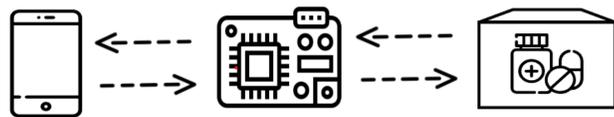




## Introduction

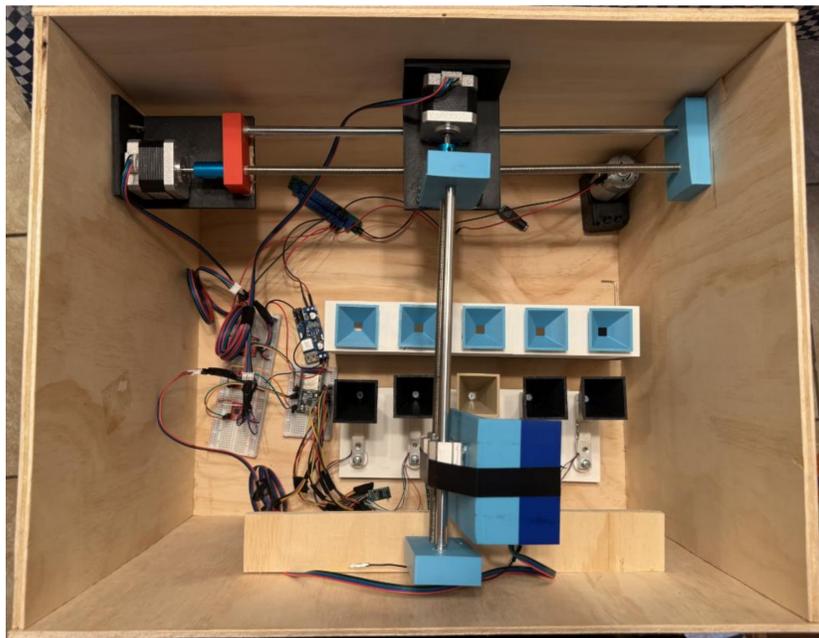
Managing medications can be challenging, especially for the elderly and those with chronic conditions. To address this, we developed M.A.R.S., an automated pill dispenser with a companion mobile app for accurate and timely medication management. Featuring five pill cells, a vacuum-based dispenser, and real-time weight tracking, M.A.R.S. ensures proper dosing. The app, connected via Wi-Fi, enables scheduling, notifications, and inventory tracking. By automating dispensing and allowing remote monitoring, M.A.R.S. enhances adherence, reduces missed doses, and improves healthcare outcomes.



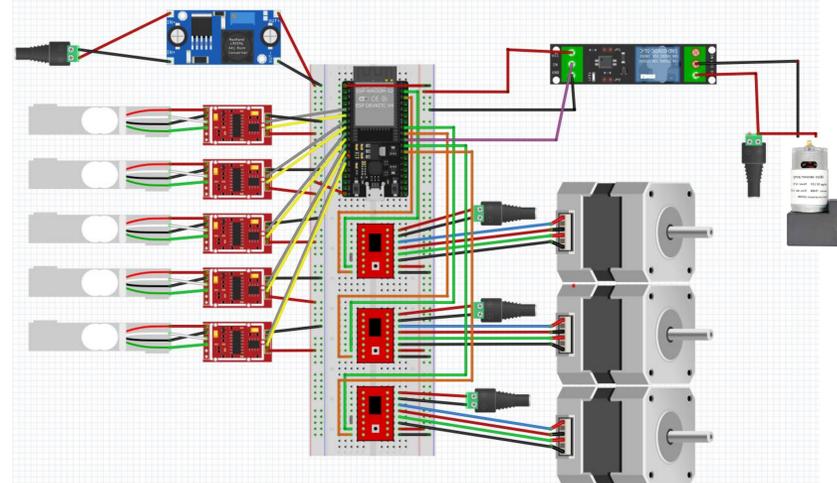
## Objectives

- To create an automated system that will dispense your medications through a user inputted schedule.
- To program an application that works with the physical device. The app will be capable of taking in your medication schedule, send reminders, and keep pill inventory.
- To make a product that is competitively priced with options currently available to consumers.

