



*Curb* <sup>↑</sup>*Go*

*Curb*  *Go*



CG

# ***Problem Justification***

1

2

3

4

5



# *Problem Statement*

In areas that are not up to the accessibility code defined by ADA, manual wheelchair users, without assistance or training to learn to vertically “jump” their wheelchair, are unable to navigate vertical ledges (i.e. curbs, sidewalks, and landings).





# *Current Solutions*



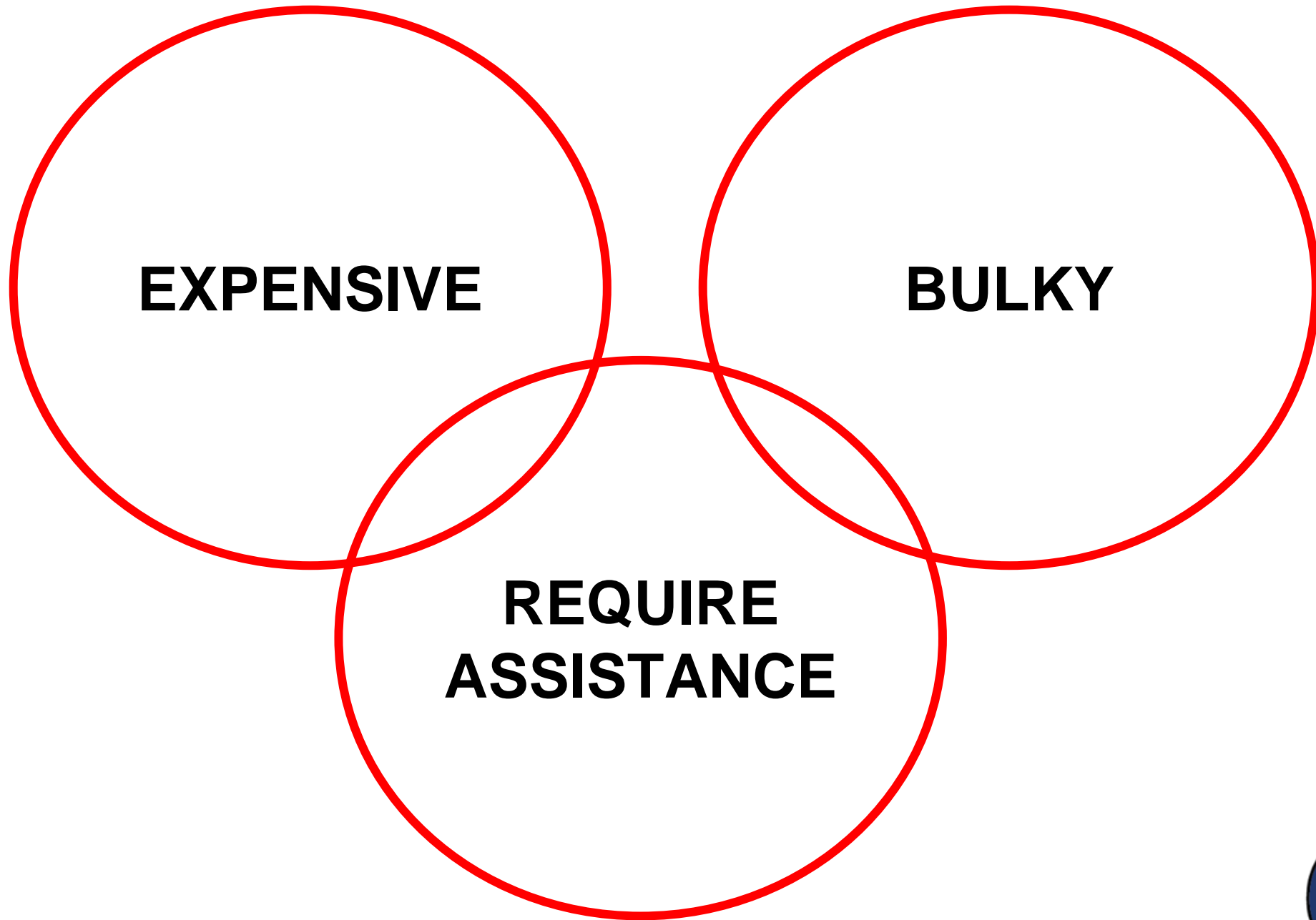


CG

# *Criteria and Constraints*

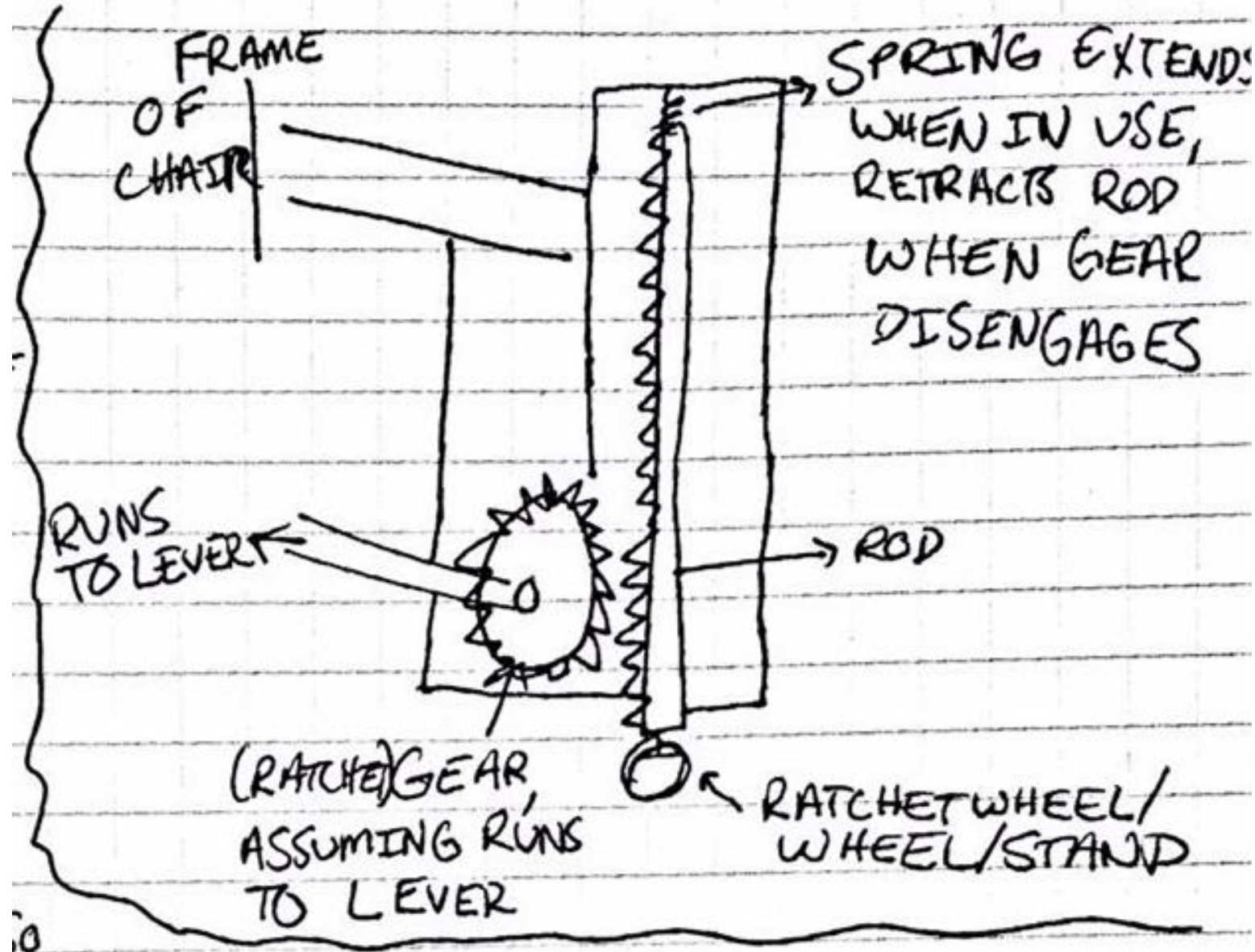


CG



# *Alternatives Considered*

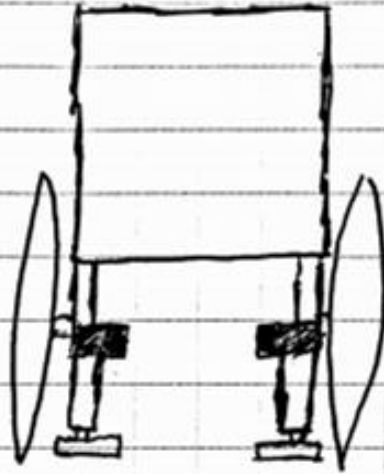
# Mechanical Solution



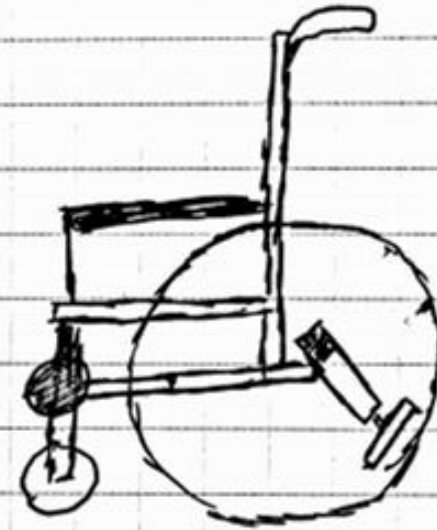
# Double Actuator Solution

## 2 - Actuator Design

Back View:



Side View:

