

# Bed Mobility: Active Rest and Recovery

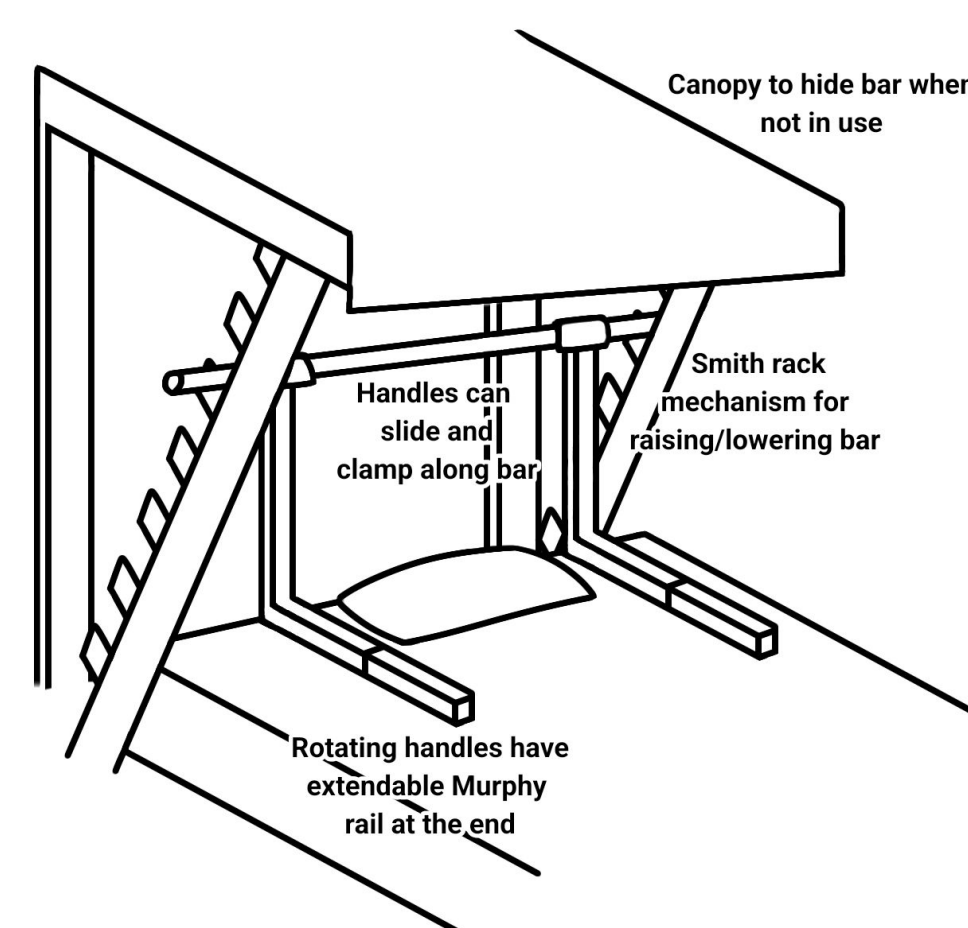


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## Background

Current mobility aids are highly institutional, disrupting the bedroom environment and disregarding users' fluctuating mobility levels

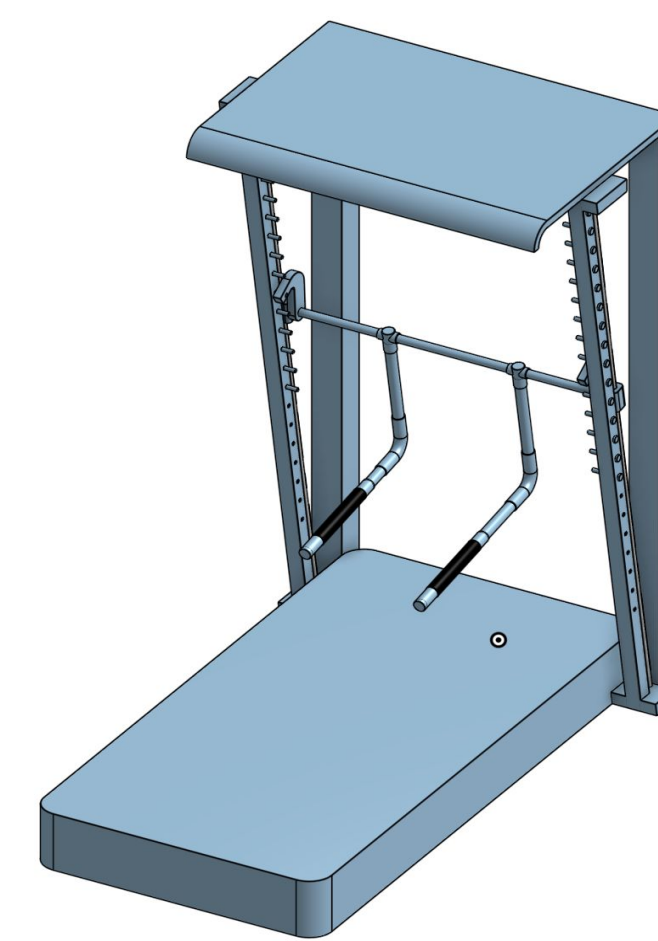
## Ideation and Initial Design [1]



