EE3609/3610 - Major Project

RESEARCH & DESIGN

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BSc Digital Design
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INTRODUCTION

PROJECT AIM

To design and develop an emergency alert mobile app for life-threatening situations.

OBJECTIVES

1. Source, investigate and analyse research literature on already existing apps, wearables and technology for the elderly as well as branding for inspiration.

2. Identify, investigate and analyse initial design detail e.g. personas and scenarios.

3. Design a brand identity which will include a name, logo and colour scheme which must be reflective of what the app has to offer and must also be present in app user interface designs.

4. Design a user interface for the emergency alert app and response side program, incorporating one-touch icons for the emergency services, a login and profile screen. I will be using low and high fidelity wireframes as my method.

5. Develop a suitable mobile app for the emergency alert system.

I will be designing and developing an emergency alert mobile app for life-threatening situations.

Within this project I will be focusing on both primary and secondary research, this will include looking in to demographics within the ageing population, both existing and future telecare an telehealth for the elderly, integrated technologies that would be relevant for my project as well as already existing apps.

Alongside the above, I will be conducting two surveys, the first one for the emergency services and finding out their thoughts on emergency response times and the balert app, with the second survey being aimed at the elderly to gain information on the type of technology they use on a day-to-day basis and how useful they would find the bealert app.

1 RESEARCH

1.1 DEMOGRAPHICS

The world's population is ageing at a rapid rate in comparison to previous years. In 2010, there was an average increase of the world's older population by 870,000 people each month. This is due to many varying factors, some of which include a huge increase in diseases, a much larger life expectancy, as well as the population ageing at a much faster rate in this day and age.

"People aged 65 and over will soon outnumber children aged 5 and under for the first time in history". In the past, children under 5 have always outnumbered the elderly, however this will soon change within the next 10 years.

As shown in figure 1, the map displays the percentage of the population aged 65 and over from 2008, in comparison with figure 2 which shows the percentage of the population aged 65 and over expected in 2040.

There is a huge increase in the amount of ageing people and how rapid people are ageing especiallt from predictions in 2040, due to this we must adapt, ensuring relevant precautions are taken place to ensure the safety of the elderly, there is a huge gap in the market to explore the health area within this field. (Kinsella and He, 2009)

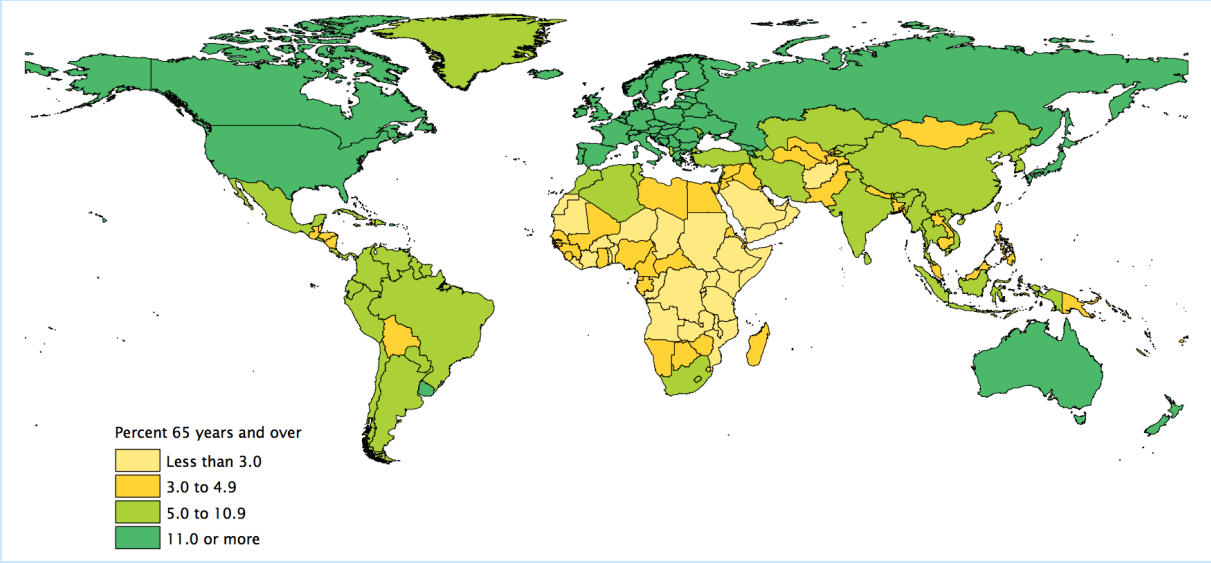


FIGURE 1 This shows the percentage population aged 65 and over in 2008. (Kinsella and He, 2009)

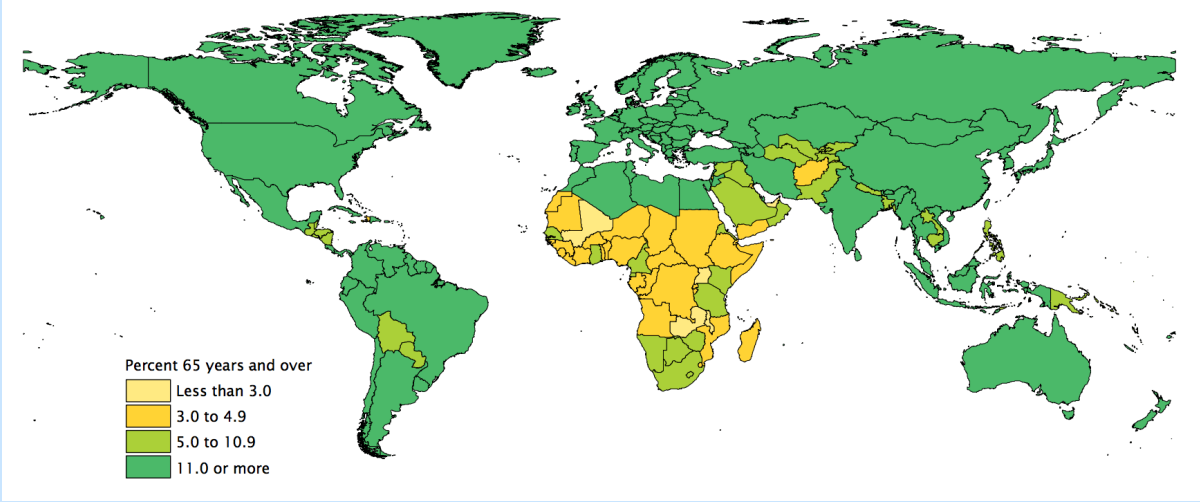


FIGURE 2 This shows the percentage population aged 65 and over in 2040. (Kinsella and He, 2009)

1.2 TELECARE & TELEHEALTH FOR ELDERLY

Telecare and telehealth helps aid those in need of extra care or health services, enabling them to live at home comfortably. Predominantly this is aimed at those who have long term illnesses such as heart failure, diabetes and chronic diseases. Technology used within telecare and telehealth systems monitor both activities and safety, as well as offering immediate care to those in need, therefore improving safety for those alone.

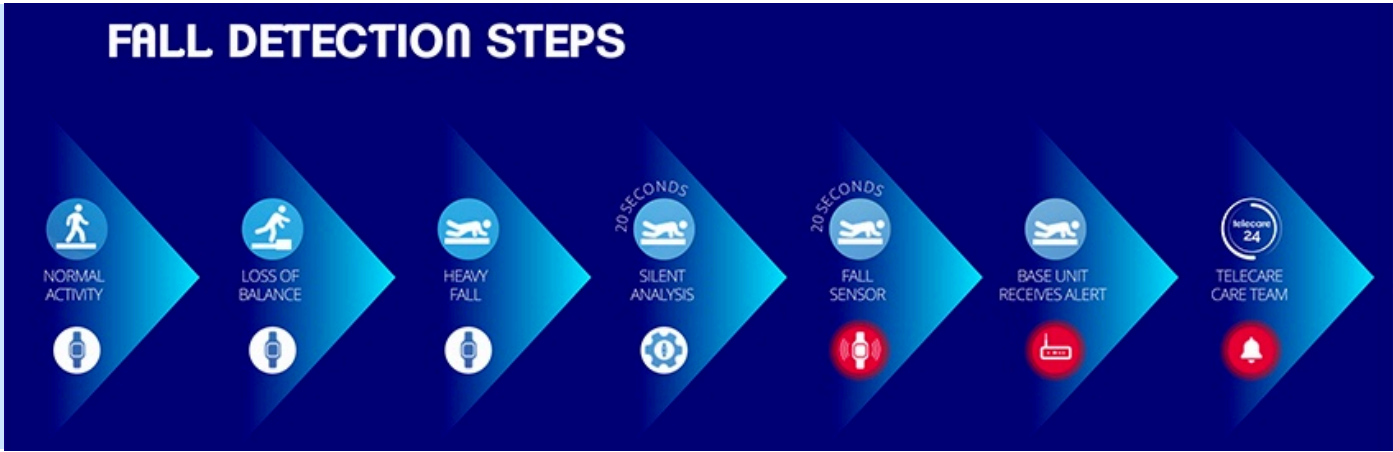
A social alarm is a telecare system allowing the elderly to remain in their own home, avoiding the cost of having a carer or needing to move in to a care home. The alarm is made up of a network of sensors that are activated by pressing the red alarm button when in a life threatening situation, this then connects the user to an operator usually based in a response centre, helping them identify key information on the users well-being and environment they are in. Functional requirements of a social alarm are power supply, two way speech, alarm processing, fault reporting and operating controls. There are also some social alarm systems which can prompt the user and give reminders, such as when medication must be taken or electricity and gas should be turned off if a potential hazard is detected. (Fisk, 2003)

An epilepsy smartwatch is a portable telecare device worn around the wrist, monitoring movements and alerting carers within a care home or loved ones if the device triggers an alert. This is beneficial to the elderly as it allows immediate attention once an alert has been triggered in the event of an epileptic fit. Features include 24/7 monitoring, linking the user to the care home in the event of an emergency. Alongside this, there is a motion sensor which detects movement similar to those of an epileptic fit, SOS alerts as well as GPS location services to locate the user when in need of immediate care and attention. (Epilepsy Foundation, 2017)

Falling is the most common cause for the elderly over 65 years of age admitting in to hospital. Statistics show 1 in 3 people over 65 fall over each year which rises to 50% if you are over 80 years old. A fall alarm is a telecare device worn around the neck, automatically detecting when an elderly person has a fall. There is no need to press a button as there is with a fall sensor. This is essential as it is very likely someone could lose consciousness after a fall and allows immediate help once an alert has been raised. A fall sensor is a telecare device worn on the wrist and contains a small button that can be pressed which raises alert and offers immediate help, therefore reducing the amount of time a person remains on the floor. (Barlow et al, 2007)

FIGURE 3

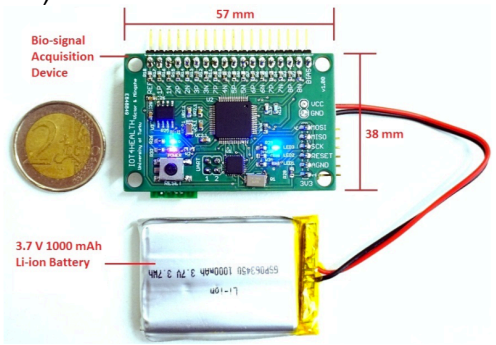
This shows the steps taken from a fall to the steps taken after a fall detection. (Barlow et al, 2007)



A blood pressure monitor is a telehealth system enabling an elderly person to monitor their health. If an elderly person suddenly feels unwell, a doctor or nurse can check their blood pressure using the monitor to see if their blood pressure is lower than usual, this allows the doctor to diagnose a serious illness more efficiently. The monitor also reduces risk of a fall as the elderly can monitor their blood pressure sitting down and standing, it is extremely common for someone's blood pressure to drop when they stand up which increases the likelihood of experiencing a fall. By monitoring this, it reduces any risks of this occurring. (Kernisan, 2017)

