Deliverable D

Date: 5/31/2020

GNG 2101

Presented to:
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By:
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Introduction:

This deliverable focuses on the information given by our clients, and further develops our project plan, prototype and next client meeting, as well as establishing a budget and costs, product assumptions and an initial analysis of our first prototype. Additionally, all of the questions and suggestions made by the clients are documented. Using their information, along with everything planned out in our three initial deliverables, we formulated our current design concept and possible solutions of the project, and the prerequisites needed to continue developing our first prototype.

Client Feedback:

- Explanation of our concepts:
    - General overview of design
    - Soldering kit and money
    - Game aspect
    - Test or Quiz at the end

  No comments were made in this section

- Questions:
    - Most common struggles with learning
        - Answer : It's mainly practice, they need to be able to do it, see how to melt the solder, how to use your tools, etc. As best as you can explain and demonstrate, there's always a learning curve when figuring it out. They need to practice and experience it themselves a few times. It's one thing to show them, it's another thing to have them get the hang of it on their own (think basketball analogy)
    - Are there any tasks that may be made more difficult with our virtual workshop?
        - Essentially everything is going to be tougher, except maybe the transfer of knowledge, because you're removing the real world, physical aspect. The game should be a good way to remedy that, because it gives them the ability to do things on their own and have to put their knowledge to good use. As best as possible, remove the difficulty of having it online vs in person.
    - Do you have any feedback on our stuff so far?
        - Answer : Any online or interactive thing, step one should be buying the kit, because without it there is no workshop. That shouldn't be at the end like it is now.
        - Answer : The kit may be too expensive for someone to want to buy, they're not necessarily going to spend $24 to get it, it's a hassle. The

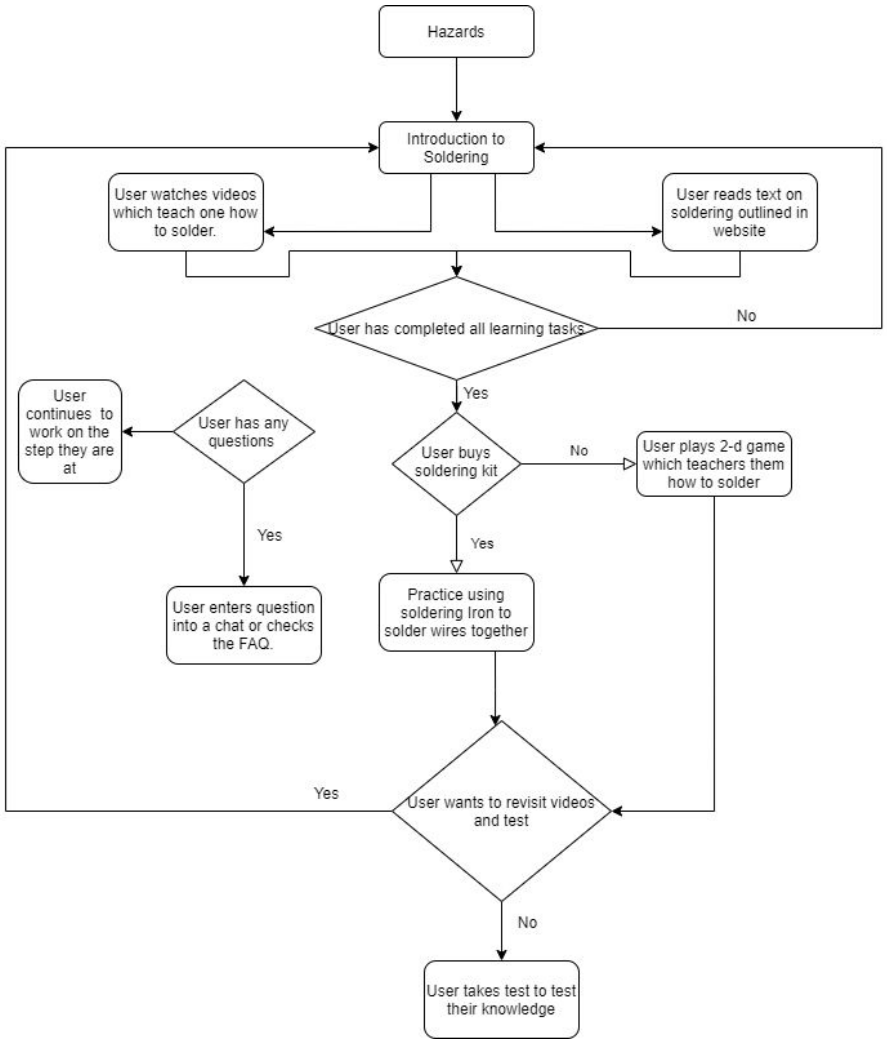
game (if doable) may be a lot better for pricing, and the demonstration, as well as accessibility.

