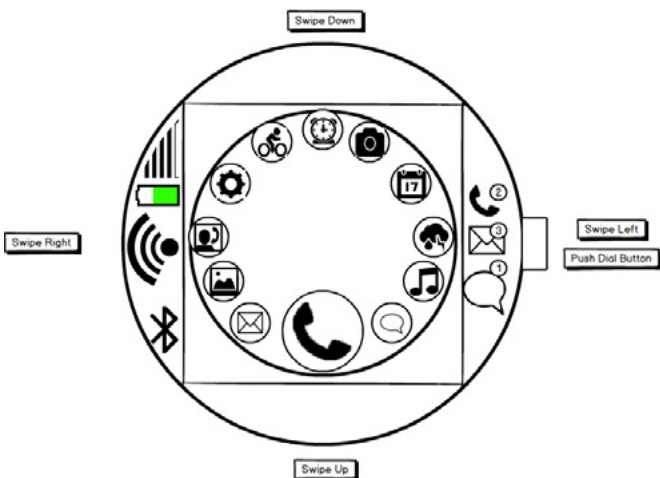


Figure 12.

This was the original prototype we considered. It was created in mind that you could see all applications at one time and would move your finger around the edge of the dial screen to move the applications. This was decided against since it caused all of the applications to become too small to see easily.



Formative Evaluation

Formative evaluations are used to help identify application strengths and weaknesses. The main focus of our evaluation was to identify how intuitive our operating system and applications were. Since our target group was mainly made up of people who are familiar with smart phones, CIS 368 students were an ideal group to evaluate. One thing we had to keep in mind was that the smartphone the user owns determined the expectations of how our OS should function.

The tasks which we gave to our users consisted of core functions which The Dial was designed around, such as replying to messages and making calls. We not only wanted to see how users would interact with a specific application, but also how they thought they could access an application. To help determine how intuitive our operating system was we first asked our participants to explore the smartwatch without any particular goal in mind. This helped to determine what functions users are expecting the watch to have, but also the locations that the functions should exist. The other goals were designed to evaluate the process of navigating to the application then testing the application when they get there.

Early Design Changes

User interaction with The Dial helped to display misconceptions with how The Dial functions. The most common issue that arose was how users wanted to navigate the watch. A major observation was that users generally swiped down first when using the watch since it was the first thing that they saw. Initially we had the messaging app launching from this action. However, once the user exited the messaging app they ended up at the app selection screen which they had never seen before which caused confusion. By changing the top icon to be the unlock icon users generally went to the application selection screen this helped alleviate confusion. Additionally, we also changed the icon from a house (Figure 4) to a lock to help portray that you are unlocking the phone and are not already at the main screen.

Another observation we noticed was that many users didn't realize that there were more than 5 applications when looking at the application selection screen(Figure 5). By having the icon for the outermost applications cut off by the screen it helps to show that there are more applications that you can access.

Watching other people interact with the product gives us, the creators, a different perspective. We started to notice areas that were not necessary. Originally in the application switcher the large section in the top section it would show the current application. This was meant to give the user quick access to the most recent application the user was in. However it seemed that this was not ever necessary. We decided to make that section specific for each application centered in the

bottom (Figure 5). This was give a quicker access to the very common tasks of each application.

Many users were also confused by our message center (Figure 10). Users tried to swipe to the left within applications and were brought to this screen. Since always being able to access the message center is a feature within the phone we didn't want to remove this feature. In the future we plan to give some indicators such as icons or color change to help show the user where they are and what the message center is used for.

Finally, We decided to remove the hold and swipe left gesture to access the message center with just swipe left. This is mainly in part to swiping left not being used and not fully understanding the concept of hold and then swipe left. By decreasing the amount of actions a user can take, it can help make the interface easier to use.

High Fidelity Prototype

In order to give the tester a more complete experience of The Dial we attempted to implement as many of the features as possible. The general layout of the system didn't change too much from the low fidelity prototype. The main changes were to flesh out the visuals, give movement to the actions, and utilize a touch screen to make the experience more real. These modifications eliminated a few of the issues we were having with the low fidelity prototype.



