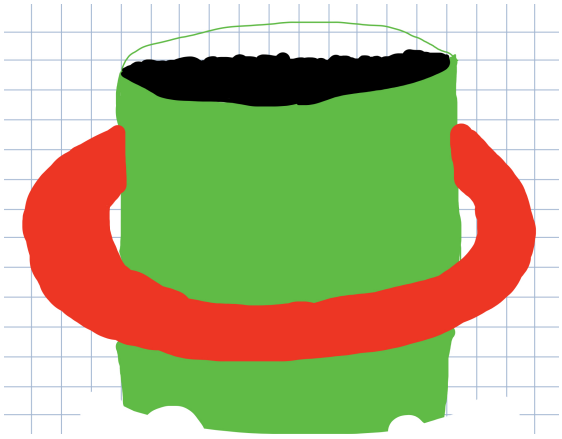
Our Inspiration

Our device is a floating hydroponics system, that utilizes the water of a lake, river, or other source of water containing fish, to allow the plant to use fish compost as a fertilizer to make it grow faster. The plant along with its soil is contained in a cup with four holes punched on the bottom rim where water can enter the cup. This water is absorbed by the soil and the roots of the plant, keeping the plant sufficiently watered at all times.



When designing our device, we drew inspiration from hydroponics systems in which the compost of fish is mixed into the water given to plants, acting as fertilizer that allows them to grow faster. While traditional hydroponics systems often are designed in a lab to hold large trays of plants grown in bulk, our system is easily accessible and makes use of recycled VEX game pieces. When looking at pieces from past games, we realized that the rings from the VRC game Round Up could float and hold standard plastic cups. Our design not only is easy and inexpensive to make, its design makes it easily scalable into a large aquaponic system. Additionally, it's floating design allows it to adjust to rising and falling water levels.

Testing and Prototyping

Before building our device, we took the ring and confirmed that it was able to float. After that, we wanted to make sure it could hold the weight of the plant. We took a

styrofoam cup and placed weights inside of it to simulate the weight of the damp soil and plant the device would hold. When testing we learned that the ring was capable of holding more than enough weight to be sufficient to carry a plant and soil. The test design can be seen in the picture above. In our final design we will be using a plastic cup to make sure the cup does not break and leak soil.

The Final Design

Our final design was very similar to our prototype design aside from a few changes. For example, our change from the styrofoam cup to the plastic cup made the device much more durable, and capable of holding more weight. It also allowed us to make cleaner cuts with the hole puncher when making the holes to allow water into the bottom of our cup.