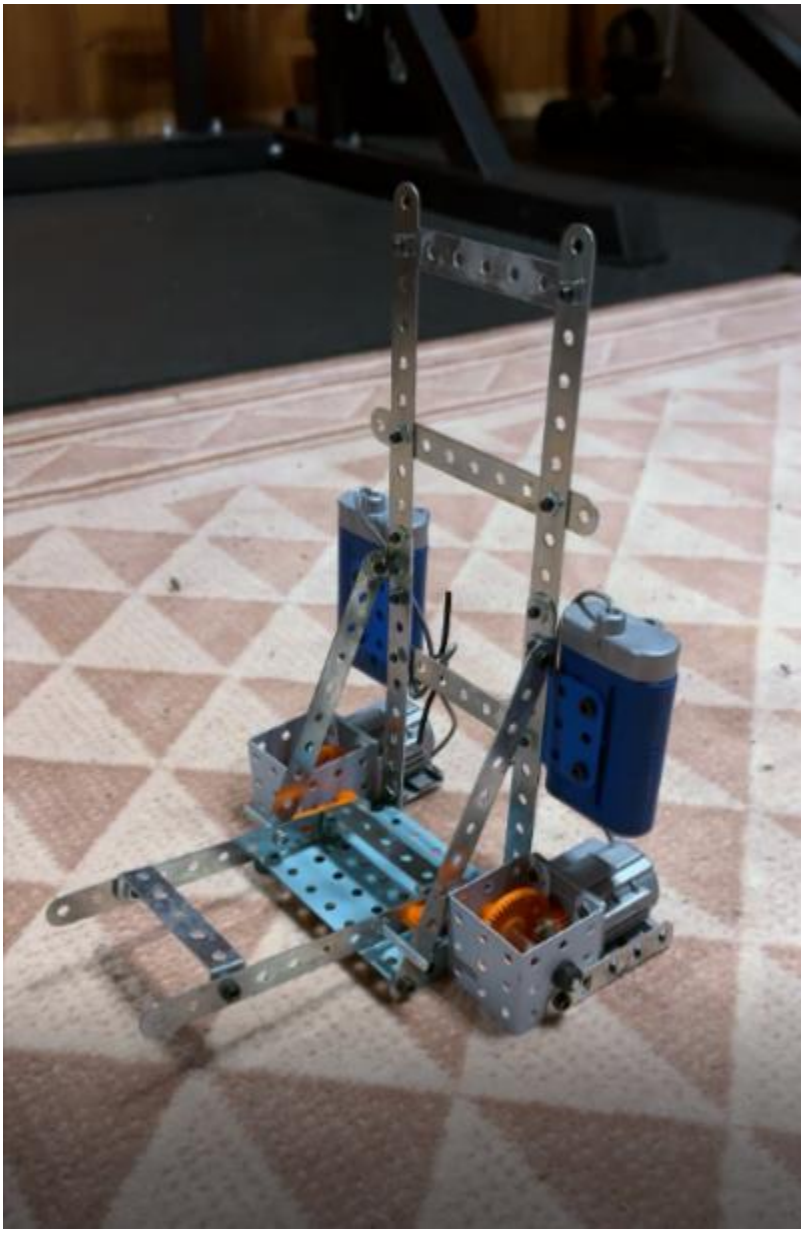
2 Line Summary:

Our client would like to perform foot exercises; however, she is physically unable to reach her own foot to perform them. We are creating a motorized foot flex device that would allow our client to remotely flex her foot in her bed and aid in her rehabilitation.

Below are pictures of the prototypes we will display, and our poster board for Design Day.



Flex Tech's:
Foot Flex Assist

Jan Using Prototype 1

Problem Statement

We've created a product that is for our client Jan who is parapalegic to exercise her right foot with dorsi and plantar flexion for 10, 15, or 30 minutes a day. The device is controlled with a remote, it is also safe to wear, comfortable to use, and is low cost

Prototype 2 → Prototype 3

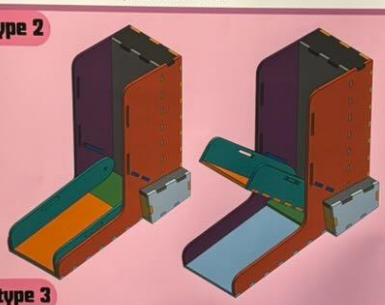
Things that changed from prototype 1 to prototype 2 :

- The Plantar Flexion angle: from -10 to -40 degrees
- The type of DC motor change to give more torque

Motor System

Gear System

Prototype 2



Prototype 3

What Makes Our Team Stand Out

- We've tailered our product perfectly to our client and her needs
- Our motor and gear system has a 2:1 gear ratio allowing for extra torque in addition to the DC motor
- This product is much more affordable compared to the other options on the market
- Our app allows for bluetooth remote control from an Iphone

App & Tech

We've created an app specifally for Jan. The app controls the duration that the device will run for. The app connects to the device via bluetooth.

BOM

Part	Quantity	Price
Electronic Components		
Arduino	1	$15.99
DC Motor	1	$21.99
Bluetooth Module	1	$9.99
DC Power Adapter	1	$11.99
Motor Driver	1	$10.99
Physical Components		
¾" MDF	4x (18"x 24")	$44.99
Gears	1	$21.99
Screws	20	$9.99
	Total Cost:	$153.93