

Users and Requirements

User groups

A questionnaire was sent out at the beginning of the project in order to understand specific concerns regarding current safety issues. A wide variety of age groups responded to our questionnaire, with a total of 108 respondents ranging from 18 to over 60 years old. Even though the age range of respondents was varied, the responses were unified. More than half of the respondents felt that their daily routines or activities are affected by concerns about personal safety, and 82% of respondents rated their confidence in defending themselves as 3 or below (out of 5).

Therefore, personal safety issues represent a broad problem that is common across most age groups. As a result, we decided not to restrict our user group and instead adopted a more open-minded and inclusive approach when designing our final product, ensuring it is suitable for a large target audience.

User Scenarios

Instead of narrowing our focus to a specific user demographic, the design of our product should be around key user scenarios where safety concerns are most prominent. In the questionnaire, 71.3% reported feeling most unsafe when walking alone, and more than half reported feeling unsafe in situations of robbery or unsafe public transportation. These are situations where individuals are often isolated and potentially vulnerable to unexpected attacks. Hence, our primary goal is to enhance an individual's confidence through owning our tool, where mechanisms allow it to respond quickly in the listed scenarios above.

Major Requirements

Convenience and Portability

The design must be convenient and portable, as mentioned in the questionnaire. Most respondents raised concerns about how current self-defense tools are not convenient to carry, or that they forget to bring them. Therefore, our self-defense tool must either be in the form of, or attached to, a habitual item that different age groups carry around. It should also be easily portable and not affect the use of the habitual item as usual. For example, if the product is attached to a phone, it should not be too bulky and hinder the usage of the phone.

Durability

The final product should also be highly durable, ensuring it does not break or malfunction during use. It must be able to withstand various types of mechanical stress, such as torsion, tension, and pressure, and possess strong tensile strength. This is because our product may be used in high-intensity or physically demanding situations involving conflict, so durability is a key objective to enhance the safety and confidence of users.

Adjustability

With a large user group, as mentioned above, the product must be inclusive and adjustable to a variety of users. For instance, if the final product is a jewelry design, there has to be a mechanism that ensures the vast majority of our user population can wear it.

Safety

Safety is a critical requirement of our final product that ensures the user's safety. It must not only provide users with a sense of security (psychological reassurance) but also have a tangible function that is able to physically protect users from potential harm. The materials, compositions must all be designed properly so that users can deliver a meaningful impact without risking their own injury.

Ease of Use

Since our target audience is broad, the product and its instructions must be intuitive and easy to understand. It should be accessible to more vulnerable groups, such as elderly users or individuals with disabilities, ensuring they can use it with ease. Additionally, the design should enable users to exert sufficient force effortlessly, allowing them to generate enough impact for effective self-defense.