Support System

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Video: https://youtu.be/F6WlCVCMaVE

Introduction

Every 92 seconds, a woman is sexually assaulted.

Women everywhere face harassment, sexual abuse, domestic violence, threats, and discrimination no matter where they go. Whether it be a work environment or even at home, a woman can be subject to any of these horrid items. When I found out about this I was shocked that these statistics were true, and I knew that I had to help. This year, I chose the topic **'A Safer World'**, and decided to focus on the subtopic **'A Safer World For Womankind'**. There are many types of technologies out there to protect women. I have noticed that most of these technologies are often impractical in a dangerous situation. The safety apps I looked at were frequently for a particular city and do not benefit women outside of that city. Many of these apps do not offer all the safety and protection an independent woman needs. These apps only provide temporary protection and do not cover the wide berth of problems a woman may face. For example, many of these apps do not include instant access to domestic violence, rape, or sexual assault hotlines. These apps only incorporate access to an emergency contact. Not only do women everywhere need immediate access to an emergency contact, to call them, text them, send their current location with longitude and latitude, or even to take pictures if they are in a dangerous situation, they also need access to suicide hotlines, and abuse hotlines. A woman also needs support from others who are going through the same thing. We need an easy way of self-defense. We need an accurate system to rely on every day, both for emotional, and physical support. In essence, they need a **Support System**. The app I designed [**Support System]** has an abundance of advantages in everyday scenarios and even in dangerous scenarios. I aim to offer the best protection and support to any girl or woman out there. **Support System** has 3 emergency screens. The first emergency screen is the general emergency screen. This screen can be used by anybody, even people who do not have an account with **Support System**. The general emergency screen benefits the user the most when they have an account. The screen can be used to access to a support hotline for suicide, depression, or rape, report sexual violence/assault, call or text an emergency contact (Only if you have an account), and even to text 9-1-1. This screen can also be used to send your location and a picture of your surroundings to an emergency contact. The second emergency screen is for those who have an account with **Support System**. This screen is a natural disaster screen. The Natural disaster screen can be used if there is a first aid need, a hailstorm, winter storm, dust storm, a Red Cross need, and more. This screen is essential for any natural disaster needs a person may have. The last emergency screen that is featured in this app is the Personal Emergency screen. This screen is exclusively for women with **Support System** Accounts. The Personal Emergency screen can be used to send automated and customized texts to an emergency contact. The user can customize texts for different personal emergencies. Not only does **Support System**, offer 3 emergency screens, this app also features a profile screen, a community screen (where you can connect with others), an inspirational quotes screen, and a Girl Power Screen.

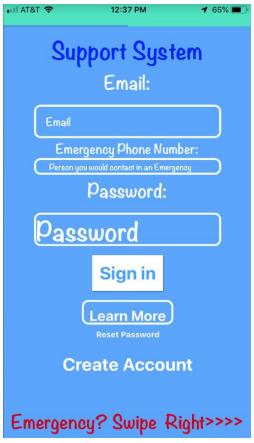
My app aims to improve the everyday lives of women and girls. After all, women everywhere need a **Support System**.

Technology Summary

I built **Support System** through a coding platform called Thunkable. **Support System** works on both IOS and Android devices.

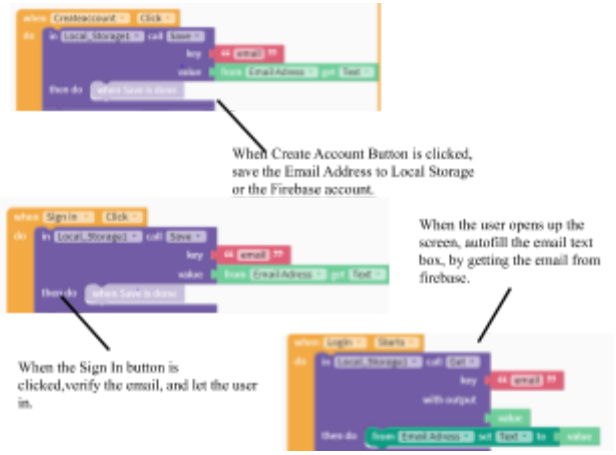
When the user first opens up the **Support System** App, they are greeted with the Sign In screen.[To see a more detailed diagram of the sign in screen please refer to the appendix][1]

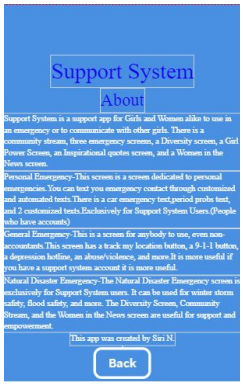
It is best for a user to have a **Support System** Account if they want all of the features on the app to work.



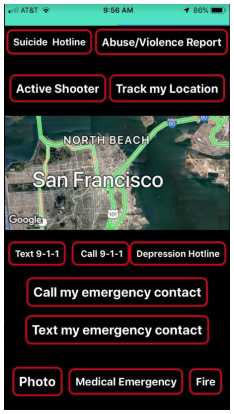
The Sign In screen stores the User's Email, Password and Emergency Phone number, in a database, and authentication application called Firebase.[For more information on how the authentication works please refer to the appendix][2]

The code for the sign in screen is lengthy. The code below is an example of how the Email gets saved to the Firebase account.If the user clicks create account,an account is created and created in Firebase. The 'Learn More' screen leads to the screen below.[To see the full code and explanation please refer to the appendix][3]

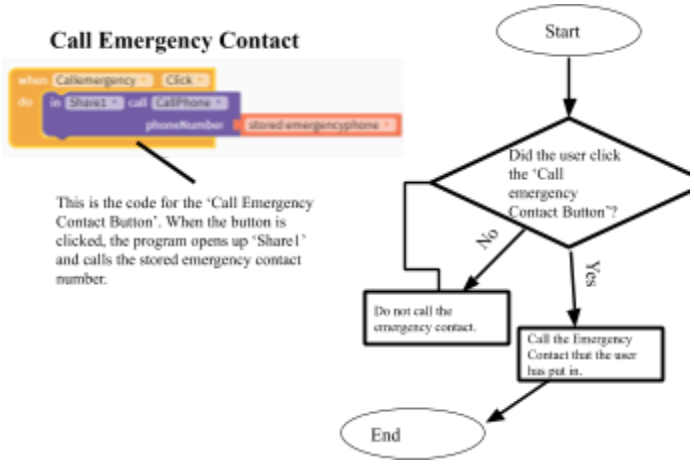


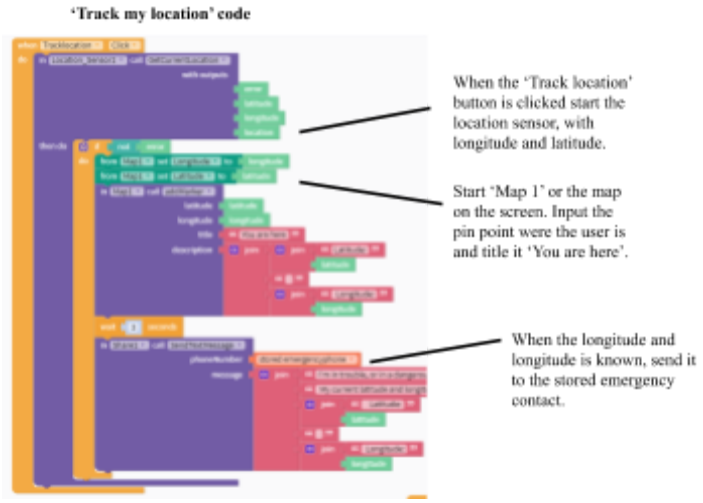


If the user is in a dangerous situation or needs immediate access to help, she can just swipe right. Once the user swipes right, they are greeted by the General Emergency. Once the user clicks any of the help buttons it immediately acts. If the user clicks the 'Suicide Hotline button' then it directly calls the suicide hotline and leads the user to a separate webpage with more information about suicide and how to get help.[To see a detailed diagram of the general emergency screen, please refer to the appendix][4]



This screen requires a lot of programming to fully function. I used many flowcharts and algorithms to program the buttons. Below, is an example of the code I used to program the 'Track my location button' and the 'Call my emergency contact button'. [To see a detailed diagram of the code for the General Emergency Screen please refer to the appendix][5]

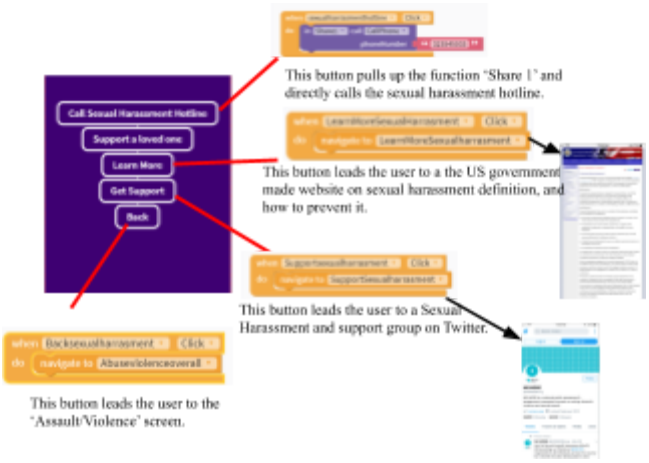




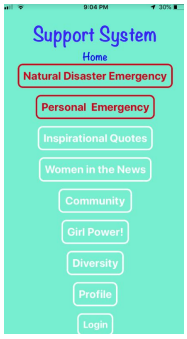
When the user clicks the 'Abuse/Violence Report' button, they are immediately directed to a separate screen; The 'Abuse/Violence Screen'. This screen allows and prepares the user to seek help and receive support for sexual assault, violence, rape, and more. This screen allows users to be more informed on sexual violence, and access to support from other survivors.[For a more detailed diagram on the 'Abuse/Violence Screen' please refer to the appendix][6]

This screen used minimal coding to function, as many of these buttons lead to other screens. The explanation and examples of code in this screen are provided below.

