

MILESTONE 4 GROUP FINAL

Dylan, Jack, Landon, Ternence

PURPOSE

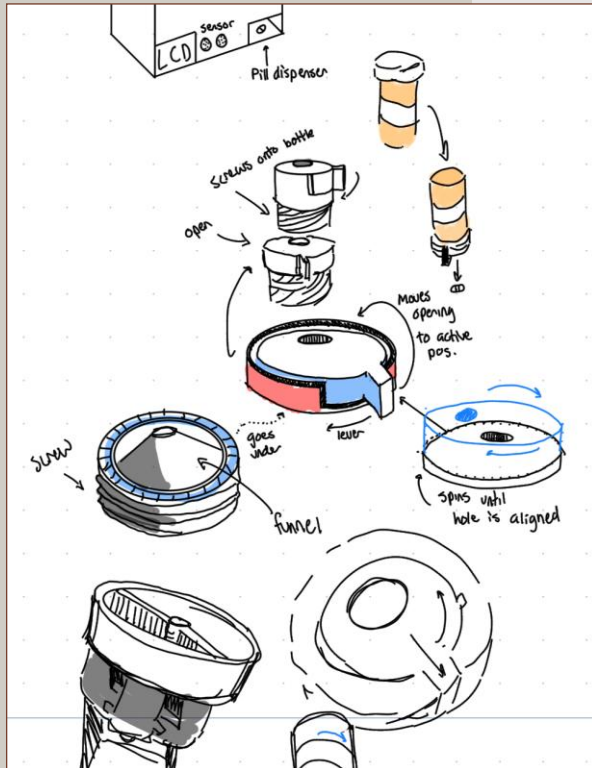
- **Designed especially for elderly patients who may forget to take their pills on time throughout the day**
- **Ensures that the correct pills are taken at the correct time**
- **When user brings home prescribed medication, they can transfer from the pill bottles straight into their individual sections**

FINAL PRODUCT DESIGN

Specifications

- 3D printed shell and dispensing system
- LCD screen that allows a patient to input, track, and adjust dosage
- C++ controlled user interface to control how long pills need to be taken for, quantities of pills for each dosage, and the time-of-day pills need to be taken

USER CONSIDERATIONS



User Problems

- Original hopper system could only hold small amount of pills
- No way to figure out how many pills were dispensed
- Pieces of the shell wouldn't fit together well with the dispensing system

Changes to Design

- Changed to the dispensing system so that more pills could be stored and dispensed
- Utilized servo in different way so any specific number of pills can be dispensed
- Changed some of the 3D designs of the shell and dispensing mechanism to fit together better

