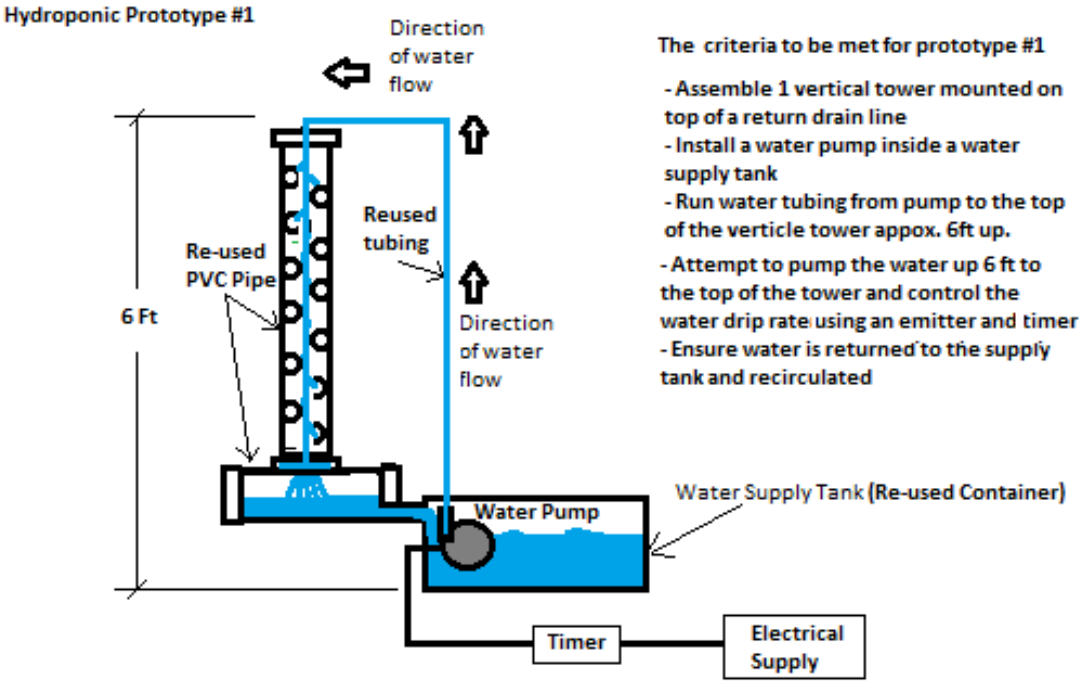
Project Deliverable F: Prototype I and Customer Feedback
GNG 1103 – Engineering Design
Faculty of Engineering – University of Ottawa



The initial prototyping process allows us to create a basic proof of concept for the core system we wish to execute. We will be able to analyse some elements of our current system, allowing us to improve what is lacking and guaranteeing some basic capabilities.

The goal was to obtain actual flow rate GPH (Gallons per hour) that the pump will produce and determine which rate is needed and how to control it. We also wanted to test out the drip emitters and their drip rate by doing so we also evaluate the capabilities of the pump to go through the tubing and make it back into the reservoir.

Suggestions for Testing of first Prototype:

- Obtain actual flow rate GPH (Gallons per hour) that the pump will produce by filling a pail or container of known measurement (ie. measuring cup) over a specific time (such as seconds, minutes). Online converter below.
http://aqua.ucdavis.edu/Calculations/Flow_Rate.htm
Determine which rate is needed and if we can control this by using a valve?
- Obtain drip rate using the same concept as above while using drip emitters.
- Obtain proper angle of vertical tower and positioning of drip emitters to flow down and adequately water locations of where roots would be located. Since we would not have plants, we could fill the holes with paper towel or something that we know would absorb water to know if the water is making it to all the desired areas.

Testing done:
- Gallons per hour = 396
- Water pump was able to get the water up to the 6ft mark
- Good water pressure throughout 3 different tubes
-Drip emitters were able to keep up with the pump and give off 2 gallons of water per hour
-Water reached the paper towels

Photos: