University of Ottawa

Project Deliverable C2

GNG 2101 – Introduction to Product Development and Management for Engineers and Computer Scientists

Submitted by

Team Z1

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Introduction:

The following document is intended as a technical document to clearly identify our team's final chosen conceptual design while managing our project plan and bill of materials.
The end goal of this overall document is toK properly manage and come up with a feasible project plan that is based on the “plan and execute “ method. Our team will also be doing a feasibility study on our chosen concept to see if the implementation, drawbacks and advantages are worth pursuing as an end goal for our project. This document will be concluded with our final project plan and our Bill of materials needed for the final concept. We will update both of these aspects of our project on a weekly basis as our project progresses.

Problem Statement:

A need exists for the University of Ottawa’s CEED program to teach students how to apply technical engineering knowledge and machine operation through an online learning tool which is interactive, user friendly and is available on all platforms.

Chosen Solution:

Our final solution encompasses a mix of both Tristan’s and Divine’s concept which merges an online platform where questions are readily available with online video tutorials with a questionnaire for students to assess their knowledge on the fundamentals and operation of 3D printers.

Description:

Divine’s concept provides resources in form texts, images, powerpoints and videos to be displayed on the internet. Tristan‘s QA style interactive concept integrates into this idea by being put onto the website after the online videos CEED has already created. The interactions are based upon the fact that the student wants to get answers to his or her question while watching a certain segment of the tutorial videos. This concept will be aimed towards having predetermined questions and answers for seperate parts of the tutorial videos. This allows the student to have instant answers and will deepen their understanding of certain tasks and concepts related to 3D printing. This QA style interaction is aimed at mimicking what a student would ask a TA during a 3D printing lab and having an answer based on what the TA doing the lab would reply.

Solution Benefits:

The benefits of our final chosen design concept is that it is accessible by all University of Ottawa students for free and the concept mimics a classic student and TA interaction which can deepen the students' understanding of 3D printing. The concept is also available to all online platforms which makes it accessible from any IOS/Android devices as well as desktops. Another advantage

of this concept is the fact that the QA questions will be based on actual student questions while watching the CEED videos, this way it can ensure the questions and answers are not only relevant but also will be greatly helpful to the student attending the lab.

Everyone thinks that only IT professionals can be able to design a well-functioned website but the truth is, to create a website, only minimal IT skills are required. Generating this website as a group would definitely help us as students to improve our technical skills that could come in handy in the future.

Also, the clients mentioned that they would love for this to be available for teenagers and the older population. This favours us on that note because websites can be easily accessed by every demographic.

Drawbacks:

There are few drawbacks to our final chosen solution but they are still present. The first drawback is there is no physical interaction between the students during the 3D printing beginner lab tutorial. The second drawback is the fact that they cannot ask their own custom questions and must rely on the question bank that will be predetermined. The third and final drawback is the fact that the website is still software and therefore the possibility of it crashing due to heavy traffic of University students could be a problem.

Implementation Concerns:

An implementation concern is the fact that the complexity of making an online website that is informative, functional and aesthetically pleasing will be quite a challenge due to our teams lack of coding and software knowledge. The second implementation concern is due to the fact that because of the large portion of work needed to be done on the website, the tutorial videos might not be as good as expected and might lack in content. The third and final implementation concern is related to the completion of our chosen concept. The concept is complicated and will be quite long to do which means a contingency plan will have to be made in the worst case scenario where our team does not have enough time to complete the entire project.

Feasibility Study:

Technical: Does your team have enough expertise and technical resources?

- ➢ Everyone in the group has some experience in the technical field as engineers and have taken at least one program oriented course at uOttawa
- ➢ In addition on standard html5 code, we can also use website builders such as Wix and Shopify to create our webpages
- ➢ As a collective, we feel confident we can develop a functional web page that enables students to first login to the 3D printer course, and follow step by step video tutorials that teach them about design
    - Pre made video tutorials are already easily accessible online, so the main focus of the project would be simulating some type of interaction between the student and the web page to help them learn more efficiently (in the form of a questionnaire)
        - Certain system limitations would have to be discussed

Economic: Can the cost of your project be reasonable?

- ➢ Yes, the estimated cost of the product is lower than 100$ and the user cost is lower than 20-30. The overall cost can be even lower than these prices considering that we're planning to do the majority of the project online via a website.
    - Any online cost restraints would occur in the form of licensed purchases which we would have to make, in order to make the student interactive web page permissible under federal law

Legal: Are there any legal issues with releasing your solution to the public?

- ➢ Any legal issues, if any, would occur in the form of copyright and patent claims wherein those who made the video tutorials on 3D printer operations would have to be given credit and asked permission to use their content on our webpage.
- ➢ Any possible pictures on the web page of different models and designs would have to be sourced as well and purchased the license of.
- ➢ The source domain of the webpage would have to be purchased in order to be made publically available on our part as creators
    - Customer satisfaction is of utmost importance so we wouldn't mind fully polishing our domain before making it available to the public

Operational: Are there any organizational constraints that will prevent your success?

- ➢ Operational constraints would occur in the form of any scheduling issues our group would experience over the course of the deliverable period

    - As a solution, we can choose designated meeting times where all group members could converge to avoid delaying the project timeline
        - Time management / efficiency
- ➢ A lack of in person collaboration could pose as an operational constraint and the absence of practicing the basics of 3D printing as a collaborative group could potentially restrain us from effectively teaching others about it in the most optimal way.

Scheduling: What are the deadlines and are they reasonable for your solution?

- ➢ Deadlines of each deliverable are each Sunday at 12 p.m. EST until July 26th which is the last one. In general one week is sufficient for us to complete a deliverable.
- ➢ Deadlines for the two peer assessments are May 27th and June 10th which give us enough time to work on our Trello chart to be able to assign each task to the team members and complete them on time.