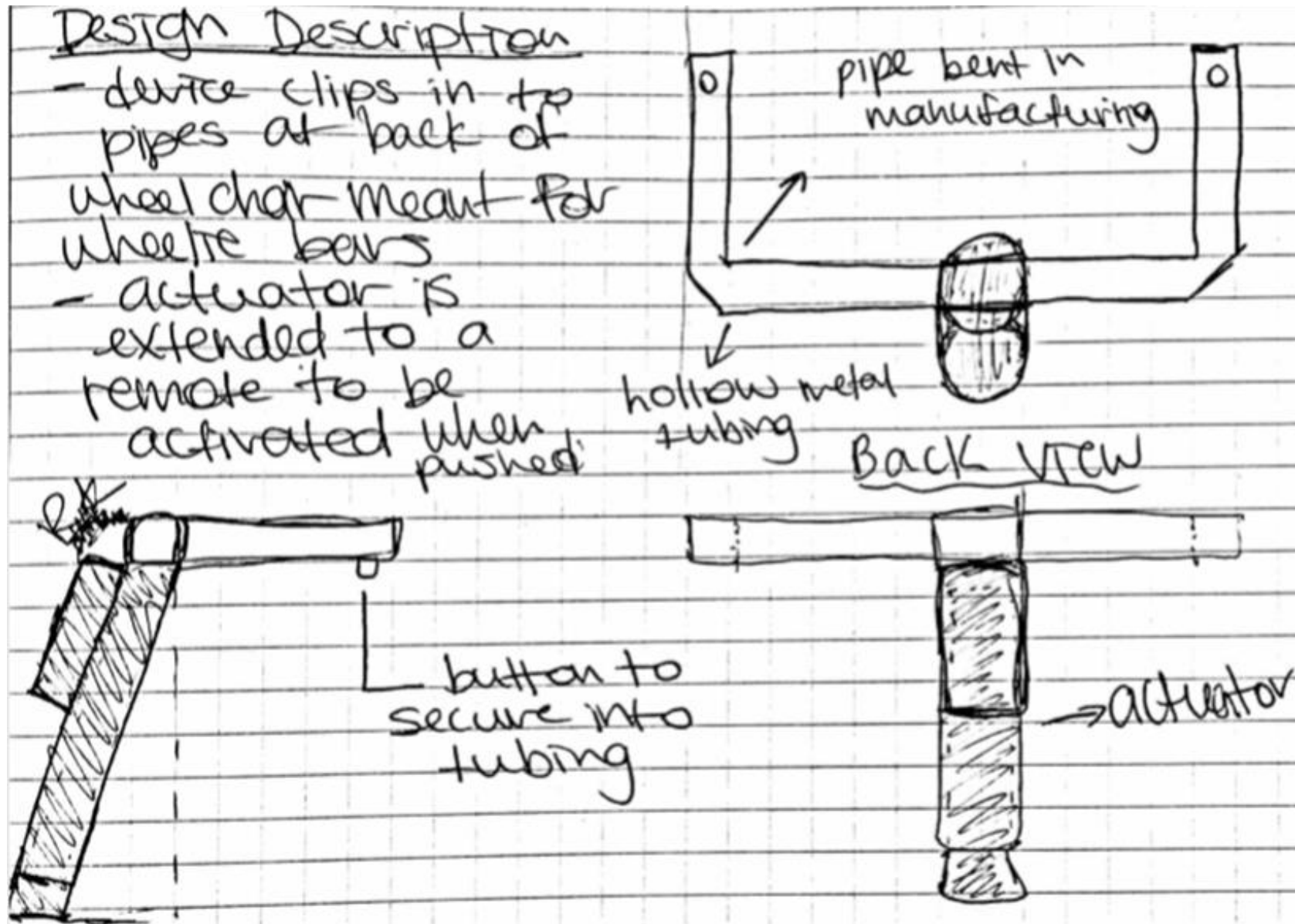


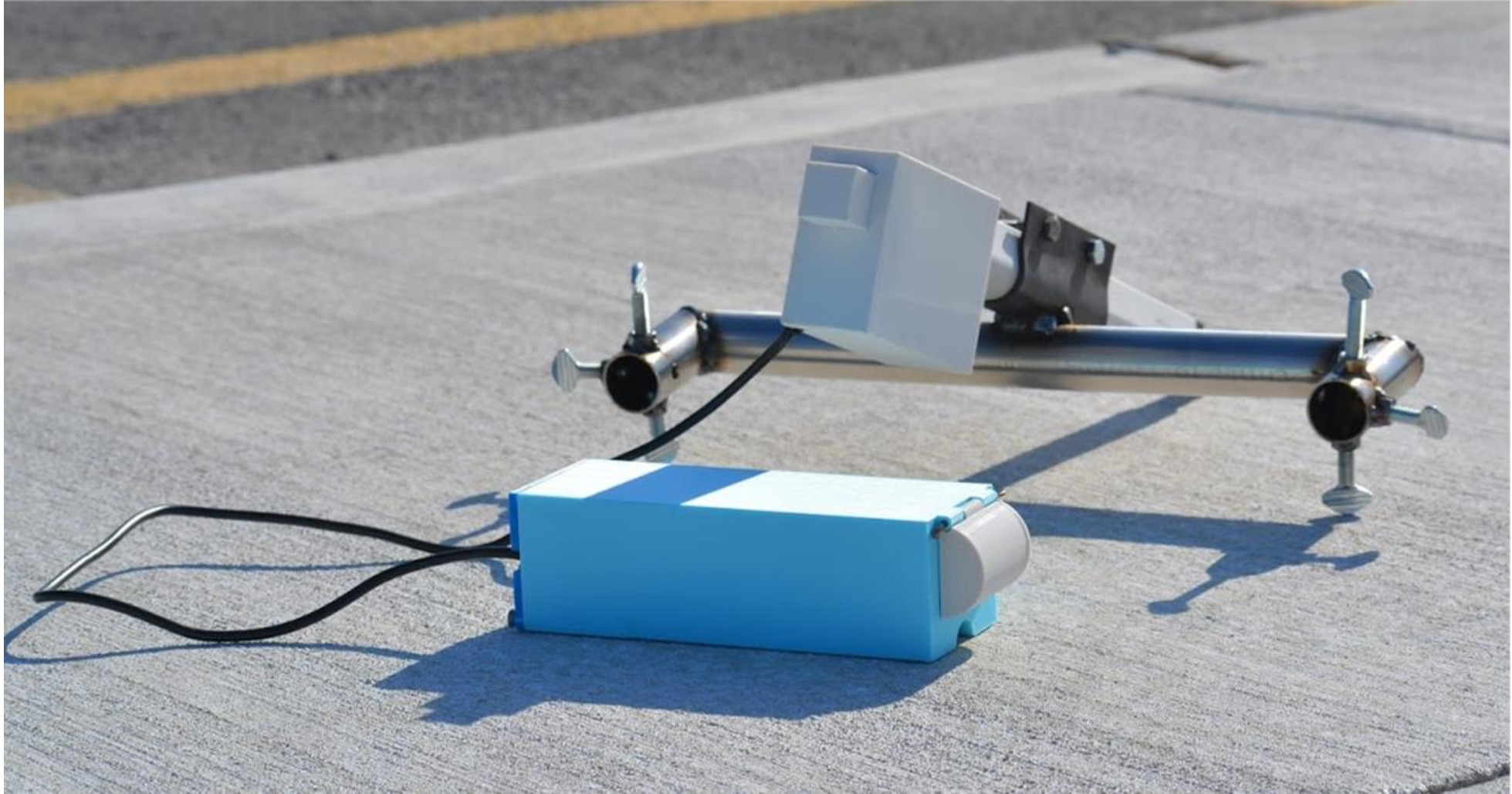
No spokes to show  
actuator

- One ~~the~~ actuator will be attached at an angle to each of the wheelie bar attachment points
- The two actuators will be wired to one battery + switch



