Final Draft Documentation

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Design

- **Has the design changed throughout the class? How?**

My design has changed frequently throughout class. In the prototype stage it started as a simple motor connected to an arduino, then a motor connected to a relay connected to the arduino, and for the final draft I added moisture sensor to the system to dictate which pump should be distributing water.

- **What are the key features of your design?**

Some key features of my design is it’s compactness and its usefulness. The great thing about this project is its user friendly design. You’re able to set it up and forget about it.

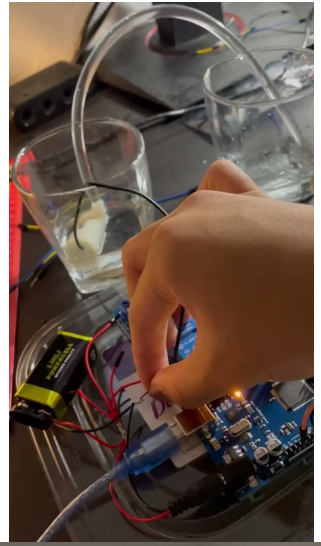
Build

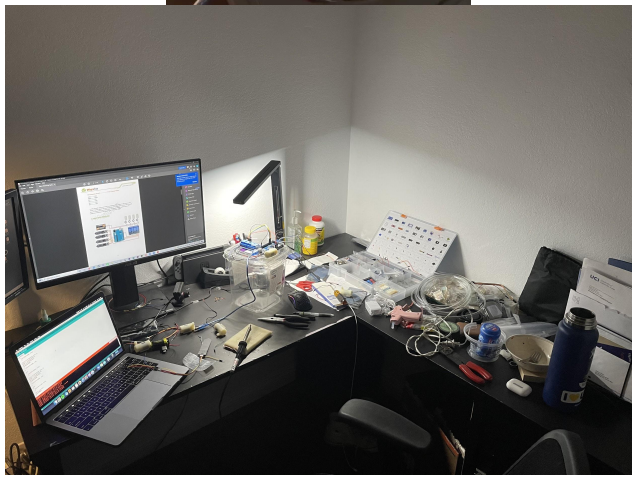
- **What went well?**

I am overall really happy with this project, I was able to learn/relearn so much about hands on circuitry. I was able to pick up some simple C++ and revisit wiring and designing technical electrical projects. My project also ended up really well and solved the problem I was trying to fix (find an easy to water my plants if I forget to).

- **What went bad?**

I don’t have any pictures, but going through the soldering process was very difficult for me. I haven’t soldered in years so my soldering was very sloppy. I even burnt my thigh because a hot piece fell on me and burnt through my pants. Another problem I had was staying organized. Because there were so many parts to keep track of my desk was always a mess when working on the project.





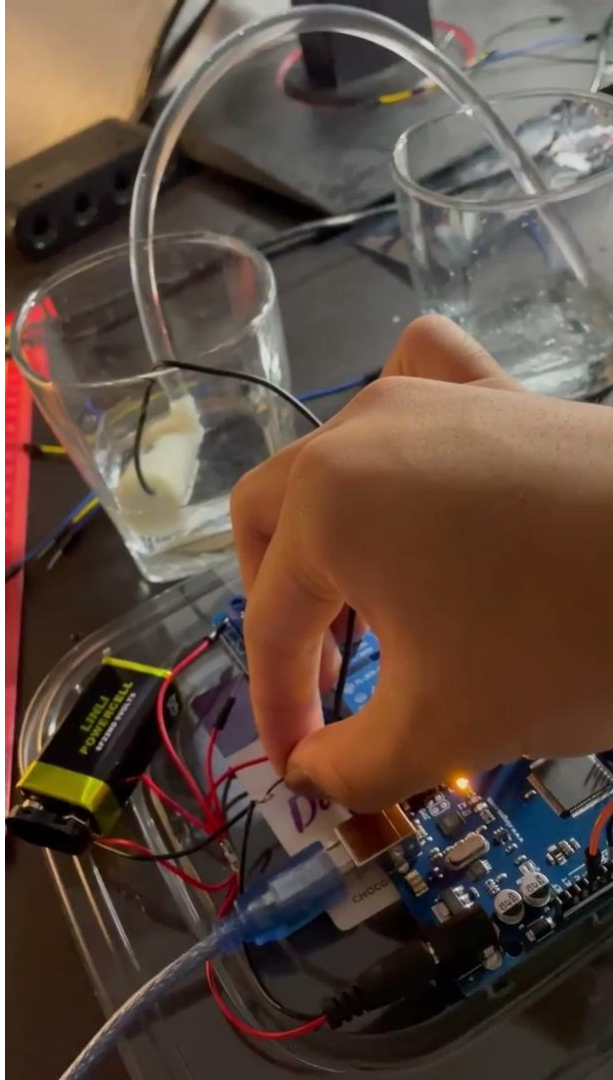
Testing

- **What type of testing did you employ?**

I used simulated testing for the most part. Since most of my project is coding and seeing if I properly set up the hardware, I had to mostly guess and check to see if my line of code was working correctly or if my circuitry works. In the drafting stage when I didn't have the automated system, I tried to estimate how much water (how many seconds of pumping water) I needed to get a reasonable amount of water for the plant. *(the video on the right is me testing if my wiring was set up properly)*

- **What is your criteria for success?**

My criteria for success going into this project was that as long as my machine outputs water I'd be happy. But then this mindset evolved and I started to become more specific and I started to see what I could. What if I could make it do it at a certain time. What if I was able to do it when the plant needed it?



Evaluation

- **If you could do this project again, what would you change**

If I were to redo this project, I would make all the electronics located in a box in order to make the entire system waterproof. I would also like to invest into crimping materials because soldering gets frustrating, especially without having proper equipment (a vice, soldering iron holder, third hand).

- **What do you like about your final**

I really like my inclusion of the moisture sensors and water funnel included on top of the container. Before the moisture sensor, I had to manually control via. time when the water would pour, but now the project will do it when needed. Adding the water funnel was a last minute decision but also a well worth one. I originally had a hole in the container where you fit your hose inside, but then I realized that would require more accuracy and time, but if you use a funnel you can fill the system with a hose or cup easily. Since I already drilled out a hole, I used a water bottle because it fit perfectly and is secure due to its threads.