

stay just in **safe case**



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Stay safe, just in Case

Why SafeCase?

The feeling of fear never should prevent a person from living their life to the fullest and doing what they want to do, whether it's being out all night partying or even going for a late night run. This is why we created SafeCase. SafeCase consists of a smart case for your phone and a mobile application. The case features a button which allows you to quickly notify your friends if you are feeling unsafe. The mobile application allows you to stay in contact with your friends every step of the way towards your chosen destination. The app allows you to share video, GPS location and chat with your friends. This way you can always have company!

The case with its button feature is designed so that the user is able to notify friends if they need help, in a way that is both quick and discreet. The application is designed for the situations where a user wants a convenient way for friends to keep a watchful eye over them, but do not consider the situation to be imminently dangerous. We hope that

SafeCase can enhance the positive experiences in the life of the user by simply removing any negative ones.

Defining Experience

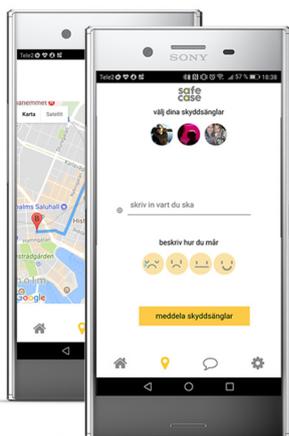
The theme for this project is "Experience". Experience is a word that can have a wide variety of interpretations, however in this project experience is defined as in accordance with the ISO 9241-210:2010 definition for "user experience". The ISO-definition states that user experience is: "[a] person's perceptions and responses resulting from the use and/or anticipated use of a product, system or service" (Swedish Standards Institute. 2010). This project emphasis on the user perception, specifically users perception of safety, and has been incorporating user responses in the development of both the SafeCase application and the physical case.

An approach that permeated the design process is Value Sensitive Design (VSD). VSD looks at how, for example, interaction with tech-

nology and design is in some cases supported by values and in others is not (Friedman & Kahn 2002). VSD is used in this project as a means to translate perceptions, anticipations and user-inputs into values. The identified values are briefly introduced in the next section.

Safety through tech

According to a yearly survey in Stockholm municipality carried out by Sweco Society AB, the residents of Stockholm reported that that they perceived the city to be less safe and it was more likely in 2017 to be submitted to threats and sexual harassment than it was in 2008, 2011 and 2014. The survey also showed that the residents in Stockholm were increasingly worried about becoming victim of a crime, about going out after dark and that a crime would be committed against friends and family. (Stockholms Stad 2017) In the beginning of the project we designed and carried out a survey concerning perceived safety in everyday experiences, which 34



High fidelity prototypes:
Mobile application
and phone case



“guardian angels can watch over and keep their friends company as they make their way home”

people answered. Through the answers collected by this survey, the group could identify three main values that cause people to feel unsafe: A lack of street lighting, being alone and a perceived lack of control over the surroundings. Out of the 34 people participating in the survey, six agreed to be part of the group who tested future prototypes.

The intention behind SafeCase was to develop an artifact that would have a positive effect on its users perception of safety. In order to do this as efficiently as possible we developed an application that can be used independently or together with the phone case. The phone case allows the user to immediately alert his/her friends that they are in distress with the simple press of a button. The phone never has to leave the users pocket, and help can be on its way swiftly. The application allows the user to create a “safety net” of trusted friends and family, so called guardian angels. The guardian angels can watch over and keep their friends

company as they make their way home with the help of GPS, camera recording and the integrated group chat.

Making SafeCase

The planning of the project was done in accordance with the standard ISO 9241-210:2010 in order to make sure the design process itself was designed in such a way that it would be user-centered. Data was gathered from potential users in order to carry out a needs analysis for the project. The test-group was involved during every step in the development of SafeCase, testing all iterations of SafeCase and placing these prototypes into a relevant user context by acting out scenarios while using them. The test-group also evaluated the prototypes. The provided feedback was continuously applied in the development of SafeCase, making sure that the user was able to fulfill their own individual needs and expectations of the finished product. The test-group was integral to this user centered project and

was, as described in the previous section, selected from a group of relevant users without any prior “expert” knowledge in this kind of technology. (Swedish Standards Institute. 2010) The design team consisted of four undergraduate students studying the programme for Interaction Design and IT at Stockholm University. The team could have benefitted from having members that were not part of this specific programme in order to have access to further knowledge and perspectives during the project. This could be improved in order to meet the requirements of section 4.7 in ISO 9241-210:2010. (ibid)

Design and evaluation



Decorative designs for SafeCase

“The design has undergone a lot of iteration during the process...”