# Single Actuator Solution





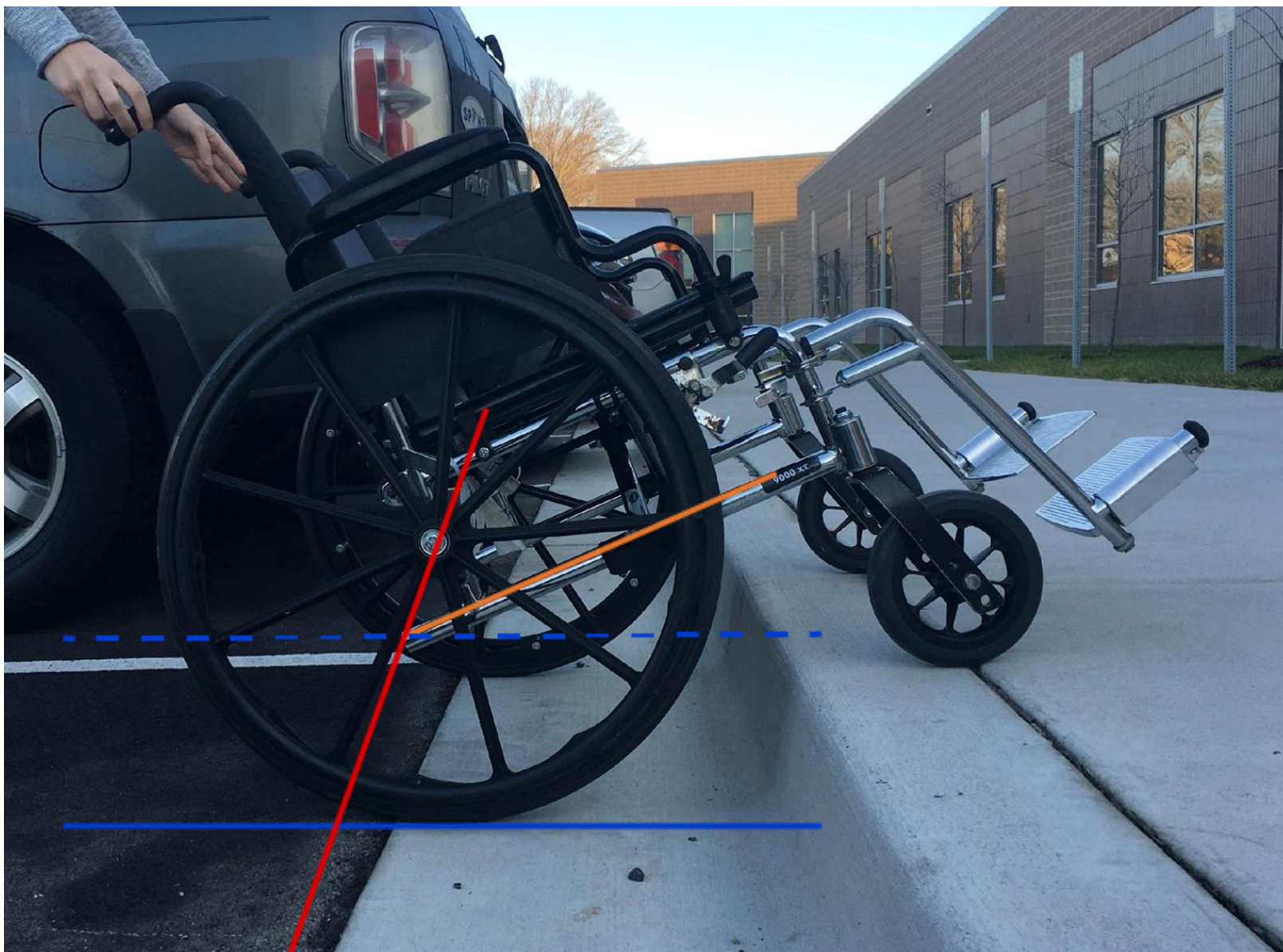
CG



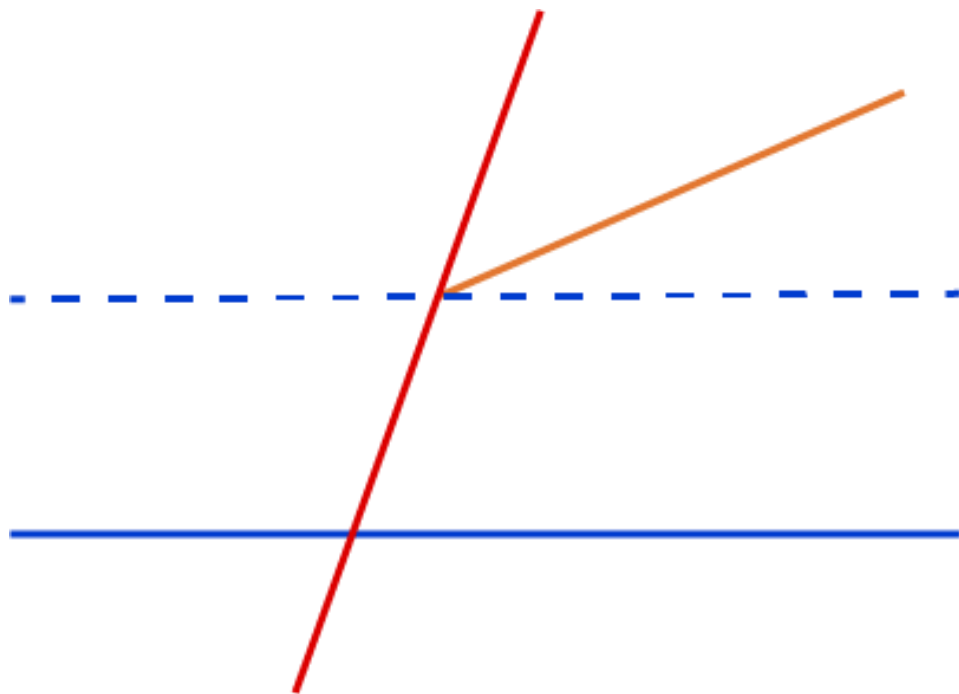
CG

# *Prototype Design*



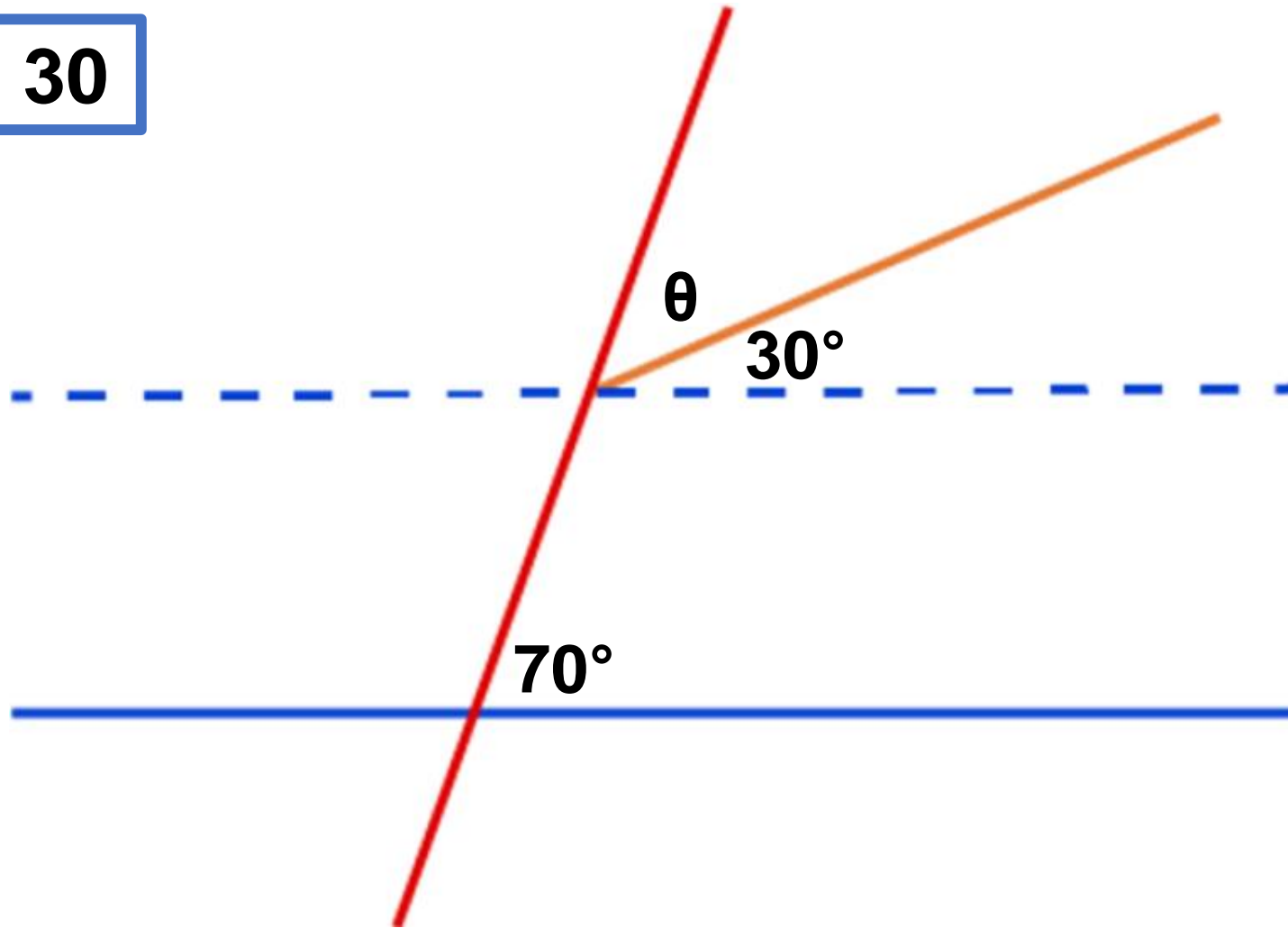


CG



CG

$$\theta = 70 - 30$$



