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Capstone Project Brief

Part 1: Project Pitch

Cardiac arrest, heart failure and heart irregularities are one of the most common health issues in the world. People of all ages, backgrounds and health conditions can have heart conditions and issues that can require action in a second. If someone experiences cardiac arrest, their chance of survival increases immensely if a defibrillator is used on them, and the faster that defibrillator gets to them, the better their chances of survival. The problem with using defibrillators is that time is of the essence, and in these stressful situations it can be hard to locate and navigate to the nearest defibrillator quickly. Enter: Revive.

Revive is an iOS app that connects students, faculty, staff, and visitors to defibrillators on the University of Georgia's main campus. Revive features helpful instructions for defibrillator use during emergency and non-emergency situations, a map view with locations of defibrillators and helpful information to locate AEDs throughout campus, and the ability to add emergency contacts and send an emergency message if needed in an irregular heart rate, cardiac arrest, or heart failure emergency. By helping users get to defibrillators quickly and providing helpful instructions for the next steps, the Revive will help minimize the amount of deaths due to heart related emergencies, and help UGA faculty, staff, students, & visitors feel more at ease knowing that they have a tool that will help them and others in case of an emergency.

Revive will be an app that is able to function independently as a mobile iOS app with information provided in the app on how to set up heart rate notifications on an Apple watch. Apple provides heart rate tracking features that many users rely on to monitor their heart rates and patterns. If an irregularity is noted by the watch heart rate monitor the Apple watch will send a notification alerting the user and asking if further help is needed. ask if they would like to locate the nearest defibrillator. Watch out for your heart by downloading the Revive app for iPhone and Apple watch today!

Part 2: Definition, Justification + Exploratory Research

Purpose Statement

Revive is an iOS app that connects students, faculty, staff, and visitors to defibrillators on the University of Georgia's main campus which will help minimize the amount of deaths due to heart attack related emergencies by reducing the amount of time it takes to locate an AED. This project is original because the current UGA app provides several health resources such as DawgCheck and an Emergency Care feature, but does not include a feature that provides an AED location service and information on how to use an AED in an emergency

situation. The Revive app will be a new way to inform and aid UGA students, faculty, and visitors in need.

Problem Statement:

The problem that Revive will address is the increased survival rate of individuals when an AED is acquired in a less amount of time. Research shows that "...people are more likely to survive a cardiac arrest if a bystander uses a defibrillator while waiting for emergency medical services to arrive...The analysis suggests that 1,700 additional lives were saved each year in the U.S. from bystander use of defibrillators" ([National Institutes of Health](#), 2018). Data also shows that the shorter the time it takes to reach a defibrillator, the higher the chances of survival from cardiac arrests. The Revive app solves this problem by providing users with a way to reach an AED in a short amount of time during emergency situations. When an emergency situation is detected by the app, it directs the user to the nearest location of an AED on campus therefore minimizing the amount of time it takes to reach the AED.

Comprehensive Research Report

PulsePoint AED

Inspiration/Takeaways:

- The ability for users to contribute to building the AED registry
- Interface design of app is simplistic and easy to navigate around
- The app includes map filters that allow the user to select specifically what they may be searching for
- Provides information from the American Red Cross on how to properly perform CPR and use an AED

Cons:

- Some of the icons are confusing to figure out their purpose.
- There is no prompt leading the user to know that they must sign up for an account first before being able to use all of the features of the app.
- There is nothing that would guide the user through the app if there is an emergency situation therefore, prolonging the time it takes to reach an AED.

Lifeline VIEW AED

Inspiration/Takeaways:

- Provides a personal walkthrough of how to use an AED as if it was right in front of the user
- Instruction prompts that guide the user on how to use the app
- The video of how to use an AED is very simplistic and easy to follow in an emergency and non-emergency situation
- The video has both sound and closed captions which improves accessibility.

Cons:

- The only feature on the app is the video on how to use an AED. There is no other information provided.

