Project Deliverable F: **Prototype I and Customer Feedback** GNG 1103 – Engineering Design

**Faculty of Engineering - University of Ottawa**

**Present to :**

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**For the course :**

**Engineering Design**

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**March 1st, 2020**

## Introduction

During the last deliverable, we established a plan and estimated the costs of the components of our project. Through this analysis, we determined that our concept's Budget was less than the budget authorized. We were thus able to create our first prototype which has undergone some small modifications since our sketch which was annexed in the deliverable D (Luke's Design). This document will be used to assess our first prototype and establish its objectives. To see photos of the first prototype or our old concept, please see the Prototype picture's part.

## Prototype Pictures

**Figure 1. Doorway**

**Figure 2. Frontside**

**Figure 3 Backside**

## Prototype Test

### Why?

The reason for this prototype test is to communicate the feasibility of this greenhouse design to the client. Based on this design we were able to estimate the cost of the greenhouse as a whole. We created a cardboard scale replica to help the client as well as ourselves visualize what the final rendering will be. This prototype was also delivered alongside a presentation that told the client about our progress, the materials we are going to be using, the cost, and what we have left to do. With this presentation we are able to obtain feedback from the client.

### What?

The completed prototype is a cardboard replica of the greenhouse that was built during our lab sessions. It is a visualization tool that was made to help the client understand what the final solution will look like. The scale for this prototype is 12:1 inches, meaning for every 12 inches on the real greenhouse is equivalent to 1 inch on the model. Since it is made of cardboard it is easy enough to measure, cut, and construct what is needed for a cheap cost.

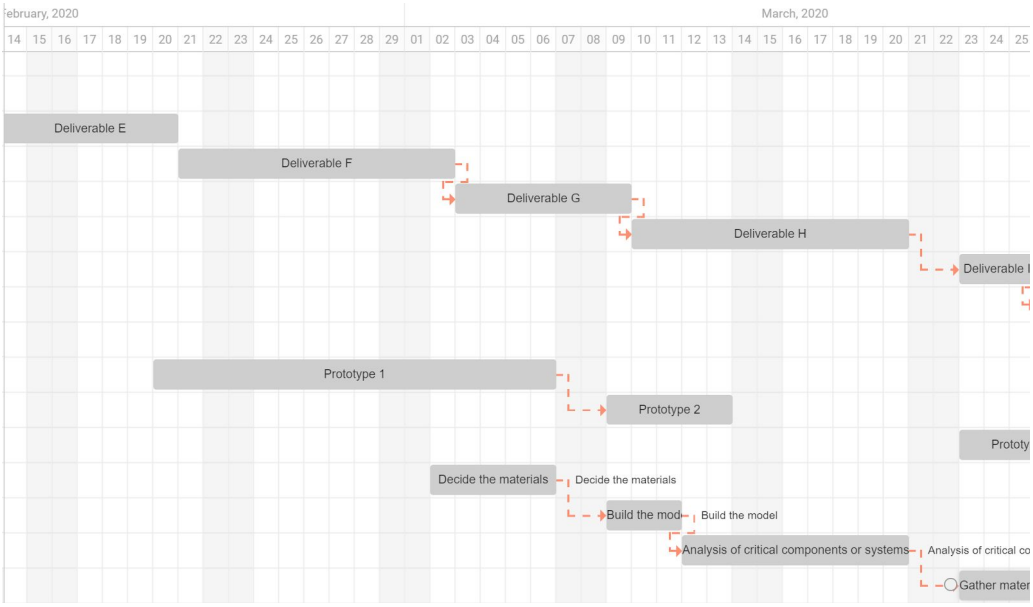
For us, this prototype will also help us understand any constraints that we see within the design we have chosen, such as the cost. This is done by seeing how much volume the scalar model has and seeing how feasible the design is. As a result of this test we were able to find that the design that we have enough space for the bench storage with a little wiggle room as well. This is important, as having a cramped space can make it difficult and uncomfortable to work in. Since

our chosen materials allowed us to be under budget by almost $100 dollars, we are able to use this extra money to possibly add to the design. With further analysis on the materials that we are using we will be able to see whether our predicted cost was accurate or not. In future deliverables we will discuss this, as we gain more knowledge on what the final design will be.

### When?

As far as the time period for this test goes, we are going to set it to when the first prototype to the end of the client meeting is the time frame. The prototype was completed on Thursday and was presented on Friday. During these two days we gained some knowledge on the final shape of the greenhouse as well as the placement of certain aspects of the design. As discussed in the last deliverable, the prototype fits within the project schedule really well, as the client meeting is a big part of the design process and is already worked into the schedule.

**Figure 4 Gantt Charts from Deliverable E**




## Feedback

For the most part it was difficult to get any feedback from the client as she really enjoyed our presentation and did not have any questions on what we are working on or what we plan to work on in the future. She did however mention that she was excited and impressed by the idea of a bench for storage within the greenhouse, something the team was discussing about how to implement. This also gives us reason to create a second prototype for the next client meeting to

demonstrate how the bench was finalized into the project.

## Conclusion

During the design of this prototype, several ideas emerged to modify some parts of the system notably inside the greenhouse. We look forward to sharing our final concept with the client and listening to their feedback; this will help and encourage us, either continue in the same direction or the redirect. At this stage, the prototype that we showed to the Client is a good physical model and represents the final prototype well. This gave us a lot of information that will be very useful for the next prototype.