Figure 13.
Lockscreen



Figure 14.
Message Center



Figure 15.
Notification



Figure 16.
Switcher: Phone



Figure 17.
Switcher: Weather

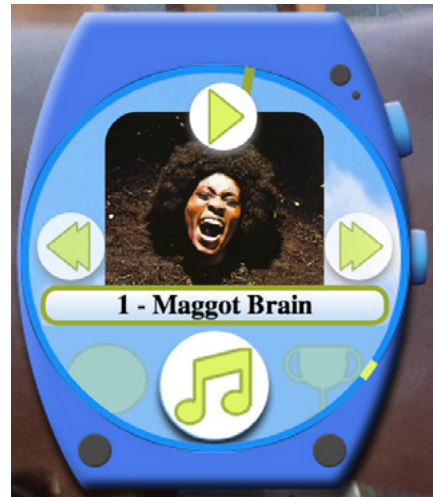


Figure 18.
Switcher: Music

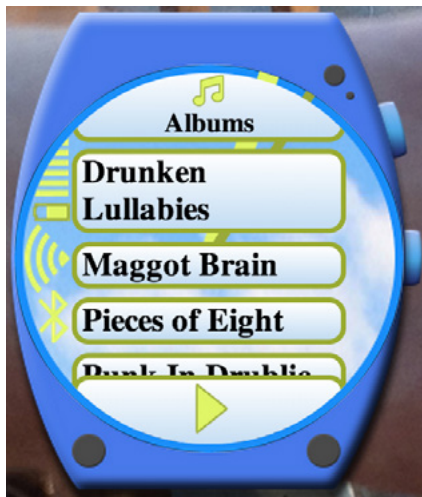


Figure 19.
Music Albums

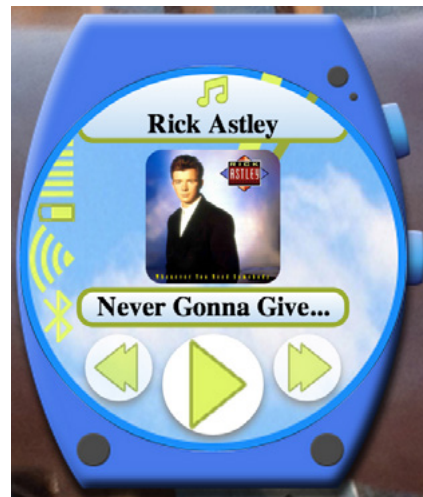


Figure 20.
Music Play



Figure 21.
Text Conversation

Video Demo

Our video demo is located at http://www.youtube.com/watch?v=MAVr_xzRH7IA. First, the design philosophy behind the dial is explained. Next, launching applications from the lock screen as well as unlocking The Dial is explained. Navigating the application window as well as how to use the quick access area. Finally, the text messaging and music applications were demonstrated. To create our video demo, Camstudio was used to record the screen while Google Chrome with touch controls enabled.

UX Target Table

The UX target table is used to focus on gathering qualitative and quantitative data for finding UX problems. This information is used to give tangible results for our usability tests.

Work Role: User Class	UX Goal	UX Measure	Measuring Instrument	UX Metric	Baseline Level	Target Level	Observed Results
Young Technology Enthusiast	Ease of use for new user	Initial user performance	Task 2: reply to a text message	Average time on task	30 seconds	15 seconds	74 seconds
Young Technology Enthusiast	Accuracy	Initial user performance	Task 2: reply to a text message	Average number of errors	<2 errors	0 errors	3 errors
Young Technology Enthusiast	Ease of use for new user	Initial user performance	Task 3: place a phone call	Average time on task	20 seconds	9.5 seconds	37 seconds
Young Technology Enthusiast	Accuracy	Initial user performance	Task 3: place a phone call	Average number of errors	<2 errors	0 errors	1 errors
Young Technology Enthusiast	Ease of use for new user	Initial user performance	Task 4: start playing music	Average time on task	65 seconds	29.5 seconds	68 seconds
Young Technology Enthusiast	Accuracy	Initial user performance	Task 4: start playing music	Average number of errors	<2 errors	0 errors	4 errors
Young Technology Enthusiast	Ease of use for new user	Initial user performance	Task 5: Stop fitness app recording	Average time on task	30 seconds	11 seconds	46 seconds
Young Technology Enthusiast	Accuracy	Initial user performance	Task 5: Stop fitness app recording	Average number of errors	<2 errors	0 errors	0 errors
Young Technology Enthusiast	ease of use for new user	Just post-initial performance	Questions Q1-Q6 in questionnaire 1	Average rating across users and across questions	3/5	4/5	3.85/5

Design Reflection

Our low fidelity prototype testing helped to give us an idea of how users would interact with The Dial. Although most users understood how The Dial's interface worked by the end of the test; changes have been made to help users adapt to the interface quicker.