A pulse oximeter is a telehealth system that is generally used at home and attaches to an area of the users body, usually the fingertip. The device is able to monitor the level of oxygen in the users blood. If the oximeter reads a number that is considered dangerous, an alarm is activated. An oxygen level of 95% is considered normal, whereas an oxygen level of anything below 92% suggests the user is unhealthy and has low oxygen in their blood. The oximeter can also be used to check a recent change in medication and must also be tested with the user sitting and standing to be sure of an accurate reading. Checking the oxygen level is incredibly important in seniors as it allows for early detection of potential medical issues. (Lifebox, 2017)

A new wearable device has been designed to remotely monitor a patient's pain levels and signs. This would allow doctors to address patient issues more efficiently. The device is lightweight and wireless, allowing medical staff to remotely monitor different bio-signals in real time as well as patients being able to continue day-to-day activities without disruption. The device uses bio-signals as the acquisition in order to capture electrical potentials, more information on this can be seen on the next page within the integrated technologies section. (Sarker, 2017)



Robot emergency response is a wearable device that is wirelessly linked to a robot that can detect an emergency in real-time. This consists of a robot awareness module which will detect any words said by the elderly person such as 'help!', a sensing signal analysis module collects signals from medical and motion sensors, then uses machine learning algorithms to predict the health condition in the future. Lastly, a remote control module which can control the robot remotely using a mobile device, if an alert has been sent by an elderly person, one of their loved ones will be able to see what happened using the mobile device. (L. Wu, J. Lu, T. Zhang and J. Gong, 2016)

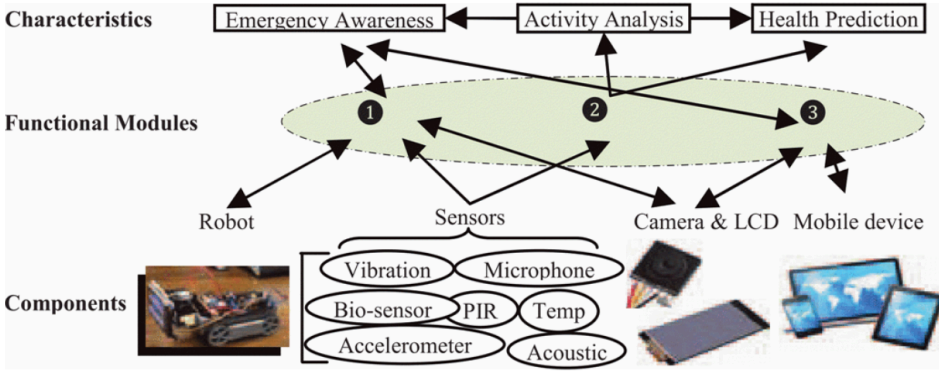


FIGURE 4 System design - 1) Robot awareness module 2) Sensing module 3) Remote control module (L. Wu, J. Lu, T. Zhang and J. Gong, 2016)

	Comfortable (%)	Don't know (%)
Pendant trigger	52.1	31.3
Wristwatch device	46.8	36.2
Implanted device	10.4	31.3
Sensory vest	10.4	37.5
Sensory shorts	0.0	47.8

TABLE 1.1 Comfort of older people with the idea of wearing, carrying or having implanted devices. (Fisk, 2003)

From table 1.1, 52.1% of the elderly are comfortable wearing a pendant trigger and wristwatch device. However, there is also an average between 30-40% of the elderly who were unsure regarding all wearable and implanted devices. Concluding my findings, I plan on including a wearable device that can be worn around the wrist and implementing key features such as the alert button that is used in most telecare and telehealth devices.

1.3 INTEGRATED TECHNOLOGIES

A bio-signal is an acquisition device that is mainly used within biomedical monitoring and telehealth systems and gathers bio-signals from the skins surface. A bio-signal captures electrical potentials that are between two areas. Bio-signals were used in the above new wearable device and various other telehealth devices that are designed to monitor a patients pain levels and signs. (Sarker, 2017)

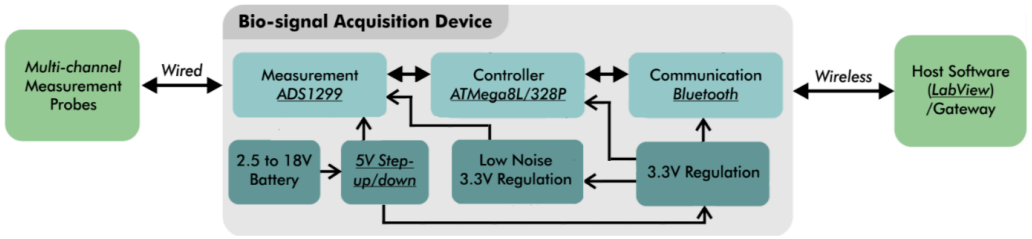


FIGURE 5 This shows the system architecture of the bio-signal acquisition device. (Sarker, 2017)

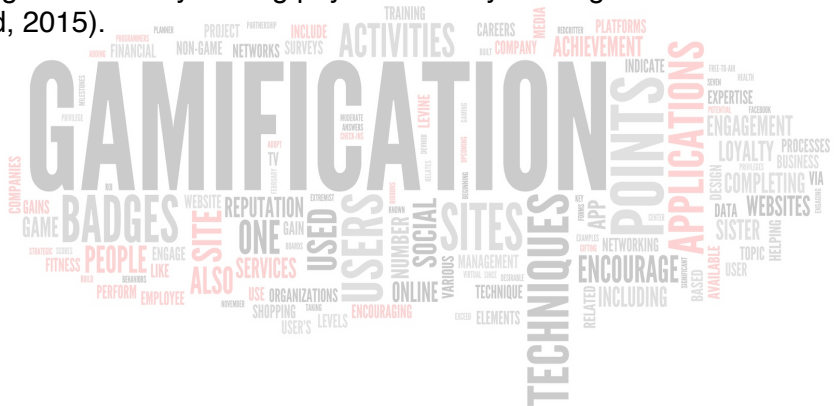
Bluetooth is a technology specifically made for networking wirelessly. Bluetooth was originally discovered and developed by Ericsson, but is now run by the Bluetooth Special Interest Group. No cables are needed between devices in order for Bluetooth to work and is a way to connect and exchange data and information between various electrical devices including laptops, cameras, games and mobile phones. Bluetooth has the range of up to 10 meters. Bluetooth can send and receive radio waves in a band of 79 different frequencies. (Singh, 2011).

GPS stands for global positioning system, this is a space-based network owned by the United States government and run by the United States Air Force. of satellites which orbit and send exact locations back to earth. Many navigation devices and vehicles use GPS to track their whereabouts. (Mio.com, 2017)

Wearables are the fastest growing segment of the internet-of-things, this describes the interconnection of unique and independent devices via an existing internet infrastructure. Internet-of-things is more than just describing the relationship between your remote control and your television. Rather, the concept describes a much more advanced level of connectivity between independent devices, systems and services that goes much farther beyond simply machine-to-machine communications. (de Clercq, no date).

18% of the population in the United States and United Kingdom are using wearable technology, and 82% of these people say these devices are making their lives better. Not only do wearable devices provide users with real-time data about their health or an augmented view of the world, they will form an very important part of the "Internet of things," the logical evolution of the cloud and big data. The idea is to enable sensor-equipped products to communicate with one another in meaningful ways. (Samson, 2013).

Gamification is mentioned in Gartner's Hype Cycle. In Health and Fitness has rapidly emerged over the past decade as a tool to promote health and wellness. In simple terms, Gamification refers to the use of game thinking and game mechanics in a non-game context to engage users and solve problems. The concept has been implemented in order to help users to achieve their goals and increase user engagement. One of the best examples where gamification has been implemented is within the Health and Fitness industry, where games encourage exercise by turning physical activity into a game such as the Wii Fit. (Howard, 2015).



1.4 EMERGENCY SERVICES RESPONSE TIMES

I have researched in to emergency response times to gain a better understanding of the length of time taken from when a casualty contacts the emergency services to when the emergency services arrive at a specified location. I will be able to determine how much time can be saved by a person using a one-touch app in comparison to if they were to call 999 directly.

I will be looking in to the average time taken for the emergency services to answer an emergency phone call, the time taken for the emergency services to confirm the callers location, as well as the length of the emergency phone call.

As seen in figure 6, from 2005 to 2013, average time taken to answer a 999 call has improved from 3.7 seconds to 1.5 seconds in 2013, a difference of 2.2 seconds.

As seen in figure 7, from 2005 to 2013, average time taken for the emergency services to locate a caller has been inconsistent and fluctuates each year. In 2005, average time taken was 56 seconds, in 2008 this dropped to 52 seconds and in 2010 to 2013 this number was risen again between 57 and 58 seconds. This shows inconsistency in the emergency service response times when attempting to locate a caller and this could be a major issue as a matter of seconds could determine life or death for the caller. I believe it is essential for this number to be as low as possible.

As seen in figure 8, from 2005 to 2013, average length of an emergency phone call was inconsistent until 2010, from 2011 onwards the average time has decreased, however still not as low as it could be in comparison with 2006 where the average time was at its very lowest, 1 minute 44 seconds.

seconds

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Average time taken to answer a 999 call	3.7	3.2	4.6	2.3	2.9	2.2	2.1	1.6	1.5	..	..

FIGURE 6 This shows the average time taken in seconds to answer an emergency services phone call. (Mobbs, 2015)

minutes

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
999 calls time answered to address select	00: 56	00: 53	00: 52	00: 52	00: 55	00: 57	00: 58	00: 58	00: 57	..	..

FIGURE 7 This shows the average time taken in minutes for the emergency services to locate a caller. (Mobbs, 2015)

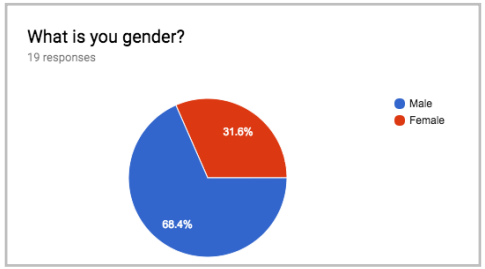
minutes

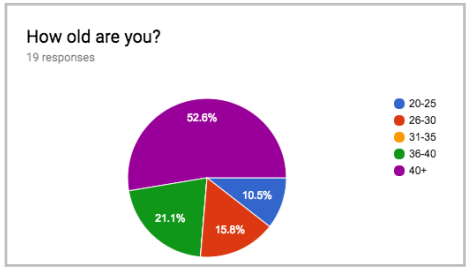
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
999 calls time answered to mobilisation	02: 03	01: 44	02: 19	01: 37	02: 03	01: 50	01: 51	01: 50	01: 49	..	..

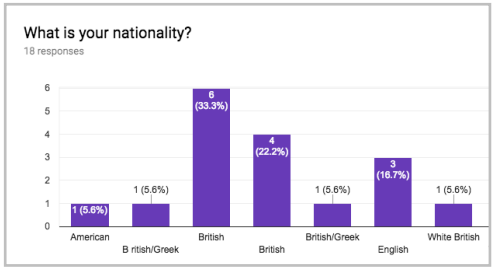
FIGURE 8 This shows the average length in minutes of an emergency phone call. (Mobbs, 2015)

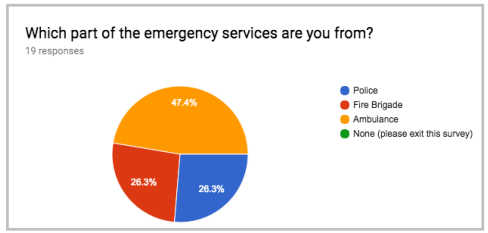
1.4 SURVEY: EMERGENCY SERVICES RESPONSE TIMES

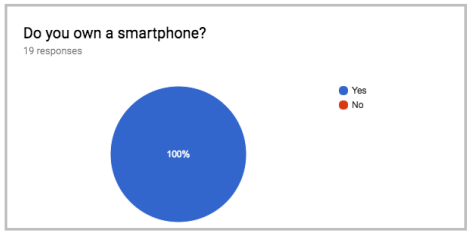
I conducted an online survey with professionals who are part of the emergency services to gain an insight into how efficiently they respond to emergencies and how accurate existing location information is. To locate people who are part of the emergency services I used family contacts and social media.

