Deliverable C Group C2.4

Ali Elmawazini: 300317827

Zeyu Shao: 300166803

Ryley MacWilliams: 300263961

Omar Muslat: 300066154

Orel Benkarmona: 300160407

Giovanni Abruzzo: 300233180

February 9th , 2023

Abstract

This document presents the modifications applied to our concept by implementing the feedback of the client. Included in this document is a detailed design of our updated concept, a bill of material for our upcoming prototyping phases and a description of the feedback provided by the client. This document will also provide a description of some critical assumptions developed by the team. In large this deliverable thoroughly analyses our current design.

Table of Contents

1. Introduction

After the second client meeting, our group got insight into how our client feels about our current designs, we also got information about changes we should make, such as combining different aspects of all the concepts we presented. Said aspects include the mouse calibration, and heavily focusing on the real life applications. Deliverable C will focus on details from our second client meeting, changes since last deliverable, skillset and missing skills, realistic timeline, a detailed Bill Of Materials (BOM), and our first detailed design using Figma online software.

2. Summary of Client Feedback

After presenting all subsystems and concepts to our client, we were met with almost entirely positive reviews. Our client liked the "sense of individuality, but similar flow" of all of our presented concepts. Main takeaway points from client meeting are as follows:

- Clients really liked the real-life application practice with applications such as Facebook/email. We will now focus more on this.
- Client really liked the idea of having an initial mouse calibration, more specifically, a mouse sensitivity adjustment calibration.
- Having a hand strap would be more useful than we thought, so we may look into this if time and resources allow.
- A double-clicking feature should be incorporated. This is something which was not mentioned in the past.
- "⅓ of users may be frustrated by computer use" so we will ensure to create a program to avoid frustrating users.
- There is no preference between having a website program, or a downloadable application.
- As our program is targeted towards people with no knowledge of mouse skills, users may have basic knowledge of keyboard skills. This means we don't have to completely avoid keyboard usage.

Despite our client liking all of our concepts, he agreed that our concept #2 is his favourite because of the focus on accessibility. For this reason, he agreed that concept #2 should be the template used moving forward. With this being said, he also liked different parts of our other concepts, such as the mouse calibration from concept #3. He also preferred the idea of having a 3D model as part of the tutorial over a standard home-made video.

Changes being made to concept #2 are as follows:

- Focusing more on real life application practice than previously considered.
- Adding "double click" into the list of skills.
- Incorporate a mouse calibration tutorial, as described in concept #3.
- Incorporate having 3D models as part of the video tutorials, as described in concept #1.
- If time allows, consider adding a tutorial showing how to use a hand strap.

3. Detailed Design

This is a detailed flowchart of how the Mouse Skills web application functions. You start from opening the website, browsing, and then end off with closing the website.