Staying Alive

Inspiration/Takeaways:

- There is an introduction loading screen when users first open the app that gives an overview of the apps purpose and functions
- Gives users the option to sign up for an account but also gives the option not to sign up and still be able to use the app
- Gives users the ability to add a new AED to the map if one is found
- The interface design is more simplistic and accessible. Specifically, the toolbar at the bottom includes both an icon and words that detail what the icon means.
- The map format is of Google Maps so it will potentially be familiar to the user.
- Instructions for performing CPR and simplistic and easy to follow if the user is in an emergency situation. The app also provides even more detailed out instructions if needed.

Cons:

- When the map is first opened, it doesn't show the user the nearest AED's to their location or how to navigate to the nearest AED.
- The app doesn't provide instructions on how to use an AED.

AED-Finder

Inspiration/Takeaways:

This app didn't really provide many great features to takeaway. There were many different elements that could be used as "what not to do". Overall, the app doesn't really look finished, and crashes before even really being able to explore everything it has to offer.

Cons:

- The design of the app is not very professional looking.
- The app is prone to crashing
- The toolbar at the bottom of the screen only gives the option to list locations of an AED or report a new AED. Also, these buttons do not work.
- The map on the app doesn't show any AED's near the user's location.

Defiblocator-Defibrillator

Inspiration/Takeaways:

- Provides a link in the menu to the accompanying website
- Gives the option for the user to add a defibrillator to the map
- The map on the app has a button that links the location of the AED to Apple Maps so that users can be directed to the location.

- Provides links to the company social media

Cons:

- When the defibrillator location icon is clicked on the map, the only information given is the name of the place.
- The information that is provided through this app doesn't seem trustworthy. How is the user supposed to trust that the AED is where it is supposed to be?
- The "Add a Defib" screen doesn't show any information on how to add a defibrillator to the map
- The app only shows defibrillators in the UK.

Technology Overview

Revive will be formatted solely as an iOS app. We chose to create an iOS app solely because of the likeliness of users to use a phone in an emergency situation. We also decided to include information on setting up heart rate notifications through Apple Watch to provide users with another form of alert during an emergency and a way to track their heart rate. The iOS app will be there to provide detailed information, instructions, and contact features for users who may need this during an emergency or non-emergency situation.

Features

- **AED Location Map with Directions**
The map will provide users with a grander, scrollable overview of all the AED's on the UGA campus and the ability to show users where they are currently located on the map. An AED will be indicated on the map by the Revive icon, and when clicked, it will show more information about the AED location and provide users with the option to call or be directed to the building.
- **Simplified AED Use Instructions**
Users can get flustered during an emergency situation. Therefore, we provided an information tab that provides bold, simplified prompts that will easily guide the user on how to properly use an AED.
- **Introductory Information for New Users**
Revive features a help screen that familiarizes users with the imagery throughout the app and all of the features and their uses during both an emergency and non-emergency. This is provided in order to create a greater sense of confidence and trust in the app and its use during an emergency situation.
- **Faster Emergency Response Time**
Revive includes a call button feature for each AED location for users to have direct contact to the building in the case of any confusion. Our hope is that this speeds up response time during an emergency.
- **Add Emergency Contacts**

Revive allows users to add and edit emergency contacts, and send a pre-composed emergency message to those contacts within the app. When prompted, the app will send out a message to the victim's emergency contacts so that they will be notified that an emergency situation is occurring. This provides a sense of comfort to those close to the victim and also the close contacts to reach the victim quickly if necessary.

- **Information on Heart Rate Notifications**

Apple provides a way for users to monitor and be alerted of irregular heart rate events which can be very useful for users of Revive. Therefore, we provided users with information in our app on how to set up these notifications on their Apple Watch. This gives users an added feature that increases comfort for those who may deal with heart related problems.

Part 3: Competitive Advantage Report (CAR)

Market Justification

The Revive app for the UGA campus stands apart in the market because there is no existing feature like this for UGA that provides students, faculty, and visitors with a guide to direct them to and from the location of AED's on campus. The app will also provide information on proper AED use along with the ability to add and notify emergency contacts which is currently not offered within the UGA app. Many of the competitors that have created AED location apps either offer one or both of these features, but they are created in a way that can be confusing to operate in an emergency situation. We strive to stand above these competitors by providing users with an app that gives them a sense of comfort, ease of use, and preparedness in the case of an emergency situation. Our success will be measured in users' increased comfort and confidence to respond if needed during an emergency and the increase of lives saved during heart related emergencies on the UGA campus.