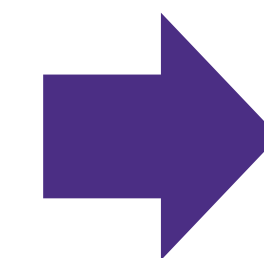
## Problem Statement

Design a system that provides users with varying mobility with additional in-bed supports that facilitate movement and exercise around the bed.

## Design & Development

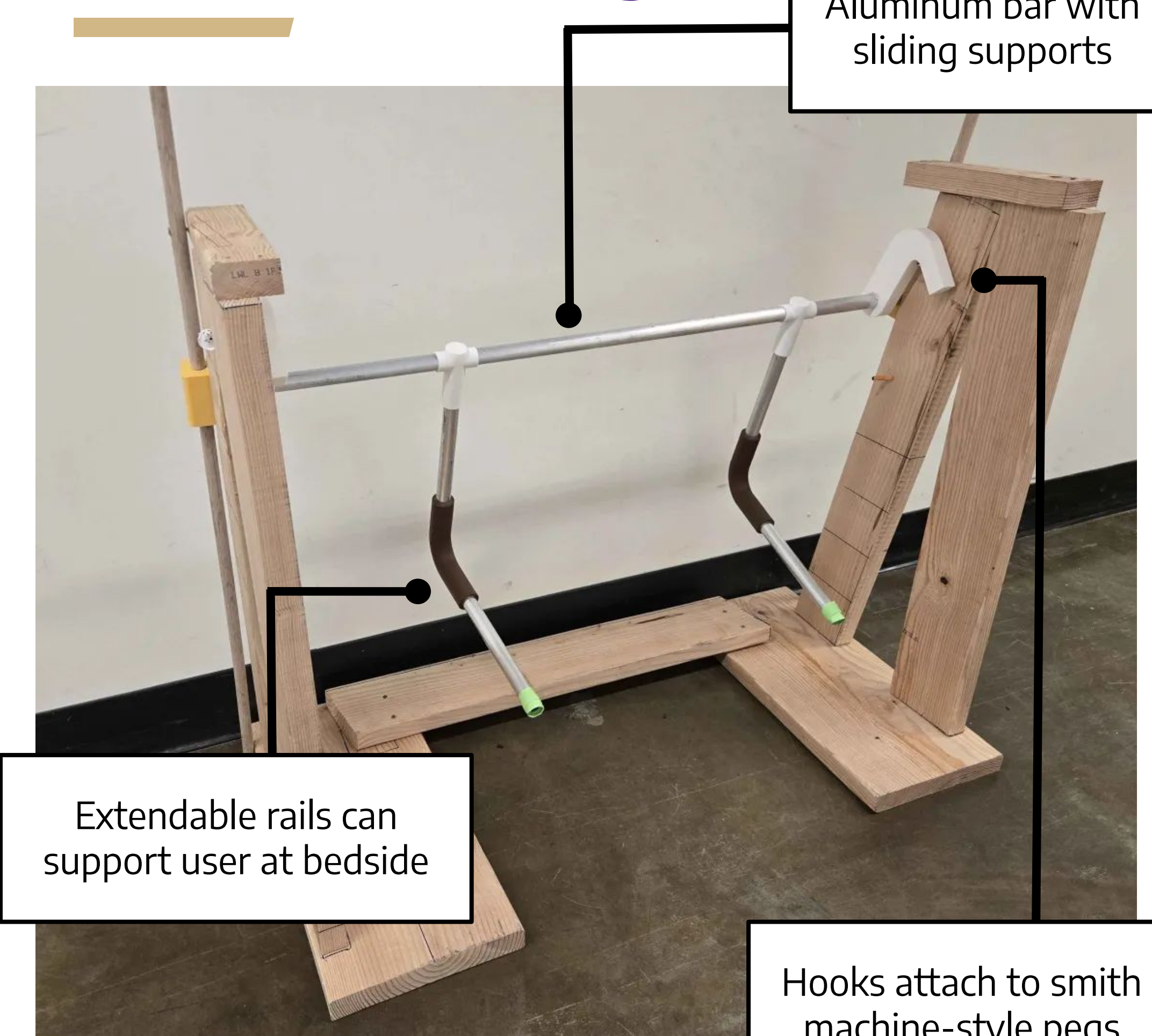


CAD Model



3D Print

## Proposed Design:



## Core Functions

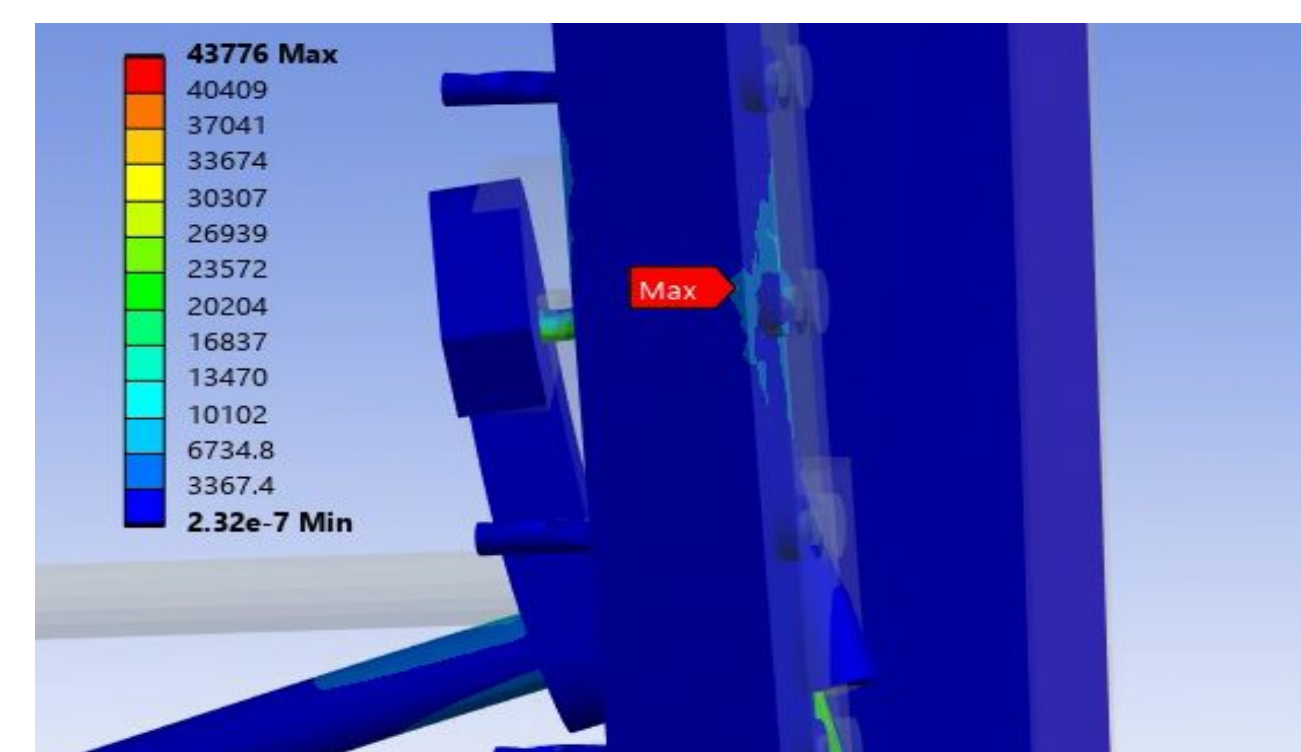
- Provides support in an aesthetically pleasing way
- Assists the user with getting in and out of bed
- Supports in-bed mobility and exercise
- Guides movement in the area around the bed

## Results/Validation:

- Initial model supported 120 lbf, aluminum bar yields at 328 lbf
- FEA shows a max deflection of 0.53" (500 lbf, full size model)
- Max stress located at pegs



Weight Testing



Results from FEA

## Future Steps:

- Create a locking mechanism for sliders on both ends
- Increase reach of supports along bed
- Decrease risk of bar misalignment
- Test for larger bed sizes

## Acknowledgements:

We would like to thank our mentor, Renee Desing, our clients, Mary Meyer and Stan Chiu, and our capstone teachers, Eli Patten and Sirine Maalej. We couldn't have made this without you!

[1] - Left image retrieved from drugs.com