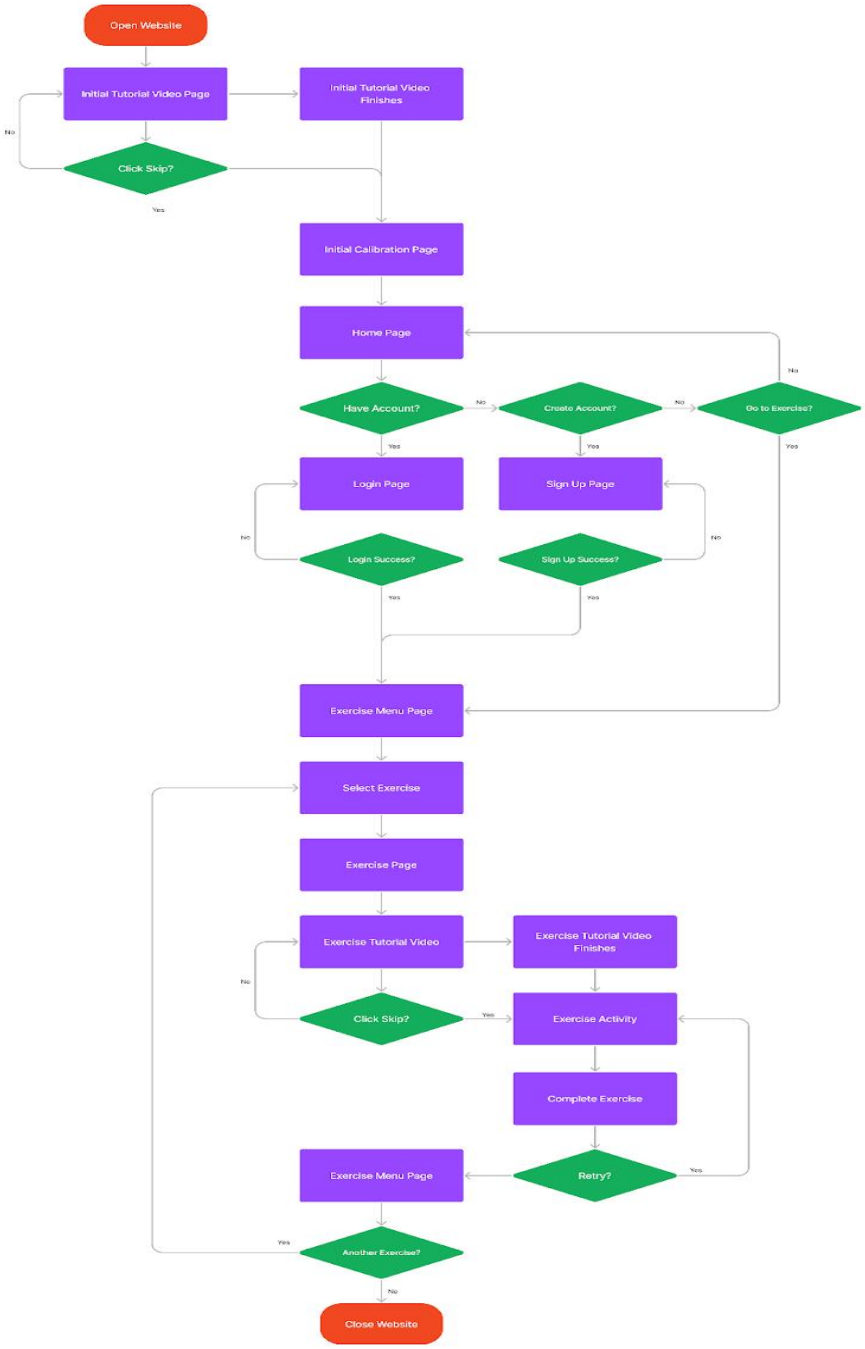

Figure 1: Detailed Design of our Final Concept

Here is A link that allows an option to zoom in the image: Link

3. Skills and Resources

SKILLS:

While the team has limited knowledge in web design, the skills available are the following.

- Product Management: Throughout the product development, the team has managed to follow the assigned road map without much delay. All project deliverables are being completed within the deadlines.
- Communication: Being able to communicate in a clear manner between teammates and the client is important as to allow for the client to precisely understand what the team is accomplishing. The team is allowed to clearly express their ideas between teammates.
- Problem-Solving: Engineers are at their core, problem solvers. They have strong analytical skills that allow them to find solutions to the task at hand.
- Design thinking skills: due to the prerequisite of this course, there are many team members that have taken GNG 1103, and hence, they have a high level of understanding on the design thinking process.

RESOURCES:

- Many resources are available at the university of Ottawa. Indeed, there are weekly workshops such as Unity development workshop and coding workshop organised by the Got Games club.
- Additionally, the team can go to classes such as ITI 1120, ITI 1121, CEG 2136, CEG3136 to learn more about a specific aspect in coding a software since these classes are built around the core of coding languages. Moreover, we can ask help from professors in order to give us insight on some coding language notions.
- Furthermore, the university library provides a variety of information that can help the team develop the intended design goal. Hence, we can use this resource and inform ourselves on the basic concepts of coding languages. - various books or other resources available.
- The Internet is also a resource that can be utilised by the team to build the software application for Computer-wise. As a matter of fact, we can use YouTube, Google, Reddit, Github and ChatGPT to acquire the necessary resources and knowledge.