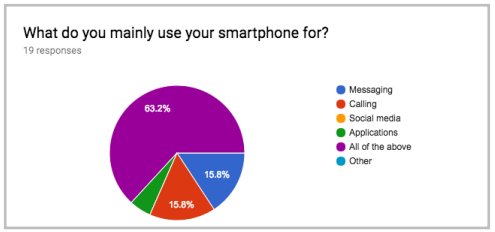


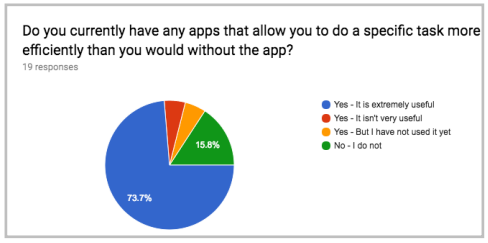


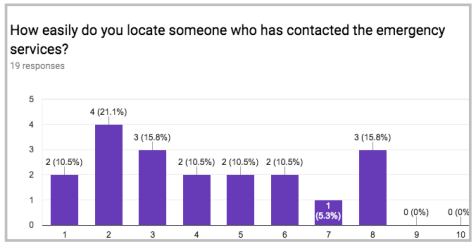


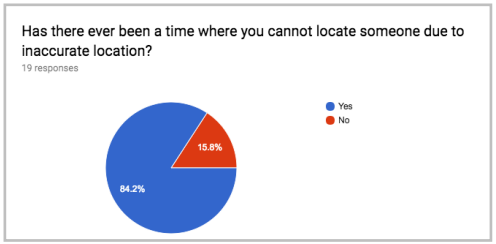


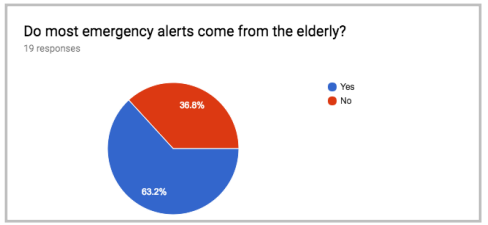


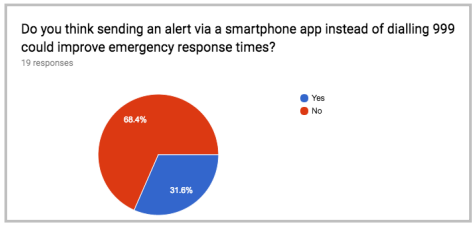


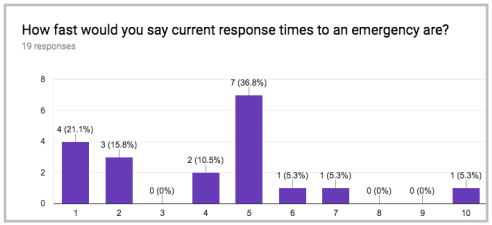


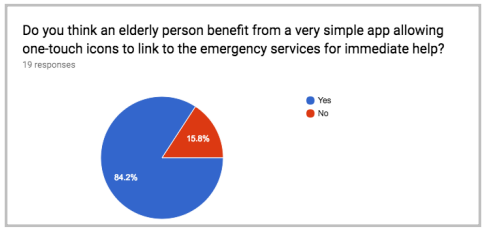


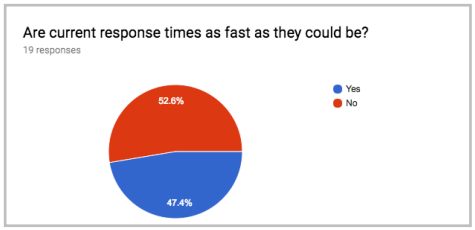










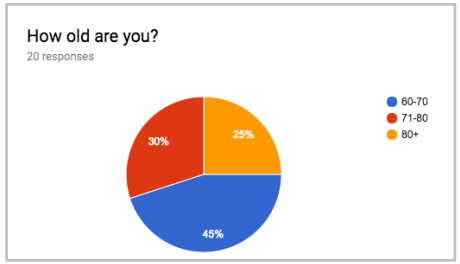


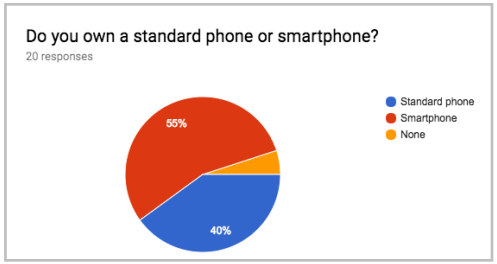
KEY ATTRIBUTES

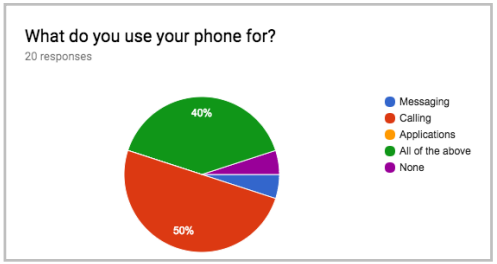
- Most people working within the emergency services are 40+ and own a smartphone.
- 73.7% of the emergency services have apps that allow them to do specific tasks more efficiently and say think is extremely useful.
- Over 84.2% of the emergency services say they have had difficulty locating someone who has sent them an alert.
- 63.2% of alerts tend to come from the elderly due to higher risk of accidents.
- An app would most likely not improve response times as someone sending an alert would still need to go through the control team.
- 84.2% say an elderly person would definitely benefit from a simple app to send emergency alerts.
- 52.6% of the emergency services believe response times are not as fast as they could be.

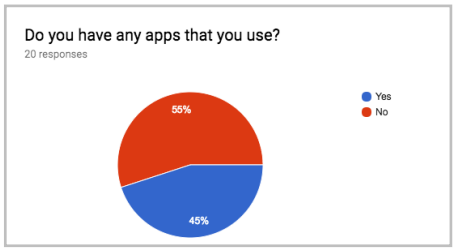
1.5 SURVEY: ELDERLY ON THE EMERGENCY SERVICES

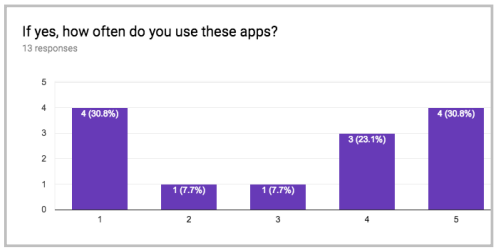
It is also essential for me to conduct a survey with the elderly regarding the emergency services to gain an insight into how they feel about the emergency services procedure and whether they would find my app idea useful. To locate elderly people to take the survey I visited various care homes and used family members.

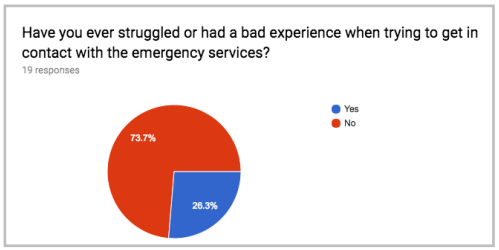


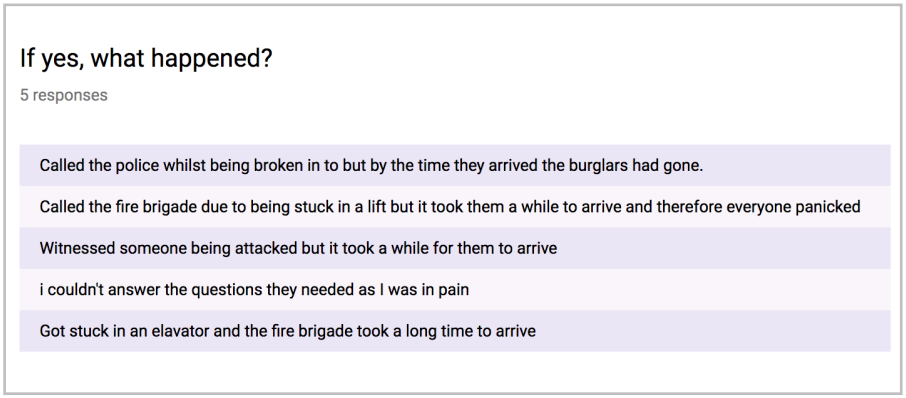


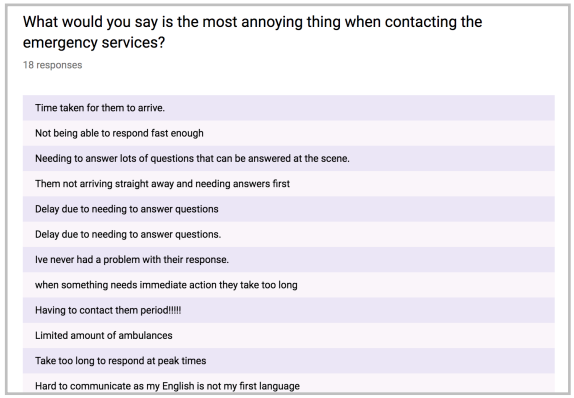


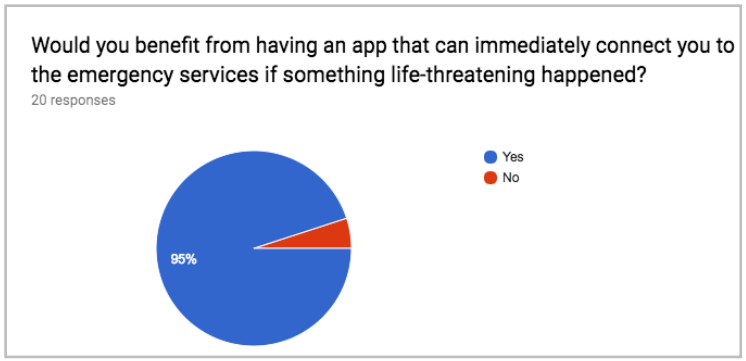


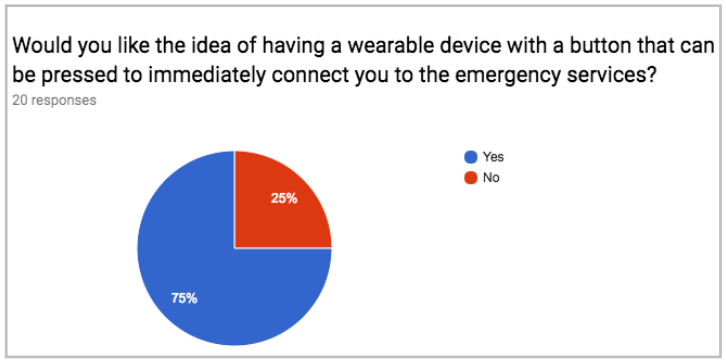












KEY ATTRIBUTES

- Target user will be between the ages of 60-70 with secondary users aged between 71-80.
- 55% of the elderly own a smartphone.
- 40% of the elderly use a smartphone for messaging, calling and applications.
- 45% of the elderly use applications with 30.8% of these using the apps multiple times a day.
- Most of the elderly have not had a bad experience with the emergency services to date, however 26.3% said they had and the reason for this was predominantly due to how long they took to arrive.
- The main pain point that was mentioned most was the amount of time taken for the emergency services to arrive due to the amount of questions that are asked by the control team before they are dispatched.
- 95% of the elderly would benefit from having an app to immediately connect them to the emergency services and 75% like the idea of a wearable device.

