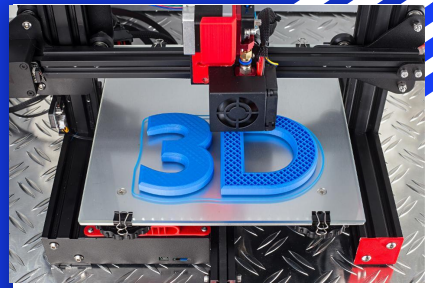
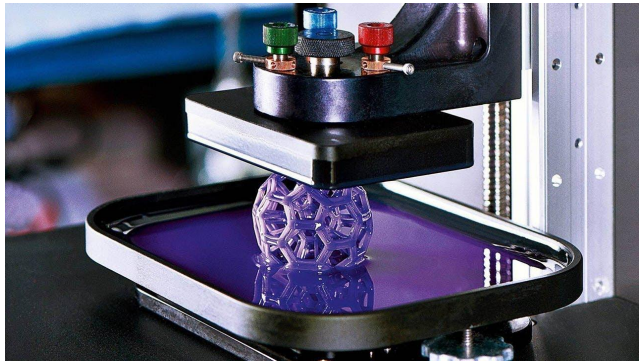


Beginner 3D Printing

Submitted by:
Team Z1
Tristan Brady (300105281)
Divine Ciroma (300110246)
Can Berk Atabey (300149626)
Haneen Abujayyab (300006742)
Sankalp Chopra (300074582)
Date: 6/10/2020

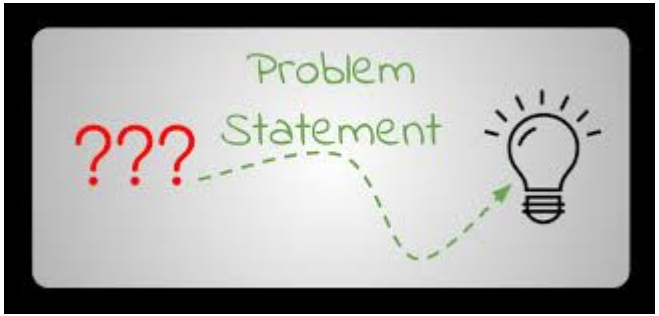


Customer Needs

- Students get full knowledge as they would get from an in person workshop
- TA's understand the module better than the students that they can help them when needed.
- Very interactive environment with a priority on questions and answers
- Informative
- Product cost is around a $100
- Students (or users in general) pay $20-$30 maximum to get access
- Length of online learning session is less than 90 minutes (length of a lab session)
- Bilingual content
- Primarily English and French to serve the majority of consumers

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.



Customer Perception Benchmarking

Company	Khan academy	Udemy Inc.	Chegg	SkillShare	Coursera
Cost($)	Free/ Month	$16.99/ Month	$14.99/ Month	$14.99/ Month	Free/ Month
Interactive	No	Yes	No	Yes	Yes
Student cost($)	Free	$16.99	$14.99	$8.99	Free
Informative	Yes	Yes	Yes	Yes	Yes
Bilingual content	Yes	Yes	No	Yes	No
Mini Quiz	Yes	Yes	No	Yes	Yes
Aesthetics	Good	Good	Good	Good	Good

Target Specifications & Metrics

Needs Associated	Target Specifications	Marginal Value	Target Value	Units
Affordability	Cost	>$100	$30	Canadian Dollar
Time management	Duration	User Independent	User Independent	Seconds
Efficiency	Setup Time	30 seconds	TBD	Seconds
Availability on all platform	Operating Platforms	Broader Customer Base	Mac / Android	Google/Apple Play Store (CAD/USD)
Profit	Ad Revenue?	TBD	TBD	CAD/USD Dollars
Efficiency	Ergonomics	TBD	TBD	Percentile

Metrics #	Metric	Units	Target
1	User Cost	CAN $	< 20-30
2	Product cost	CAN $	< 100
3	Length of visual Tools	Minutes	< 90
4	Length of interaction	Minutes	< 30
5	Product longevity	Years	> 2