Figure 22.
Home icon

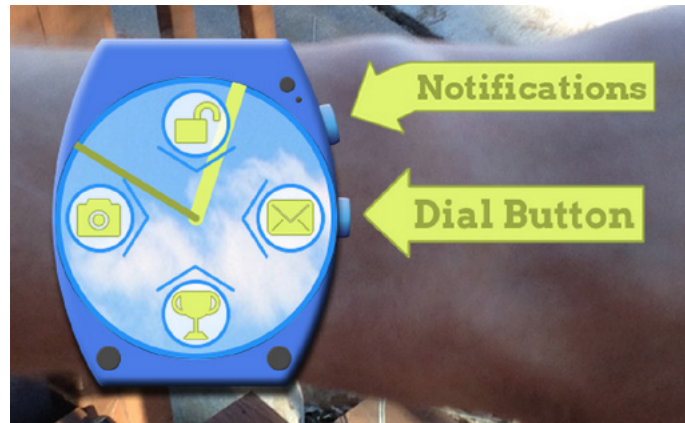


Figure 23.
Lockscreen with new unlock icon

First, our unlock icon was changed from a house icon to a padlock. The original home icon caused some users to think that the default lock screen was actually the home screen. A padlock was chosen to help show that the screen is in a locked state. Additionally, many Android lock screens use a padlock icon to unlock the device which will further help users identify the screen as a lock screen.



Figure 24.
Unlock to home on bottom



Figure 25.
Unlock to home on top

The location of the unlock icon was changed to be the top icon on the lock screen. The unlock icon was previously placed at the bottom of the screen since most smart phones have their unlock icon at the bottom of the screen. However, in our tests, users looked at the lock screen from top to bottom first. This caused many users to swipe down on the lock screen opening the messaging application first. This caused disorientation once they exited this application and were

brought to the application switching screen. By having the unlock icon at the top, users will be more inclined to first unlock the icon screen and be greeted by the application switching screen instead of first entering in an application.

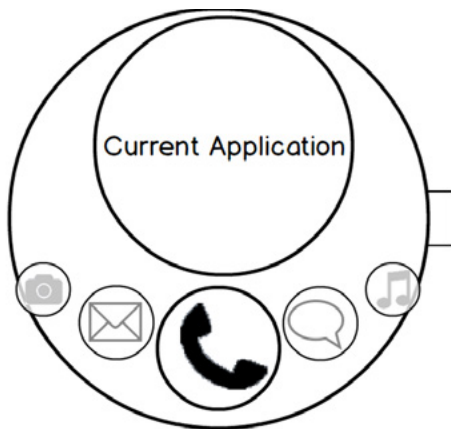


Figure 26.
Low-Fi switcher screen



Figure 27.
Modified switcher screen

Another change is how applications are displayed on the application switching window. Previously, five applications were displayed at a time on the window. This caused confusion since users attempted to click on the outermost applications. Additionally, users didn't realize that there were more than 5 applications total since there was little indication that others existed. With these problems in mind, the application switching window changed to display only 3 applications at a time with the two outer applications being cut off by the screen. Lowering the amount of applications to 3 increased the size of each application button making it easier to select each application. By cutting off the two outer icons helped to indicate that there are more icons off screen.

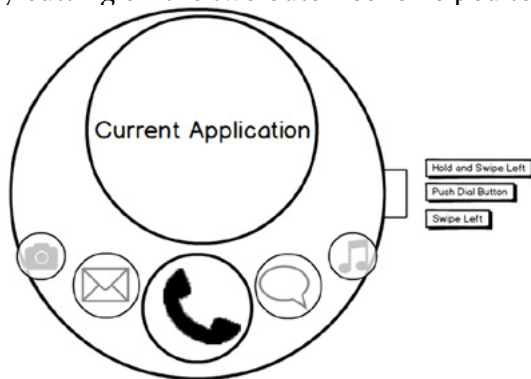


Figure 27.
Use of gesture for message center



Figure 28.
Message center has a button

Next, the method in which the message center is accessed was changed. Originally the message center was accessed by holding down on the right side of the screen and then swiping left. However, this action was confusing for users in our low fidelity test. A second button on the right side of the watch was added to access the message center instead of the swipe. Adding a button for this function will help make users aware of the action being available.

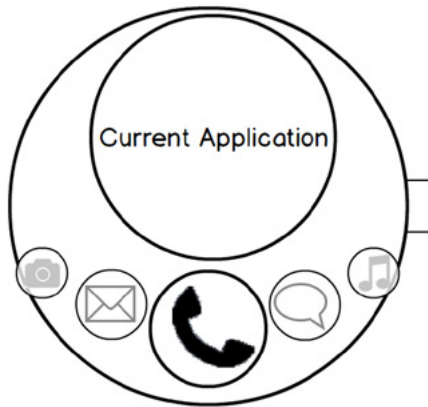


Figure 29.
Wasted space on switcher screen



Figure 30.
Useful space for quick access

In addition to how many applications are displayed on the screen at a time, the information above the application was also changed. Originally, the application you were previously in was displayed above the center icon. Since users generally wouldn't need to go back to where they previously were, the space above the application was changed to display a quick action menu. This menu is used to display relevant information about the application which users can interact with to complete tasks without needing to enter the application. For example, the phone call application displays previously made calls. This change also helps enforce the overall goal of being able to complete actions faster.