When the ‘Report Sexual Harassment’ button is clicked, it goes to the Sexual Harassment Screen. This screen has many buttons that allow the user to call a harassment hotline, learn more about the topic, get support, or learn how to support a loved one.[An example of this screen and its code is provided below.] Similarly, when all of the buttons are clicked, they lead to separate screens. [For more information about the separate screens that the buttons lead too, please refer to the appendix.][7]

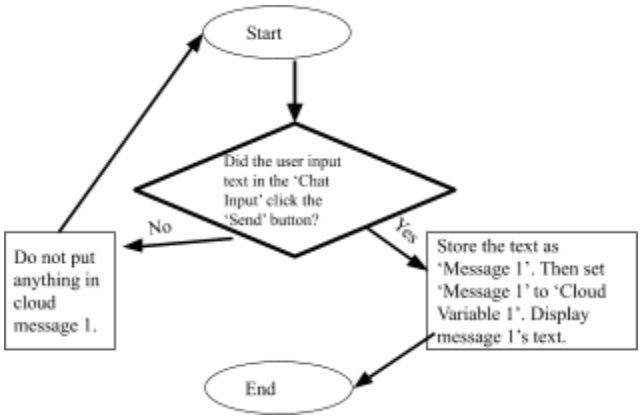


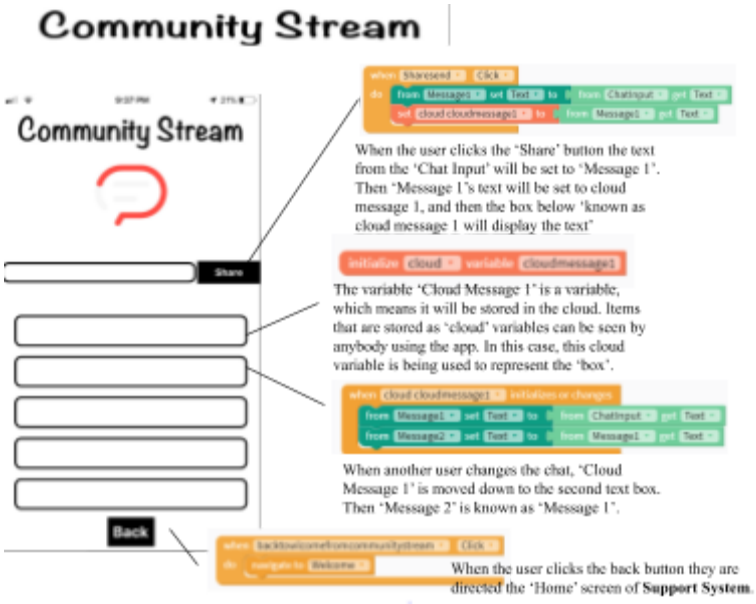
When the user clicks the ‘Sign In’ button on the login page, the app will only let the user in if they have the right credentials; the email, password, and emergency phone number. Once the user signs into the app, they are met with the ‘Home’ screen of **Support System**. This screen features a ‘Personal Emergency’ screen a ‘Natural Disaster Emergency’ screen, a ‘Community Stream’ screen and much more. This screen is very useful and is exclusively for **Support System** users. This screen required a lot of coding to fully function. Below I will explain every screen that these buttons lead to. [To see a more detailed diagram of the 'Home' screen please refer to the appendix][8]



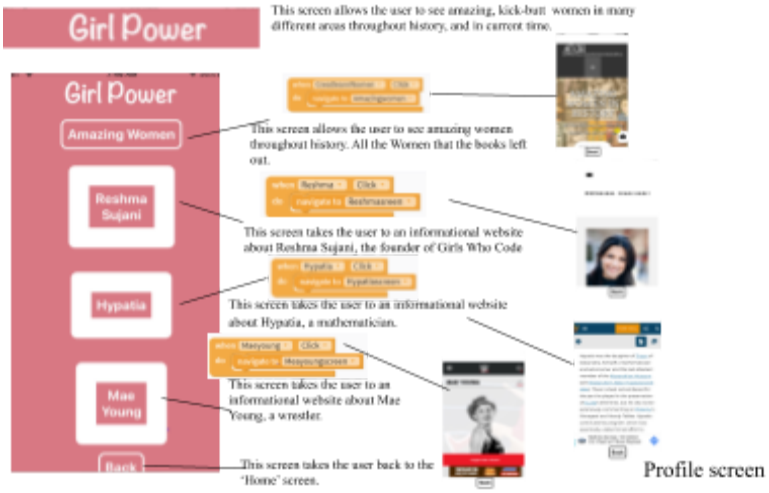
Every single button on this screen leads to a separate and intricate screen. Below is an example, code, and explanation of the ‘Community Stream’, ‘Girl Power’ and ‘Profile’ screen. This screen required an abundance of coding and variables. Below I will explain the code. [To see a more detailed diagram, code, and explanation of every screen each of these buttons lead to, please see the appendix. The ‘Community Stream’ and ‘Profile’ screen will also be included.][9]

The ‘Community Stream’ screen allows the user to express her feelings on any topic they want, anonymously. Inappropriate posts are flagged and taken down.



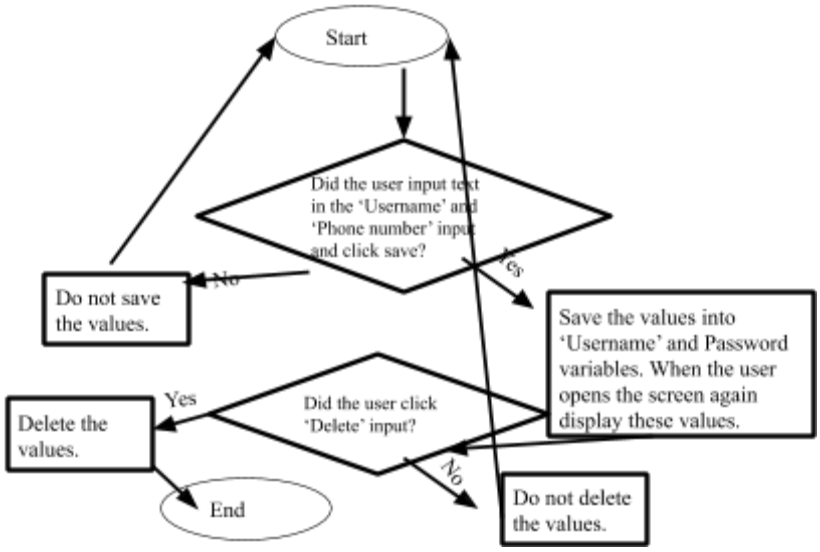


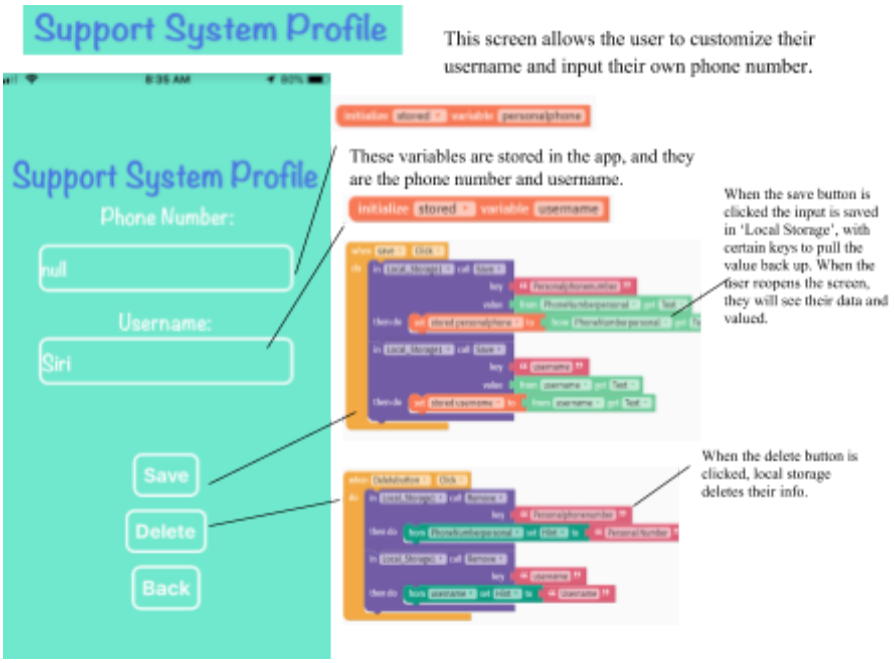
This screen is the 'Girl Power' screen. This screen aims to teach girls, of all ages, about the amazing kick-butt women in history and encourages girls to be inspired by them. The women on this screen are amazing and interesting.



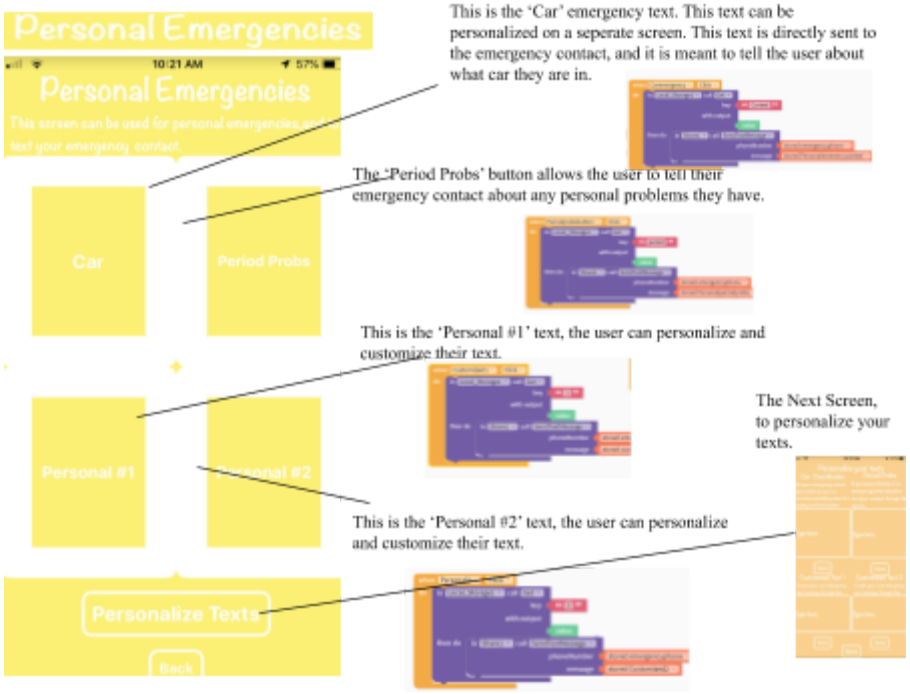
Profile screen

This screen is the 'Profile' screen. This screen allows the user to customize their username and allows them to input their phone number. They can save, delete, and go back to the home page with this screen.





The 'Personal Emergency' screen is perhaps the most intricate and complicated screen on the 'Home' page. The 'Personal Emergency' screen allows the user to customize and personalize automated texts. There are 4 options for an automated text. The 'Car' text allows the user to send their emergency contact the exact car they are and their destination. The 'Period Probs' button allows the user to send their emergency contact private information about mishaps. There are 2 buttons that allow you to personalize your texts. If the user clicks the 'Personalize Texts' they are led to a separate screen where they can type in and save their texts. Below is the 'Personal Emergency screen' and the 'Personalize Texts' screen. The code is explained in intricate detail.



This is a very important screen,where the user can personalize their texts. I will explain what each fun will explain the code on a seperate screen.

The user can input their personal text about car or 'Period Probs' coordinates in this box. It can be a fill in the blank text or more.

The user can save their text by clicking this button. It is automatically stored in the app, and saved as a local storage.

The user can input and customize their own personal text. Once save is clicked it is immediately sent to the button on the 'Send personal Texts screen'.

This text allows the user to open up the 'Personal Emergency Customize' screen at any time and access their saved texts. The texts are saved in local storage.

This is a sample code for the variables. When the input is saved it is stored as a customized variable.

To see more about the personal emergency screen, and the other screens on the 'Home' page, please refer to the appendix.

This app was specifically designed [and fully functional]to meet all the needs of women everywhere. The 'Natural Disaster Emergency' screen, the 'General Emergency' screen, and the 'Personal Emergency' screen are all designed to help the needs of women everywhere. The quick and easy access to personal emergency contacts, natural disaster first aid, and law enforcement. This app also allows for easy access to help and support lines. Depression and Suicide hotlines will help the user. Not only does this app help women everywhere with their personal and general needs, but it also gives them support, inspiration, and hope. The 'Inspirational Quotes' screen and the 'Girl Power' screen are all screens that show girls that they can do anything! They are also great role models. The 'Diversity' screen also shows girls that diversity is accepted everywhere! I truly believe that this app accomplishes the purpose of giving women everywhere a support system. This app will prevent sexual harassment and rape. Every girl will have an amazing back-up plan. I hope that this app will one day change the statistics of sexual assault and rape on women for the better.

Future Updates

There are many future hopes, plans, ideas, and updates, I would love to make to this app.

One of the main updates that I would like to accomplish and complete is adding a special feature.

This special feature will allow the user to click a button called ‘Connect’. Once the user clicks the ‘Connect’ button, it will immediately connect them to anyone within a five-mile radius that is currently in a cellphone conversation. The cellphone conversation will be intercepted by an SOS message. This feature could potentially save lives.

I would also like to potentially add, another emergency screen, to benefit the user.

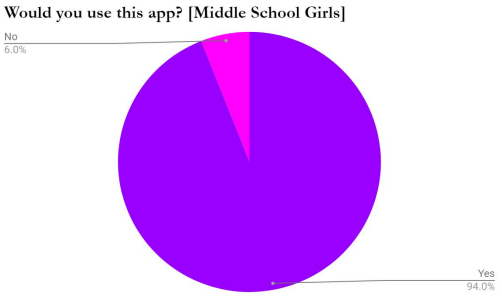
Lastly, a future update that I would love to make is; Improve the ‘CSS’ of my app’s design. I would love to make it a tad bit classier, and user-friendly.

Lastly, I would enjoy uploading this Android and IOS user-friendly app to the Google Play store, and the IOS App store. I would love this.

Results

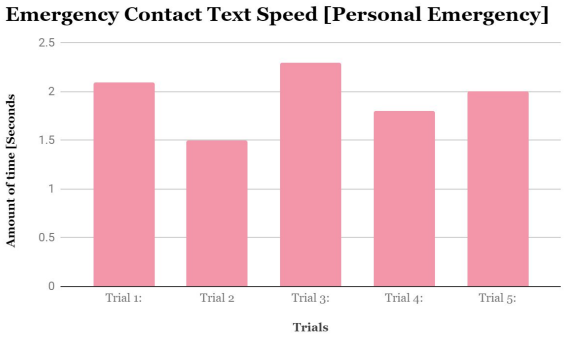
Support System has a lot of data that quantitatively and qualitatively reflects the functions of the apps, along with the public response to the app.

After explaining the purpose of my app, **Support System**, to 50 girls at my middle school, grades 6-8, 47 out of 50 girls[47/50] explicitly stated that they would use **Support System** if it was an app on the Google Play or App Store. Many of those girls also stated that they would use it regularly, and on a daily basis. The high percentage of positive feedback I received on this topic, render's **Support System**, a popular and well-reviewed app to download. To see the data please refer to the pie chart below. [The pie chart can also be found in the appendix][10]

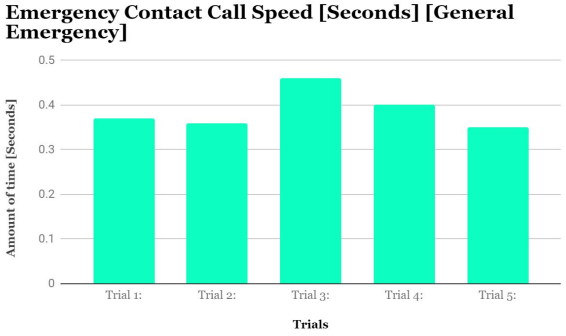


To see an accurate reflection on how quickly my app works in a dangerous situation [whether it be a text, call, photo, or location tracker, to an emergency contact]so, I decided to conduct some tests.

The test below is how fast **Support System** can send automated and customized texts to emergency contact from the 'Personal Emergency' screen. The amount of time is measured in seconds. From the data, it takes an average of 1.94 seconds to send a text the emergency contact through the 'General Emergency' screen. This is remarkably fast.[The bar graph can also be found in the appendix][11]

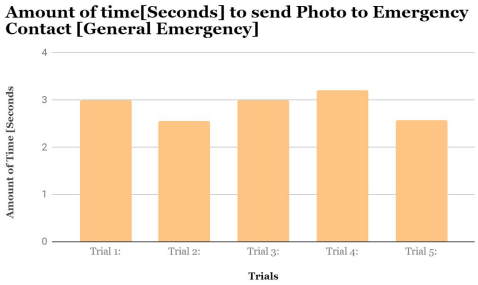


I also tested how long it would take **Support System** to call the user's Emergency Contact from the 'General Emergency' screen. The results were incredibly fast. The average time it takes to send an Emergency call was approximately 0.39 seconds. [The Bar graph can also be seen in the appendix][12]

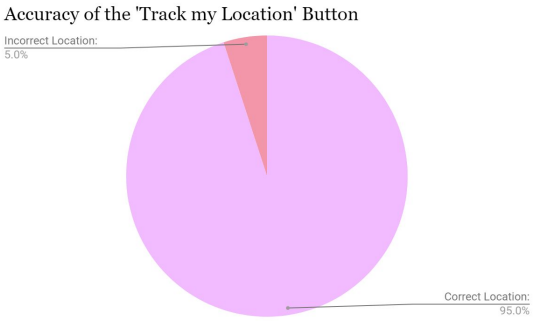


I wanted to see quantitatively how long it would take to send a photo of the user's surroundings to their emergency

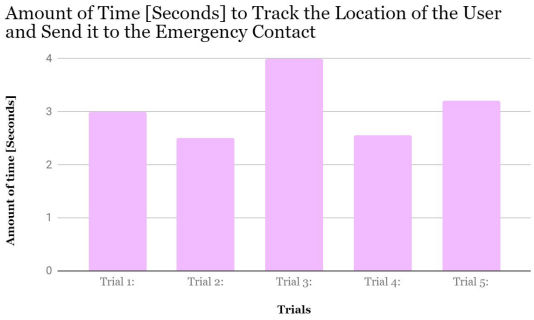
contact. I tested this 5 times. The average time, in seconds, was 2.9 seconds, which extremely fast, something that this app keeps in high priorities. The user needs to be able to reach their emergency contact extremely quickly. [The bar graph can also be found in the appendix][13]

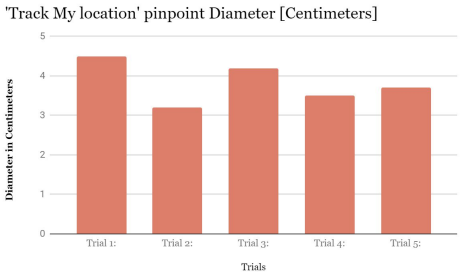


The location sensor, and tracking the location is remarkably accurate. The number of times, the location is correct lies around 95%. This is remarkably accurate.[This Pie chart is also available in the appendix][14]



The amount of time it takes to track and send the location of the user is truly fast. The average time it takes to track the user's location and send it to the Emergency contact is approximately 3.1 seconds. [The bar graph is also available in the appendix][15] The diameter of the pinpoint is also extremely accurate, meaning that the physical location of the user in a certain building is very accurate. [The diameter bar graph is also located in the appendix][16]





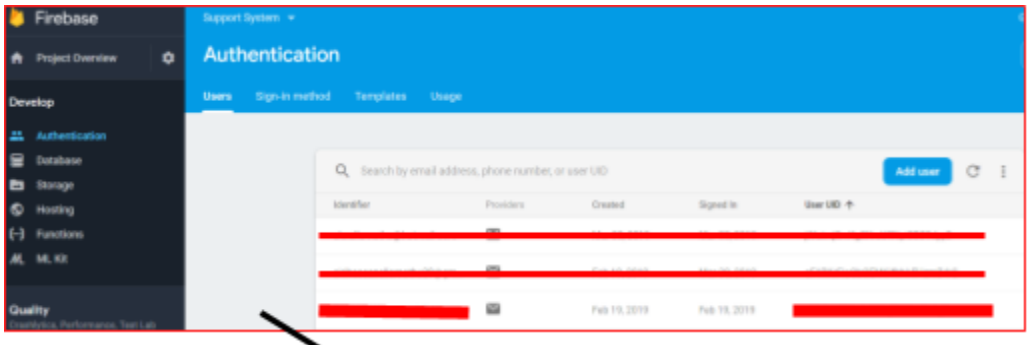
The data from the app positively reflects the progress, functionalities, and capabilities of Support System. This app is extremely useful and will positively impact, inspire and revolutionize the worlds of Girls and Women everywhere.

Appendix

1.The Support System Sign In User Interface [UI]

Note: Once the user has created an account the email,emergency phone Number and password will autofill,for easy access.

2.Firebase API Authentication



The Firebase Authentication system is used to store the user's password and email. This is so the sign up is screen can work. The password cannot be seen.

The emails are blotted out for privacy reasons

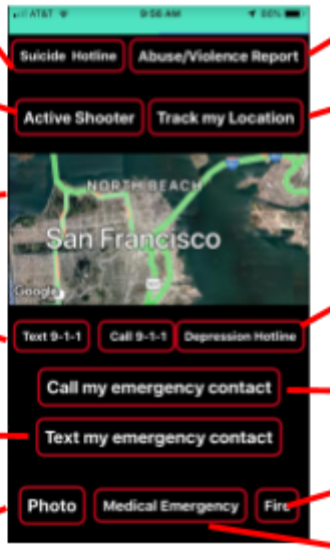
3. Sign In Screen Code

This code is used with Firebase.Once the Email, and password is verified, it allows you to go to the next screen, the Welcome Screen.

This is the code for the functioning reset password button. If the user clicks this button, a reset password forum through Firebase will be sent.

This code allows the email password and emergency phone number to autofill, when the user opens up the screen.The Emergency phone number is stored through the variable, which is then set up to go to Firebase.

4.Emergency Screen Advanced



This button immediately directs the user to a suicide hotline. Once the call is finished, the user is directed to a suicide self help website.

This is the abuse/violence report. This button automatically leads you to an abuse/violence screen that allows the user to report sexual abuse, domestic violence, rape, harassment and more. The screen will be further explained in the summary.

The Active Shooter button can be used in case of an Active Shooter. This button immediately calls 911. It also texts your emergency contact, with an automated button.

The track my location button, not only tracks the user's location, it sends text with the user's exact longitude and latitude to the emergency contact. This feature works best if you have an account.

This the window used to track one's location. The user can see where they are.

The Depression Hotline button immediately directs the user to a Depression Hotline.Once the call is finished, the user is directed to a depression information screen.

The Call 911 and text 911 buttons are both fully functional, and immediately direct the user to help.

The Call my emergency contact allows the user to easily call their emergency contact.

This button is fully functional and texts the emergency contact that the user filled out when they were first making their account.

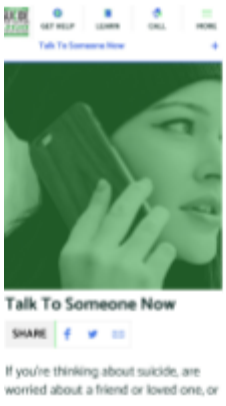
The 'Fire' button immediately directs the user to a fire safety page, and allows them to call 9-1-1.

This button allows the user to take photos of their surroundings, and send it to their emergency contact.

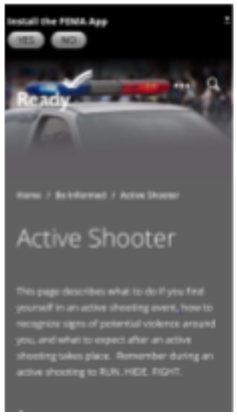
The medical emergency screen allows the user to call 9-1-1, and directs the to a Red Cross page.

Note:The General Emergency Screen works best for users that have a support system account. The photo,location, and call/text emergency contact, do not work without an account.

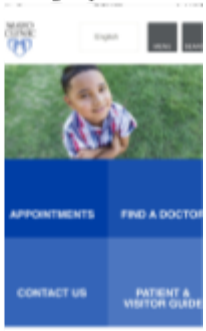
Suicide self help website



Active Shooter Screen



Medical emergency screen



Find Diseases & Conditions

5.Emergency Screen Code

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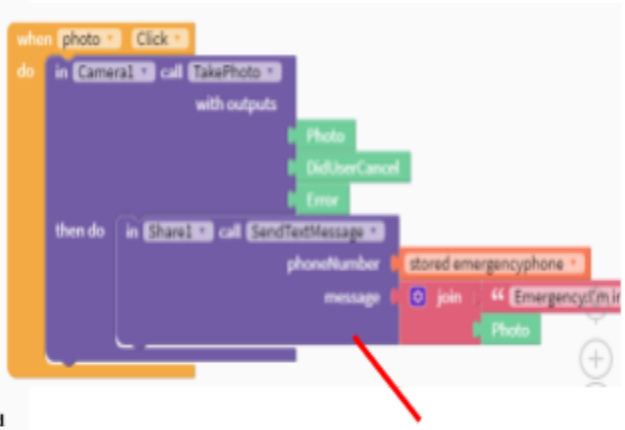
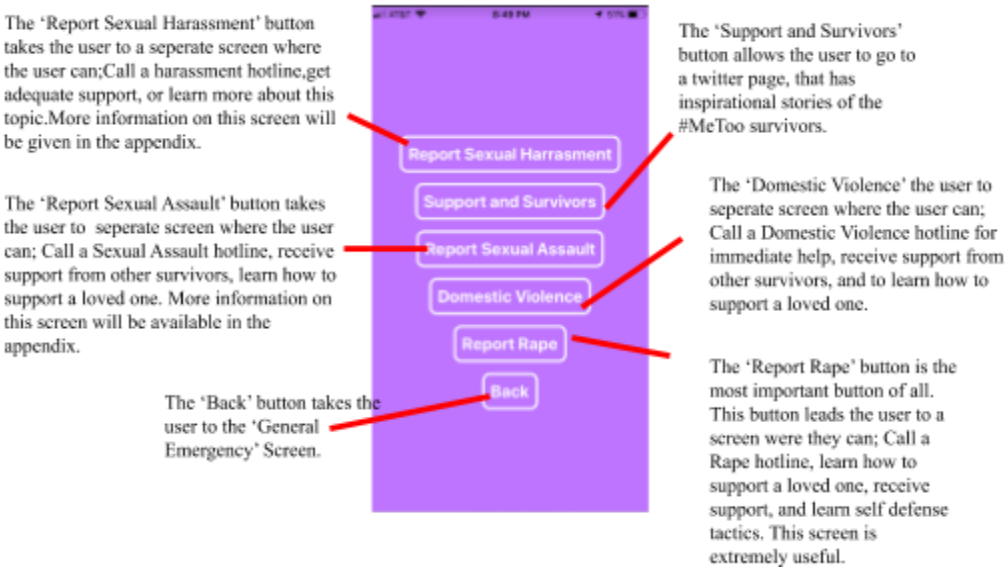
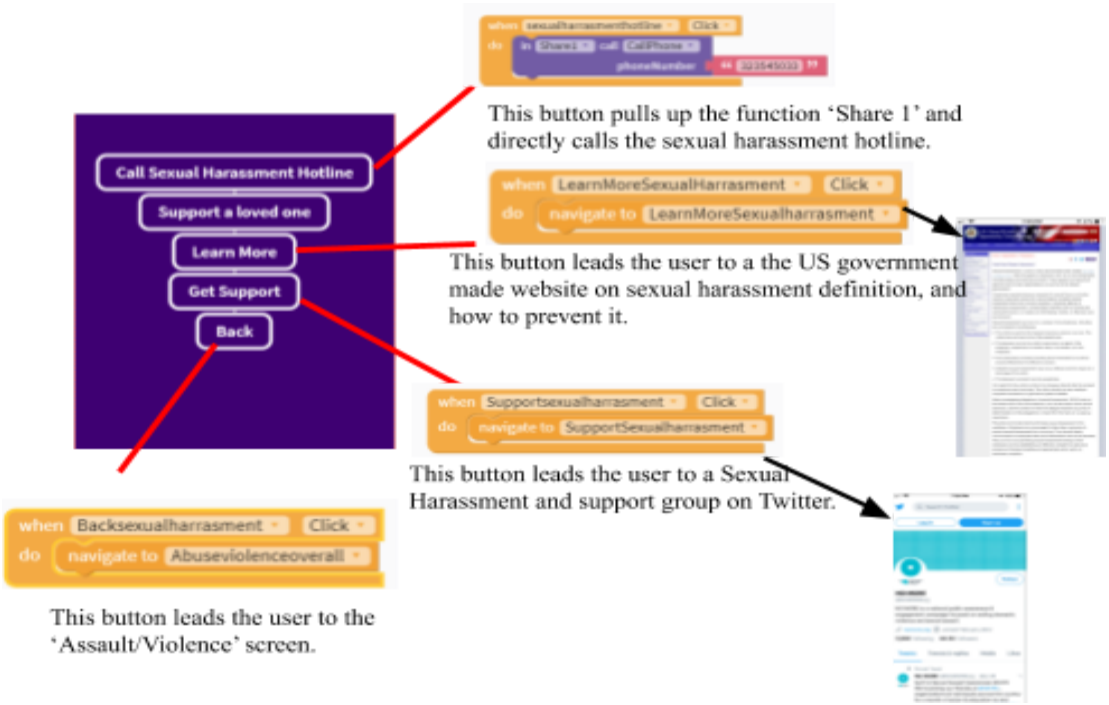


This is the 'send photo' button. This button allows the user to send a photo to an emergency contact, along with an emergency message. The photo is taken by the camera in the phone. Once the photo is retrieved it is sent by a text message.

6. Assault/ Violence Screen



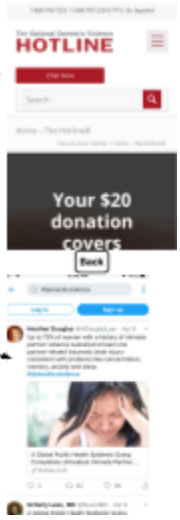
7.The 'Abuse/Violence' screen code,examples, and explanation



When the user clicks the 'Call Domestic Violence Hotline' she is immediately directed to a domestic violence hotline.

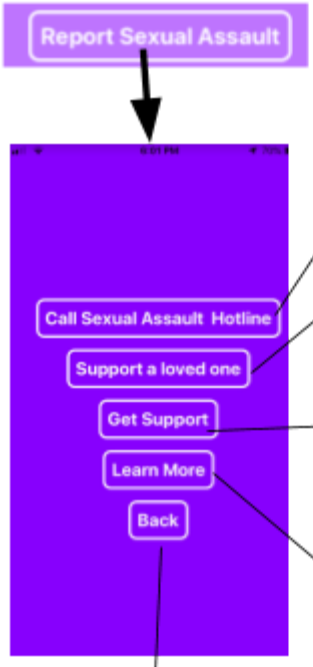
When the user clicks the 'Support a Loved One' button she is directed to a website with information on how to support a loved one who has gone through domestic violence.

When the user clicks the 'Learn More' button is clicked, the user is taken to a website that informs the reader about Domestic Violence.

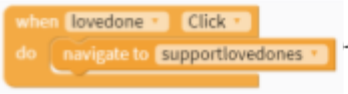


When the user clicks the 'Support' Button on the domestic violence screen, they are taken to a twitter page, that has thousands of survivors.

When the user clicks the 'Back' button they are taken to the 'Abuse/Violence' screen.

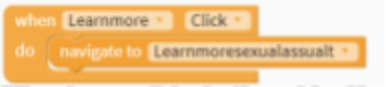


When the user clicks the 'Call Sexual Assault Hotline' she is immediately directed to a sexual assault hotline.



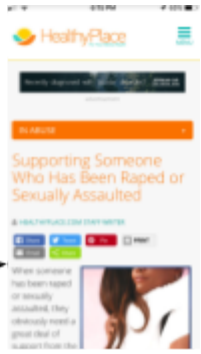
When the user clicks the 'Support a Loved One' button they are led to a website that allows the user to read information on this topic.

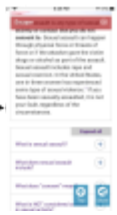
When the user clicks the 'Get Support' button, she is directed to a twitter website that has thousands of survivors.



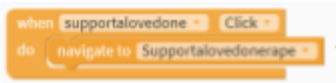
When the user clicks the 'Learn More' button, they are directed to a website that gives the user information on this topic.

The user is taken back to the 'Abuse/Violence' screen.





When the 'Support and Survivors' button is clicked the user is directed to a '#metoo' support screen.



When the user clicks the 'Support a Loved One' button she is immediately directed to a website that gives the user information on how to support a loved one who has gone through rape.

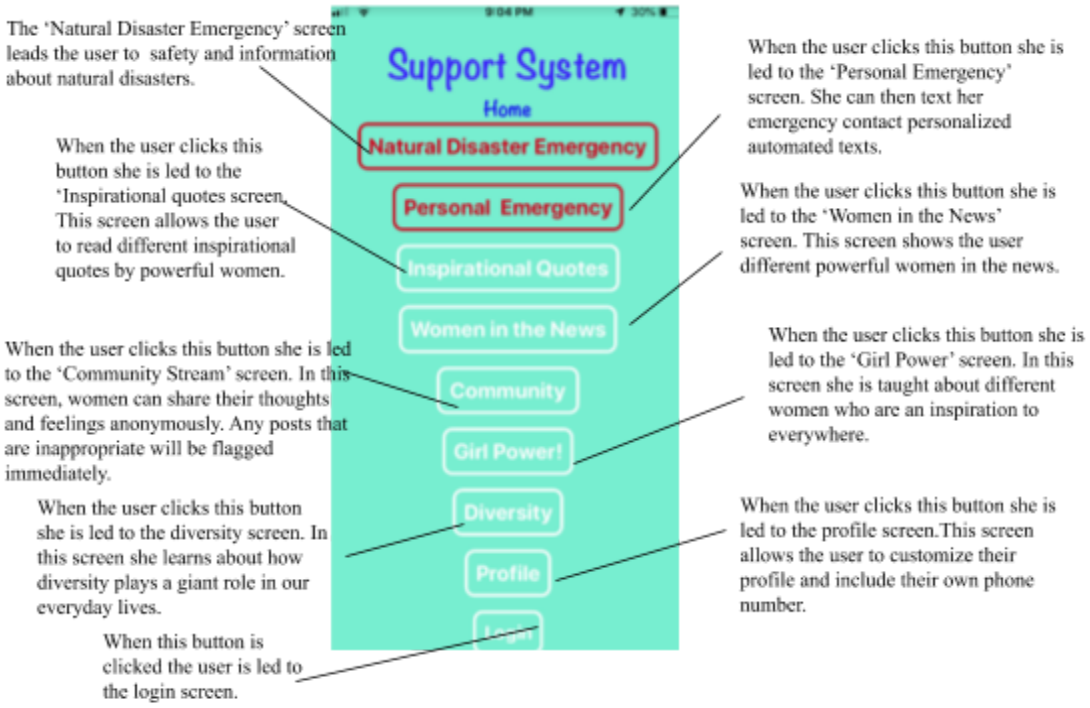
When the user clicks the 'Call a Rape Hotline button' they are immediately directed to a rape hotline.

When the user clicks the 'Learn More' button, they are directed to a website that has information about rape.

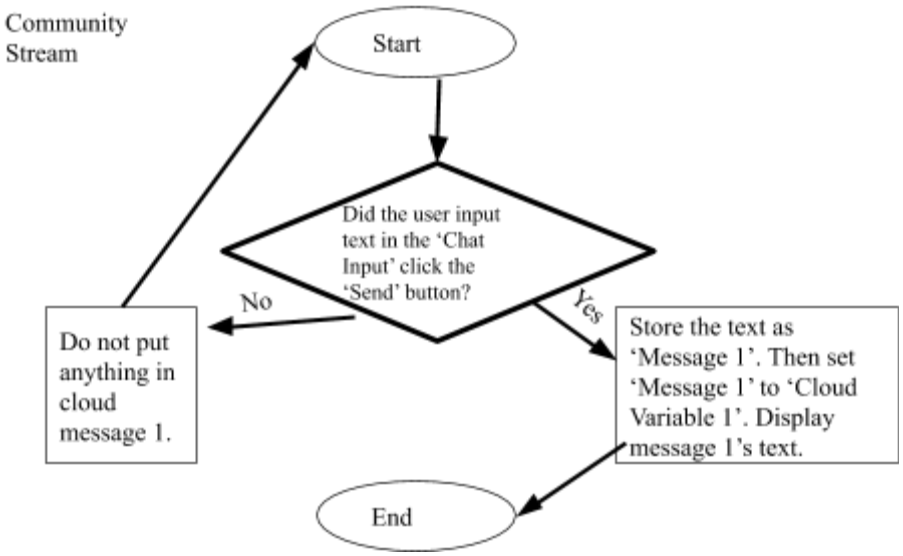
When the user clicks the 'Support' button they are immediately directed to a twitter page with thousands of rape survivors supporting each other.

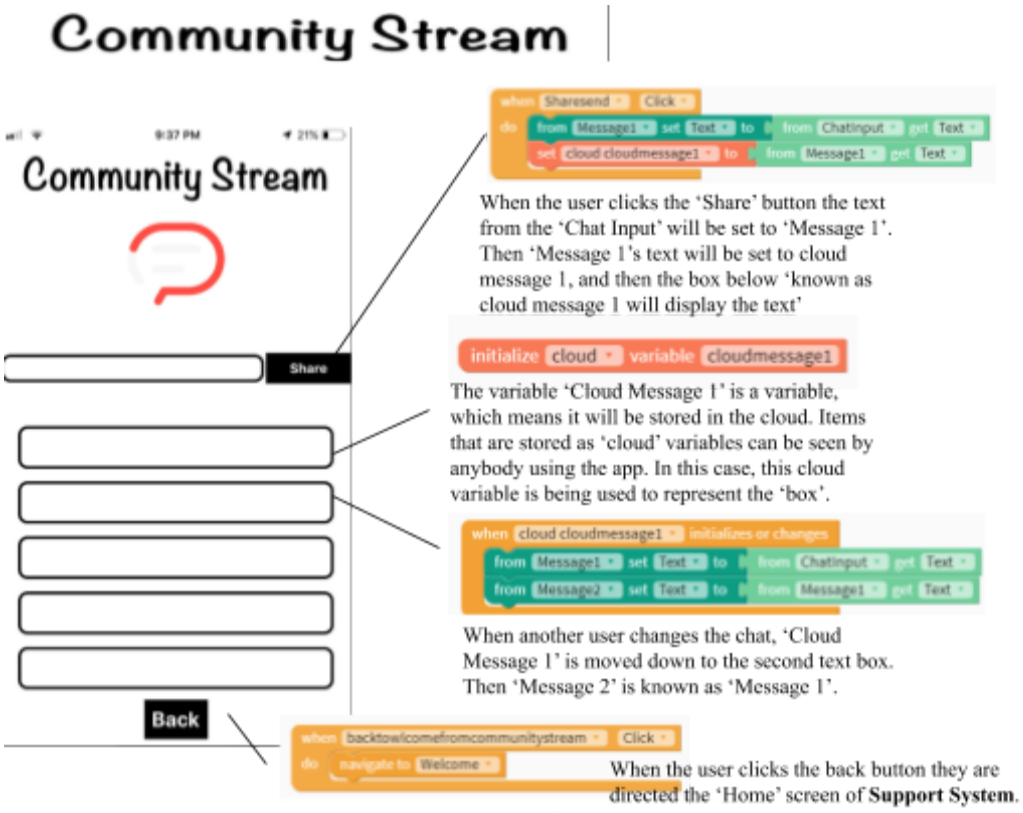
The user is led to the home page.

