Project Deliverable C: Design Criteria and Target Specifications

GNG1103 – Engineering Design

Team 1.2

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# Introduction

In the previous deliverables, we determined the client’s needs and interpreted them in technical terms. We then ranked the interpreted needs based on their importance to the our product using a scale from 1-5, and used that to form a problem statement in order to define our problem.

In this deliverable, we will establish design criteria and define functional and non-functional requirements, as well as constraints. We will use the relative importance scale once again to address the most important criteria and come up with target specifications. Moreover, we will benchmark our product to compare some of our most important requirements with those of other related products in the market.

# Prioritized Design Criteria

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number** | **Need** | **Design Criteria** | **Design Priority/constraint** | **Relative importance** |
| **1** | Need to take away focus from one’s own self; consideration  | The application must be centered around showing more about others than the user | Constraint | 4 |
| **2** | Allow users to feel what others would in a situation where aid is refused. | Can show users the situations where having a disability can be a setback. | Functional | 5 |
| **3** | Provide disabled users with the ability to navigate their environment in a smoother way  | Can show users with disability where they can get a more adapted service. | Functional | 5 |
| **4** | User-friendly  | Needs to have a simple mode of operation, small download package. | Constraint  | 3 |
| **5** | Cost-effective  | Affordable cost ($) | Constraint  | 2 |
| **6** | Different languages | Instructions available in various languages | Non-functional | 2 |

# Target Specifications

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Number** | **Design Specification** | **Relation (=,<, or >)** | **Value** | **Units** | **Verification Method** |
|  | **Functional Requirements** |  |  |  |  |
| **1** | Can show users the situations where having a disability can be a setback. | = | yes | N/A | test |
| **2** | Can show users with disability where they can get a more adapted service. | = | yes | N/A | test |
|  | **Constraints** |  |  |  |  |
| **3** | The application must be centered around showing more about others than the user | = | yes | N/A | test |
| **4** | Needs to have a simple mode of operation, small download package. | < | 5  | gb | test |
| **5** | Affordable cost | < | 100 | $ | Estimate, then confirm with client |
|  | **Non-functional Requirements** |  |  |  |  |
| **6** | Instructions available in various languages | > | 1 | language | test |

Set Up & Familiarization

* Should be straightforward to set up as to be useable by a wide variety of people from different background, perhaps without needing extra downloads or extensions
* Target Time for setup and start: 5-10 minutes
* Should be compatible with a variety of software (OSX, Windows, Linux, etc.)
* Offered in multiple languages
* Online printable setup guide

Physical Attributes

* Must be light in weight to be used throughout the age groups (700 grams max)
* Adjustable to meet specific needs (not sure what or how will be adjusted but this feature is key for useability)
* As minimal cabling as possible to avoid confusion and allow freer movement
* Compact as to be easy to store and travel with if needed (not really a must but would be great for the marketing & commercial use)
* A way to immerse the user and possibly allow them to interact with things around them

# Benchmarking

|  |
| --- |
|  **VR case benchmarking** |
|  | Google Ulter Cardboard DIY 3D VR Box VR  | Case-Mate |
| **Material** | Cardboard | plastic |
| **Price** | 4.00 | 39.99 |
| **Applicable mobile phone** | Google Nexus, Samsung Galaxy, Motorola Moto | No descriptionshould be all phones |
| **Weight** | 48g | 70g |

# Conclusion and Reflection

After just one client meeting, we used what we understood from the client’s needs and their answers to our questions back then to determine technical requirements. These technical requirements were rated based on importance from 1 to 5, and the most important ones were used to come up with a problem statement. These requirements helped us establish design criteria that include functional requirements, non-functional requirements, and constraints. Then, we identified target specifications for each of those and assigned metrics and ways to measure the effectiveness for many of them. We benchmarked some of our important needs with other products available in the market to compare some of these requirements.

In this deliverable, we narrowed our needs into more specific design criteria. We were able to focus more on empathy regarding needs for disabled persons. This will allow us to come up with conceptual design ideas that are realistic, empathetic, and helpful to those of us with disabilities.

# Wrike Snapshot

<https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=lCIQRptsjqWr5pdC5Y0iMBTBW7htLxoh%7CIE2DSNZVHA2DELSTGIYA>