Concepts

Top 5 best group concepts

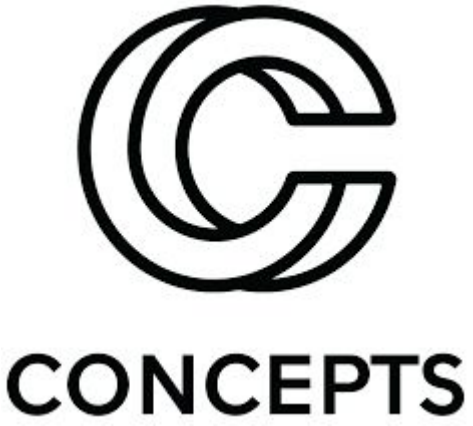
Tristan: Question and answers pool

Can: Collaboration with educational platforms like Chegg, Course Hero

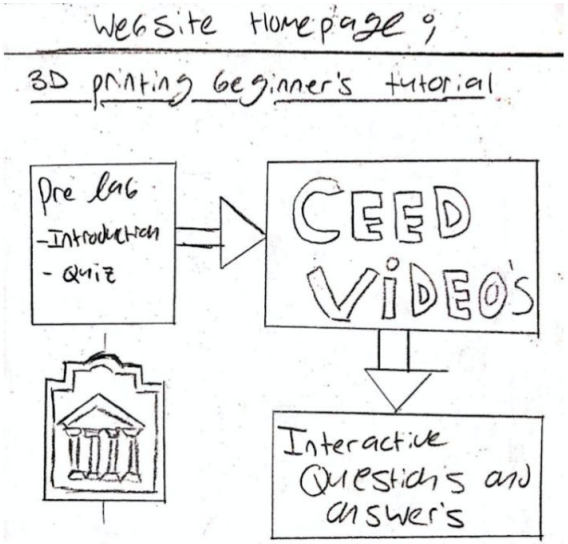
Divine: Website

Sankalp: Local Library Website

Haneen: An android and iOS supported mobile app)



Final Concept



Platform: Website

Interactive element: Question and answers pool

Chosen Group concept: Website (Divines concept) + Question and answers pool (Tristan's concept)

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.

Decision Matrix

Criteria	Weight	Tristan Concept #3	Haneen Concept #1	Divine Concept #1	Sankalp Concept #1
Interactive	30%	5	5	5	5
Cost for student	15%	5	3	5	5
Cost for developpement	10%	5	2	5	3
Informative	20%	5	5	5	3
Aesthetics	10%	3	4	4	4
Easy to use	15%	5	5	5	4
Total points	100%	4.8	4.3	4.9	4.8

Feasibility Study

Technical: 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.