1.6 CASE STUDIES: EXISTING APPS

LIFELINE RESPONSE

The Lifeline Response app is a personal security system aimed at university students and staff. Lifeline Response allows the user to immediately link to the authorities using GPS location services to find the user in their exact location immediately. The app requires basic information on the user such as hair colour, weight, height and other dimensions allowing the police to accurately locate the user in case of an emergency. Lifeline Response also allows users to report suspicious behaviour that they have witnessed in their area, this information also notifies other users that are within a close proximity of the area reported. The app works by keeping your thumb on the screen when in vulnerable situations such as walking home late at night, once the user removes their thumb from the screen, a timer begins. If the timer finishes and the user has not deactivated the alert within this time, an emergency alert is sent out immediately to the authorities. The app also allows the user to generate a four digit code that can be entered as a different method of alerting the authorities in an emergency, as well as using the code in order to disarm an emergency alert. (Llresponse.com, 2017)

S – STRENGTHS

- Colour scheme is eye-catching.
- Easy navigation.
- Alerts authorities efficiently.
- GPS location services for exact location.

W – WEAKNESSES

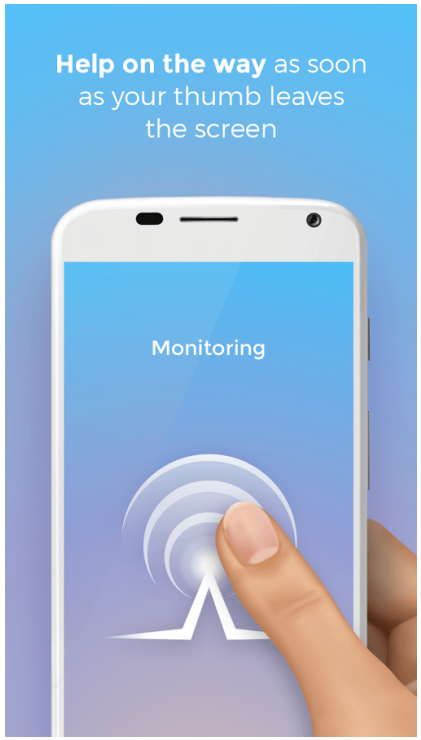
- Thumb activation could accidentally trigger an alert.

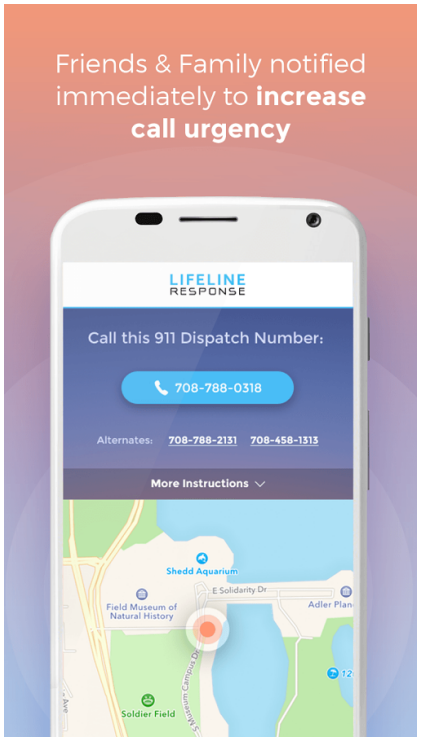
O – OPPORTUNITIES

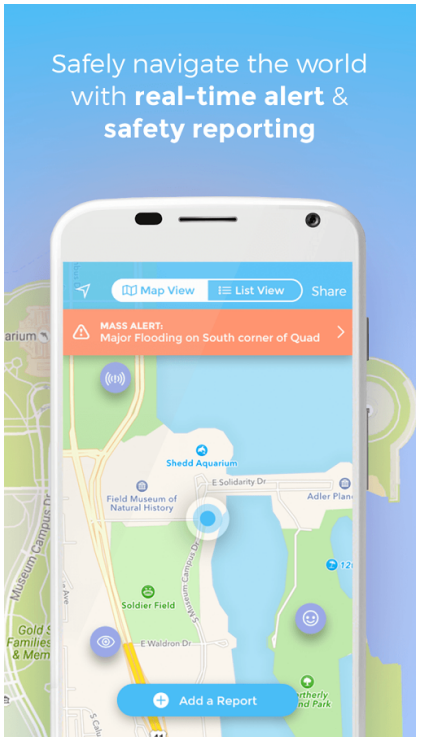
- Could be used globally.
- Could be linked to many emergency services worldwide.
- Could be used outside of university day-to-day.

T – THREATS

- Keeping thumb on screen may accidentally trigger an alert causing the emergency services to come out unnecessarily.







RAPIDSOS

RapidSOS app is a one-touch-911 safety and security system allowing the user to communicate with the emergency services when in life threatening situations. RapidSOS has been proven to be 1-5+ minutes faster than directly calling the emergency services and 2-10% reduced deaths, this is due to a much more efficient response.

RapidSOS uses GPS location services to send a faster and more precise location to the emergency services when an alert has been sent, once this has happened users loved ones are notified of the emergency and kept up to date via notifications. RapidSOS can be used within a car, home, wearable device and as an app. The app also allows the user to place panic buttons around their chosen area, when these buttons are pressed twice simultaneously, 911 emergency services are alerted and can respond immediately. RapidSOS is also available across over 250+ countries, ensuring safety worldwide, wherever the user may be. (Rapidsos.com, 2017)

S — STRENGTHS

- One-touch icons makes process faster.
- Available across 250+ countries.
- Wearable device linked to app.

W — WEAKNESSES

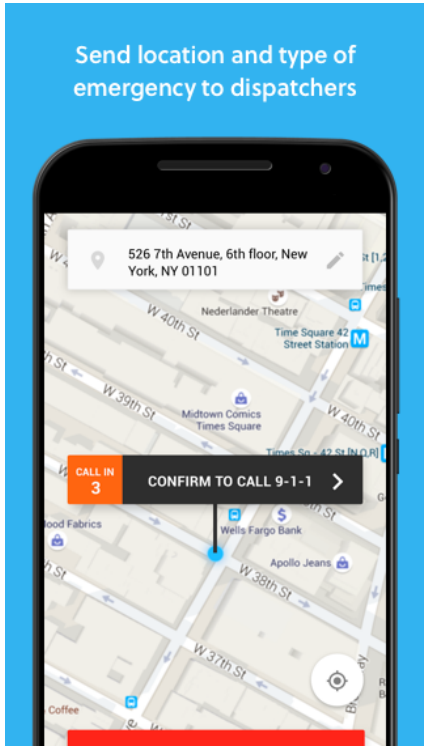
- Colour scheme is inconsistent and not appealing.
- Small text making it difficult to read.

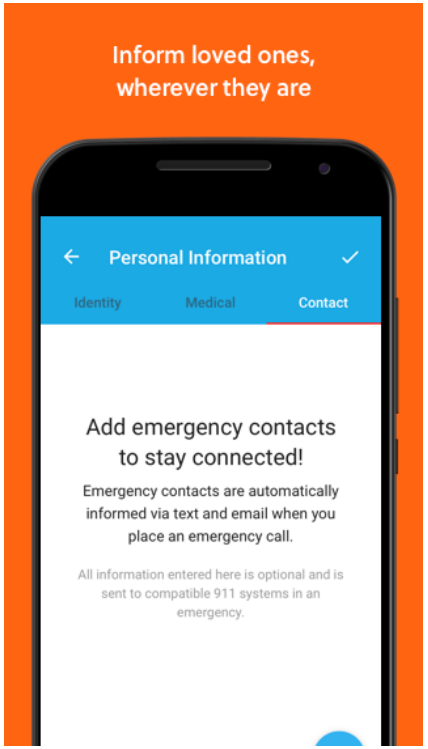
O — OPPORTUNITIES

- Can potentially reduce more deaths.
- Can be developed further and made more visually appealing.

T — THREATS

- Similar to competitor GoodSAM app which also allows for first aid trained to help and could be more appealing.





GoodSAM

The GoodSAM app is an emergency alerting and dispatching platform and works with over 50 emergency services worldwide including The London Ambulance Service and East Midlands Ambulance Service. The app allows people who are trained in first aid and the emergency services to be alerted if they are in the vicinity of an emergency and attend to a person in need of medical help before the emergency services arrive, potentially providing help sooner.

For the public, if they are in a life-threatening situation, they are able to press the emergency button on the app which notifies the 3 closest responders as well as simultaneously notifying the emergency services. For responders, they will hear a siren when an alert is sent from close by, giving them the option to accept. If the first responder does not respond within 20 seconds, a second responder is sent the alert. Once accepted, the patient's location becomes displayed on a map. The responder is able to help the patient once they are located. (Ghorbangholi, 2017)

FEATURES

- Life Detector - a patented technique for pulse and respiratory rate detection
- Instant On Scene Video Streaming including *"Text to See"*
- Admin Panels with many features including statistics / communications / alert settings & mapping
- Report generator - within the App, responders can make notes for follow up data
- Drone AED delivery
- Alerter and Responder Apps available on all mobile platforms
- Defibrillator - The world's largest AED Register (> 28,000 already uploaded)
- CAD integration for automatic alerting through 112/911/999/000
- CPR Reminder / Guidelines (country specific)
- Mapping and Tracking with real time communications
- Buzz - A communications system between responders and organisations
- … and many many more features including organisation specific branding, statistical packages and SMS / Push notification comms features …

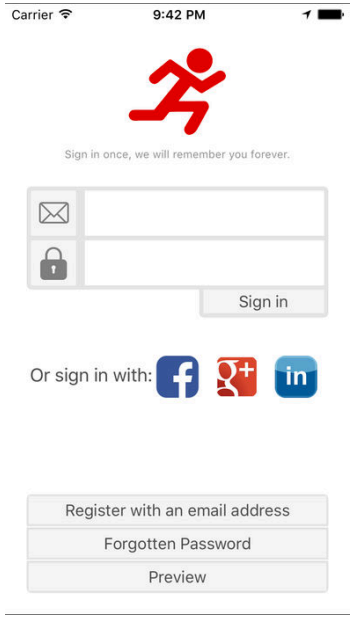
SWOT

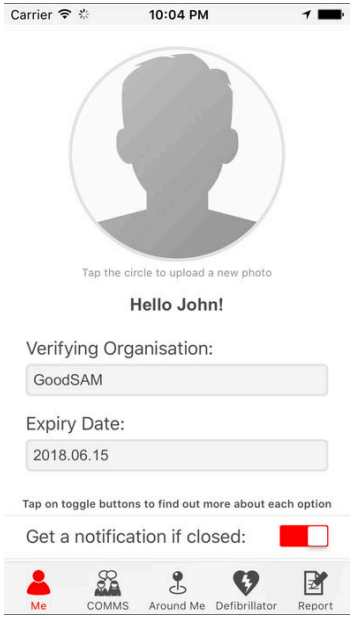
S – STRENGTHS
- Allows first aid trained to also help.
- Sends alerts to multiple responders at once.

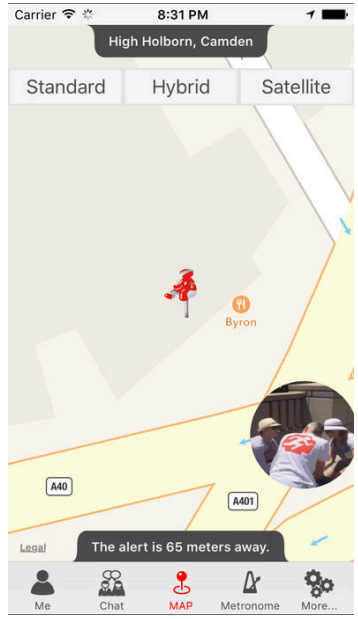
W – WEAKNESSES
- Mainly for the ambulance services.
- Only based in the UK.

