Project Deliverable F:
Prototype I and Customer Feedback

GNG 1103 - Engineering Design

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Faculty of Engineering
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Why are we doing this test?

*This is an introduction. Capture the reasons for the test, giving enough background information to justify doing **any** prototyping at all. Is the **general** objective one of: learning, communication, de-risking, etc.*

Whatever the project is intended to be produced, creating a prototype is crucial to the design process. As we have discussed in class, a prototype is a representation of part or all of a design concept with the purpose of learning something useful. For this particular project, we need to verify whether the design is plausible or not and check for any necessary modification. In other words, by testing the prototype, we would gain better understandings of any possible problem. In addition, by showing the design model to the clients, we would be able to gather valuable feedbacks and potentially improve the design based on the comments.

Test Objectives Description

*What are the **specific** test objectives?*

The objective is to determine if the client likes the overall idea for the design of the hydroponic system. It is to see if there are certain components of our design is what the client is looking for or if adjustments/ redesign need to be made. We need to collect feedback on each component of the system (placement, reservoir, pump, size, portability, ease of use, etc.)

*What **exactly** is being learned or communicated with the prototype?*

We are learning how we can improve on our design. More specifically, any problems with the watering system and how we are getting water to each of the plants. We are determining if the overall layout of the system successfully meets the clients needs and what areas need to be carefully reconsidered

What are the possible types of result?

The one type of result that we could get is the client is satisfied with every part of the system and we can easily start working on the second prototype. Another result is that the client does not like a certain component of our design. The worst result is that the client does not approve of any part of the design.

How will these results be used to make decisions or select concepts?

We will use these results to determine what parts of our design need to be improved on and what the client likes about it. If the client has concerns about a part of the system, for example, The layout of the pants, then we know that we need to redesign the layout.

What are the criteria for test success or failure?

The criteria for determining if the test is a success is if the client approves of the design/idea we have described to them. The criteria for failure is if there is concern with certain sections of the design or if they do not approve of the overall layout of the subsystems.

What is going on and how is it being done?

*Describe the prototype **type** (e.g. focused or comprehensive) and the reason for the selection of this type of prototype.*

The type of prototype which we designed is a "Mockup". This is as it displays the prototype and what it will look like, however it lacks nearly all functionality of the actual final product. This type was decided upon due to the complexity of systems required in making a working hydroponics system, as well as time requirements and cost limitations.

Describe the testing process in enough detail to allow someone else to build and test the prototype instead of you.

Out prototype is a small miniature utilised through the cutting, gluing and stacking of cut out cardboard. To recreate this model to be used for testing, you would be able to cut out, and design another copy of the prototype

*What information is being **measured**?*

The dimensions of this prototype will be measured out to allow for proper rendering of the full project when completed.

*What is being observed and how is it being **recorded**?*

The reactions and input of our clients will be recorded so that the next prototype model can be fixed and improved, with un-liked aspects being removed or improved on.

What materials are required and what is the approximate estimated cost?

This prototype will be comprised primarily of cardboard and hot glue. The costs will be negligible, using recycled cardboard, and hot glue from the makerspace.

What work (e.g. test software or construction or modeling work or research) needs to be done?

The construction of this model will have to be completed, ie… cutting, slicing, gluing of cardboard, and the painting of the model itself.

When is it happening?

*How long will the test take and what are the **dependencies** (i.e. what needs to happen before the testing can occur)?*

The testing will take under an hour when looking over and contemplating the current design of the model. Before this testing can occur, the model will need to be completed.

When are the results required (i.e. what depends on the results of this test in the project plan)?

The results of this test are required before the deadline of March 9th when presented in front of our clients.