



Element C

Problem Statement

One in six women are a victim of sexual assault. Women from the ages 18 to 24 who don't have the physical means to fight back are the ones most commonly attacked. The victims afterwards then suffer mentally, physically, and financially for something that they weren't responsible for.

Introduction

The process to determine specifications of our solution relies solely on what the people need. We will first determine a justified pathway towards a solution. Then we will use the information provided to us by experts and consumers to create a product to satisfy all needs. Therefore making a product that is easy and reliable for our consumers to use in the event of one of these horrible assaults. The requirements come from previous solutions fails and consumers requests for safety. These are the things leading us into a direction to allow all people to protect themselves.

Presentation & Justification of Solution Design Requirements

1-5 ranking 1 = worst (bad), 5 = best (good)

Paths	Skills	Time frame	Budget	Helps after situation	Helps during situation	Durable	Easily Accessible	Total
Personal alarm	4	3	4	1	3	3	4	22
Recording device	3	2	4	4	1	2	4	20
Contact alert	1	1	2	1	4	4	4	17
Weapon	4	4	5	1	3	4	3	24

The problem of sexual assault opens up an entire unknown and wide area of consumers and demands to be met. While there are current solutions to the issue of sexual assault, there are also a lot of problems associated with them. One of the most popular responses to our survey about current products that they have or have used is pepper spray. In our interview with Vicki Hershberger, she gave us the valuable insight to the fact that “Pepper spray doesn’t affect everyone, and a lot of the time, it just makes people mad, which can be really dangerous”. This is just one example as to how several of the options available don’t work on everyone.

Out of 167.5 million women in the U.S. a staggering one in six of those very women are a victim of or attempted victim of sexual assault. A majority of the potential users are women from 18 to 24 who don’t have the physical means to fight back. The severity of attacks of women of this age makes it dire that our solution must be easy and quickly accessible in order for them to defend themselves. The product must give those at a disadvantage in these assaults the advantage in their defense.

When it comes to the construction of the product, it needs to be non-lethal, as to defend against an attack, but not do permanent harm. The product needs to be something durable that will not break when its being used. The most important part in constructing our product is to make it so easy to use that everyone can and will use it. It was to be a simple and straightforward device to defend the user. We need to make something for the average person in a real life scenario.

Design Requirements

- Compact/Discrete
 - The product needs to be small so that it can always be carried on your person.
- Easily Accessible
 - The product needs to be easy to access because in an emergency situation, seconds matter.
- Durable
 - The product needs to be durable so it does not need to be replaced and can cause damage without falling apart.
- Harmful
 - The product needs to be able to cause damage to someone and not be a useless object.
- Non-Lethal
 - The product needs to not be lethal because it needs to be for self-defense not murder.
- In-expensive
 - The product needs to have a market price of under forty dollars so a majority of people can get it.
- Easy to use
 - The product needs to be easy to use so anyone can feel confident using it.

Design Benchmarks

- Durability: exactly how much pressure it takes for the product to break, since it needs to be resilient.
- Reaction time: how much time it takes a person on average to reach the product.
- Potential damage: how much harm and to what body parts does the product to.
- Confidence level: test how confident [people are with the product, with a hopeful seventy percent being confident in its use.
- Identifiable as a weapon: how many people can actually notice it is a weapon, with a desired 0 percent.

References/ Expert Review

Based on expert advice and consumer reviews we came up with our requirements and benchmarks for our product. One of our experts in an interview emphasized how almost anything could be used as a weapon and people can fight back. One thing she said that really stuck out was “A gun can cause more harm than good in a lot of instances” which was one of the reasons we decided to go down the route of some sort of non-lethal weapon as our solution. A majority of the consumers that responded to our survey commented that they got a weapon (non-lethal or lethal) in order to defend themselves. With the input we got from our sources, we concluded that the product most importantly needed to be easy accessible and easy to use, so many of the horrible events our consumers recounted can not happen again.

Conclusion

Our product needs to be useful in all aspects. We need durability, accessibility, and reliance for the user. Another important aspect that we need to address is that our product needs to be hard to identify as a weapon. The testing of such a product will rely on trials and mock scenarios hopefully with the assistance of an expert. These design requirements and benchmarks can help us to develop and test a product that is suitable for all users and makes them feel safe. This information will give us a guideline in which to follow for the creation of a product.