O – OPPORTUNITIES
- Can expand in to other emergency services, police and fire brigade.

T – THREATS
- Similar to competitor RapidSOS who operate in over 250+ countries.







CONCLUSION

PRIMARY RESEARCH

Key information found from the survey with the emergency services include that over 84.2% of the emergency services say they have had difficulty locating someone who has sent them an alert, I will be ensuring the bealert app has GPS location services to locate the user more accurately. 63.2% of alerts tend to come from the elderly due to higher risk of accidents, this makes the app even more beneficial for the elderly to be able to use. 84.2% of the emergency services asked also thought an elderly person would definitely benefit from a simple app they could send emergency alerts from. I also found most people within the emergency services are aged 40+ so I will be using this information for my secondary persona. From the survey conducted with the elderly I found that the target user will be between the ages of 60-70 with secondary users aged between 71-80. I will be using this information for my primary persona. The main pain point found amongst the elderly was the amount of time taken for the emergency services to arrive due to the amount of questions that are asked by the control team before they are dispatched. 95% of the elderly would benefit from having an app to immediately connect them to the emergency services and 75% like the idea of a wearable device.

There are also key features found from existing apps that are essential to include within my designs. The key features I have identified from my primary research include:

- Clear and large icons ensuring the elderly will be able to see these when the app is in use.
- A profile section allowing the user to add key information such as name, age and medical history which will help aid the emergency services when dispatching.
- A bold colour scheme would also be beneficial so the elderly can differentiate from each icon and section within the app.
- The ability for the app to link to all three emergency services, police, ambulance and fire brigade.

SECONDARY RESEARCH

From my research on the ageing population, it was found that people are ageing at a much more rapid rate in comparison to previous years, with this increasing drastically by 2040, it is therefore essential technology is kept evolving to suit the needs of the elderly, especially regarding their health.

I then looked at relevant existing telecare, telehealth and integrated technologies for the elderly, I have found that these devices are extremely helpful when an elderly person needs attention. A very useful piece of information from this section of my research was table 1.1, whereby 52.1% of elderly people are comfortable wearing a pendant trigger and wristwatch device. From this I have concluded that a pairing bealert wearable device would be beneficial as the elderly person then has a choice on whichever one they are more comfortable with, the app or wearable device.

After looking in to emergency service response times, it was evident these were inconsistent and constantly fluctuating. I decided that from these results the app I would be designing could potentially decrease the amount of time taken for the emergency services to respond to an emergency by cutting out the control team who dispatch the services and having the alerts go directly to the services. However, after speaking to various members of the emergency services they advised this would not benefit response times and in fact potentially increase the amount of time as the control teams are highly trained and know how to dispatch as fast as possible. I will therefore keep the control team involved and design a response side program alongside my app, allowing the control team to press one-touch icons that can dispatch the services more efficiently.

1.7 PERSONAS

From my research I have used key attributes gained primarily from my surveys to create relevant personas and scenarios.

PRIMARY PERSONA

ELIZABETH EVANS

"I do not enjoy keeping active as with age this has become more difficult."

Age: 70
Work: Retired
Family: Married, 3 children
Location: London, UK
Character: Happy and positive

Personality

Introvert	Extrovert
Thinking	Feeling
Sensing	Intuition
Judging	Perceiving

Happy | Positive | Lazy

Life Goal

- To always be safe wherever I am.

Experience Goals

- To know I will always be safe wherever I am.
- To be able to contact the emergency services quickly and efficiently.

End Goal

- To have no delayed experiences with the emergency services when I send an alert.
- To be able to avoid calling the emergency services and have a more efficient way of them knowing my location.
- To have a wearable device that can also contact the emergency services in case my mobile is not close by.

Bio

Elizabeth is a retired nurse who has been happily married for 20 years and has 3 children. Elizabeth always sees the positive in situations and always tries to solve problems if any ever occur. Elizabeth loves exploring and experiencing new things.

However, Elizabeth recently had a scare when she fell down the stairs and was in too much pain to be able to get to the house phone or mobile. This made her realise she is in need of something that would allow her to easily contact the emergency services efficiently.

Motivation

Incentive
Fear
Growth
Power
Social

Pain Points

- Emergency services taking too long to arrive.
- Not being able to speak when I have a fall.

Brands & Influencers

DEBENHAMS next

THE WHITE COMPANY LONDON

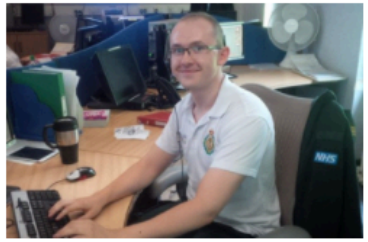
British Heart Foundation

The reason I have chosen Elizabeth as my primary persona is that from my research I found the main target user will be aged between 60-80. 95% of the elderly also stated they would benefit from an app that would connect them to the emergency services as this age group do not like having to call the emergency services in an emergency as often they are unable to do so. The main pain point that reoccured was that the emergency services take too long to arrive once an alert has been sent with them, this is the main pain point that I have been defined within Elizabeth's persona.

SECONDARY PERSONA

DECLAN HOLD

Xtensio



"I love the fact I can help save lives, every single day."

Age: 43
Work: Control Room Dispatcher
Family: Single
Location: London, UK
Character: Efficient and keen to learn.

Personality

Introvert — Extrovert
Thinking — Feeling
Sensing — Intuition
Judging — Perceiving

Efficient | Understanding | Positive

Life Goal

- Continue saving lives every single day.

Experience Goals

- Be able to dispatch the emergency services a lot faster.
- To explore the other side of the emergency services and try being a paramedic.

End Goal

- To be able to dispatch the emergency services almost instantly after receiving an alert.
- Be able to locate someone who has sent an alert more efficiently.
- To have a good work/life balance.

Bio

Declan is a control room dispatcher for the London Ambulance Services and is based in North London. Declan is currently single and focuses most of his time on helping save lives, this is what keeps him motivated which often means he spends long hours in the office.

Declan's main frustration when at work is having difficulty easily locating someone who has called 999, this could be down to various reasons including the caller not being able to speak. He would like a system that will allow him to immediately see where the caller is located which would make his job less stressful.

Motivation

Incentive
Fear
Growth
Power
Social

Pain Points

- Having difficulty locating a person who has sent an alert in to the emergency services.
- Not being able to hear someone clearly on the phone.

Brands & Influencers

NHS TOPMAN

The reason I have chosen Declan as my secondary persona is that from my research I found the secondary target user will be staff working within the control room as they will be receiving the alerts on screen when one is sent through. As well as this, 52.6% of the emergency services staff are aged 40+. The main pain point that reoccured was not being able to locate someone who has called the emergency services with ease, this is the main pain point that has been defined within Declan's persona.

1.8 SCENARIOS

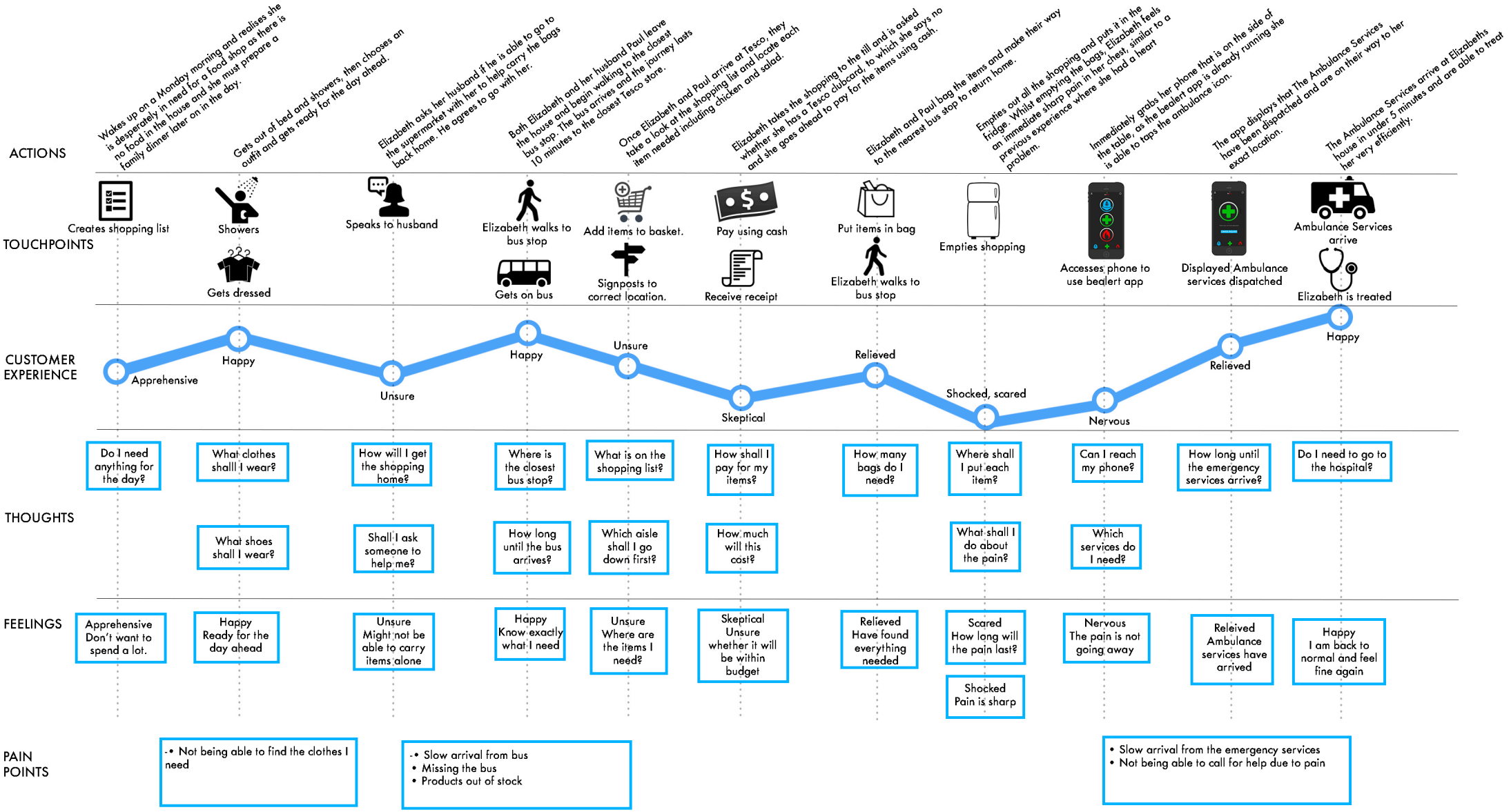
PRIMARY PERSONA

1. Elizabeth has woken up on a Monday morning and realises she is desperately in need for a food shop as there is no food in the house and she must prepare a family dinner later on in the day.
2. Elizabeth gets out of bed and showers, then chooses an outfit and gets ready for the day ahead.
3. Elizabeth asks her husband if he is able to go to the supermarket with her to help carry the bags back home. He agrees to go with her.
4. Both Elizabeth and her husband Paul leave the house and begin walking to the closest bus stop. The bus arrives and the journey lasts 10 minutes to the closest Tesco store.
5. Once Elizabeth and Paul arrive at Tesco, they take a look at the shopping list and locate each item needed including chicken and salad.
6. Elizabeth takes the shopping to the till and is asked whether she has a Tesco clubcard, to which she says no and she goes ahead to pay for the items using cash.
7. Elizabeth and Paul bag the items and make their way to the nearest bus stop to return home.
8. Once Elizabeth arrives back home she empties out all the shopping and puts it in the fridge. Whilst emptying the bags, Elizabeth feels an immediate sharp pain in her chest, similar to a previous experience where she had a heart problem.
9. She immediately grabs her phone that is on the side of the table, as the bealert app is already running she is able to taps the ambulance icon.
10. The app displays that The Ambulance Services have been dispatched and are on their way to her exact location.
11. The Ambulance Services arrive at Elizabeths house in under 5 minutes and are able to treat her very efficiently.

