



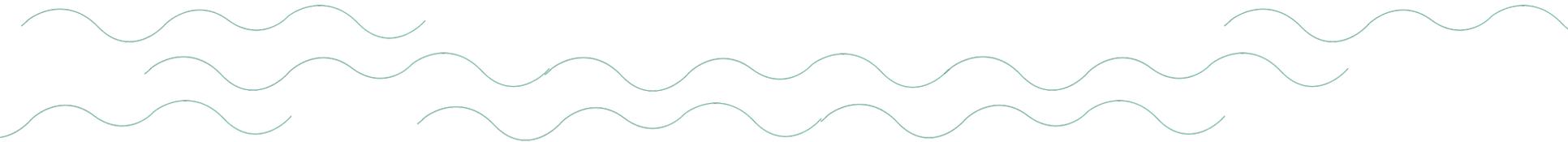
Team Kiwi

3/22/18

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# Design challenge

How might we help people who workout outdoors be safe and more protected from injury and hazards?

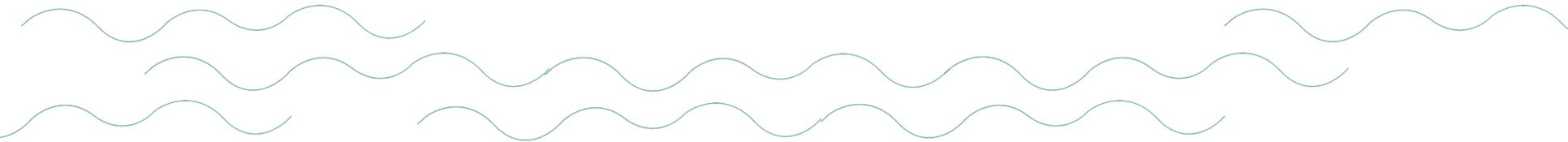


# Online Research

The outdoors presents uncontrolled natural factors such as weather and temperature. This makes working out outside more unpredictable.

## Problems

- Weather
- Temperature
- Rip currents
- Marine life
- Rocks and shells



# Online Research

## Statistics in California in 2017

- Rescues: 58,577
- Preventative Actions: 4,564,800
- Medical Aids: 288,340
- Drowning Deaths: 60 (48 at unguarded beaches/ 12 at guarded beaches)
- SAN DIEGO annual rescues: about 5,000

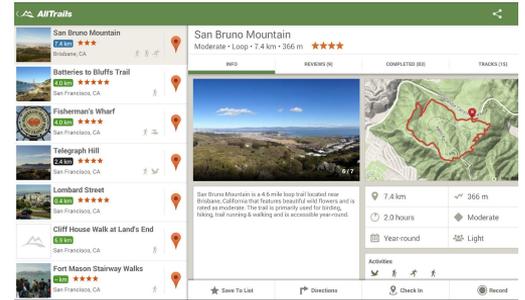


<http://www.seecalifornia.com/beaches/beach-rescue-statistics.html>

# Online Research

## Existing solutions

- AllTrails
- Fitbit
- Lifeguard, ranger, rescue/medical station
- Drones



<https://gearjunkie.com/drones-search-and-rescue-crevasse>

<https://www.usnews.com/news/technology/articles/2018-01-18/drone-rescue-off-australian-beach-heralded-as-world-first>

# Online Research

## Drawbacks

- Missing the “golden time”
  - Lifeguards and rangers usually arrive too late
- Difficulty detecting and finding location
- Human resource
  - Drone technology requires lifeguard to utilize it



<https://gearjunkie.com/drones-search-and-rescue-crevasse>

<https://www.usnews.com/news/technology/articles/2018-01-18/drone-rescue-off-australian-beach-heralded-as-world-first>

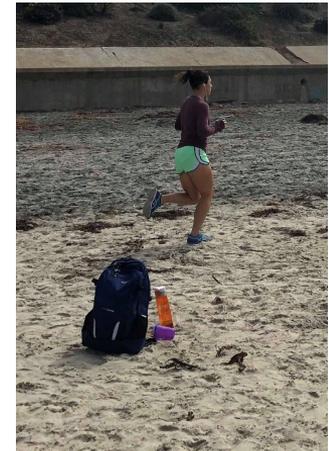
# User Research: Observations



People leave most of their personal items in their car



People need to carry all of their gym equipment with them



People can get sand in their shoes, or hurt their feet on rocks



# User Research: Interviews

## Interview Guide I

### Introductory Questions

- Start off by introducing yourself (student at UCSD, working on a class project that designs solutions for people who exercise at the beach, could we chat for a little bit?)
- Ask for consent - is it okay if I take notes/audio record (ideal)/take photos if necessary?
- Get to know them (What's your name, what do you do)