- Is renting equipment (like sending a soldering iron or other things) an option?
  - Answer : It can be, but it may get difficult with pricing, especially considering distance. If in Ottawa, we could rent out equipment, but it also defeats the purpose of needing an online course or workshop if they're still required to be in Ottawa.
- How does a chat (where the entire user base and TAs and those running the workshop can ask questions and chat) system sound?
  - Answer : If there is an FAQ that'll be pulling common questions from the chat/forum, then it could absolutely be doable and potentially very handy and useful.
- How professional does this have to be? Can this have a casual feel or more professional?
  - Answer : Getting it as professional as possible is good. It's understood that this isn't going to be a full time job, but a certain professionality and finesse is expected.
- Should the game be active during the video tutorials, or should they be two separated parts of the workshop?
  - Answer : That should probably be up to the user if possible, where someone can choose to follow along with the video or to watch it three times and then give it a shot. It makes it more accessible to all users.
- Seeing as we can't rent out VR kits, how effective could a keyboard and mouse 2D game be?
  - Answer : It's only as good as the level of detail you're able to put into it, and yes it is like a video and feels like it won't be great for the transfer of knowledge, but because it has an aspect of interaction and a need for at least basic understanding, it's more effective than you think.
- How well do students generally learn the material?
  - Answer : If you could have multiple different examples, that would probably be best. Once again, soldering is a lot of practice, so anything that can be done to increase what they're learning and the diversity of what is being taught. Students can vary greatly in their ability to understand what's being taught and even to apply what's been taught, so the more variety and practice, the more likely it'll succeed with more people.
- Are there any interesting concepts from other groups that we could incorporate?
  - Answer : People being able to come at a specific time to learn and ask questions can be very beneficial (as in having a scheduled time to come and experience a workshop, lead by someone capable and who can answer things as they come up and guide more effectively.
- Could we have a section based on community health, where people can upload their own projects if they go out of their way to get a kit and learn everything?

        - Answer : Absolutely, there are lots of possibilities to do stuff like that, such as on the MakerRepo site.
    - Could a scoreboard be useful? Would it seem unprofessional?
        - Answer : It could be very useful, and it shouldn't really make anything seem too much like a game, or take away some professionality, as long as it fit with the theme/content within the rest of the workshop.

- Analysis
    - Focus more on the platform and interactions, etc, and not so much on the content. If you have the time, sure, but that's something they can work on.
    - Make sure that lots of practice is incorporated. That is the most important part of learning to solder.
    - Having a TA present during the lab and having means of communication between students and TAs are important features.
    - The product's professionalism isn't a major concern, but it is still required at some level.
    - Giving the user the ability to choose the order of which learning module they want to accomplish and the ability to review them is important.
    - A high fidelity interactive game is expected.
    - Soldering requires different methods for different students. Having high diversity in the methods used to teach is essential to ensure most students can learn effectively.
    - A sense of competition and community can help motivate people to learn.

Design Concept:



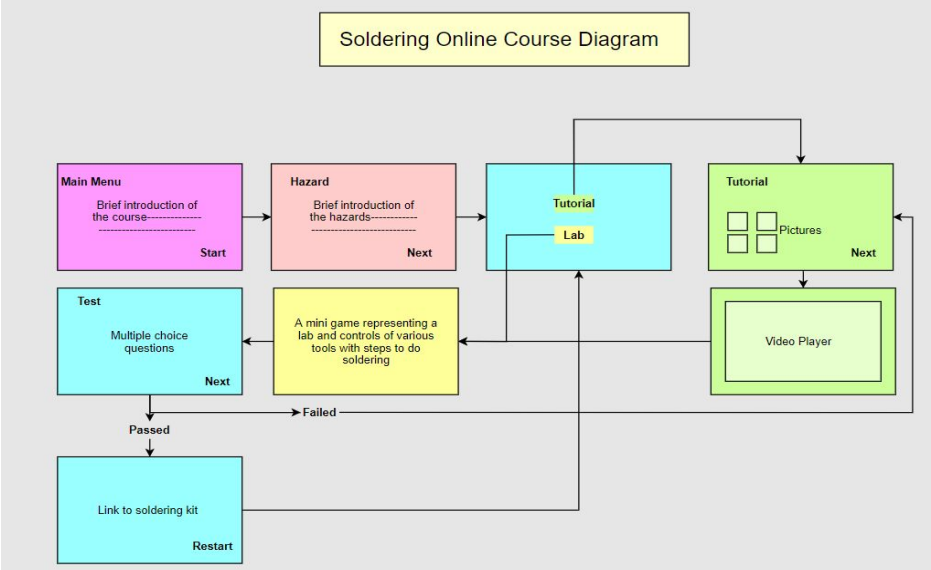
The client meet did not affect the contents of the soldering course, but it did introduce the idea that the user can choose which module they want to complete first (as seen with the branching paths from the Introduction to Soldering module). Other suggestions that have to do with functionality, such as the importance of the practice rather than knowledge, did not affect the creation of the prototype because the goal of the prototype is to be an outline of the final product.

Assumptions

- People will arrive at the website at the same time (during the lab).
  Test if the website can support the influx of people.
- The website supports the implementation of unity games.
  Implement unity games on websites.
- Soldering knowledge and practice is conveyed well.
  Have volunteers visit the website.
- All students have access to the internet and computers.
- The unity game will run smoothly on certain computers
- The linear format of the soldering course can allow for the review of content.
- A chat system can be implemented on the website.

