Prototype I and Customer Feedback

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Abstract

Prototyping is a crucial part of the design process that allows designers and clients the opportunity to test their designs and improve them as needed.

This document will be an in depth outline on the details of our first prototype, including: Client feedback, a physical prototype, and a prototype test plan. The document will list the materials used, include an update of the BOM, and include the CAD design for the prototype.

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1 Introduction

This deliverable outlines Prototype I and includes feedback from our recent client meeting. You'll find images of the prototype, along with its dimensions and specifications. Each section is clearly labelled and discussed to make the information easy to follow. Our aim is to provide a clear overview for better understanding and next steps.

2 Client Feedback

During the client meeting we received some very useful feedback. Some key aspects they are looking for is a long battery life and that they accommodate safety glasses. A fully integrated design, a sufficient latency and the ability to connect to a phone app is necessary. Some tips we received for our final product on design day is that we can showcase our system through our phones. Since a phone has the same features we need it is a quick and easy way to present it. One concern for us going forward will be whether the app we develop to showcase our product is compatible with our cell phones, and uses a 5G network.

3 Prototype I

3.1 Prototype Image

Figure 1. Prototype Image

3.2 Prototype Discussion

This prototype is a scale model of what our final design might look like in order to demonstrate how it would function in the workplace. This design was made using 3D modelling and in the university's Makerspace.

4 Prototype Test Plan

The test plan for this prototype includes fitting the prototype to different types of glasses, especially safety glasses.
The metric for this test is weight, we want to make sure the product is functionally comfortable when worn by someone.
We will test it ourselves as some of our group members wear glasses, and have safety goggles to see if the model will attach to them.

4.1 Phase I: Compatibility

Test	Results	Notes
1: Normal Glasses	Fail	Very bulky against the small wire frame of glasses
2: Safety Glasses	pass	Fit onto the arm and was of proportional size to the bulky safety glasses
3: Sunglasses	pass	Same as the safety glasses

4.2 Phase II: Comfortability

Test	Results	Notes
1: Weight	inconclusive	Model didn't accurately portray the real weight of the product
2: Obstruction of view	Pass	Device remained in peripherals that would have already been

		blocked by the glasses frames
3: ease of use	pass	The design is straightforward and self explanatory in its physical function

5 Bill of Materials

Item	Cost	Source
Programming Language	$0.00	Personal Computer
Cell Phone	$0.00	Personal Device
3D Model	$0.00	Makerspace
Glasses	$0.00	Personal Eyewear
Safety Glasses	$0.00	Personal Eyewear

6 Prototype II Test Plan

Our second prototype will be entirely software, focusing on creating a UI and skeleton for a program using Shabodi's API.
Testing for the UI will be limited outside of assuring it is functioning. The program skeleton will showcase whether or not an outgoing call can be completed and some other small functionalities.
Testing will be completed when the systems can run reliably with no change to the code.

7 Trello Link

https://trello.com/invite/b/66e9a835bf964951fd908861/ATTI7e4cb97e86644ba022c365d10a9f29acD940830F/gng-1103-course-project

8 Conclusion

In conclusion the testing of Prototype 1 revealed both strengths and areas for improvements in the physical concept of our design. The prototype demonstrated successful compatibility with a few different styles of glasses, but some concerns regarding weight and comfort were noted. Collecting more client and user feedback will help us continue to improve the design of this product. As we move forward to Prototype 2, we will focus entirely on the software of the project,including a UI and skeleton program using Shabodi’s API.