### General Questions

- Walk me through a typical workout for you.
- When was the last time you worked out at the beach before this? And before that?
- How did you get into working out at the beach and when did you start?
- Why did you choose the beach? (ask why several times to really know the reason/motivation)
- How did you workout before that?
- Can you remember a time something got in the way of your workout at the beach? (besides us interviewing you right now lol)
- How do you deal with those situations?

### Concluding Question

- Ask them if they would be cool if we reached out to them in the next few weeks to test our solution with them and if they say yes then get their phone number/email.

Key:  
This highlights the user's motivations and reasons for exercising/playing sports at the beach  
This highlights the user's reasons for NOT exercising/playing sports at the beach  
This highlights the user's challenges and needs when at the beach

### Interviews - Round 1

La Jolla Shores  
Sunday (2/18/15), 11:00 AM - 1:00 P.M.

#### 1. Father and son about to go paddleboarding

- Paddleboarding
- **Enjoy sports in the water**
- Father going to the beach for more than 35 years, since he was younger than his son
- Son: 11 years old, going to the beach since 4
- Also **goes to beach to run**
- Runs without shoes
  - Trade-offs
    - Barefoot feels better and thinks it's better for feet
    - **Barefoot is not as protective as shoes** - things in sand such as rocks and pieces of wood
- Father owns business (Wild Ocean), selling like hats and backpacks
  - Knows of company with a lightweight mesh shoe with thin sole suitable for wearing both in and out of water
- Gear is important when exercising
  - Hats for the sun
  - Shorts and shirts - usually made of Lycra stretch materials
- Father usually goes to beach with son during the weekends but the son doesn't want to go all the time (rather stay at home indoors sometimes)
  - They swim or run together
- When the father is with his son, he needs to be more focused on him to make sure he's okay

#### 2. Mom who is at the beach with her teenage daughter

- Was walking along beach to her daughter who decided to stay on the sand because her knees hurt
- Born and raised in San Diego
- Doesn't go to the beach too often
- Lives near Mission Park
- Wanted to go hiking at Torrey Pines today but **thought it was difficult to plan since she wasn't familiar with the trails**
  - Wanted to go with her daughter
  - Plans to go another time after doing more research
- Usually works out outside
- Works out where she works, USD

Key:  
This highlights the user's motivations and reasons for exercising/playing sports at the beach  
This highlights the user's reasons for NOT exercising/playing sports at the beach  
This highlights the user's challenges and needs when at the beach

- Likes the free yoga class
  - **Likes the beach because sounds of waves**
  - Walks, sometimes runs or swims (like floating)
  - **Dislikes the flies and piles of seaweed**
  - Husband likes to ride mountain bikes
- #### 3. Father with surfing daughter and son
- **Comes to beach once every other week**
    - **Lives close by**
  - **He surfs and his kids surf**
  - He learned when he was 8/9 and is now 54
  - From Huntington Beach
  - **Also water ski and jet ski**
  - Goes to gym to run on treadmill
  - Walks from here (near Scripps Pier) to Del Mar
    - Knew about the walk from his girlfriend who has restaurants in Del Mar
  - Yesterday went to the gym then the beach. Today it's the beach and then the gym
  - **Beach: fresh air + sunshine + nature = is free**
    - Can "experience life"
    - **Thinks it's important for his kids to go outside**
  - Kids also play soccer, baseball, and golf
  - **Goes to gym to stay in shape - since he is aging**
  - Challenges: weather - though California is good
  - Gym has pictures with instructions
  - **Outside - need to learn by doing**
    - Frustration
    - Encourages the kids and gives them tips
  - Surfing is one of the most individual sports
  - Every spot is different for surfing
    - People use websites to find out tide and swell information to decide where to go
      - Usually doesn't check when going with kids
        - Places pretty safe except for slingsays
        - Looks for where waves are breaking when going alone
  - Good about surfing: can do anywhere there's a coast
  - **Panic comes with surfing**
  - Daughter is 9
    - Is starting to learn to surf
  - Son is 12, surfing since he was 6/7
    - Just starting to get surfing

