Executive Summary

Our device is one that will automatically dispense food for fish in a tank. There are many reasons for its use, such as, you might not be home when it's time to feed the fish, or maybe you just don't want to worry about feeding them and you just want to enjoy looking at them. All in all, it's mainly a device that brings you convenience. It would be used by people who have aquariums in their home or any other place. The device settings would be set by the user via a control panel for things like the intervals in which the food is dispensed and the amount of food. The device would also relay information via a LED screen regarding the process, like how much time is left before it dispenses again.

Brief Market Analysis

Our primary audience with this device are our fellow fish fanatics, but this aquarium feeder could easily be reused for any mid to small animal tank or enclosure. What our device brings to the market that our competitors lack is a unique combination of customizations. There are currently no fish feeders that can be adjustable for feeding times, amounts, and types like ours can. Easily, we can break our way onto the market with an affordable $20 dollar price tag to meet the cost of materials and the lesser competition prices, but we'll sell it for $50 dollars to make a profit off of the fish lovers who want a feeder that can be used and reused into any tank.

Requirements

Must:

- Dispense an adjustable amount of food depending on the type of fish
- Dispense at repeating time intervals ranging from 12 - 48 hours
- Be connected to a 110VAC power source
- Show how much time is remaining until the next dispensing action

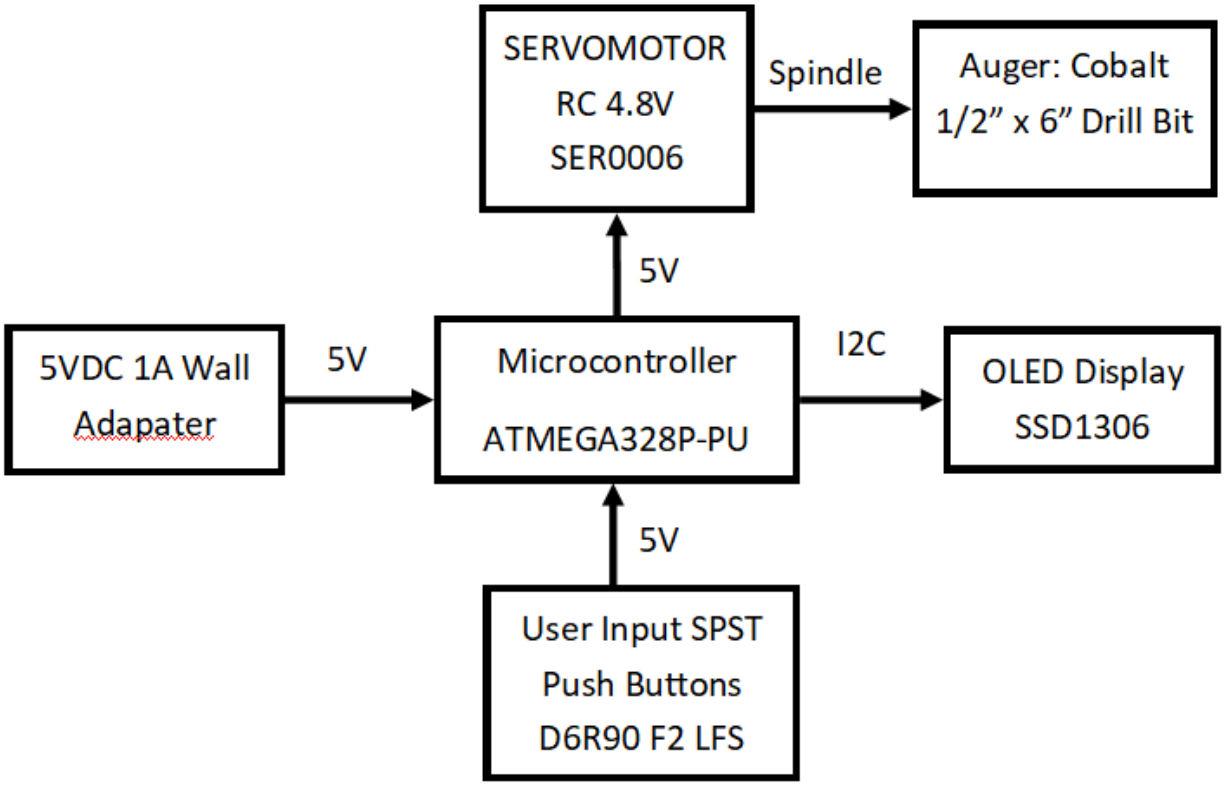
Should:

- Be able to accept different types of fish food
- Be capable of attaching to the side of a variety of types of fish tanks

May:

- Have an integrated battery supply to prevent loss of operation in the event of a disruption in 110VAC power
- Have an additional feature to initiate a dispensing action on command

System Architecture



Design Specification

- Power Source: 110 VAC Adapter with 5V DC Output
- Input: User Input SPST Momentary Push Buttons - D6R90 F2 LFS
- Processor: ATMega328p-pu programmed via Arduino IDE
- Output: 4.8 VDC Servo motor that rotates an auger passing through the hopper containing the fish food. Food is dispensed as the auger rotates.
- Output: OLED Display that displays the operational information to the user.
- Development Environment: Arduino IDE, Arduino UNO
- Mechanical Design: The electronics are contained within an enclosure box. The hopper, servo motor and auger are located on top of the enclosure box. The OLED display and buttons are mounted on ports located on the enclosure box.