Deliverable F

# Prototype #1: Sketch and Design Plan:

# Test Plan:

1. *Reliability of frame material*
   * We originally thought to use metal as our 2ft by 2ft frame which will hold our PVC pipe, but we decided to build it with 1-inch plywood instead due to budget reasons and material availability.
   * We came to the conclusion that wood will suffice as a frame material for the prototypes alone, but the final product will have to be built out of metal because of the woods proneness to rotting due to water exposure.

*Stopping Criteria:*

* We will no longer need to conduct tests of the frame when the material used is sturdy and strong enough to support the weight of the plants and soil in the PVC piping, and when we know that the material will not succumb to rusting, rotting, or anything that would jeopardize the structural integrity of the frame.

1. *Size of water reservoir tank*
   * We had to use several different size and brands of plastic bins to find the perfect size and features to fit the frame. We were lucky to find the bin in the picture above because the frame sits on the indentation of the bin.

*Stopping Criteria:*

* We will no longer need to conduct tests on the reservoir tank for our prototypes once we have found the perfect size bin that is able to firmly support our frame in its place. In the case of our first prototype, we tested bins until we found the right fit, and we stopped testing once we found the bin shown in the picture above.

*\*\*Note:* More thorough tests will be conducted in our prototypes to come, once we have all of our materials and we can test aspects such as the pump, water dispersion, etc.\*\*

# Prototype 1 – Materials and Critical Components

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| **Materials** | **Cost** |
| Scrap wood found in Lees workspace | $0 |
| Sterelite Container (Reservoir tank) | $0 |
| 1 ½ inch screws | $0 |
| String (Represents where PVC piping will be) | $0 |

Our plan for our first prototype was to try our best to make it as low – no cost as possible, while still having a good representation of what our system would look like. We managed to accomplish our goal and build this prototype for a total of $0, still conduct accurate and important tests, and visualize where we want our design to head.

We have in our first prototype a total of two critical components:

1. Wood frame
   * The wood frame is the first critical component of our prototype because it is the component that will hold the PVC piping with our plants and have our water lines mounted to it.
2. Reservoir tank
   * The reservoir tank is the second critical component for our first prototype because it is holding the frame in place and will be the source of all water flowing into the plants.