# User Research: Analysis

## Civic Design Challenges

- Cycling Accidents due to one area for runners/bikers
- Difficult to carry equipment
- Can't do a "proper workout" without defined spaces for working out

## Safety Challenges

- SD lifeguards responsible for ocean safety, cliff rescue, and regulation enforcement.
- Water is the cause of most incidents
- Right now, rely on other peers for help, hard to connect with a lifeguard

## Motivation Challenges

- Difficult to motivate yourself
- Not convenient (work timings)

# User Research: Focus

After categorizing different types of problems that arise while working out outdoors, we decided to focus on safety since the design challenge was focused on body-sensing solutions, and there are currently many body-sensing devices to help motivation (such as fitbits, fuelbands, etc.), but there aren't any body-sensing devices to address safety problems.



# User Research: Stakeholders

## Users Seeking Help:

- Average beach-goer, families and friends
- Surfers, bikers, runners
- People occupying the beach community
- Anyone seeking help or offering to help  
(This refers to someone who is informally offering help. The help is essentially crowdsourced from people around you)

## Users Offering Help:

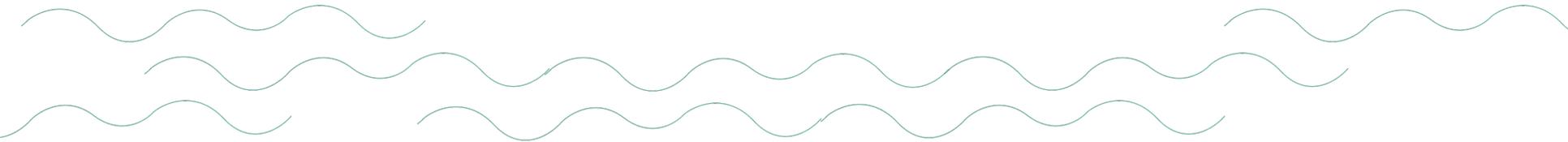
- Trained professionals
- Lifeguards and parks rangers
- Designated community or park safety officers

Note: Both users and non-users of SafeU are affected by it because users are clearly using the app to ask for help, and non-users are surrounded by constant help-seekers and rescuers which could affect non-users from obtaining the help they need when rescuers are focusing on actual users.



# User Research: Main Needs

- People need safety against environmental hazards at the beach (i.e. uneven terrain, tripping on hidden obstacles)
- People need safety from hazards posed by other beachgoers who are unaware (maybe with headphones). Runners particularly affected by other runners and bikers
- People need a more effective means of contacting a lifeguard
- People need to make better use of the other people around for help
- People need the ease in their minds to know they are safe because they are being watched over
- People need a way to contact emergency responders if they are drowning or having a seizure in the ocean (the lifeguard might not necessarily see the person)



# Personas

## Jack



## Bio

Jack has been a lifeguard for 11 years. He started working in this job for extra money, but it has become his career. He is passionate about being outdoors and helping people be safe. He sees a lot of different types of people working out, and has to make sure they are all safe.

## Needs

- To be able to maintain an eye on everyone that is at the beach
- Have the resources to treat any sort of injury
- Contact people who are doing unsafe activities

# Personas

## Julie



## Bio

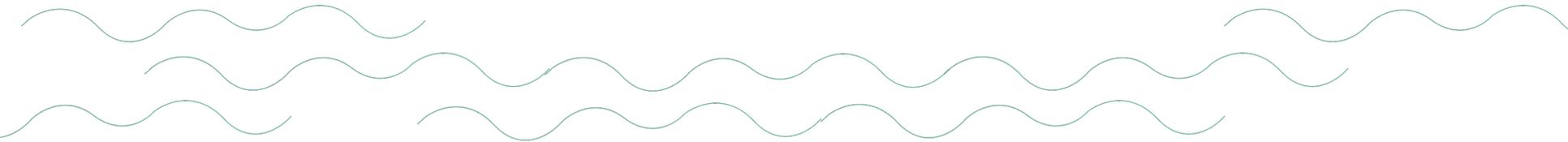
Julie is a 30 year old woman who enjoys working out outdoors. She likes the fresh air and views at the beach. She runs and has tried water sports such as surfing. She is passionate about working out, and is adventurous, always trying out new sports.