Evaluation Plan

Evaluation plans are necessary to help create a consistent testing environment. The information contained in an evaluation plan should allow the test to be recreated.

Goal and Purpose

The main goal of The Dial is to have an interface which allows users to easily and quickly access common functions of smart phones. In previous versions of The Dial's software, it was difficult to navigate between applications. This UX evaluation will help determine if the changes made in the software will help improve the user experience.

Since navigation caused a majority of the problems it will be the main focus of these tests. While in the app selection menu there are two ways to interact with the app. You can select it directly or you can use the quick access features above the icon. We want to make sure that users understand while there are options already displayed for interacting with the app they are still in the selection menu not the app itself. Having the user understand that there are applications off screen in the application menu is another thing to focus on.

Users understanding that the initial screen is the lock screen is another important topic of this test. Attention should be focused on what action the user attempts first, such as the direction

that the user swipes initially. Another thing to pay attention to is what the user thinks the screen is and its purpose.

Since our high fidelity prototype will be to size, readability is another major factor. Although users might be further away than they normally would be from the interface if it was on their wrist, users shouldn't need to struggle with viewing all text on the screen. Screens which users struggled to read text on should be noted so changes can be made in the future.

Although applications such as video chat, weather, and settings menu will be included in the final version of The Dial, they are not the focus of the test and will not be included in any tests. This is done to help focus on the changes that were made from the low fidelity prototype.

Evaluation Team Roles

To allow a usability test to go as smoothly as possible, roles are assigned to the individuals administering the test. One of the key roles is the facilitator, they have the responsibility of planning and executing the testing sessions. Another key role is data collectors. The Quantitative data collector will focus on UX metrics such as errors made and the amount of time it takes to complete a task. The other data collection role is focused on collecting qualitative. Qualitative data collectors record information which cannot be measured such as why certain actions were taken during a task.

Participants

Gathering realistic and accurate information is necessary to identify usability strengths and weaknesses. To help gather this information, it is more important to have a small number of ideal participants instead of several participants who don't fit the demographic. The Dial bases many design concepts from current smartphones such as the Android and iOS operating systems; therefore, ideal participants for usability testing are technically inclined people who have used a smartphone. Since The Dial is created with no specific gender or age in mind, these aspects shouldn't be taken into consideration when deciding on participants.

Environment

To further help collect accurate information, the environment for the tests should remain consistent. The room which participants are being tested should be quiet to help reduce distractions. Both the data collector(s) and facilitator should be present to view user actions, hear thoughts and if necessary assist the user.

Since The Dial has a touch interface, a tablet with a web browser should be used to help simulate how The Dial will work. The Website which contains the high fidelity prototype is www.bwata.com/thedial. Although the prototype has been set up to work on an iPad, the test can also

be conducted on browsers which support touch control such as Google Chrome.

Procedures

When starting the usability test inform the user that they should be using the think aloud protocol; the user says their thoughts out loud to help the facilitator and data collectors get an idea of the user's thought process. This information is crucial for refining our interface to be as user friendly as possible. The user should also be reminded that the interface is being tested and not them.

For each task, the user should read it aloud before starting. This will help the user understand what they will be doing. If a user appears to be struggling with a task, please don't intervene unless they say that they cannot complete the task. If a user performs an action and expects a different outcome, ask what outcome the user expected.

Data

To gather information such as time to complete a task, users will press the 'start task' and 'stop task' buttons. These button presses will show up in the web browser console with time stamps to give a measurement of how long it takes to complete a task.

Additional information such as user satisfaction will be gathered through the , "Dial Usability Initial User Satisfaction Questionnaire" which is located in the appendix. Finally, information such as user errors were gathered on the "Evaluation Data Form" as well as the console.

Data from the usability tests are then compiled to show trends within the testing such as users having issues with a specific aspect of the test. Data collectors should put any observations and common errors into the UX target table as well.