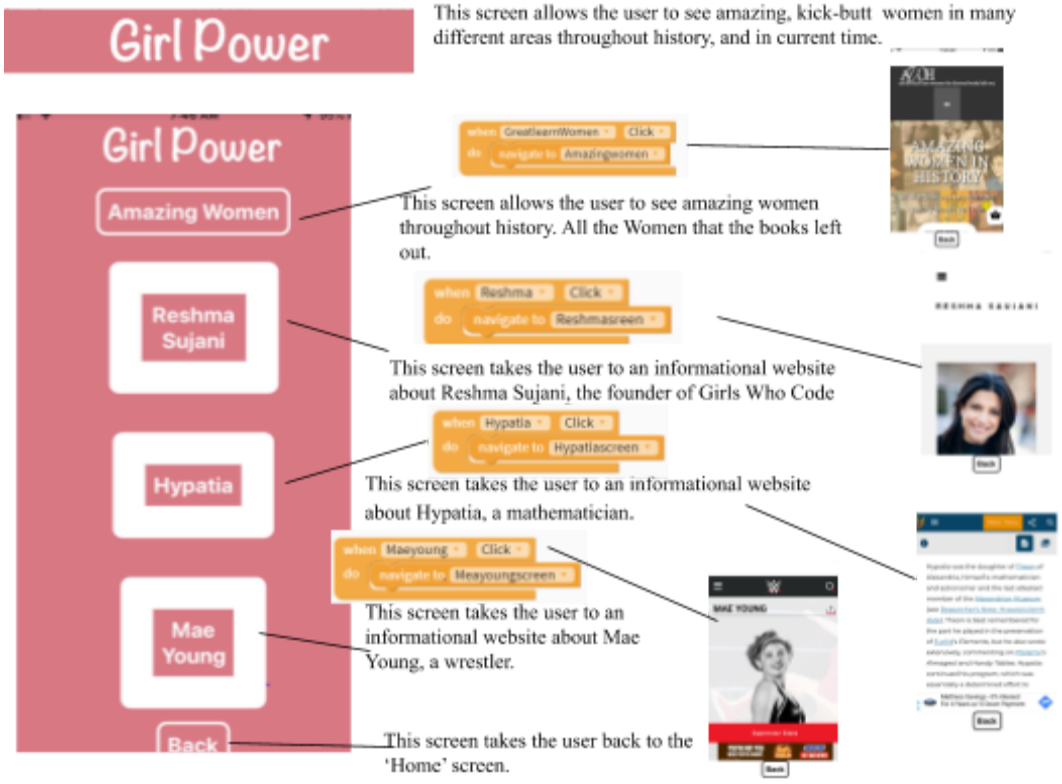
8. Home page diagram



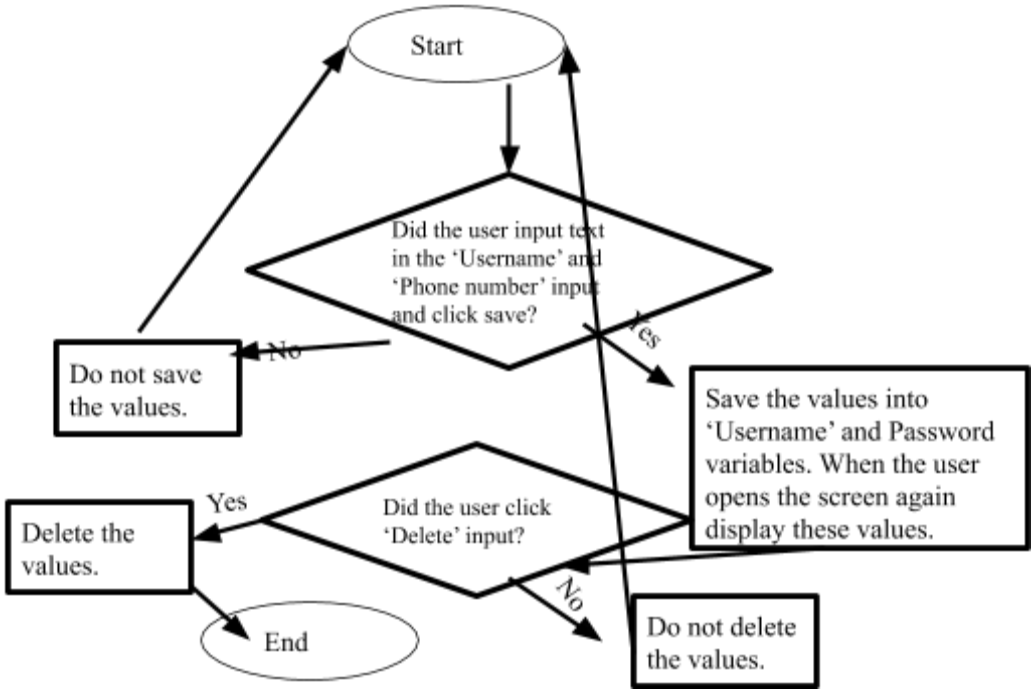
9. Home page overview and layout

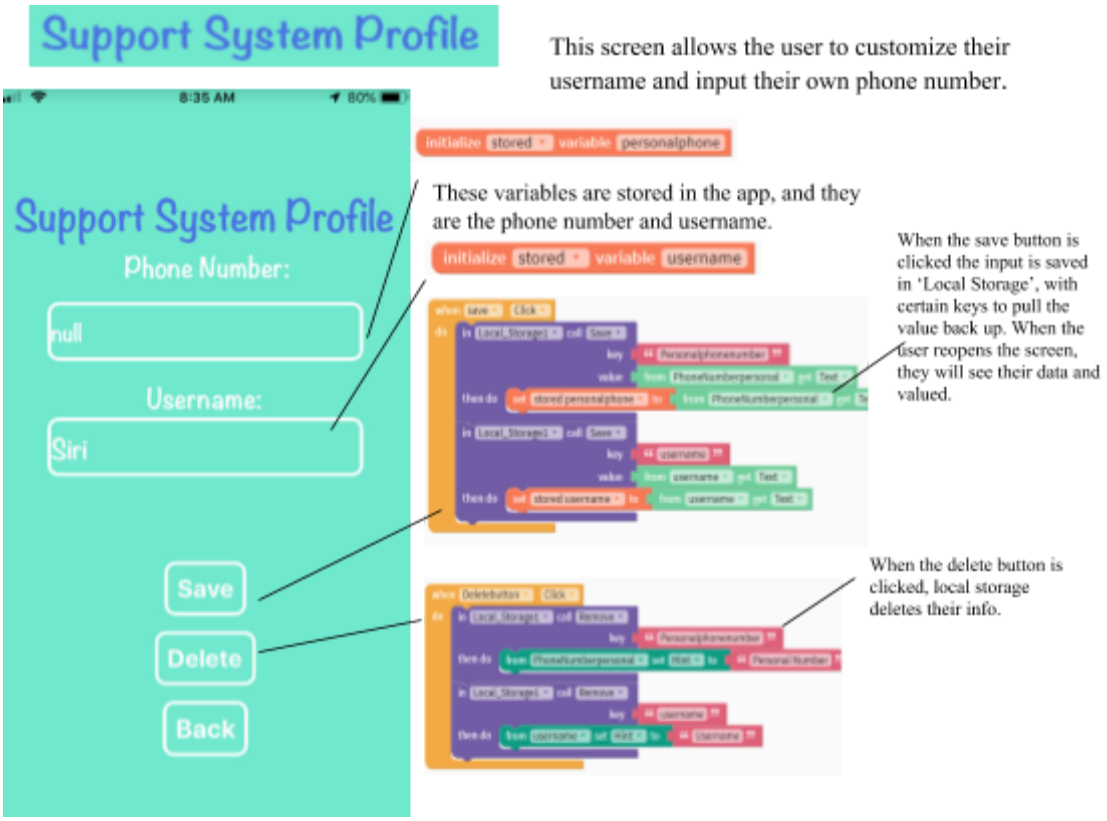


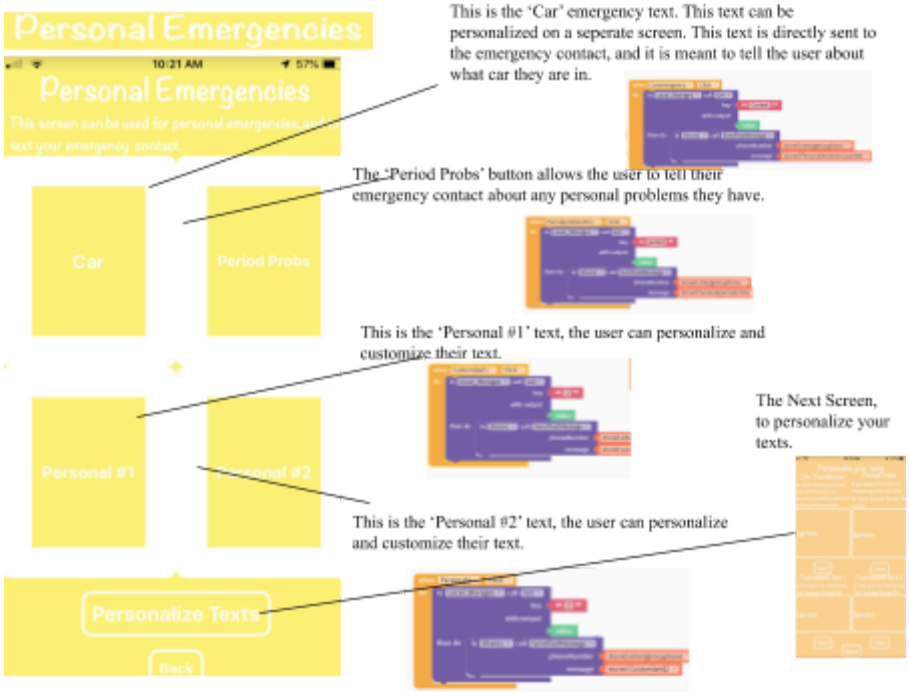

Community Stream
Community Stream
Share
Back
when Sharesend Click
do from Message1 set Text to from ChatInput get Text
set cloud cloudmessage1 to from Message1 get Text
When the user clicks the 'Share' button the text from the 'Chat Input' will be set to 'Message 1'. Then 'Message 1's text will be set to cloud message 1, and then the box below 'known as cloud message 1 will display the text'
initialize cloud variable cloudmessage1
The variable 'Cloud Message 1' is a variable, which means it will be stored in the cloud. Items that are stored as 'cloud' variables can be seen by anybody using the app. In this case, this cloud variable is being used to represent the 'box'.
when cloud cloudmessage1 initializes or changes
from Message1 set Text to from ChatInput get Text
from Message2 set Text to from Message1 get Text
When another user changes the chat, 'Cloud Message 1' is moved down to the second text box. Then 'Message 2' is known as 'Message 1'.
when backtowlcomefromcommunitystream Click
do navigate to Welcome
When the user clicks the back button they are directed the 'Home' screen of Support System.


Girl Power
This screen allows the user to see amazing, kick-butt women in many different areas throughout history, and in current time.
Girl Power
Amazing Women
Reshma Sujani
Hypatia
Mae Young
Back
when GreatlearnWomen Click
do navigate to Amazingwomen
This screen allows the user to see amazing women throughout history. All the Women that the books left out.
when Reshma Click
do navigate to Reshmasreen
This screen takes the user to an informational website about Reshma Sujani, the founder of Girls Who Code
when Hypatia Click
do navigate to Hypatiascreen
This screen takes the user to an informational website about Hypatia, a mathematician.
when Maeyoung Click
do navigate to Meayoungscreen
This screen takes the user to an informational website about Mae Young, a wrestler.
This screen takes the user back to the 'Home' screen.

Profile screen







This is a very important screen,where the user can personalize their texts. I will explain what each function is.I will explain the code on a seperate screen.

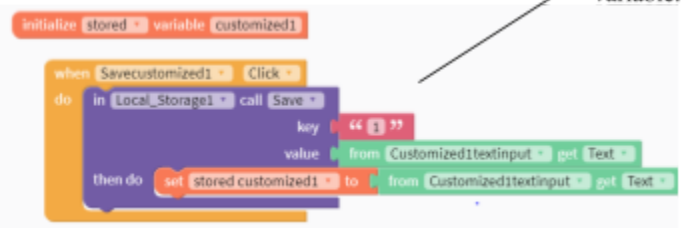
The user can input their personal text about car or 'Period Probs' coordinates in this box. It can be a fill in the blank text or more.

The user can save their text by clicking this button. It is automatically stored in the app, and saved as a local storage.

The user can input and customize their own personal text. Once save is clicked it is immediately sent to the button on the 'Send personal Texts screen'.

This text allows the user to open up the 'Personal Emergency Customize' screen at any time and access their saved texts. The texts are saved in local storage.

This is a sample code for the variables. When the input is saved it is stored as a customized variable.



This button leads the user to a flood safety screen.

This button leads the user to a Heatwave safety website with plenty of information.

This button leads the user to a Hurricane Safety screen

This button leads the user to a Winter Storm Safety screen.

This button leads the user to a Volcano safety website.

This button leads the user back to a home screen.

This button leads the user to a website that has information on where to find their Local Red Cross.

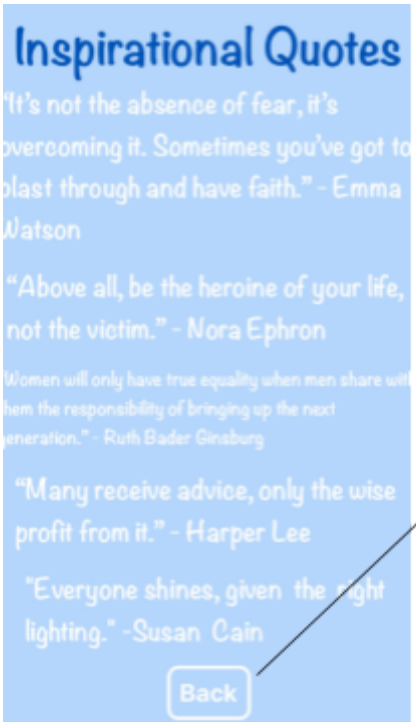
This button leads the user to an Earthquake safety website.

This button leads the user to a Tornado safety website.

This button leads the user to a Tsunami Safety screen.

This button leads the user to a Landslide Safety website.

Example of a Safety page



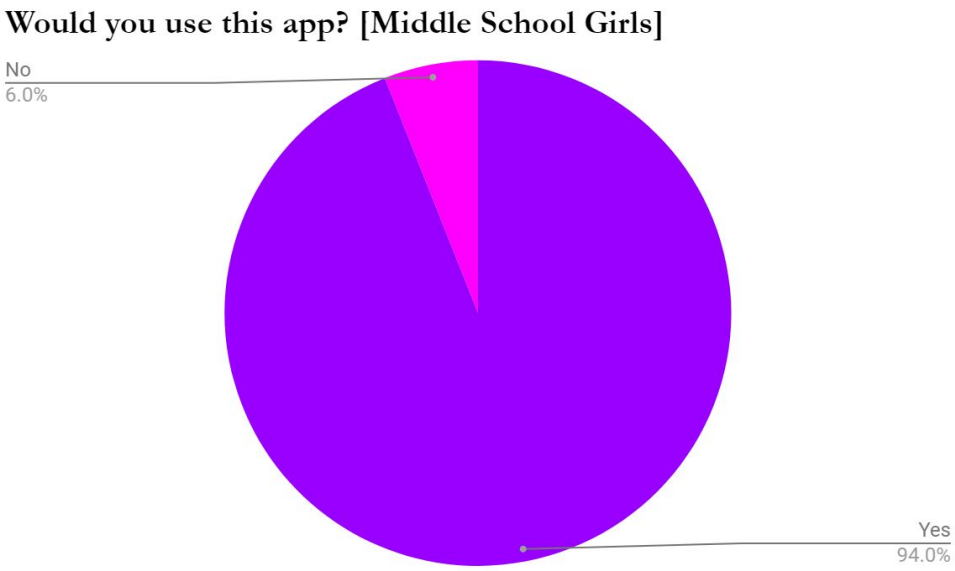
This screen is the inspirational quotes screen. There is minimal coding. This screen's main purpose is to serve as inspiration.