SECONDARY PERSONA

1. Declan is a control room dispatcher which means he must wake up early for some of his shifts. He wakes up at 6am on a Wednesday morning for his early shift and begins getting ready for work.
2. Declan makes his way to work and arrives in good time. He makes his way to his desk and starts up the computer to begin working.
3. Declan immediately begins answering calls within the control room of The London Ambulance Service, he has already received 3 calls from people who require immediate emergency service attention.
4. Declan's manager decides to hold a brief meeting for all the staff in order to discuss a new system, bealert that is especially for the elderly to get in contact with them more efficiently and also allows the control team to dispatch the services even faster.
5. Declan returns to his desk after the meeting and opens the new program balert to take a look.
6. Immediately an alert comes in and appears on screen from an elderly person named Mary Buxton.
7. The elderly persons information is displayed including her exact location, full name, age, medical history and location, as well as the emergency services she requires, in this case The London Ambulance Service
8. Declan immediately sends a request through to The London Ambulance Service with Mary Buxton's exact location, Gloucester Gardens, North London and personal information that they can access and view during their journey to her.
9. The London Ambulance Service are dispatched and make their way towards the specified location immediately.
10. They arrive at Mary Buxton's house in under 5 minutes and are able to attend and treat her very efficiently.

1.9 JOURNEY MAP

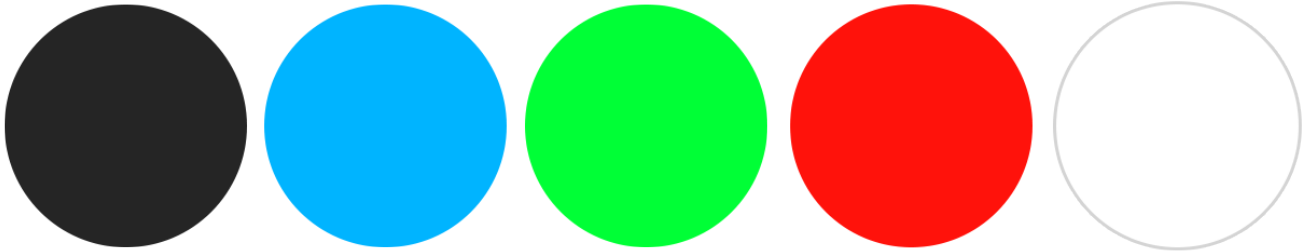


2 DESIGN

2.1 BRANDING

COLOUR SCHEME

The colour scheme I have chosen is dark grey, predominantly for the app icon so the alert icon with the emergency services colours could display clearly against a dark background. I decided white and red would be best for the 'bealert' text, the two different colours allow for easy differentiation between the two words. Lastly, the icon uses the 3 main colours to represent the emergency services, blue, green and red.



#252525 **#00b4ff** **#00ff36** **#ff120b** **#ffffff**

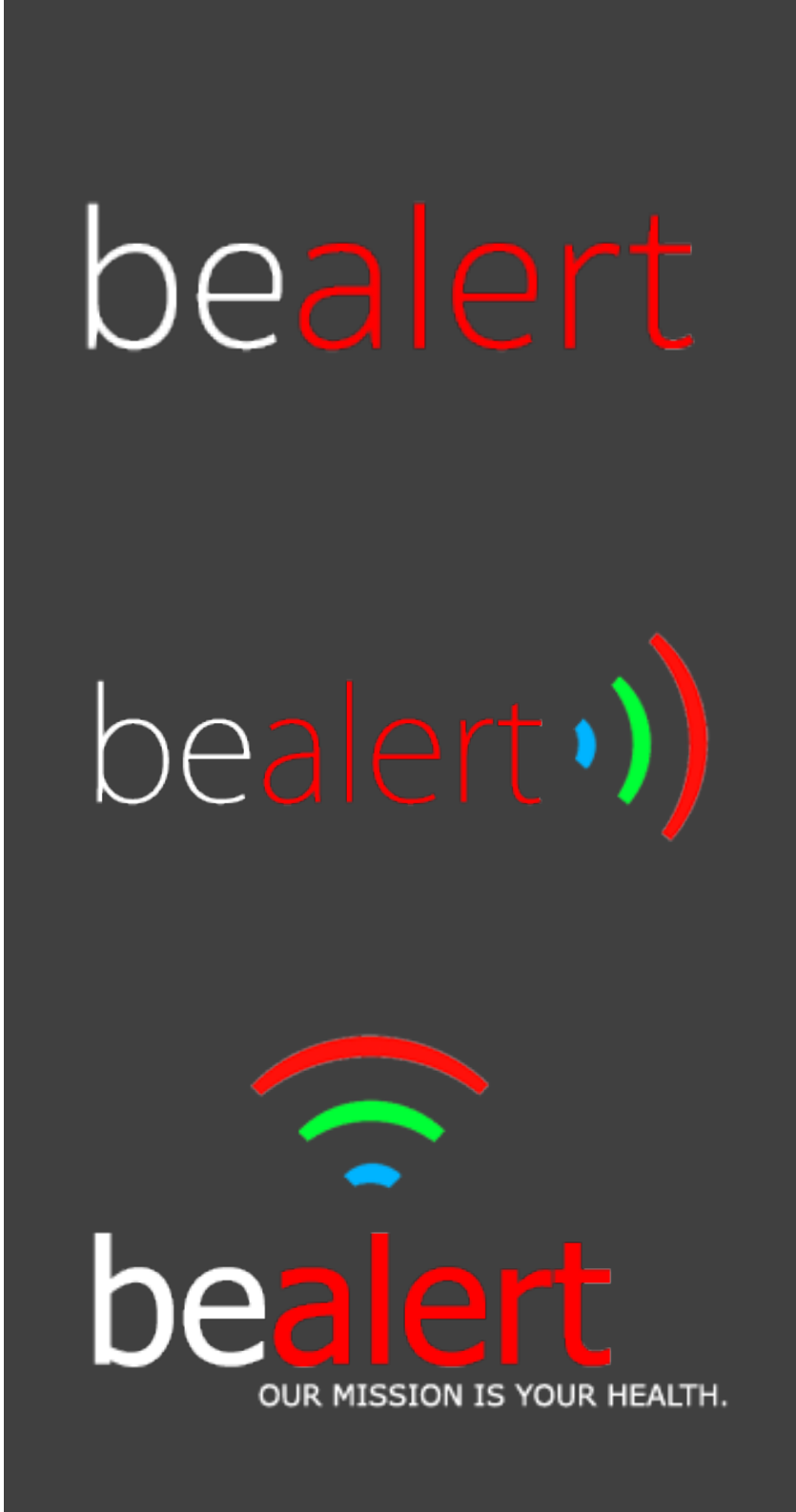
LOGO

I began experimenting using a simple font and colours to represent the emergency services, with my key colours for the text being white and red, this is to differentiate the two words 'be alert', making it easier for the user to read. I felt it was important to incorporate the three key emergency services colours in order for the app to reflect being a personal emergency alert system, blue for police, green for ambulance and red for fire brigade..

I began with the first design, by identifying the name of the app 'bealert' and deciding on the font, 'Sukhumvit Set'. Due to the app being aimed towards the elderly the text would therefore need to be clear and readable. For the second design I then added the signal icon and incorporated the emergency services colours, blue representing the police, green for the ambulance and red for the fire brigade. Lastly, for the final design I moved the signal icon above the text as I felt the logo itself was too long on one line. By doing so, I had space below the brand name to add the slogan, 'Our mission is your health'. I chose this simple slogan that reflects the nature of the app to define what it is about and shows the app is health related.

APP ICON

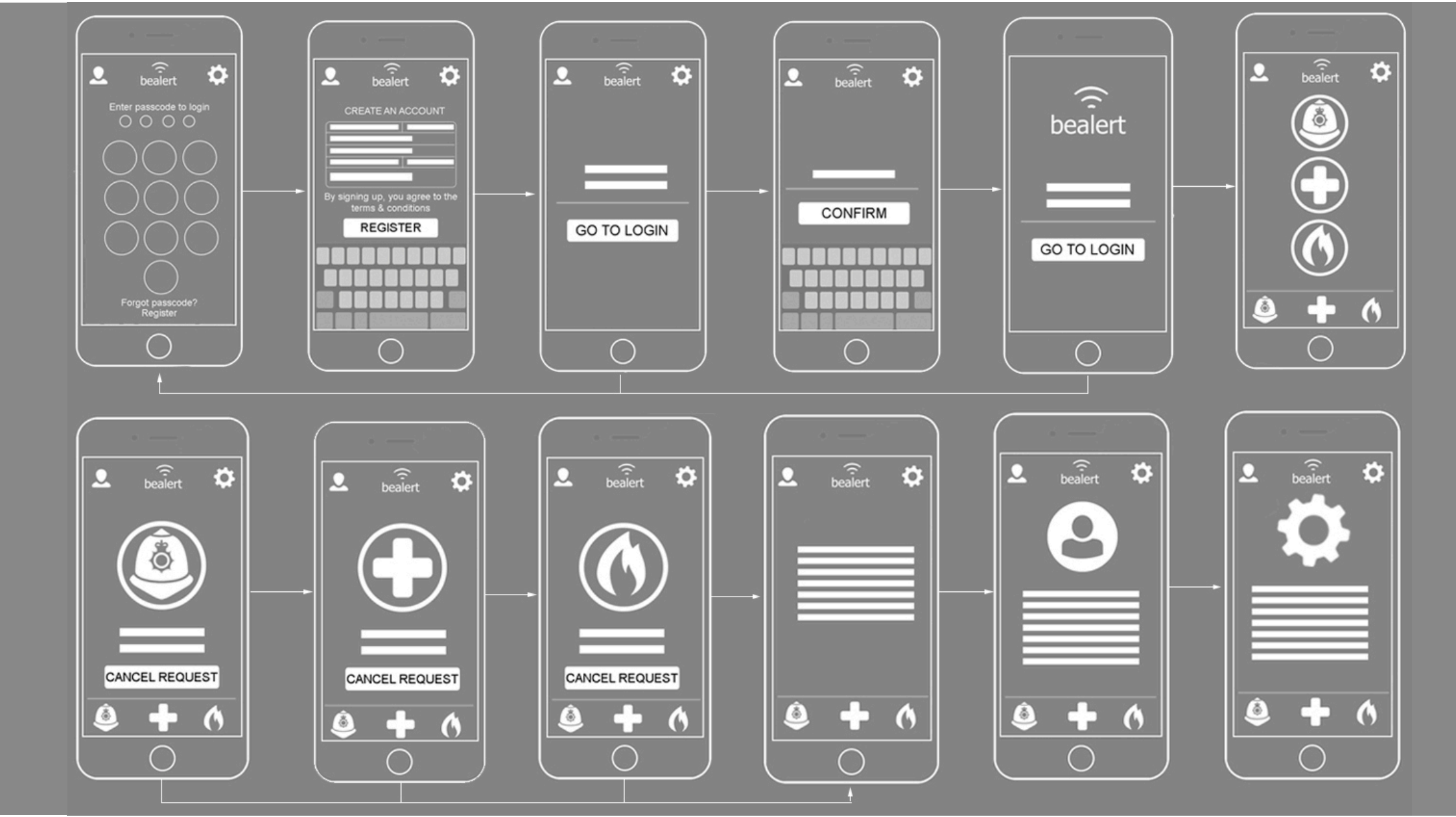
The app icon uses the 'alert' icon from the balert logo. I decided to keep this very simple with no text shown as when displayed on the app store the app icon will be extremely small therefore any text on this will not be readable.