First prototype

The first prototype will consist of a website created by weebly. It will contain a crude summary of soldering with basic structures and outlines for the components of the final website. The main objective of this prototype is to create a low fidelity comprehensive model of our final product to help cultivate ideas and discover any limitations websites have.



https://solderingcourse.weebly.com

The website will follow the format of the diagram above. As it is its first iteration, it will not contain in depth information for soldering. It does not follow the linear nature of the diagram

The functionality of the website for soldering purposes is low; however, since the purpose is to test the limitations of websites, this flaw is of no consequence.

Testing/Analysis:

Based on the prototype, our design concept is achievable, but not as good since we had some issues with the forum section of the webpage. The accuracy is not analyzed since we do not have a unity game implemented yet in such a short period of time. But we do expect a high rating and high effectiveness since we have a great theme and valuable information on the website.

The table below contains the assumptions made and their results.

Tested feature	Expected result	Actual Result
Information outline	Applicable	Applicable
Video integration	Applicable	Applicable
External links	Applicable	Applicable
Pictures	Applicable	Applicable
Unity integration	Applicable	Not applicable, weebly does not support unity. Github pages does support unity.
Chat system	Crude implementation	Not applicable
Test	Applicable	Tough applicable
Forum	Applicable	Not applicable

Public access	Applicable	Applicable

Due to the inability to support unity, weebly will be replaced by Github pages as the host to our website. Furthermore, the chat system has been identified as exceedly difficult to implement on a website. As such, using existing chat systems such as the one found in zoom calls would be preferable to making one.

Client Meeting 3:

Client Meeting 3 Rough Outline:

a. Demonstrate our prototype:
    - Website: show our development of the website, explain our goal and what we have in mind if there is still a considerable amount to add, explain how it works/how it'll work). If possible, getting them to test the website would be ideal (so we can see if they understand it easily enough, how well they navigate, if there are any features that they completely ignore, etc). This prototype is going to be on Github, even though we originally planned (and currently have) a prototype on Weebly, because there are certain features unsupported by Weebly.
    - Game: show any progress we've made in developing the game aspect of our project, explain our goal for the final product, explain what we're doing to ensure the best transfer of knowledge and accuracy for those who do to choose to purchase the physical soldering kit.
    - Test/Quiz: show what we have as a final quiz, how we plan to implement it into our product.
b. Client Feedback
c. Questions:
    - What features that you would like to see are missing? (especially major tasks that they feel the product needs to accomplish that we don't have/haven't planned for or explained)
    - Is the product meeting expectations so far? (gauge their feelings toward it, are they happy with what they're being presented, what can we do to make it a better product in their eyes)
    - Is there anything in specific you feel is unnecessary or irrelevant to the product?
    - Where should users be in their skill level at the end for the workshop to have been successful in your eyes? What is a successful workshop looking to accomplish? (based on quiz and game score, helps us decide more specifically how long everything will be, gauge the skill level of who the users are and what we're expected to be able to teach them by the end, etc)
    - Are there any important aspects that should be emphasised in the game/videos? Is there any important material that should be covered in the final quiz in order to make sure the user has the knowledge they need in order to have completed the workshop? (other than safety, this is to guide what we put in our quiz, help us

choose how to organize our tutorials and to help us decide what material to cover in the tutorial and game more specifically)

- Would zoom workshops (for questions, guiding and interactions between users and admins) work in order to replace the live chat feature we had originally intended? (because the live chat isn't necessarily possible to implement)
- Should we include a certificate (or anything to show the completion of the workshop) when the users succeed in the quiz? (we don't have the power to actually credit people, but the university might be able to allow that, or the client might want something like that in the product anyways)

Bill of Material (BOM)

#	Name	Description	Quantity	Unit Cost (CAD$)	Extended Cost (CAD$)
1	Soldering set	A set of items related to soldering https://assetstore.	1	4.99	4.99
2	Unity	Software for creating games	4	0	0
3	Github Pages	Website hosting software	1	0	0
4	Weebly	Website hosting software	1	0	0
5	Zoom	Chat room application	1	0	0

So far we have a bill of 0 dollars due to the fact that we only chose free software and sources, but we could be expecting a $50 bill on assets in unity for better performance and lower system requirements. Ideally, we will spend as little as possible in total to maximize funds, however, it is too early in the stages of development to accurately predict what our price will be.

Conclusion:

In conclusion, in deliverable D, we've developed and detailed an updated design of our concept, defined our product assumptions, and documented, tested and analysed the first aspects of our prototype. We also outlined what we intend on asking and discussing during the next client meeting, along with our basic BOM, both of which have continued and will continue to update as we continue to develop our product. All the information collected from the clients as well as some ideas from brainstorming were added to the new design concept, leading to a more cohesive and stronger design, and a better idea of our next steps. However, our prototype analysis brought up certain minor issues and technical difficulties that we have yet to overcome. In summary, our product continues to evolve and improve as we continue to develop the product, however there are still important implications brought on by using an online platform to conduct our workshop that have a significant impact in the long run that still need to be dealt with.