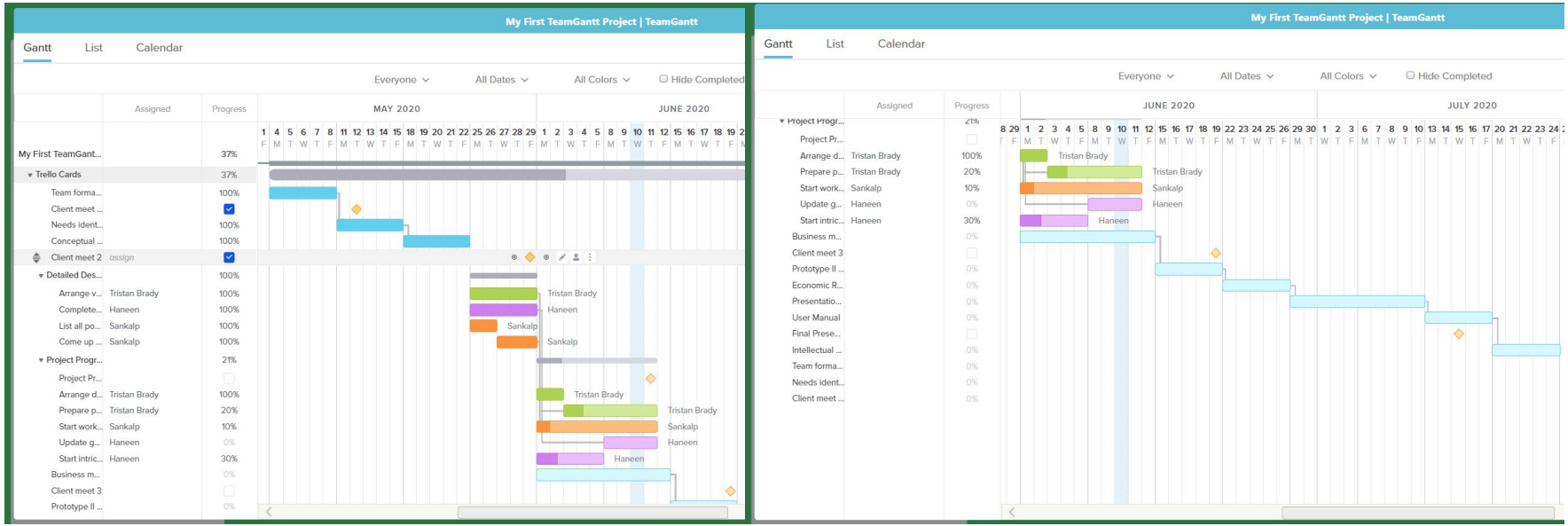
Economic: The estimated cost of the product is lower than 100$ and the user cost is lower than 20-30. The overall cost can be even lower than these prices considering that we're planning to do the majority of the project online via a website.

Legal: 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.

Operational: Operational constraints would occur in the form of any scheduling issues our group would experience over the course of the deliverable periody.

Scheduling: 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.

Initial Project Plan



We will be tracking our project plan very neatly to make sure we are on track to reach not only our goals but also to completing our project on time for the deadline of July 15th.

Client Feedback

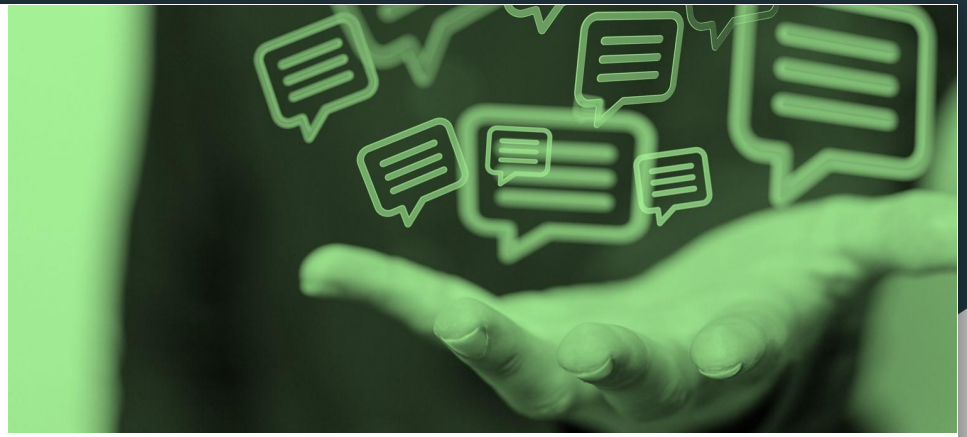
Positive Feedback:

- The QA style interaction was a very good idea in terms of trying to mimic TA and student interaction in labs.
- Using a website as a platform was a very good idea in terms of accessibility and ease of use.
- The cost relative to building a website and an interactive platform was not only very cost effective for the student but almost free for the developer.

Constructive Criticism Feedback:

- It can be hard to transfer grades from the website to Brightspace.
- Creating a website can take a lot of time and require additional tech knowledge.