## Needs

- Feel secure when working out alone or at night
- Make sure she can receive help if she gets injured
- A way to have her items be safe when she is working out

# Mission Statement

People working out at the beach need a way to ask for help from a professional when they are in danger or suffer a serious injury, because as of now they can only rely on people around them to provide a helping hand



# Moodboard

Safe

Secure

Empowered

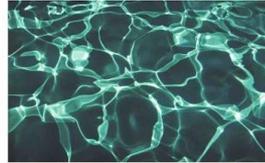
Prepared

Carefree

Confident

Trusting

At ease



# Design Specification

## Logo

### Primary Logo

A lifebuoy/life preserver provides buoyancy and prevents a person from drowning. Our logo incorporates this as a symbol to indicate that our application gives visitors at the beach and lifeguards a faster way to recognize people in danger and rescue them before they suffer any serious injuries.



### Logo Variations



Variation 1

Similar to primary logo with white text and outline - use on darker backgrounds.



Variation 2

The complete life preserver symbolizes "Safe" with the text "U." To be used as an icon where necessary



# Design Specification

## Typography

### Typeface

Our typeface is Avenir, a clean and geometric sans-serif font that complements our identity of being trustworthy and safe.

#### Avenir Light

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
1234567890!@#%&\*(.)\_-

#### Avenir Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
1234567890!@#%&\*(.)\_-

#### Avenir Black

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**abcdefghijklmnopqrstuvwxyz**  
**1234567890!@#%&\*(.)\_-**

### Usage

Use Avenir Light for body text (on screens, slides and posters). Use Avenir Black for standalone titles or to make text pop within the body text. Use Avenir Medium instead of Avenir Black to provide emphasis on specific parts of the text when Avenir Black is too heavy for the context. Use good judgement when choosing different weights and consider using font size to indicate visual hierarchy when possible.

#### Title

Subtitle is the same font weight as above but different font size indicates visual hierarchy



#### Title

Using same font weight and size as title makes it difficult to indicate visual hierarchy



#### Title

When using same font size as title, use font weight to indicate visual hierarchy



This text has **Avenir Black** and it's clear what's being emphasized and what's not.



This text has **Avenir Medium** but it doesn't really stand out.



# Design Specification

## Colors

### Primary Colors

These colors represent our brand. Use these colors generously for our type, patterns & backgrounds.

Trust	
300	#2E9B8E
200	#4BBDAF
100	#76DED1

Power	
300	#D87D41
200	#EB9760
100	#F0AC7F

Safe	
300	#EFDEB6
200	#F5ECD7
100	#FFFFFF

Ease	
300	#353535
200	#696969
100	#E0E0E0

### Secondary Colors

These colors should be used for a specific purpose across our applications and visual communication.

Error & Danger Alerts	100	#DD6D6F	200	#D5484B
Warning	100	#F6CA6B	200	#F4BD46
Information	100	#7CA6D9	200	#5B90CF
Success	100	#91CBAF	200	#74BC9A





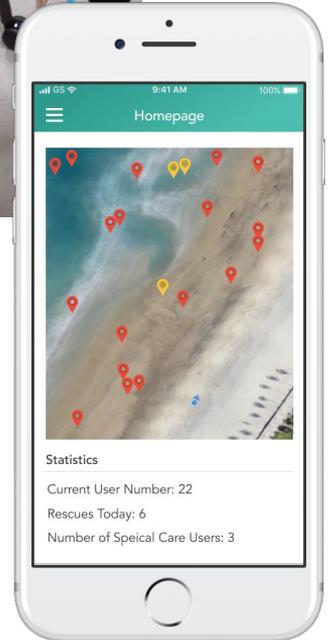
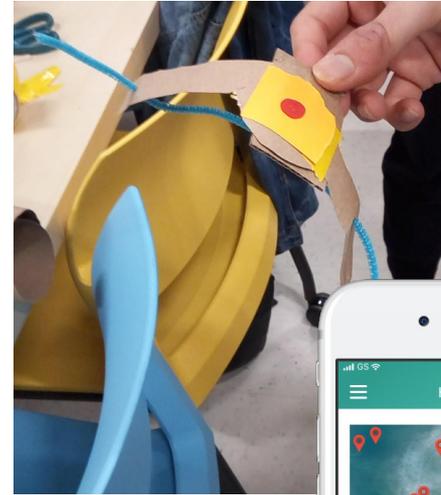
# Prototype

Our solution consists of

1. a watch people use to alert a lifeguard and
2. an app that lifeguards use to locate and communicate with the people in need of help.