- Finally, we can ask help from our peers or friends that are in software engineering or that have a good background knowledge on various CSI programs.

4. Missing Skills and Resources

With the exception of one of the team members who is majoring in software engineering and has already taken a CO-OP placement in his field. Only Giovanni and Ali have an extremely beginner knowledge and little to no real-world coding experience. The rest of our team does not yet know the basics of how-to code. We will be making use of all of the resources listed above as well as making sure that we continue to keep in contact with Computer Wise in order to effectively test our application.

In order to have a good understanding of how we will proceed with the upcoming stages, the team can enrich their knowledge by using resources such as YouTube videos or even just use the internet to learn how to code some segments of the project. As of right now, the team has a lot to learn and improve in order to acquire the required skills that are missing to develop our design. Hence, with the created detailed design and the first prototype, the team will be able to determine more skills that need to be developed by each team member. This is being communicated. Most of these missing skills will be obtained through the internet by researching methods and information as a self-learning process.

5. Assessment of Realistic Time Requirements

As everyone in our team is an engineering major taking a full engineering course load at the University of Ottawa, we do not have an abundance of free time on our hands to mess around with. We have already agreed on meetings on the weekend mornings (one confirmed every Saturday and if necessary, we will plan one for Sunday morning during our Saturday meeting). In order to be respectful of everyone's time, we have agreed to come to meetings prepared, with all prior work completed so that our meetings can stay under an hour, and we can focus on only the tasks that need to be done as a group during these meetings.

Another thing that will have a large impact on the time it takes for us to begin implementing our design is the fact that only one of our team members is proficient at coding. Everyone else who will help with the coding of our application will need to enrol in school courses and/ or attend workshops as well as other courses offered within the University of Ottawa or found elsewhere. Learning the code to create an extremely simple computer game can take anywhere from 3 to 6 months according to Thinkful Inc. However, I believe with the basics that Ali and Giovanni already know, combined with Zeyu’s existing knowledge and practice of code, creating an game application as simple as the one that we have been tasked with should take us closer to the 3 month mark especially if we opt to using “build a game” templates found online.

We are just less than one month into being assigned this project and we already have the basic design and basic concept mapped out. Now that our team has a basic understanding of the assignment, we are able to begin making the BOM and the first prototype. This should take us about 2 weeks (accounting for time used on other classes and required group meeting times). Next, we will begin to realise some flaws in our design from looking in depth at our first prototype. This will help us come up with more design constraints and probably some development team constraints as well. With this knowledge we will be able to begin constructing prototype 2, these two tasks should take us another week and a half. The next milestone that we

are given is to come up with business constraints as well as our design day presentation. These two tasks can be worked on simultaneously therefore we will divide our group of six into two teams in order to get these tasks done on time. With our team broken up into two groups, these projects should be done within two weeks of the previous one. Our second to last task is our video and user manual. The video manual may take quite some time as we do not currently have any videos that we can use to create this which means that it will have to be fully completed after the completion of the rest of the project. Where the majority of the information that will go into the user manual can be found in previous deliverables. Assuming that we split our team up into two groups to take on these tasks; these two tasks should take about one and a half weeks. The final task that we are given is a final presentation. Preparing for, making and rehearsing the presentation will take about one week as most of the information will already be in previous deliverables and the majority of the work that will be done will require the entire group's presence to rehearse the presentation.

Overall, the various deliverables that we are tasked with - along with extra time added for multiple more prototypes - should take us an approximate total of 8 weeks. This would land our project deliverables completion date around April 3rd, 2023.

6. Critical Product Assumption on the Implementation of the Design

By analysing the team’s abilities such as our strengths, weaknesses and our time constraints, there are many aspects that can affect the quality of our design to be successfully implemented. A critical product assumption that lies in our design are our target specifications. As a matter of fact, the goal of this project is to develop a design that achieves the values of our ideal target specifications or to fall within our marginal target specifications. Those values can affect the implementation of our design because they are values based on the team's judgement since the data for our benchmarking were very minimal due to the lack of information provided during our research. Having created metric values for our concept in the previous deliverable, most of the target specifications and ratings of our own concept might be inaccurate since we have not yet begun prototyping. Hence, during our prototyping phase, we can deduce inaccuracies from our original concept leading to development of issues for the implementation of the product. A solution to this critical assumption would be to review Standards and DFX from the university library in order to develop more accurate results and methods of measuring important software specs.