Consumer Research

Research shows that over 70% of Apple Watch users use them to monitor their heart rates. (<https://www.trustedreviews.com/news/heres-what-people-actually-use-the-apple-watch-for-3598825>) Our target market consists of UGA students, faculty, staff, and visitors of all genders and races. The target market is interested in monitoring their heart rate using their Apple Watch and iPhone and/or feeling better prepared in case of an emergency they

experience themselves or as a bystander on UGA's campus. The target market age ranges from 18-65. The age range is wide since this app is designed to be helpful for all, even if they themselves are not experiencing heart issues but are able to help as a bystander. Research conducted by another Apple Watch app shows that each age group has a significant number of users in them.

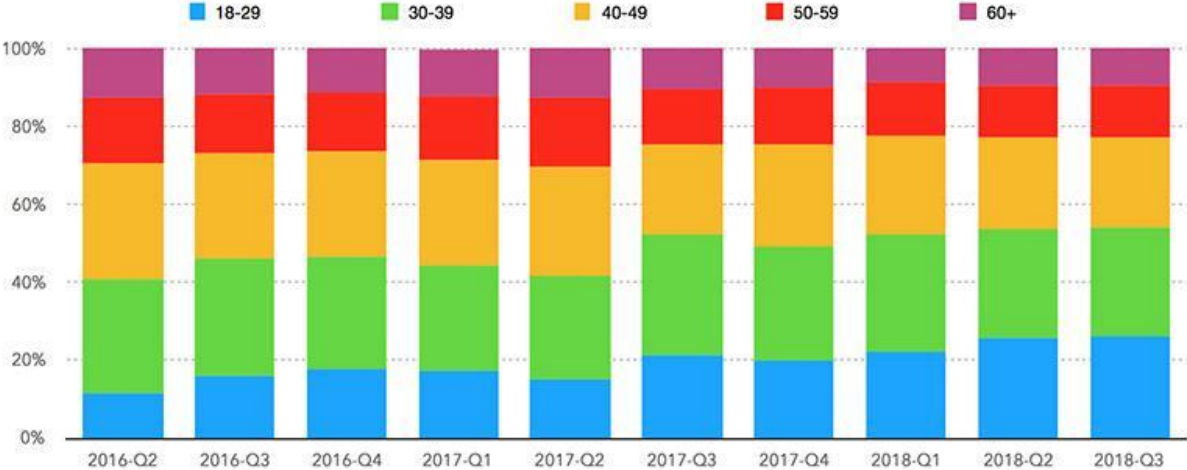


Figure 2. Quarterly breakdown of age ranges, by Cardiogram sign-up date. Source: Google Fit, Health App.

Apple watch users are also expected to increase. "Neil Cybart of *Above Avalon* expects the number of Apple Watch users will surpass that of the Mac by 2022. Apple recently confirmed that there are now more than one billion active iPhone units. Assuming the rest of the world reaches the same 35-percent adoption rate that iPhone users in the US have, there could be more than 350 million people wearing the Apple Watch in the future." (<https://screenrant.com/apple-watch-adoption-growth-iphone-data-predictions/>) Our target market users would be living in Athens, Ga or visiting there.

User Personas

NAME	MARKET SIZE	TYPE
Bill Thompson	50 %	Guardian



Demographic

Male 64 years

Athens, GA

Married

Professor at the University of Georgia

Doctorate

Background

Professor Bill Thompson has been teaching History at the University of Georgia for 15 years. He loves his job, his students, and he loves the University of Georgia, especially attending football games. He spends a lot of time on UGA's campus. He has been happily married to his wife Ann for 32 years, and they have 3 beautiful children, his youngest daughter in college at UGA now. Bill has a history of heart problems and heart attacks in his family. His father passed away from a heart attack and his older brother Steve was recently diagnosed with heart disease. While Bill has tried to keep himself fairly healthy, the threat of heart problems and heart attacks lingers in his mind. After hearing about the Apple Watch's heart rate monitoring capabilities, he purchased one and wears it every day. He has it set to monitor if his heart rate becomes irregular. With the help of his college aged daughter, he has figured out how to use it quite well.