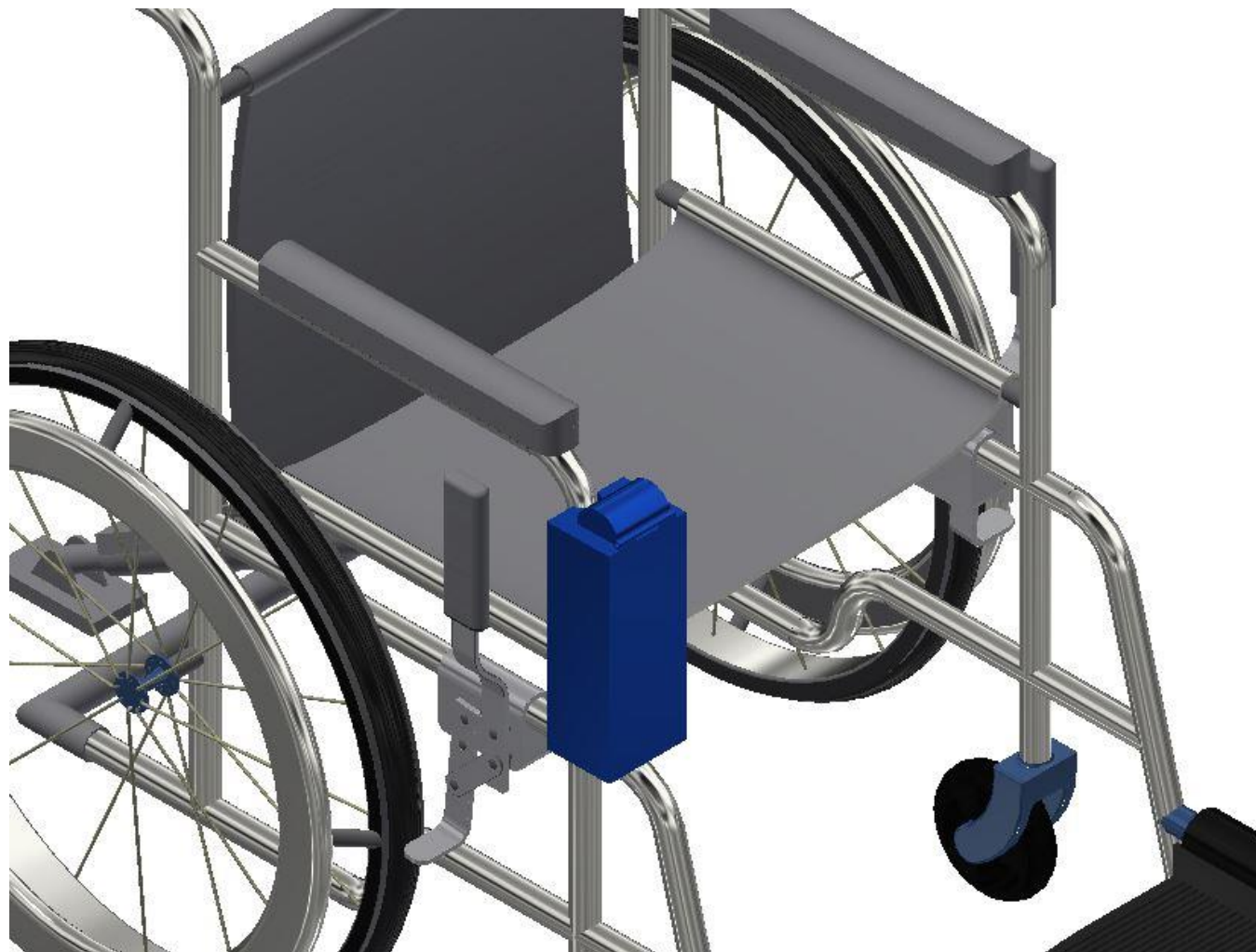


CG



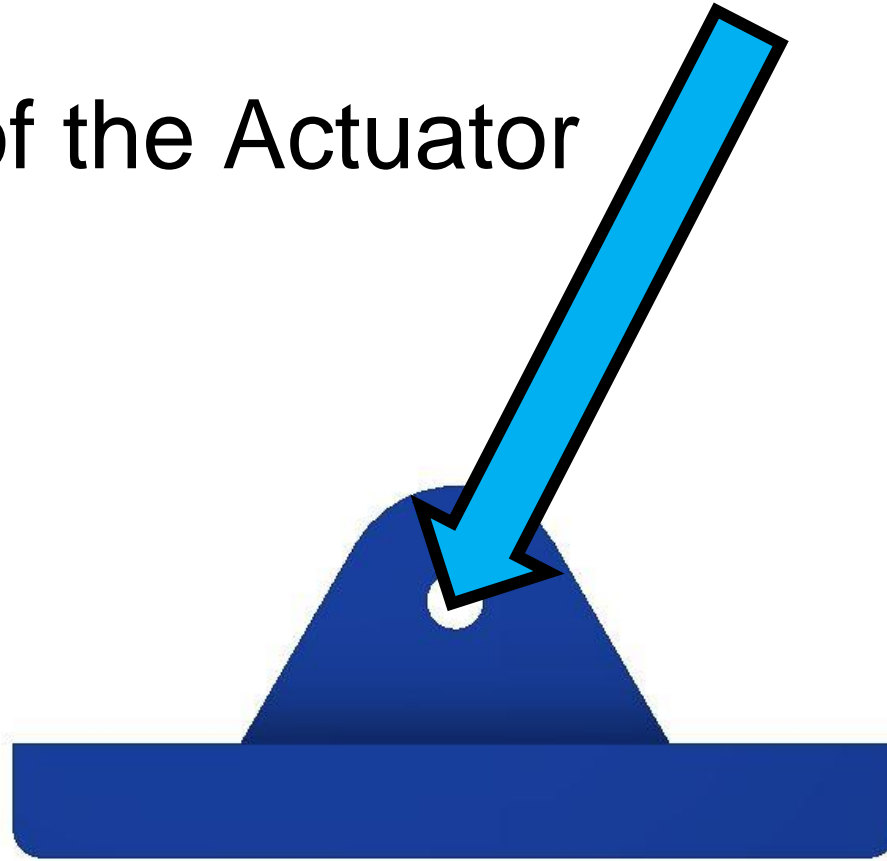


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Force of the Actuator



Force of Friction

CG

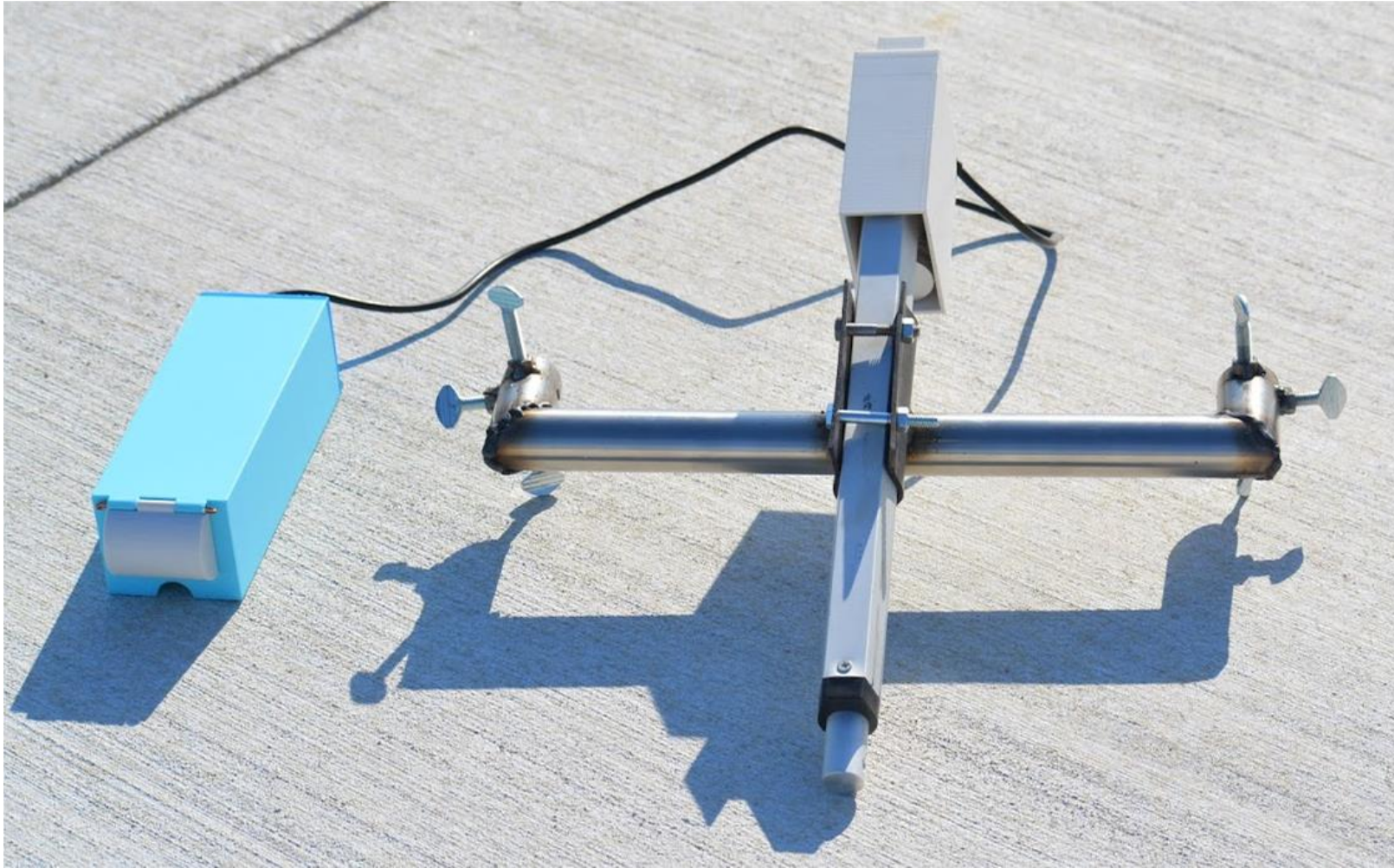