**Users** connect the watch with their phone to set up their personal information.

**Lifeguards** will be able to see the location of users wearing the watch through the app.



# Prototype



## The watch features:

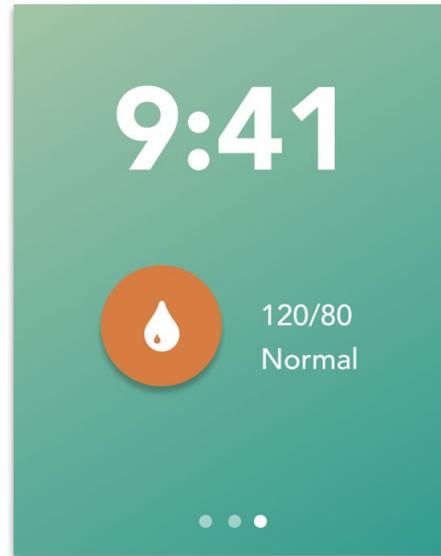
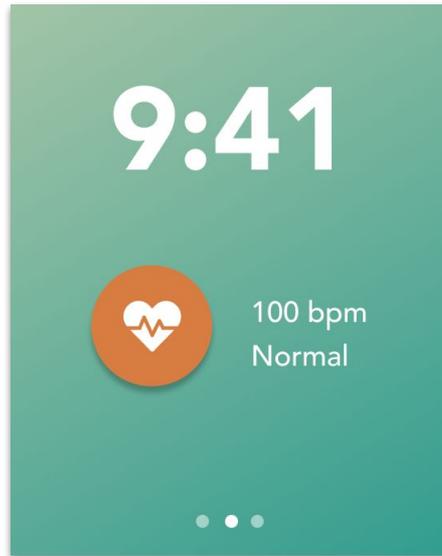
- A waterproof body
- A button on the side that the wearer can pull to send an alert to the lifeguards
- Light along the watch band that will flash when an alert is active
- A speaker that will play a sound when an alert is active
- A screen to display information to the user
- A connection to a computer to allow the user to configure their personal information



# Mockups: Watch

Screen Designs: <https://www.figma.com/file/akFPvKDqURAGDwJWdL4Q5J/SafeU-Wireframes>

Clickable Prototype: <http://invis.io/3CGGY1DDMN4>



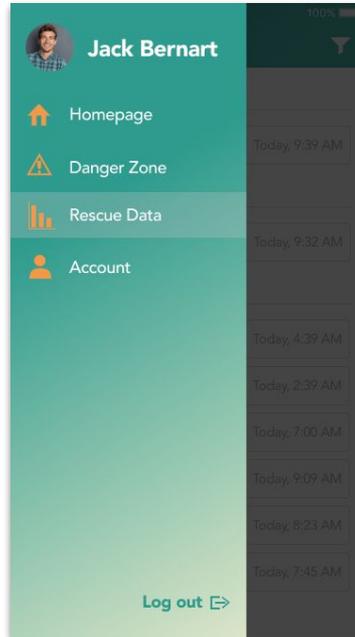
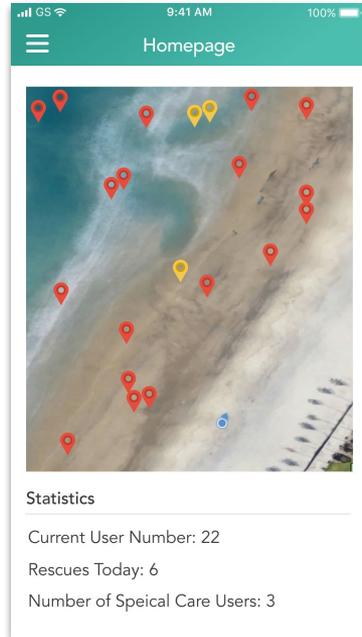
Normally, the watch displays the current time, a stopwatch, and a distance tracker.

The user can swipe the screen to see their heart rate and blood pressure.