## M.A.R.S.



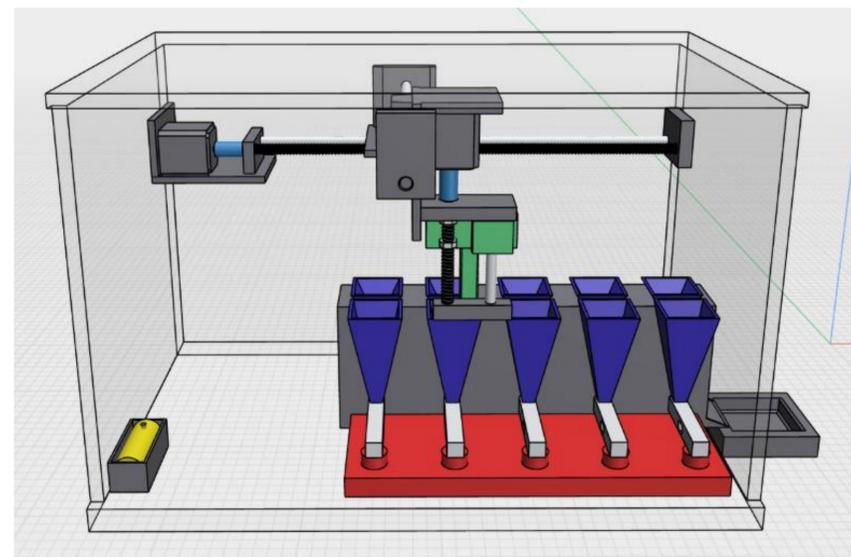
## Project Circuitry



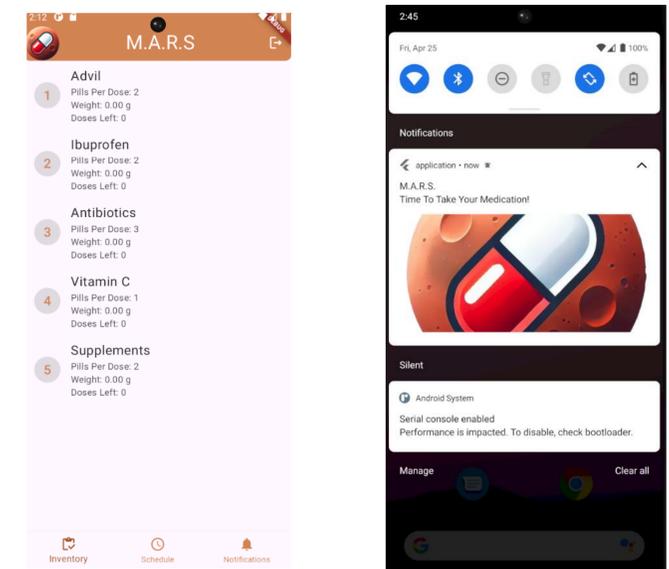
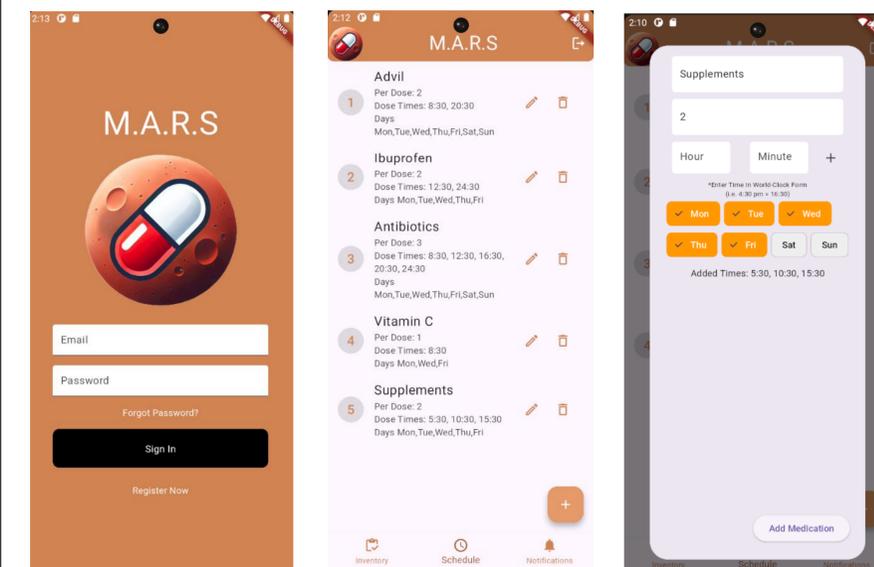
The M.A.R.S. is made of four systems:

- **Power** – A 12V 6A AC power adapter provides the unit with power
- **Weighing** – 5 load cells are used with a HX711 amplifier to weigh each individual pill cell
- **Transportation** – 3 NEMA 17 stepper motors transport the pill in the xyz-directions
- **Pump** – A 12V pump is used to securely lift the pill as it is transported

## Pill Dispenser Design



## Mobile Application



Functions of the M.A.R.S. mobile application:

- **Sign-In** – Opening the app prompts the user to sign in or create an account
- **Inventory** – The load cells send weight of pill cell to calculate remaining pills and doses
- **Scheduling** – User inputs medication name, cell number, pill weight, pills per dose, and time
- **Notifications** – The app sends notifications to the user when it is time to receive dose