A second critical product assumption that can affect the team's ability to implement our design is our user interface. As a matter of fact, the client was pleased with our idea of incorporating a mouse sensitivity adaptor. However, while we were analyzing their computer setups, we realised that the mouse has a significant dampening when it comes to utilizing the mouse. Hence, determining the correct sensitivity adjuster for a standardized mouse might cause our product to be inadequate with their setup. Hence, the implementation of this feature can affect the global concept. In order to avoid this situation, the team can test the software while using their mouse as a standard guide. In other words, we can either borrow the mouse from the client or buy a mouse that is similar. This will decrease the risks of not having a good software program to accommodate the needs of our user.

In the previous section, we have presented the realistic time requirements to implement design. Associated with the idea of time that can affect the implementation of our product is the time to go through the entire software. In other words, our concept presents many features such as tutorial videos, 3D representation about the mouse functions, user interface setup and the exercises themselves can take a lot of time to complete. As the client mentioned, the user will only spend approximately 10-15 minutes a day in order to learn the basic functions. Hence, the excess features that we have implemented can affect the ability of the team to implement the product. Hence, if such a situation happens, the team will either remove features that are exceeding our requirements and our problem statement, or we will scope down the features to a more simplistic form in order to condense the software application completion process in a respected 10-15 minute time frame.

Another critical assumption that can prevent the team from fully implementing our product is the due date. Indeed, as mentioned in section 4 (strengths and weaknesses), a large majority of our team lack the ability to code a software application. As such, the team puts itself in great risk if there is an unrecognised coding error produced. As a result, the software might have issues and errors to compile which can lead to a lot of time spending and this can affect our ability to implement the product. However, to avoid this from happening, the team will assign the most capable engineering team member to review the codes that were created by everyone else. This will decrease the risk of projecting a coding error throughout the entire software.

7. Bill of Materials

Table I: Bill of Materials

Bill of material						
Item Name	Description	Unit of measure	Quantity	Unit cost	Extended Cost	Link
Cost of Labour	The cost for the team to work on this project	N/A	N/A	$0	$0	N/A
Bootstrap	Library to edit the display of the application	N/A	1	$0	$0	LINK
Vite.js	Library to develop a framework environment	N/A	1	$0	$0	LINK
Firebase	Library providing a framework environment	N/A	1	$0	$0	LINK
	Total product cost (without taxes or shipping)				$0	
	Total product cost (including taxes and shipping)				$0	

Table II: List of Equipment

List of equipment				
Item Name	Description	Type	Prototype #	Source
Figma	Software to create a detailed design	Software	1	LINK
Vue.js	To code and create the application	Software	1,2,3	LINK
Computer	To use the software's in order to code	Equipment	1,2,3	LINK
Computer mouse	The computer mouse will be used in order to test functionality	Equipment	2,3	LINK
Visual studio code	Code editor	Software	1,2,3	LINK
GitHub	Code distributer to other users	Software	1,2,3	LINK

8. Wrike Gantt Snapshot

https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=JGHqLMTx2Ssrbm0owR0xglrMANQ5u8XB%7CIE2DSNZVHA2DELSTGIYA

9. Conclusion

As shown above, the second client meeting came with nothing but positive feedback, and we recorded multiple suggestions and preferences from the client. With our new knowledge, we were able to implement changes to our chosen concept, and create a detailed design, as seen in part four. The group will use the detailed design as a reference while creating models for the upcoming deliverable and presentation. We were also able to identify which skills our team has to help us with our project, and missing skills which will be needed. A complete bill of materials was created and successfully stayed under the given budget of $50. With our team continuing to communicate well, we are in good standing of resources, and are on track to completing the project by the given deadline.

10. References

Thinkful. (2021, September 9). How long does it take to learn coding? Thinkful. https://www.thinkful.com/blog/how-long-does-it-take-to-learn-coding/

Link for detailed design on Figma: Link