Goals

- Monitor his heart rate.
- Be able to notify family members in case of heart problems.
- Have a way to get help if he experiences heart problems.

Technology

Quote

Go Dawgs!

Technology Usage

Being a college professor, Bill has done his best to keep up with the changing technology that his students like to use. His children, ranging in ages 20-27, have taught him a lot about the newer devices. He loves Apple products and uses them exclusively. He loves using his iPhone to reply to his students' emails on the go. Being a history professor, he loves having his iPhone on him to google dates and historical events to learn more about. Bill also loves his Apple Watch. He likes to use it to monitor his daily activity, like how much he walks around campus. His daughter has showed him how to monitor his heart rate very closely using the Apple Watch heart rate features.

Motivations

- His family
- His students
- Teaching

Frustrations

- Fear of heart problems
- Kids growing up
- Hot football games

Scenarios

Bill has had a very stressful week at work. He has not been getting enough sleep and has been drinking too much caffeine. His walks to work and around campus are hot and tiring. During one of his breaks in between classes he walks from his classroom on North Campus towards Tate to get a coffee. He starts to not feel very well, becoming light headed and having pain in his chest. His watch alerts him to his irregular heart rate. The Defibrilator app initiates and asks him if he would like to locate the nearest defibrillator. Feeling like something is wrong, he selects yes, and after the Handoff from his watch he uses his iPhone to use the Defibrilator to guide him to the nearest defibrillator in the Journalism building. He is able to see exactly where it is, what floor and what side of the building it is on. The Defibrilator notifies his emergency contacts (his wife and children) that he is having heart problems and sends them his location. He makes it just in time to the defibrillator as he collapses. He is having a heart attack. A fellow professor sees him and is able to use the defibrillator on Bill as he has a bystander call 911. He comes to after the use of the defibrillator. His daughter who is on campus nearby for class is able to rush to Bill's location and ride with him in the ambulance to the hospital. Bill survives the heart attack due to being able to get to the nearest defibrillator quickly, and his daughter was able to be by his side. He recovers and is back to teaching soon. He continues to work on his heart health and keep his Apple watch on, just in case.

NAME

Katie Lee

MARKET SIZE



TYPE

Artisan



Background

Katie Lee is 18 years old and starting her freshman year of college at the University of Georgia. She is so excited for college, but also very nervous. She is from a small town and this is the first time she has ever lived away from home. She also has been diagnosed with anxiety so she becomes anxious more often than the average person. What makes her most anxious is the fact that she has tachycardia (a heart rate that is too fast). Tachycardia can lead to heart failure. While Katie is excited to be living on her own, she is terrified of the thought of having heart problems and not being able to get help. She has not met that many people yet and still gets very lost on campus.

Demographic

Female years

Athens, Ga

Single

Student at the University of Georgia

College freshman

Goals

Make new friends.

Reduce anxiety.

Find her way around campus easily.

Make sure she can get help should her tachycardia lead to more severe heart problems.

Quote

“Do you know where the MLC is?”

Technology



Technology Usage

Katie, being a part of Gen Z, is very technology savvy. She loves Apple products. She has her iPhone and Apple Watch on her at all times. Most of the time she has her MacBook with her as well during class. She loves watching TikTok on her iPhone. She shares her location with her parents and a friend from home, just in case something goes wrong. She does not like to be without her iPhone or Apple Watch, because it makes her feel vulnerable. She is still getting used to living in Athens and getting around campus so she uses Maps almost constantly. Since she has anxiety and tachycardia, she frequently uses the Breathe feature on her Apple Watch to try to get her heart rate down. Since she does have a heart problem and is very nervous about it, she is constantly checking her Apple Watch to check on her heart rate.