In a somewhat more implicit way, a practical Concept Driven Interaction Design been applied for the aftermath of the design process. Concept Driven Design (CDD) is an approach in interaction design that is design oriented, from a theoretical point of view. In many ways, the fundamental aspect of concept design is to manifest some kind of theoretical aspect through concrete design. From multiple perspectives, CDD has not been used actively during this design process. However, at the end of the project it is clear that early concepts developed affected and inspired the end product. Stolterman & Wiberg describes how “one of the qualities of good concept designs is that they function both as an exciting actual product design composition and as an inspiration and challenge for theoretical development”. (2010)

The first developed concept in the beginning of the project was a robot-vacuum intended for the outdoor environment. This

concept inspired another idea of a robot which accompanies people who experience unsafety outdoors, which later became an idea of a drone instead of a robot. After the need analysis it was clear that users recognized light as key aspect. From this a concept was created; An umbrella that illuminated the surroundings. The working name was ”Paralys”. However, after internal valuation it was clear that an umbrella is not an efficient everyday solution for increasing people’s perception of safety, since umbrellas are not carried at all times. The idea of a mobile case came up during a brainstorming session and the concept of SafeCase was brought to light. An aspect that was also identified during the needs analysis, equally important as light, was company. In Paralys, the idea was that when an umbrella lights up, a lamp at a relatives home also turns on. In relation, in SafeCase the idea is that in the finished product an LED-ring that lights up as feedback when a “guardian angel” is following an unsafe person.

The design has undergone a lot of iteration during the process to adapt the end-prototype to the users need according to ISO 9241-210:2010 (Swedish Standards Institute. 2010). The first lo-fi prototype created in Balsamiq underwent an user-evaluation. The insights was incorporated in the design of the Hi-Fi prototype created with JUSTINMIND. The exhibition prototype is created by a combination of methods. Partly JUSTINMIND, markup, scripts and a 3D printed case with an attached NFC-button for notification handling.

Insights & conclusions

An insight from this project



Paralys: Early low fidelity prototype with the focus on illuminating the users surroundings.



“Evaluating and testing SafeCase proved difficult.”

is that methods and iterations certainly affect, change and refine design. It is evident in this project that different parts of iterations come together to form the end product.

Evaluating and testing SafeCase proved difficult. SafeCase as an application and product is incorporated with values such as trust (users trust the application to function). Therefore, testing a non-functional Lo-Fi demanded high thought and imagination from the users. Beyond trust, there is an aspect of monitoring. Thus, indirect stakeholders can be affected by the application as they are filmed. Testing safecase in a real situation is problematic. One of the reasons for this is that possibly the aspect of unsafety disappears when it is a test. ISO 9241-210:2010 (Swedish Standards Institute, 2010) describes how field testing, testing the concept in a real environment, might provide insight for further development. A more explicit use of CDD might solve this. One of the key factors

for successful CDD is to expose the concept to the potential users (Stolterman & Wiberg, 2010).

The actual risk of crime is often different from the perception of safety. The risk of a crime happening will usually have an impact on how safe a person feels, however a person can perceive to be unsafe in a generally safe situation. This relationship between reality and perception offers difficulty in developing safety-technology. For example, light was reported to make people feel safe, but an artifact that illuminates the user might make them more likely to become victim of a crime since they have become more visible in the dark. It is therefore important to consider the context of the artifact and user, not just the intention behind it.

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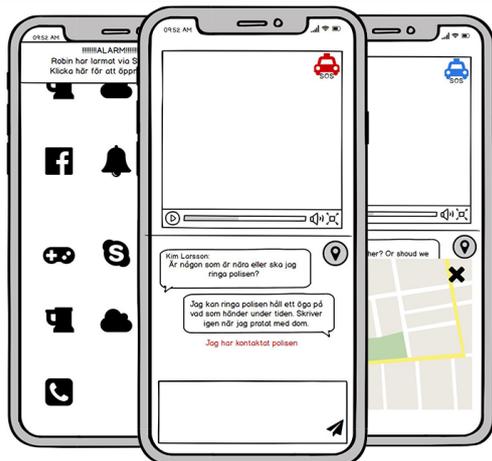
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Low Fidelity prototype of the SafeCase user interface