Evaluation Results

After reviewing the results from our most recent usability test, users struggled to understand three basic navigation actions. When users started the test they didn't recognize the starting screen was the lock screen and that the application menu was accessed by swiping down to unlock the watch. Once users got past the lock screen and entered this menu most didn't recognize that additional applications could be accessed by swiping left or right. The quick access area above each icon in the application menu also caused users to think they had already entered the application. Because of this, users did not realize this was just a menu with a few ready features for each application and they needed to click on the icon to enter the application. These three items we refer to as the 3 Errors. Not errors of the user but of the design.

Seconds on a task

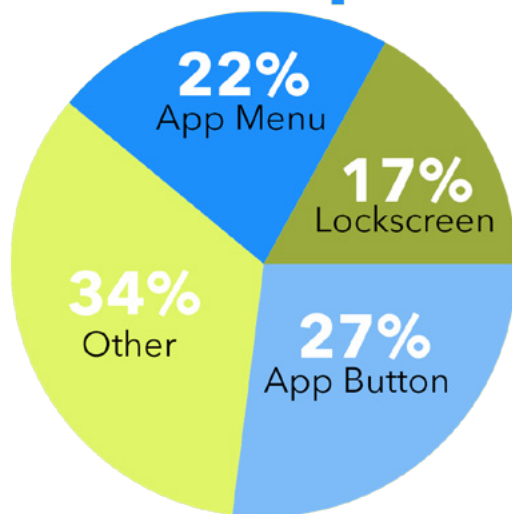


Task Misses



Average number of misses per task

Time Spent



Percent of the users time spent trying to solve one of the 3 Errors

Survey Results

1. Overall, I am satisfied with how easy it is to use The Dial.



2. I am able to complete my work using The Dial.



3. Whenever I make a mistake using The Dial, I recover easily and quickly.



4. I am able to complete my work quickly using The Dial.



5. Overall, I am satisfied with The Dial.



6. I like using the interface of The Dial.



Averages

Design Changes #2

As more users test the interface of The Dial, design changes are made to increase usability based on the observed interactions. The main three errors that were made dealt with the lock screen, navigating the application menu, and entering applications, the major changes will affect those areas. Instead of altering how the application works, most changes will be graphical hints to help the user identify possible actions they could take.

The first design change is to alter the lock screen to indicate that you swipe icons to unlock the watch and to enter applications from the lock screen. Although changing the unlock icon again was considered to help show that the watch is locked; it was decided that having a help notification appear on the lock screen would be more helpful if a user clicks on the screen instead of swiping. The notification displays arrows and text to both say and show that you can swipe the icons. With this change users can be informed on how the lock screen works instead of having to guess.

The second design change is adding arrows next to the icon buttons to show that they can swipe left or right to navigate the application menu. After the low fidelity prototype testing the outer icons were cut off to help show that there are other applications available. However this solution did not help and the problem persisted with the high fidelity prototype, so it was decided that adding arrows could be of help with this. These arrows are the same which are used on the unlock screen which helps enforce the idea that arrows coincide with being able to swipe.

The third and final design change is notifying users that applications can be opened up instead of using the application quick action area. In both the low and high fidelity prototypes users only noticed the quick action area and didn't realize that you could enter applications for further functionality. Since operating systems such as iOS use a flat icon theme, further research will be done to determine how the buttons can be altered. Possible changes are adding more depth to the buttons or altering color to help the buttons stand out from the background and appear to be clickable.

Conclusion

The results of the high fidelity testing gave us the direction we will need to continue with the design iteration. After addressing the three errors with the proposed design changes another round of testing would help make sure the first time user has a better understanding of the workings of the system. At some point the greater need for simplicity and speed of the actions will outweigh the desire to implicitly show the user how to use the system. A tutorial when you first use it could be required. This decision would have to be made after we test the new design changes.

Throughout the semester it became clear that one of the most valuable things to remember while developing is that you won't be the only user. While designing and creating a program certain aspects will seem obvious to you, but not as obvious to a real user. Usability testing with prototypes are needed to help show basic problems users might have with the interface. It shows the things we would never even consider as a problem or a solution. With the quantitative and qualitative data gathered from the tests, interfaces we get a clear understanding of what aspects need to be worked on. Otherwise we would be thinking only within our own perspective.

It also became clear that usability testing is more involved than it appears to be. In other courses, testing an interface consisted of having group members make sure the interface was stable. After taking this course we now know that functionality and stability aren't the only things to consider when testing an interface. Usability tests require considerable forethought and planning to ensure that valuable results are obtained from the test.

Another lesson that was learned is that user testing is never finished; it is part of a cycle. Every time we finished a usability test there were obvious areas for improvement in how the test was run as well as how the interface was used. Just because a user test went well doesn't mean that the testing is complete, it simply means that other aspects of the test can be emphasized or re-evaluated for the next iteration.