DESIGN PROCESS CHALLENGES

Problems with SparkFun Kit & Arduino

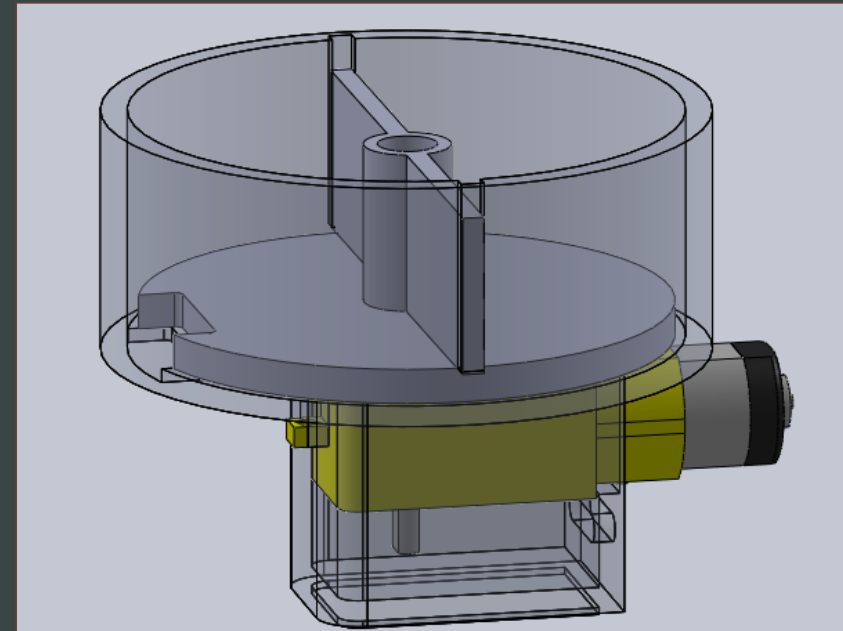
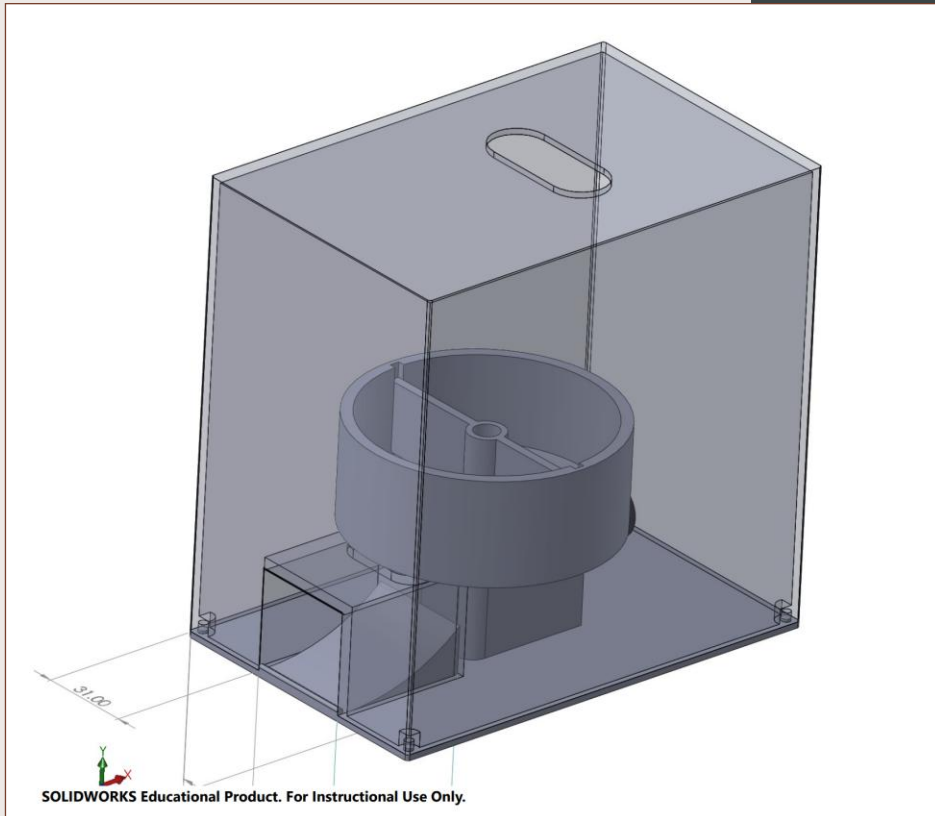
- Single breadboard not enough space for all features of design
- Difficult ensuring every feature worked with Arduino code

Problems with 3D Printing

- Difficulty setting up times to print
- Parts wouldn't fit together very precisely

DESIGN

- The piece attached to servo allows precise number of pills user requires to dispense
- Hole in top piece of shell allows easy refiling of dispenser
- LCD screen on front of dispenser with buttons to interact with it
- Alarm to sound when pills need to be taken



LESSONS LEARNED

Design Process

- Taking time to work on important tasks without rushing or procrastinating
- Brainstorm in a thorough and considerate manner
- Time management/Planning
- Consider user needs and design principles effectively

Team Experience

- How to plan and schedule meetings effectively
- How to balance workloads evenly between members

Changes

- Ensured measurements were precise with 3D printing
- Kept being consistent with planning ahead
- Made sure no one was overloaded with work