2.2 LOW FIDELITY WIREFRAMES

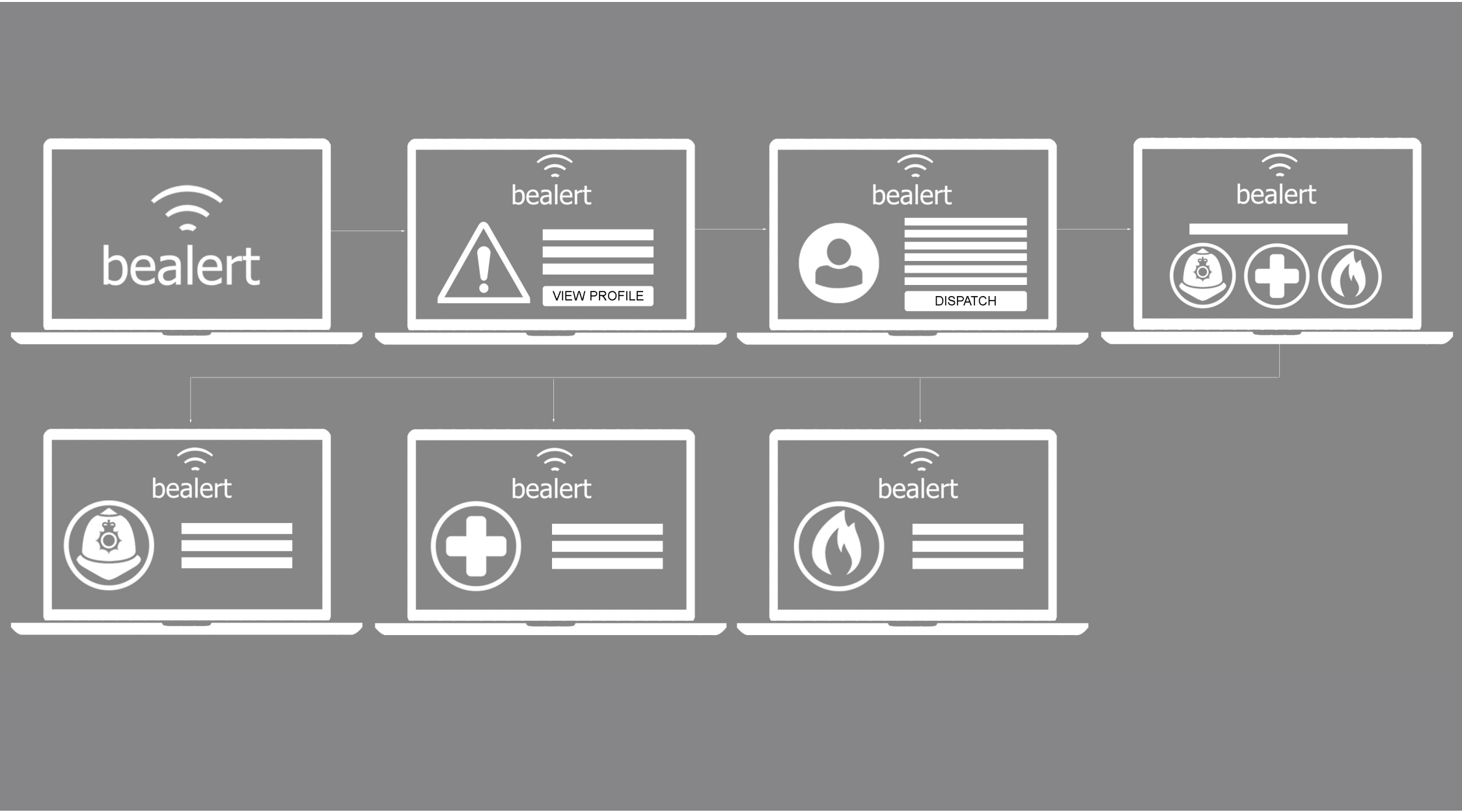
BEALERT APP SCREENS

I have used low fidelity wireframes to display the bealert app, displaying the link between each app page. This includes all the screens such as splash screen, log in, registration form, forgotten password form, profile, settings and the main screen which includes the one-touch emergency icons that the user can touch to immediately connect them to the emergency services. The user can then see the emergency services estimated time of arrival and their exact location until they arrive at the users location.



BEALERT RESPONSE SIDE SCREENS

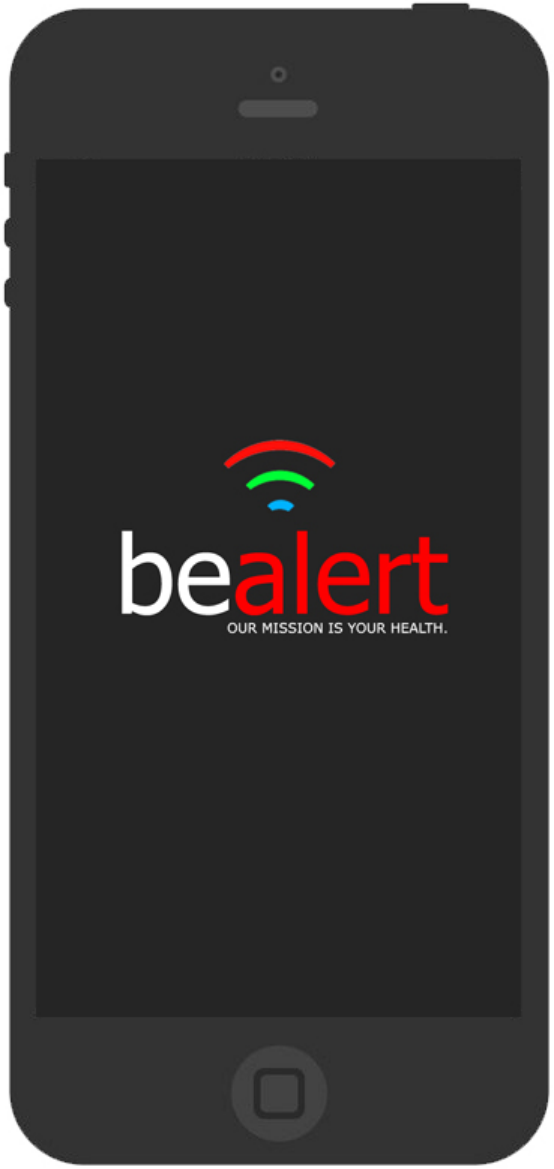
I have used low fidelity wireframes to display the response side program that will be visible to the control team who dispatch the emergency services based on the users location and which emergency services they require. Displayed below are all the screens and how they are linked, including a splash screen, alert screen which notifies the control team that a user has sent an alert, from here they are able to immediately click a button that takes them to the users profile linked with the app they have used, once on this screen they have the option to choose dispatch the emergency services most relevant to the emergency alert that has come through. The control team then get an alert once the emergency services have been dispatched and from this can see the exact location of the emergency services and the estimated time of arrival.



2.3 HIGH FIDELITY WIREFRAMES

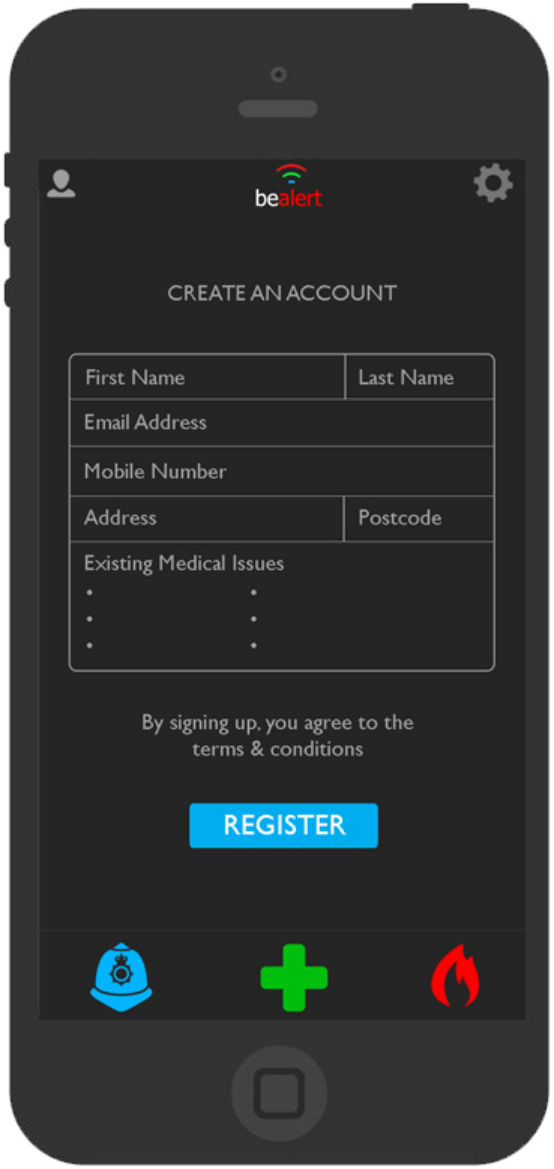
BEALERT APP SCREENS

I have created high fidelity wireframes for the key app screens. The screens displayed include the splash screen, login screen, create an account screen, profile screen, emergency services alert request screen and alert submission screen. The app has been designed in a way that it would be running constantly on the users smartphone, enabling ease of use and reducing complications for the elderly person that may need to use the app in case of an emergency.