# Mockups: Mobile App

Screen Designs: <https://www.figma.com/file/akFPvKDqURAGDwJWdL4Q5J/SafeU-Wireframes?node-id=303%3A0>

Clickable Prototype: <http://invis.io/REGDUPSZD2B>

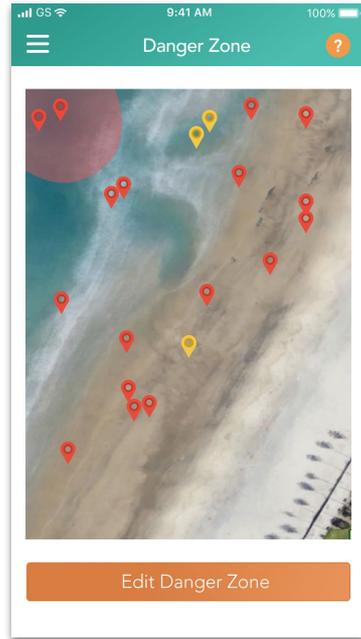
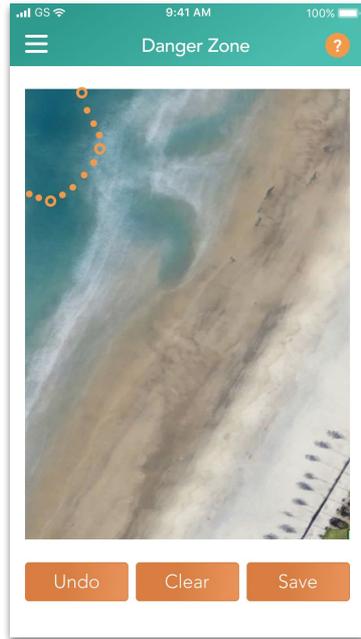
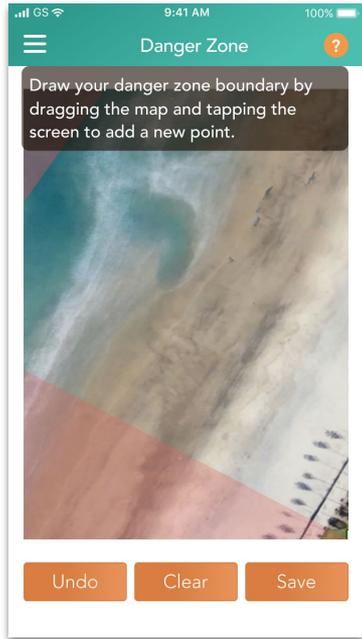


The SafeU splash screen appears when first opening the app.

The home page displays the location of people wearing the watch. People who have indicated themselves as special care are shown in yellow.

The user navigates the different functions of the app using the hamburger menu.

# Mockups: Danger Zones

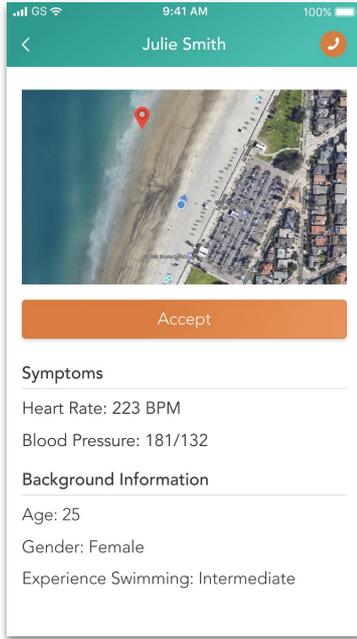


Lifeguards set the danger zones by adding points on the map to draw the danger zone boundaries.

**Warning:  
Unsafe  
Area**

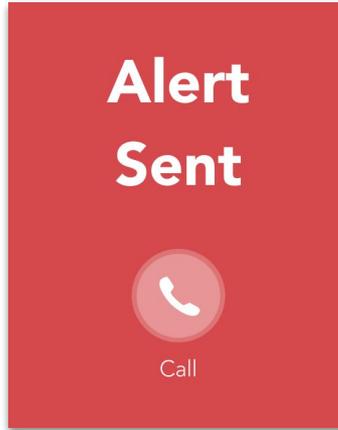
People wearing the watch will see a warning on their watch if they are in or close to a danger zone.