# *Prototype Construction*







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# *Prototype Testing*





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# ***Cost of Manufacturing***

# Cost Breakdown

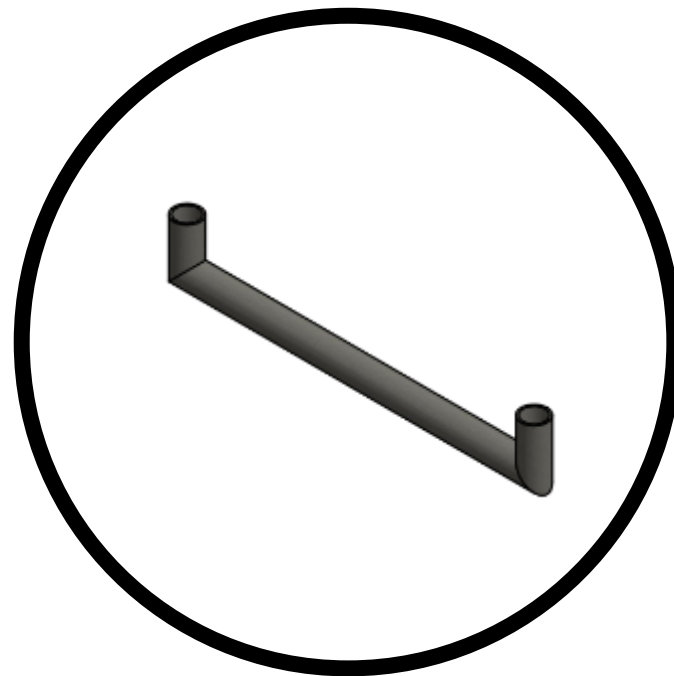
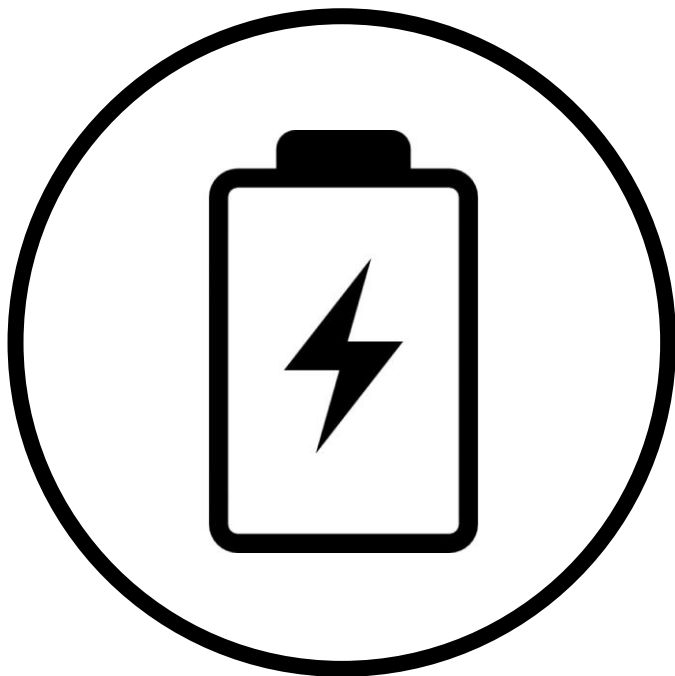
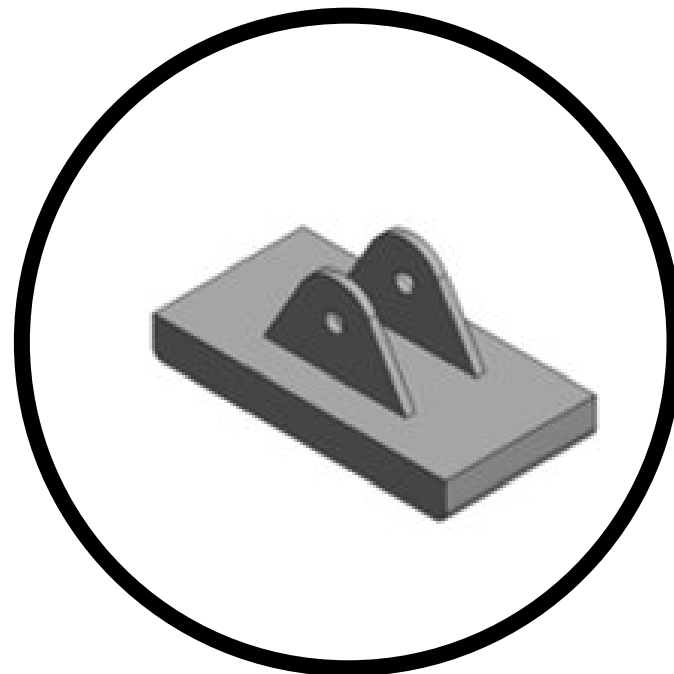
Cost Per Unit	\$234.76
100% Markup to Wholesaler	\$469.52
100% Markup to Retailer	\$939.04

