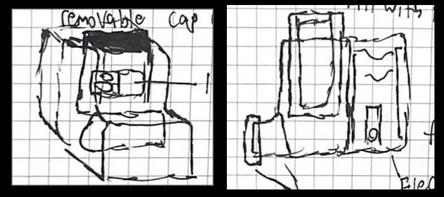
Designing and Iterating a Reminder Device for Patients with Neurological Disorders

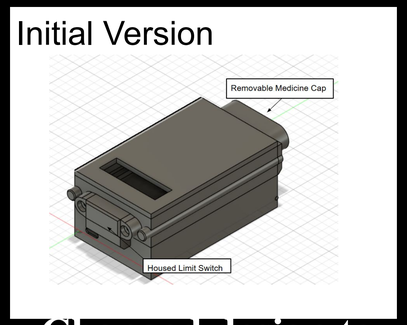
Conner Cherry // Mentor Michael Revel

V3 // Final Version

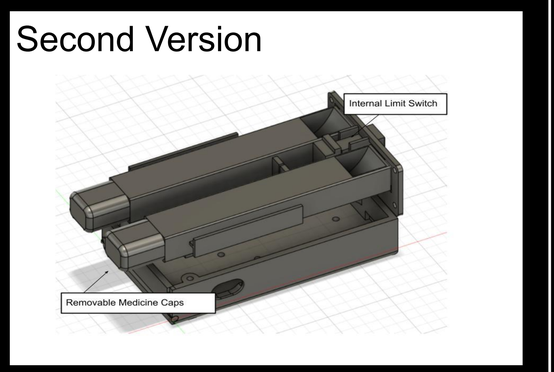
Design V1 and V2

The goal was to create an entirely original medical device based around an idea I had in early 2025. The device was to be an intuitive pill dispenser that plays a prerecorded message from a loved one at set times.





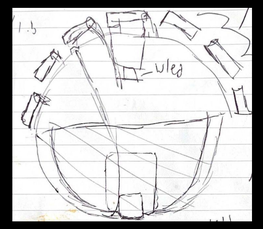
Changed design to accommodate more doses of medicine, and easier access

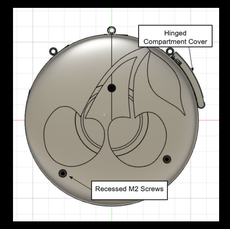


Final still only had two doses, and was unreliable to trigger

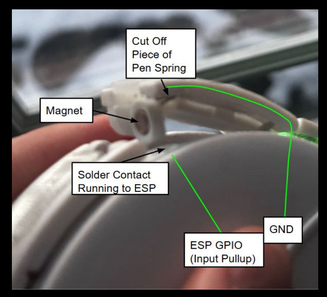
Design V3

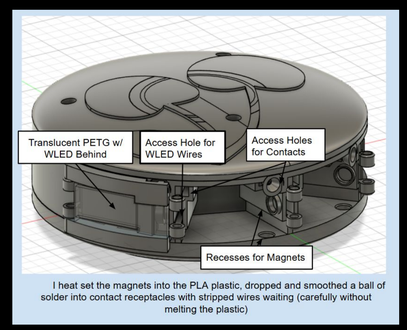
New double-shelled disc design doubles the available doses with <u>compartments</u>





Hinged lids on the compartments trigger a circuit which can tell if compartment is opened. This solved my previous trigger problem.

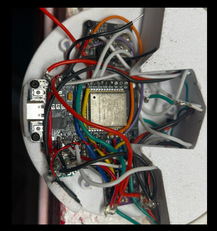


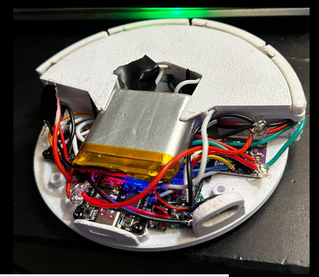


I heat set the magnets into the PLA plastic, dropped and smoothed a ball of solder into contact receptacles with stripped wires waiting (carefully without melting the plastic)

Wiring V3

I only added an RTC module to solve the problem of the previously unreliable alarm timing



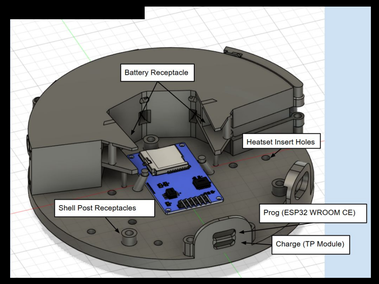


Programming V3

WiFi connected captive portal allows easy setup of alarm times

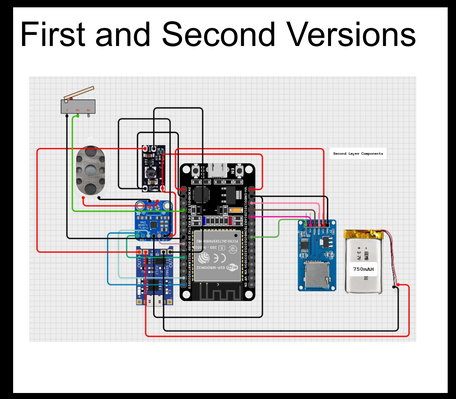






Wiring V1 and V2

The wiring leaned on an ESP32 module. I hoped to get a good audio quality with I2S



-Used ESP32 as main module
-SD Card Module for audio files
-LiPo batteries charged by TP Module
-Max98357A I2S Module feeds 4 ohm speaker

Programming V1 and V2

In the initial programming, setup was done inside of Arduino IDE, a text editor. Initial versions converted audio to HEX, which was stored directly on the board forgoing the SD card module.