Planning:

Task List, Task Ownership and Task Deadline:

You must use Microsoft Project to track task progress. An updated Project Gantt chart must be included in this workbook when indicated.

Legend (define short forms used in the table below):

#	Task Name	Task Owner	Required Resources	Completion Deadline
	Tasks completed:			
1	Arrange virtual meetings	Tristan	Zoom	May 24th
2	Project deliverable C	Group	Class notes and slides	May 24th

3	Complete peer assessment for deliverable C	Group	Grading rubric	May 27th
4	List all possible subtasks to be completed	Sankalp & Divine	Project instructions	May 28th
5	Set reasonable deadlines for tasks and subtasks	Tristan & Can	Project instructions	May 28th
6	Arrange table and prepare Gantt chart	Haneen	Microsoft Project	May 28th
7	Get group approval and finalize prelab	Group	-	May 28th
8	Prepare for client meeting 2	Group	-	May 28th
	Tasks to be completed over the next two weeks:			
9	Finalize the detailed design	Group	Deliverable C	May 29th
10	Come up with a first prototype	Group	Class notes	May 29th
11	Finalize and submit project deliverable D	Group	-	May 30th

12	Complete self assessment for deliverable D	Sankalp & Haneen	Provided rubric	May 30th
13	Arrange a virtual group meeting to discuss project deliverable E	Tristan	Zoom	June 6th
14	Prepare project progress presentation	Group	Google Slides	June 6th
15	Review and submit project deliverable E	Divine & Can	-	June 7th
16	Complete peer assessment of deliverable E for 1st group	Can & Tristan & Sankalp	Grading Rubric	June 10th
17	Complete peer assessment of deliverable E for 2nd group	Divine & Haneen	Grading Rubric	June 10th
18	Practice presentation as a group virtually, to be performed in lab	Group	Zoom	June 11th
19	Present in lab and get feedback	Group	-	June 12th
20	Complete deliverable F	Group	Zoom, class notes and previous deliverables	June 14th

Prototype Bill of Materials and Parts (BOM):

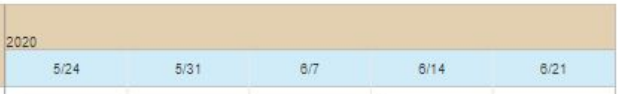
Part Name	*Description* *(Identify prototype #)*	*Quantity*	*Unit Costs ($CAD)*	*Extended Cost* *(Qty x $)*
Domain Name / Hosting Address	Wix, GoDaddy, Bluehost, Sitelio, etc	1	$10-$15	$10-$15
Business Email Address (contact us page)	uOttawa personal emails?	1-5	FREE	FREE
Website Template Design	Wix, Squarespace, Shopify, Themeforest?	1	$10-$30	$10-$30
High quality images for our Web Domain	Google Images, Stocksnap, Pinterest, Pexels, etc	-	-	-
Google Analytics	Data analytics (to analyze user interaction)	-	-	-
Tutorial/ Demonstration Videos	Sourced directly from CEED tutorials / personally made?	-	-	-

Links to integrate with social media???	-	-	-	-
AutoCAD software link / detailed map (labelling all parts/components of 3D printer)	64-bit Intel or AMD multi-core CPU, 8Gb RAM, 4Gb hard-disk space, 3D graphics card with 2Gb of memory, OpenGL Legacy, GL4 Core Profile	-	-	-

Microsoft Project Gantt Chart:

Last Week's Chart:

	Task	Assigned To	Start	End	Dur
	GNG2101 Beginner 3D Printing	Group	5/25/20	6/14/20	15
1	Finalize the detailed details	Group	5/25/20	5/29/20	5
2	Come up with a first prototype	Group	5/25/20	5/29/20	5
3	Finalize and submit project deliverable D	Group	5/29/20	5/30/20	1
4	Complete self assessment for deliverable D	Sankalp & Haneen	5/29/20	5/30/20	1
5	Arrange a virtual group meeting to discuss project deliverable E	Tristan	6/2/20	6/6/20	4
6	Prepare project progress presentation	Group	6/2/20	6/6/20	4
7	Review and submit project deliverable E	Divine & Can	6/6/20	6/7/20	
8	Complete peer assessment of deliverable E for 1st group	Can & Tristan & Sankalp	6/8/20	6/10/20	3
9	Complete peer assessment of deliverable E for 2nd group	Divine & Haneen	6/8/20	6/10/20	3
10	Practice presentation as a group virtually	Group	6/11/20	6/11/20	1
11	Present in lab and get feedback	Group	6/12/20	6/12/20	1
12	Complete deliverable F	Group	6/10/20	6/14/20	3



Next Two Weeks' Chart:

	Task	Assigned To	Start	End	Dur	May 2020 21	22	23	24	25	26	27	28	29	30
	GNG2101 Beginner 3D Printing ⊖	Group	5/21/20	5/28/20	6										
1	Arrange virtual meetings	Tristan	5/23/20	5/24/20											
2	Project deliverable C	Group	5/21/20	5/24/20	2										
3	Complete peer assessment for deliverable C	Group	5/25/20	5/27/20	3										
4	List all possible subtasks to be completed	Sankalp and Divine	5/27/20	5/28/20	2										
5	Set reasonable deadlines for tasks and subtasks	Tristan & Can	5/27/20	5/28/20	2										
6	Arrange table and prepare Gantt chart	Haneen	5/28/20	5/28/20	1										
7	Get group approval and finalize pre-lab 4	Group	5/28/20	5/28/20	1										
8	Prepare for client meeting 2	Group	5/28/20	5/28/20	1										