Client Feedback Part 2



Change:

- Change Solidworks program for TinkerCad
- Make the website into a section where the user can easily access different parts of the website without getting confused.
- Allow the user to get in and out of the website, while being able to come back and finish the lab at a later date. A progress bar should also be added to allow the user to have an indication of how much time is left to complete the lab.

Improve:

- Improve the access to the website either by having it be accessed by a link in brightspace or having some relatively easy way of getting to it
- Make sure the QA style interaction between the students is based off of actual students' questions and TA’s real answers to those questions.

Prototype Development Plan

Prototype 2:

Due date: 6/30/2020

Ideas: Completion of drag and drop quiz as well as half of the website platform.

Concerns: Concerns on aesthetics for the website since our team lacks experience and expertise in this region of work.

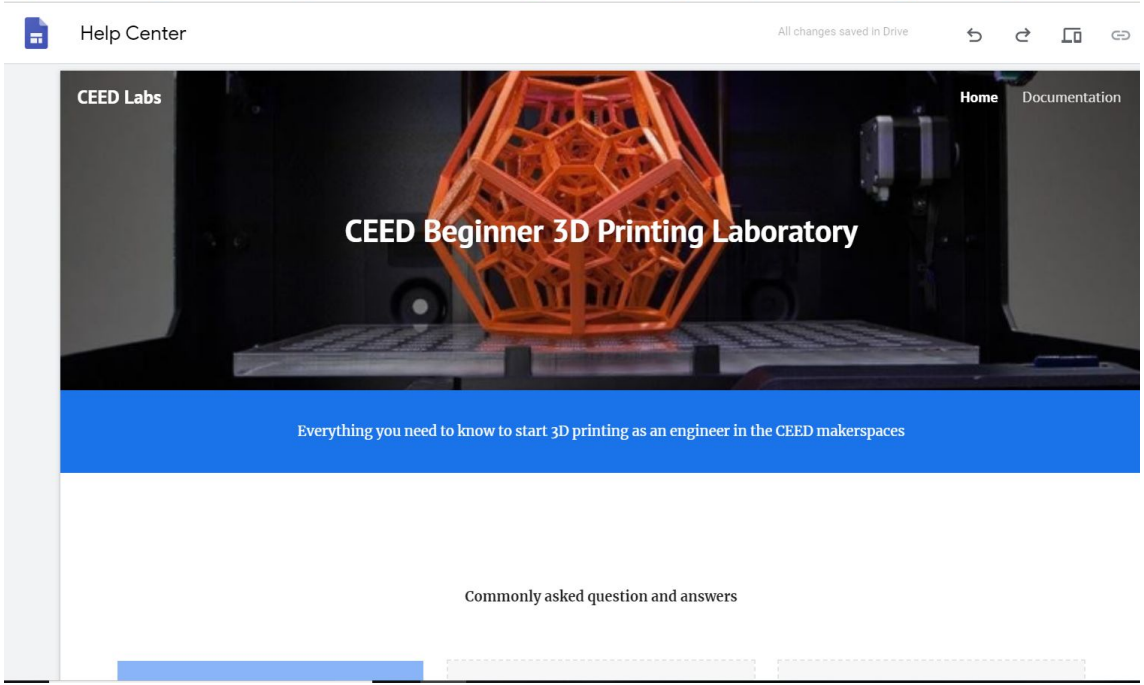
Prototype 3:

Due date: 7/15/2020

Ideas: Comprehensive model that incorporates each aspect of our desired final product. This includes the completed QA section of the website, the intructionary videos and the drag and drop quiz if time permits this addition.

Concerns: Concerns are mainly related to the time frame allowing us to complete the videos in time since they are time consuming. CEED has informed us they are not our primary concern.

Website overview



Our website will include the following sections:

- Commonly asked questions and answers
- Pre-Lab videos and Quiz
- Tinkercad Tutorial
- Tinkercad assignment
- Drag and drop Quiz
- Help Center
  - TA emails and info

Question & Answers

Your feedback would be greatly appreciated!