Finally, many lessons were learned about working in a group. Although many principles such as time management remained constant for any project, this project took a step further by focusing on dividing work amongst group members and working together to accomplish one common goal. Determining group member strengths was another major factor when working on this project. At the start of this project almost all of our team roles were the same aside from the team leader; however, as the project progressed team member strengths stood out. This was especially prominent in phase 4 where the group had to not only create a high fidelity prototype but also continue writing the report and developing an evaluation plan and UX target table. Group work was divided up so group member strengths so the project would be completed on time. For example, Thomas was put in charge of creating the high fidelity prototype due to his experience with HTML coding while Tyler and Andrew created the report due to their strength in writing.



APPENDIX

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Team Expectations:

- Standard meeting time is Wednesday 12:00 - 2:00.
- Google Docs for text files, and Dropbox for any non-text based files.
- Email is to be replied to within half a day.
- Final decisions are to be made as majority rule.

Survey Results:

Ages		
18-25	92.31%	
40+	7.69%	
Tech Exp		
Novice		
Advanced	53.85%	
Expert	46.15%	
Gender		
Male	92.31%	
Female	7.69%	
Own Watch	53.85%	
Don't own watch	46.15%	
Type of Watch		
Analogue	30.77%	
Digital	15.38%	
Smart	7.69%	
has smartphone	76.92%	
doesn't	23.08%	
Phone OS		
iOS	30.00%	
Android	60.00%	
Windows	10.00%	
Functions	General	top 5
Make calls	100.00%	50.00%
Listen to music	70.00%	60.00%
Text messaging	100.00%	90.00%
Games	60.00%	0.00%
Check time	90.00%	70.00%
To-do lists	30.00%	0.00%
Reminders	70.00%	20.00%
Take photos	80.00%	30.00%
Calendar	60.00%	10.00%
Surf Interwebs	80.00%	40.00%
Check weather	70.00%	10.00%
Watch videos	50.00%	20.00%
Phone Frequency		
Never	0.00%	
Once an hour	20.00%	
Several times an hour	30.00%	
Constantly	50.00%	
Phone Duration		
Less than 5 minutes	40.00%	
5 minutes	40.00%	
10 minutes	10.00%	
30+ minutes	10.00%	

Team Roles

Project Manager - Delegates tasks to group members, maintains focus on the project.

Writer - As the name implies, the author of the text.

Editor - Review and rewrite the recorded information.

Graphic Designer - Developed visual look of the reports.

UX Designer - Developed the user interface for The Dial OS and applications.

High Fidelity Creator - Developed the high fidelity prototype for The Dial's interface.

Research Test Subject - Performed usability testing for other groups.

Ideas - Develop and discuss ideas for The Dial prototype.

User Researcher - Develops questions and methods to collect user information through surveys, observations, and interviews.

Phase 1: Product Concept Statement

Thomas Verstraete - Ideas, writer, project manager.

Tyler Hutek - Ideas, editor.

Andrew Jarvis - Ideas, writer, editor.

Phase 2: Contextual Analysis

Thomas Verstraete - User Researcher, Writer, Graphic Designer.

Tyler Hutek - User Researcher, Writer, Editor, Project Manager.

Andrew Jarvis - User Researcher, Writer, Editor.

Phase 3: Design & Prototyping

Thomas Verstraete - UX Designer, Graphic Designer, Writer, Editor.

Tyler Hutek - UX Designer, Usability Tester, Writer, Editor

Andrew Jarvis - Project Manager, UX Designer, Research Test Subject, Editor

Phase 4: Evaluation Plan

Thomas Verstraete - High Fidelity Creator, Graphic Designer, Editor

Tyler Hutek - Project Manager, Writer, Editor

Andrew Jarvis - Writer, Editor

References:

- [1] Apple Computer, iOS Human Interface Guidelines, <https://developer.apple.com/library/ios/documentation/userexperience/conceptual/mobilehig/>, visited 10/15/13.
- [2] Google inc., Design Principles | Android Developers, <http://developer.android.com/design/get-started/principles.html>, visited 10/15/13
- [3] BlackBerry, Key Principles, http://developer.blackberry.com/devzone/design/bb10/key_principles.html, visited 10/15/13
- [4] Harris, David, and Sarah Harris. Digital Design and Computer Architecture. Morgan Kaufmann 2012. Print.

Task Introduction

Thank you for volunteering for our usability study. Today we are testing a new smart watch interface. This is a high fidelity prototype of our interface to see how users, such as yourself, will interact with the new product. We are going to attempt to run through five tasks but as time is a factor we will do as much as we can. While performing these tasks we ask that you think aloud what you are doing and what you see. If at anytime throughout this test you feel lost please let us know as this means there is a problem with the design.