# Mockups: Alerts

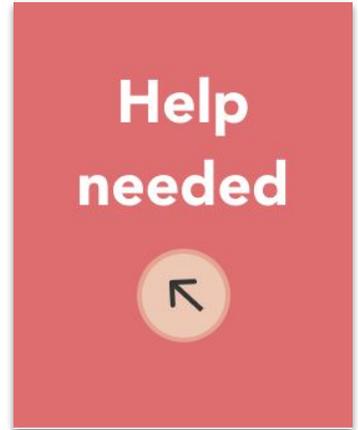


An alert triggers a push notification on the lifeguard's phone

The lifeguard can view the person's information, call the person, and accept the request.



The watch user will see the alert was sent and can call the lifeguard.



Other watch users will also be alerted and be shown the direction of where the person is located.

# Mockups: Resolving Incidents



The person in need of help can see when a lifeguard has accepted their request for help.

A mobile app mockup showing incident details for Julie Smith. The header is teal with a back arrow, the name "Julie Smith", and a profile icon. Below is a map showing a route to a location. A teal "Start" button is next to the map. Below the map are two buttons: "Resolved" (orange) and "Unaccept" (white). Underneath is a "Symptoms" section with fields for "Heart Rate: 223 BPM" and "Blood Pressure: 181/132". A "Background Information" section follows with fields for "Age: 25", "Gender: Female", and "Experience Swimming: Intermediate".

Julie Smith

4 min (0.2 mi) Start

Resolved Unaccept

Symptoms

Heart Rate: 223 BPM

Blood Pressure: 181/132

Background Information

Age: 25

Gender: Female

Experience Swimming: Intermediate

A mobile app mockup showing a "Thank you for helping!" screen. The header is teal with a back arrow, the name "Julie Smith", and a profile icon. Below the header is a white box with the text "Please describe the incident". Underneath are three input fields with labels: "Drowning", "Falling", and "Sprain". A fourth input field is labeled "Other".

Julie Smith

Thank you for helping!

Please describe the incident

Drowning

Falling

Sprain

Other

A mobile app mockup showing a "Thank you for helping!" screen. The header is teal with a back arrow, the name "Julie Smith", and a profile icon. Below the header is a white box with the text "Please describe the incident". Underneath is a text area containing the text: "Julie is a beginner surfer and was hit by her surfboard. Forehead was bleeding and she was blacking out." Below the text area are two buttons: "Back" (white) and "Submit" (orange).

Julie Smith

Thank you for helping!

Please describe the incident

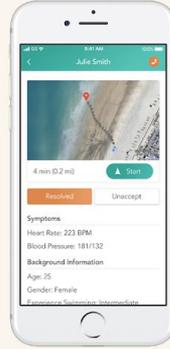
Julie is a beginner surfer and was hit by her surfboard. Forehead was bleeding and she was blacking out.

Back Submit

After the lifeguard accepts a request, they can navigate themselves to the location of the person and either resolve it or unaccept it to let another lifeguard take care of it.

After resolving an incident, the lifeguard can write a report to describe the incident.

# Use Case Scenario



# Usability Testing

## Tasks

1. Go through the process of going to help someone who is need
2. Document what the problem was
3. Edit the danger areas

## Questions

1. What do you like about this app?
2. What was challenging about this app?
3. What do you currently use?
4. What was your favorite feature?
5. Would you use this app?



# Usability

## Testing

### Likes

- Heart rate information helps determine urgency
- Easy to fill in incident report
- Ability to set and easily update danger zones
- All-in-one place tool
- Helps with communication

### Concerns

- Lifeguard reports typically need to be signed by helped person for legal reasons
- Need to integrate 911, lifeguard dispatch, emergency paramedics - may encounter legal problems using the app
- How to make sure everyone actually wears device



# Usability

## Testing

### Design considerations

- Make the edit danger zone a very clear process
- Integrate this design with other areas, not just the beach. How would it look like for rescuing someone on the cliffs?
- Add in other notifications for people, such as if they're entering a swim zone, or a surf zone.
- Have a section to update information about water temp, tides, etc. that people often ask lifeguards
- Make the boundaries of danger areas rely on other information not just on the lifeguards knowledge- do more research on this.
- Clarify each step of the rescuing process, what is happening at each step and what they are trying to fulfill.

# Acknowledgements

Thanks to the many San Diego lifeguards and beachgoers who have provided their stories and have given us feedback.