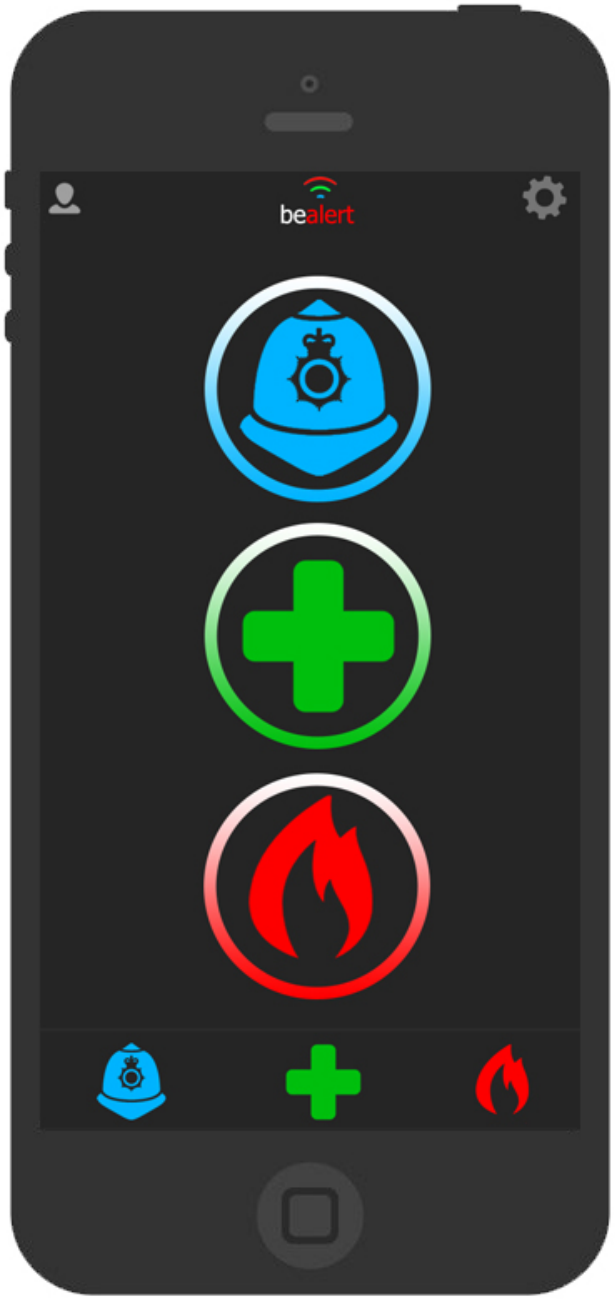
SPLASH SCREEN

LOGIN SCREEN

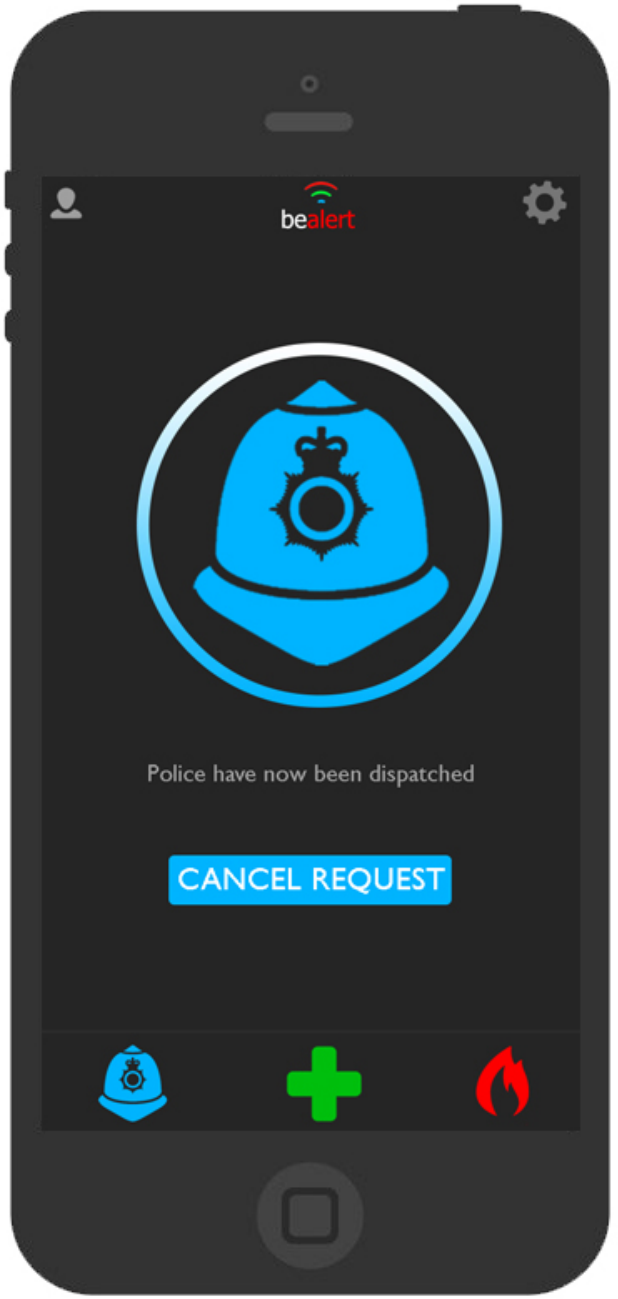


CREATE ACCOUNT SCREEN

PROFILE SCREEN



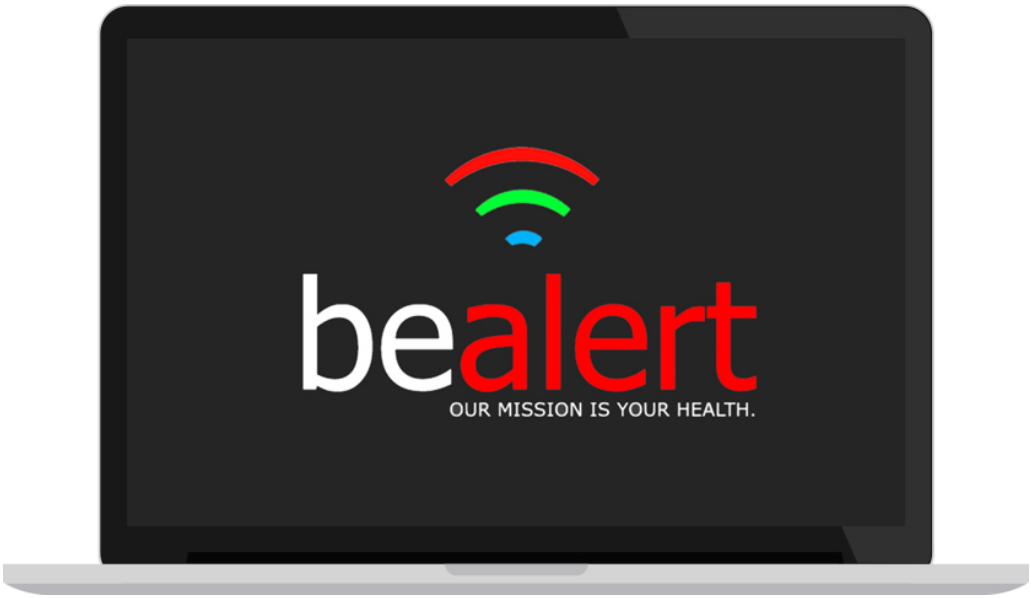
ALERT REQUEST SCREEN



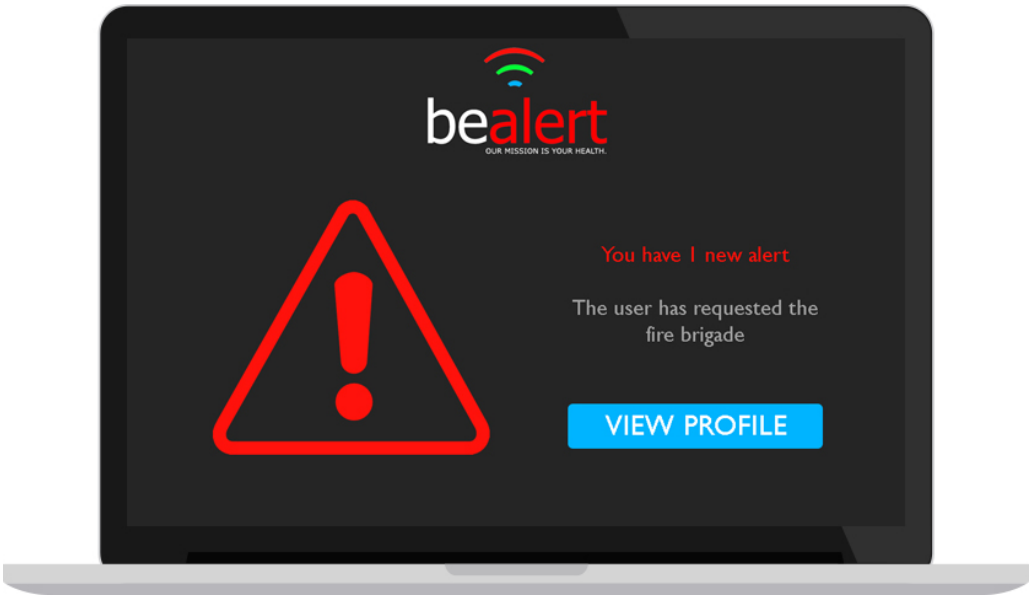
ALERT SUBMISSION SCREEN

BEALERT RESPONSE SIDE SCREENS

I have created high fidelity wireframes for the key response side screens, these include a splash screen, alert notification screen, profile screen, emergency services dispatch screen and dispatch confirmation screens. This is the program the emergency services dispatchers will see once an elderly person sends an alert through the balert app.



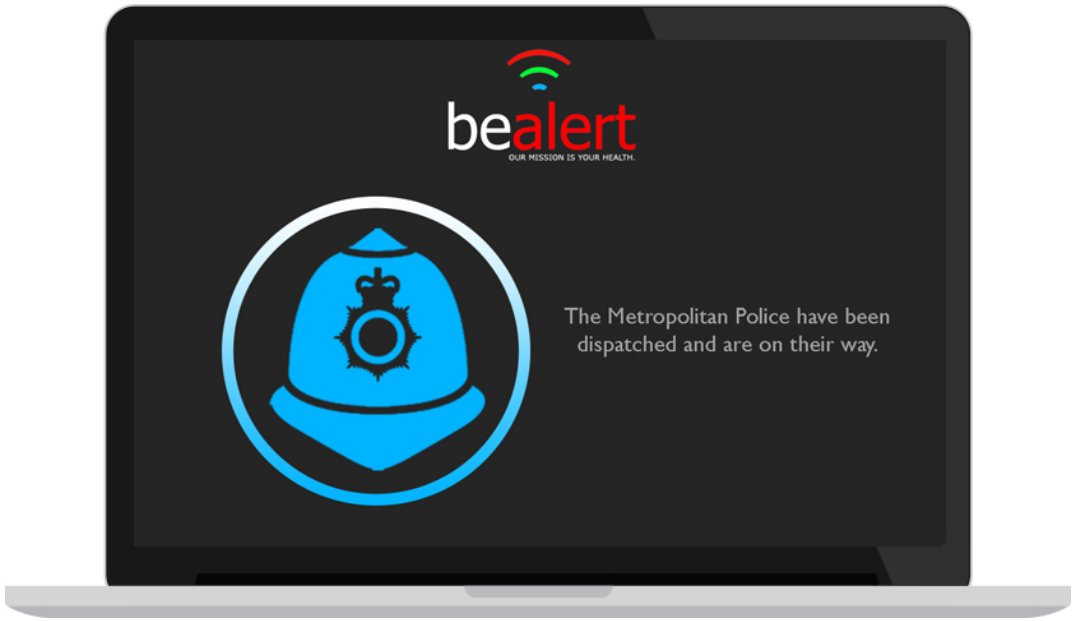
SPLASH SCREEN



ALERT NOTIFICATION SCREEN

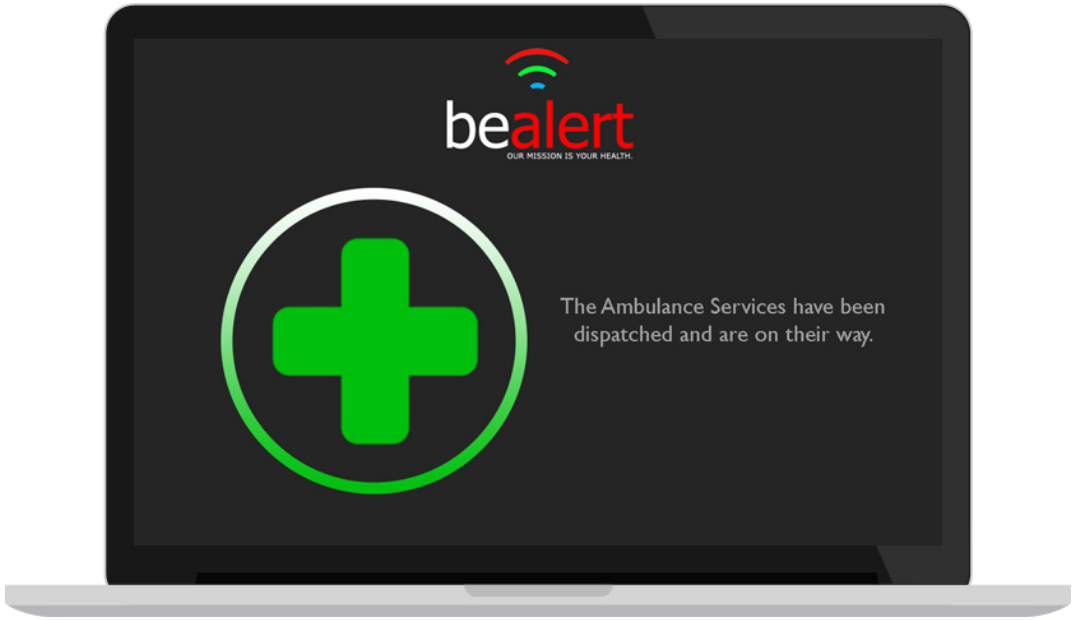
PROFILE SCREEN

EMERGENCY SERVICES DISPATCH SCREEN



POLICE DISPATCH CONFIRMATION SCREEN

FIRE BRIGADE DISPATCH CONFIRMATION SCREEN



AMBULANCE DISPATCH CONFIRMATION SCREEN

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