Before we design the hardware we would like to test out the user interface. We ask that you imagine performing these actions on a wrist watch. You can see that there are red boxes on the right side of The Dial. These are used to press the side buttons that would be on the actual watch.

Do you have any questions before we begin?

Evaluation Data Form

Task One: General Interface testing

Check all that apply

The interface made sense to the user	
The user was unable to understand how to exit an application	
The user was confused how to enter an application	
The user was unaware that you could interact with an application without entering it.	

Task Two: Reply to a Text

Rating

The task was completed with no errors		5
The task was completed with 1 error		4
The task was completed with 2 errors		3
The task was completed with assistance		2
The task wasn't completed		1

Task Three: Make a Phone Call

Rating

The task was completed with no errors		5
The task was completed with 1 error		4
The task was completed with 2 errors		3
The task was completed with assistance		2
The task wasn't completed		1

Task Four: Start Playing Music

Rating

The task was completed with no errors		5
The task was completed with 1 error		4
The task was completed with 2 errors		3
The task was completed with assistance		2
The task wasn't completed		1

Task Five: Stop Fitness App Recording

Rating

The task was completed with no errors		5
The task was completed with 1 error		4
The task was completed with 2 errors		3
The task was completed with assistance		2
The task wasn't completed		1

Task Instructions

Task 1: General Usage Test

Imagine you are given this smart watch from a friend who wants you to take a look at the new smart watch. You grab it and notice the round screen. You also see that there is a dial on the side similar to a regular watch. Take a few minutes to explore the product. There is no goal except to help gain familiarity with our interface. Again please think aloud what you are doing and seeing.

Task 2: Reply to a Text Message

You are in the middle of a meeting and notice you have a text message from a friend. Since you are in a meeting you will have to reply later. Dismiss the notification so you can reply after your meeting. Then some time passes and you now reply to the message.

Task 3: Place a Phone Call

You missed a call from your mother earlier today; call her back.

Task 4: Using the Music Application

You are sitting around and you get a song stuck in your head. The song is “Never gonna give you up” in the album “Whenever you need somebody.” Use the watch to play that awesome song.

The Dial Usability Initial User Satisfaction Questionnaire

1. Overall, I am satisfied with how easy it is to use The Dial.

strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

1 2 3 4 5

2. I am able to complete my work using The Dial.

strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

1 2 3 4 5

3. Whenever I make a mistake using The Dial, I recover easily and quickly.

strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

1 2 3 4 5

4. I am able to complete my work quickly using The Dial.

strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

1 2 3 4 5

5. Overall, I am satisfied with The Dial.

strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

1 2 3 4 5

6. I like using the interface of The Dial.

strongly disagree ☐ ☐ ☐ ☐ ☐ strongly agree

1 2 3 4 5

Testing Data Example

The console of the high-fidelity prototype prints out the data for the tests. Below is an example

```
loaded
task.js.pagespeed.jm.09xgpbJtJ.js:1Task is viewed: 1
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:54:03 GMT-0500
  (EST) : User : test 1 : START TEST *****
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:lockScreen to: fitnessApp
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:54:55 GMT-0500
  (EST) : User : test 1 : Switcher-phone : DisplayApp show : Move
app2.js.pagespeed.jm.OfTDHUQCgo.js:4fitnessMainslide
app2.js.pagespeed.jm.OfTDHUQCgo.js:4down height: -208
app2.js.pagespeed.jm.OfTDHUQCgo.js:4-208
app2.js.pagespeed.jm.OfTDHUQCgo.js:4down than
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:55:14 GMT-0500
  (EST) : User : test 1 : fitnessApp-fitnessMain : pressed footer play/pause : hit
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:fitnessApp to: fitnessApp
AppSwitcher.js.pagespeed.jm._wkUZPQYFa.js:5fitnessApp
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:55:23 GMT-0500
  (EST) : User : test 1 : fitnessApp : DirectDisplayApp show : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:55:31 GMT-0500
  (EST) : User : test 1 : lockscreen : attempt to swipe left : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:lockScreen to: switcher
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:55:47 GMT-0500
  (EST) : User : test 1 : Switcher-phone : DisplaySwitcher Show : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:switcher to: switcher
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:55:59 GMT-0500
  (EST) : User : test 1 : Switcher-phone : DisplaySwitcher Hide : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:lockScreen to: switcher
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:56:07 GMT-0500
  (EST) : User : test 1 : Switcher-phone : DisplaySwitcher Show : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:switcher to: switcher
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:56:12 GMT-0500
  (EST) : User : test 1 : Switcher-phone : DisplaySwitcher Hide : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:56:22 GMT-0500
  (EST) : User : test 1 : STOP TEST ****139101****
task.js.pagespeed.jm.09xgpbJtJ.js:1Task is viewed: 2
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:56:54 GMT-0500
  (EST) : User : test 2 : START TEST *****
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3popUp swipe down
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:57:08 GMT-0500
  (EST) : User : test 2 : PopUp-TextTest : swipe down : Move
thedial:531close MC
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:lockScreen to: messageCenter
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:57:24 GMT-0500
  (EST) : User : test 2 : MessageCenter : text back jarvis : Hit
```