This screen is to inspire women everywhere about current events that entail amazing women. Below is an example with the 'New York Times' button.

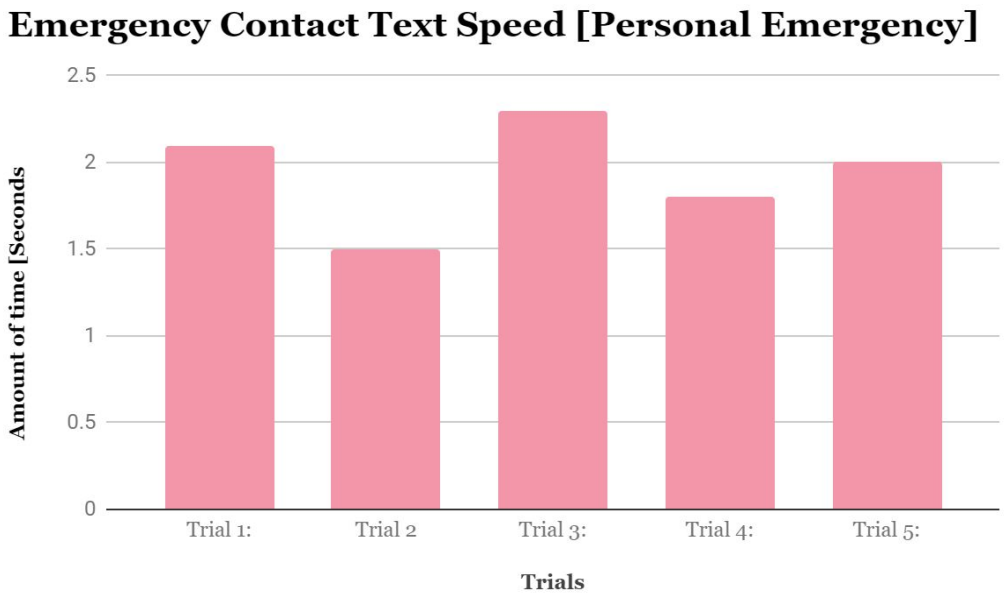
This is the New York times Amazing women screen.

This is the diversity screen

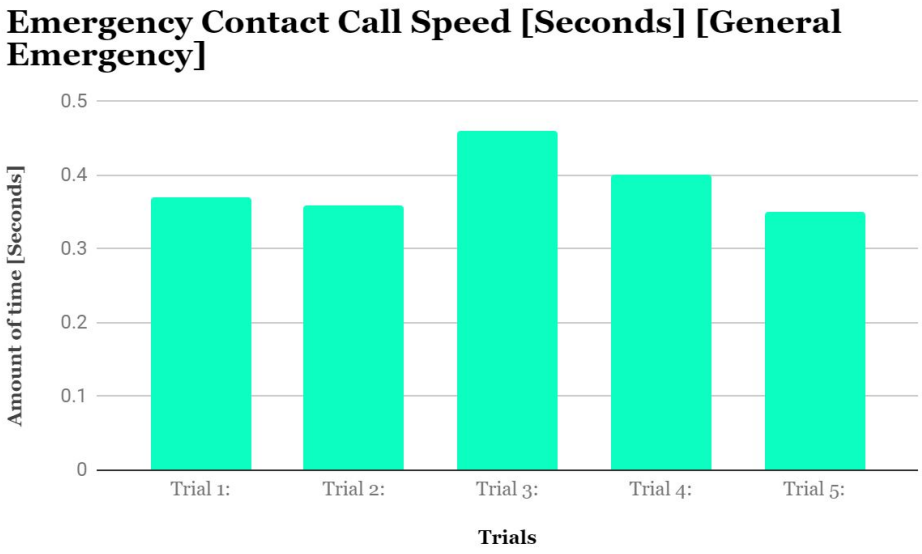
10. 'Would you use this app?' Study



11. Emergency Contact Text Speed

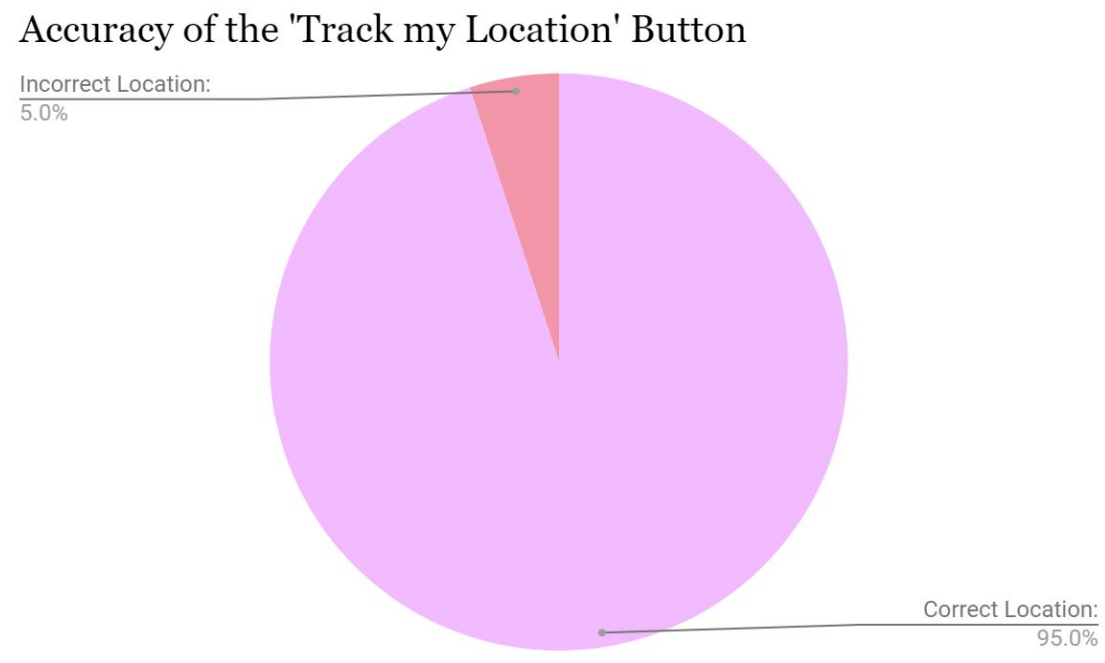


12. Emergency Contact Call Speed

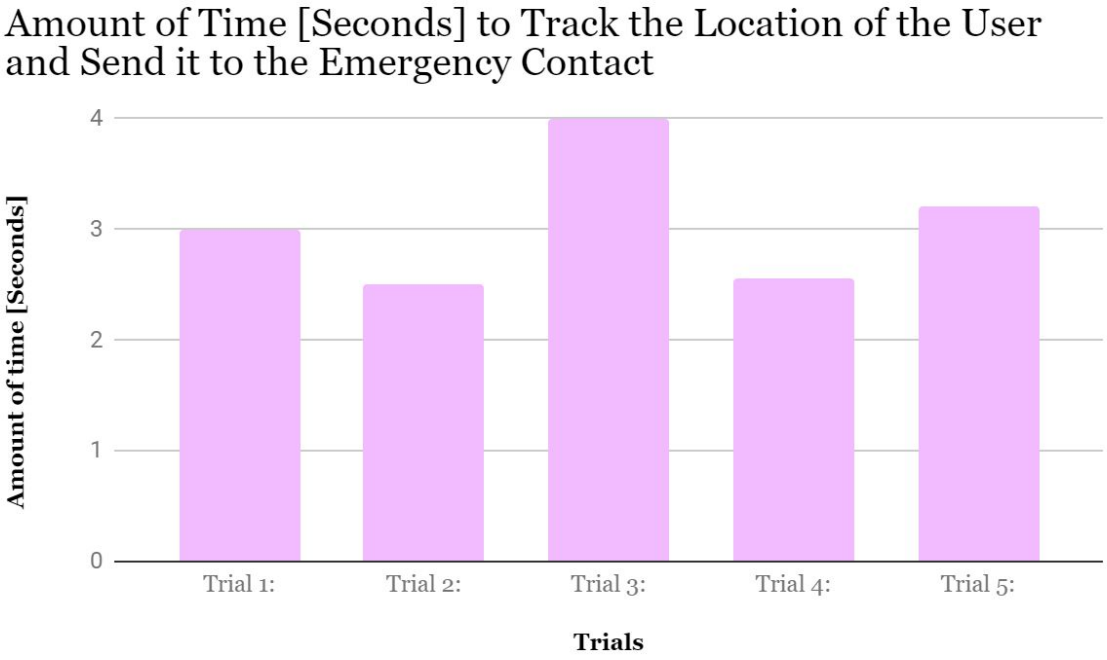


13. Photo speed

14. Location Sensor Accuracy



15. Amount of time to pinpoint and send location



16. Diameter graph