Deliverable F - Prototype I and Customer Feedback
Team: C02
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Prototype Test Plan

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.*

The general objective of the prototype is to communicate. By using this prototype, the goal is to showcase our ideas and prove that they will allow for a functional hydroponics system that will be benefited by its users.

Test Objectives Description

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

When developing the first prototype the following specific test objectives were used:

- The ability to easily remove each module.
- The ability to place each water reservoir into the frame, and easily remove them.

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

This prototype is communicating the general idea of our design. Not only is it helping our group visualize our ideas, it's helping us to identify the strengths and weaknesses of our design and the areas in which improvements can/need to be improved. This design will also communicate to our clients our ideas.

What are the possible types of result?

The possible types of results are either positive meaning the result of the design is perfect, or negative meaning there are flaws. In the case where the design is perfect, it would show that that the design is capable of reaching its purpose. It is more likely however for the design to have some negative results, because there is always flaws when prototyping. It will allow for further development and improvements to be made.

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

The results about each portion of the design will be used to help make decisions on what needs to be done. For example, If only a certain area, such as the reservoir, is causing a flaw in the design, perhaps it would be best to make the decision to focus on that specific component rather than the whole system.

What are the criteria for test success or failure?

To test if the prototype is a success or a failure we will see if it completes the objectives we have designed it to do. If you can not easily remove the modules or the water reservoirs, the design is a failure. The design would also fail if it does not meet the clients expectations, or if they clients feel like it cannot be incorporated into there current design.

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 is comprehensive. We chose to take multiple faults with their current design and modify each part to better suit their needs. We did so by selecting small issues to work on. The reason for choosing this type of prototype was due to the fact that we are a small group, and felt it would be a wise choice to work at smaller components. It was also due to the fact we realized they liked what they already have, so we figured to try and improve the original, to make it more useful for them.

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

Outline of the building process:

1. Construct the frame for the structure where the modules and water reservoir while sit.
2. Close in the bottom of the base of the frame to prevent the modules and water reservoirs from falling out.
3. Construct 3 modules for the plants, cutting holes to represent where the plants would be.
4. Using water bottles, make 2 water reservoirs by the cutting the top and bottom and connecting two bottles together (make sure one end has the top portion of the bottle and the other the bottom).
5. Slide the modules and reservoirs into the frame.

To test the prototype, we would use the criteria listed in the test success and failure above.

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

The information that was needed to be measured was the height and width of the frame, along with the spacing for each module. Also the the height and width of each module had to measured to make sure they would fit in the space. The bottles for the reservoir also had to be measured to make sure they would fit together appropriately.

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

Before constructing the prototype, information was gathered on how big the design will be and how much of the materials are we going to need. Also it was looked at how we could find find ways to reuse portions that were cut for another part. This information was written down and looked over before beginning to construct.

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

The materials used to construct this prototype were cardboard, paper, plastic bottles, glue and tape. All materials used where either scrap, or found at home, meaning they have no cost.

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

The construction and modelling of the prototype is the main area of focus of work that needs to be done. The includes making sure everything will be logically designed in order for a simple construction of the prototype I.

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 duration of the testing for the prototype I will depend on the construction, since the main purpose of our first prototype is to see whether this will work to be the final solution. The general focus is on the alternating the design.

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

The results for prototype I are needed before the construction of prototype II since we want to fix all the identified flaws in the first prototype without carrying them into the second. Therefore, prototype II cannot be started to constructed without the results from the first.

Prototype 1

For this prototype, the main focus was to work on building the structure itself to see if it was a logical design. This was the main component for us so we felt the need to make sure the overall idea was going to work and the little details would come later. Overall the design of the prototype helped us visualized better on how we will be able to work this smaller details, and also what could be improved on.

No feedback from the client has been received yet. The prototype will be shown on March 9th, 2018 during the client meet.