Controller.js.pagespeed.jm.eTNz6PkZWj.js:3popUp swipe down
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:57:54 GMT-0500
(EST) : User : test 2 : PopUp-NotI : swipe down : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:messageCenter to: messageCenter
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:57:59 GMT-0500
(EST) : User : test 2 : STOP TEST ****64851****
task.js.pagespeed.jm.09xgpbJ.js:1Task is viewed: 3
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:58:11 GMT-0500
(EST) : User : test 3 : START TEST *****
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:lockScreen to: switcher
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:58:31 GMT-0500
(EST) : User : test 3 : Switcher-phone : DisplaySwitcher Show : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:58:36 GMT-0500
(EST) : User : test 3 : Switcher-Phone : swipe Up to call Mother : Hit
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:58:41 GMT-0500
(EST) : User : test 3 : PopUp-CallMom : swipe Up to call Mother : Hit
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3popUp swipe down
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:58:47 GMT-0500
(EST) : User : test 3 : PopUp-InCall : swipe down : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:58:49 GMT-0500
(EST) : User : test 3 : STOP TEST ****38191****
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:switcher to: switcher
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:59:00 GMT-0500
(EST) : User : test 3 : Switcher-phone : DisplaySwitcher Hide : Move
task.js.pagespeed.jm.09xgpbJ.js:1Task is viewed: 4
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:59:27 GMT-0500
(EST) : User : test 4 : START TEST *****
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:lockScreen to: switcher
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:59:29 GMT-0500
(EST) : User : test 4 : Switcher-phone : DisplaySwitcher Show : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:59:37 GMT-0500
(EST) : User : test 4 : Switcher-phone : Move left : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 13:59:41 GMT-0500
(EST) : User : test 4 : Switcher-text : Move left : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:switcher to: musicApp
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:00:57 GMT-0500
(EST) : User : test 4 : Switcher-music : DisplayApp show : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:02 GMT-0500
(EST) : User : test 4 : musicApp-albums : Moved To : Move
app2.js.pagespeed.jm.OfTDHUQCgo.js:5up height: 312
app2.js.pagespeed.jm.OfTDHUQCgo.js:6app distance: 75
app2.js.pagespeed.jm.OfTDHUQCgo.js:6app location: 0
app2.js.pagespeed.jm.OfTDHUQCgo.js:6up else
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:19 GMT-0500
(EST) : User : test 4 : musicApp-songs : Moved To : Move
Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:22 GMT-0500
(EST) : User : test 4 : musicApp-singleSong : Moved To : Move

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:25 GMT-0500
(EST) : User : test 4 : STOP TEST ****117444****

Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:musicApp to: musicApp
AppSwitcher.js.pagespeed.jm._wkUZPQYFa.js:5musicApp

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:28 GMT-0500
(EST) : User : test 4 : musicApp : DirectDisplayApp show : Move

Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:switcher to: switcher

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:28 GMT-0500
(EST) : User : test 4 : Switcher-music : DisplaySwitcher Hide : Move

task.js.pagespeed.jm.09xgpbJ.js:1Task is viewed: 5

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:43 GMT-0500
(EST) : User : test 5 : START TEST *****

Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:lockScreen to: fitnessApp

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:01:44 GMT-0500
(EST) : User : test 5 : Switcher-music : DisplayApp show : Move

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:02:06 GMT-0500
(EST) : User : test 5 : fitnessApp-stats : Moved To : Move

Controller.js.pagespeed.jm.eTNz6PkZWj.js:3change screen from:fitnessApp to: fitnessApp
AppSwitcher.js.pagespeed.jm._wkUZPQYFa.js:5fitnessApp

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:02:17 GMT-0500
(EST) : User : test 5 : fitnessApp : DirectDisplayApp show : Move

Controller.js.pagespeed.jm.eTNz6PkZWj.js:2tester log: Fri Nov 22 2013 14:02:19 GMT-0500
(EST) : User : test 5 : STOP TEST ****36691****