Motivations

Getting good grades

Making new friends

Reducing her anxiety by becoming more comfortable with her environment at school

Frustrations

Anxiety

Always feeling like something bad is going to happen

Not knowing where to go on campus

Scenarios

Katie learns about the Defibrillator and immediately downloads it. It makes her feel so reassured knowing that if she has heart rate problems that lead to her needing a defibrillator (which can happen with having tachycardia) she will be able to navigate to it quickly using maps since she still doesn't know her way around campus yet. She has gotten her roommate and new friends she is making at school to also download it in case she ever needs them to locate a defibrillator for her.

Product Comparison

Currently, there are a number of apps in the Apple App Store that offer some type of AED location or AED instruction/information feature. However, as noted in our Comprehensive Research Report, the more popular apps have some successful aspects that we will definitely look to when building the Revive app, but also most of the existing apps have many areas that need to be improved upon. Overall, many of the AED apps are designed poorly and either rated very low or have no rating at all. As far as apps that are solely for UGA visitors, staff, and students, there is no existing app that provides AED location and information on proper use. The plan for our product is to merge both the locating service and information/instruction of AED proper use into one app to create a one stop shop for users in both emergency and non-emergency situations.

Competitor Research

PulsePoint AED:

- According to their website, "PulsePoint AED is a simple-to-use app that enables you to help build the public AED registry in your community – or anywhere!"
- Developer: PulsePoint Foundation
- Target Market: Citizens trained in CPR, off-duty professionals (such as firefighters, paramedics, nurses, etc.) and public safety organizations.
- Marketing Strategies:
- 4.7 star rating
- 5.3K ratings
- Keywords: Pulse, AED, safety, registry, emergency, CPR, professionals
- Features:
 - AED map
 - AED registry
 - Photos of where AEDs are located
 - Display colocated features (EpiPen, Narcan, etc)
 - Issue reporting
- Distribution: iPhone download
- Copyrighted in 2011
- Recent Reviews:

Works, needs more participation 1y ago
★★★★☆ g33kp0w3r.

It works and it's nice and easy to add an AED to the system, but it doesn't have all AEDs because they just need to be added. Please use this app and make sure every AED you see is in this database.

Developer Response 1y ago
Thanks. Definitely try our new version - 2.0.

Dangerous 1y ago
★★★★☆ 33129

You require people to signup and have a login before they can use this app? That's horrible. You can push a signup after the fact, but in an emergency situation, someone could die waiting for your verification email. I downloaded this a few weeks ago thinking it was a brilliant idea and a good thing to have on my phone. Good thing I happened to open it to poke around long before I ever actually needed it. Just despicable.

Developer Response Mar 27
You do not need to login to view AED locations - only to add a new AED (we do not allow AEDs to be added to the public registry anonymously). Please reach out to us at support@pulsepoint.org if you have any questions!

Very useful 1y ago
★★★★★ Daves1975

This app works really well. It lets you know where the nearest AED is at. You can also add an AED location. It will also notify you if there is an emergency near you so you can get an AED. Great app and helpful.

"Pending Approval"??? Apr 2
★★★★★ RationalGuyCS

It appears that all of the more than 60 AEDs in the Colorado Springs area show "Pending Approval" in the app. What does that mean?

Developer Response May 15
Adding an AED is a two step process, with the local public safety reviewing the submitted information before the location is "approved" and recommended to emergency dispatchers and responders. We'll see if we can learn more in region. Reach out anytime at support@pulsepoint.org.

Staying Alive

- According to their app description, "Staying Alive provides defibrillator mapping and citizen responders management."
- 3 ratings, 3.7 stars
- Developer: ASSOCIATION RMC BFM
- Price: Free
- Keywords: AED, life, map, defibrillator, citizen response
- Distribution Methods: Download for iPhone from App Store
- Target Market: Citizens, citizen responders
- Recent Reviews:

Ratings & Reviews

Missing countries for the phone registration 2y ago
★★★★☆ Gamera06

Please add Hong Kong +852 and Macau +853.