Retail Price: \$940  
W/ Insurance:  
**\$188**

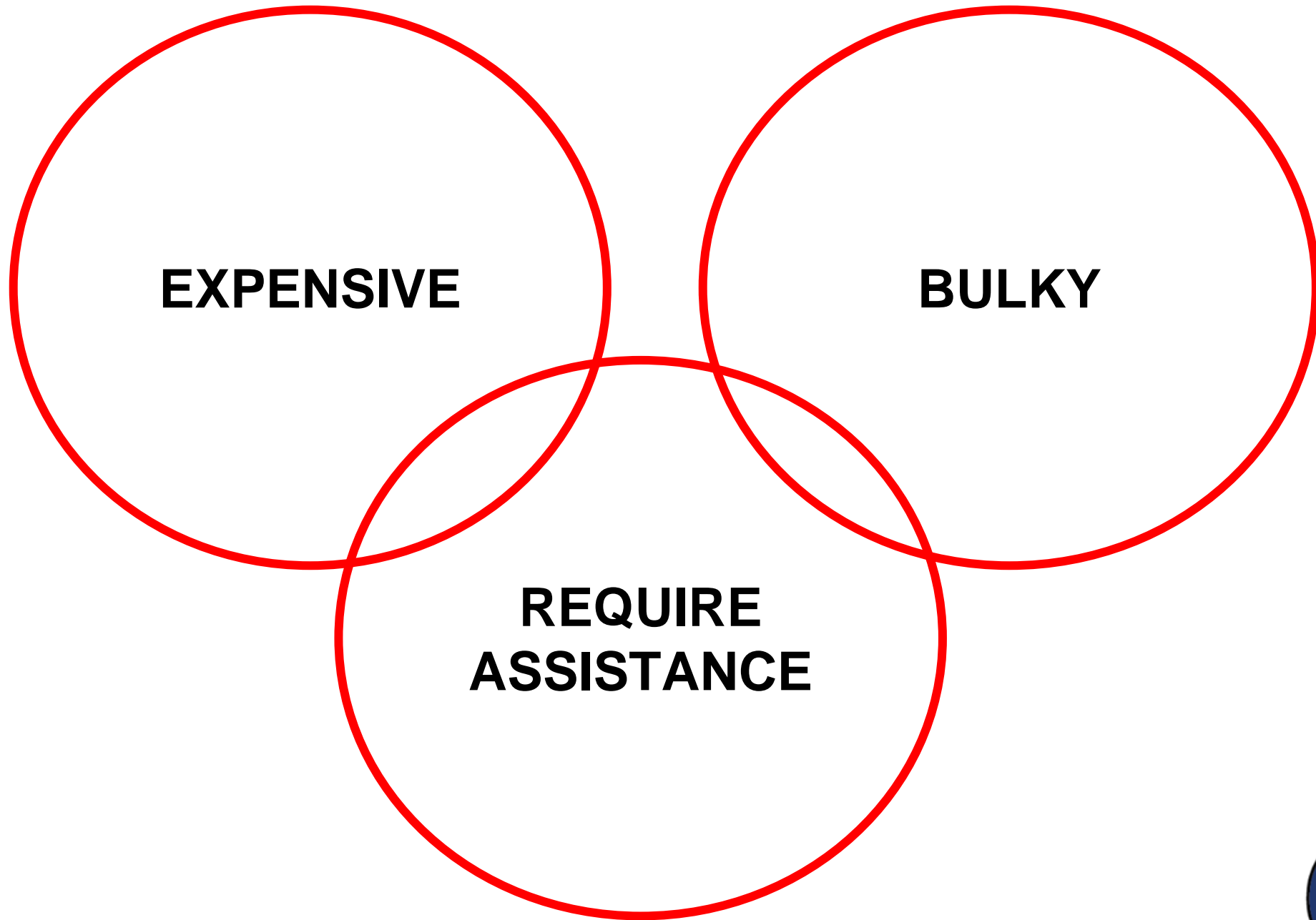


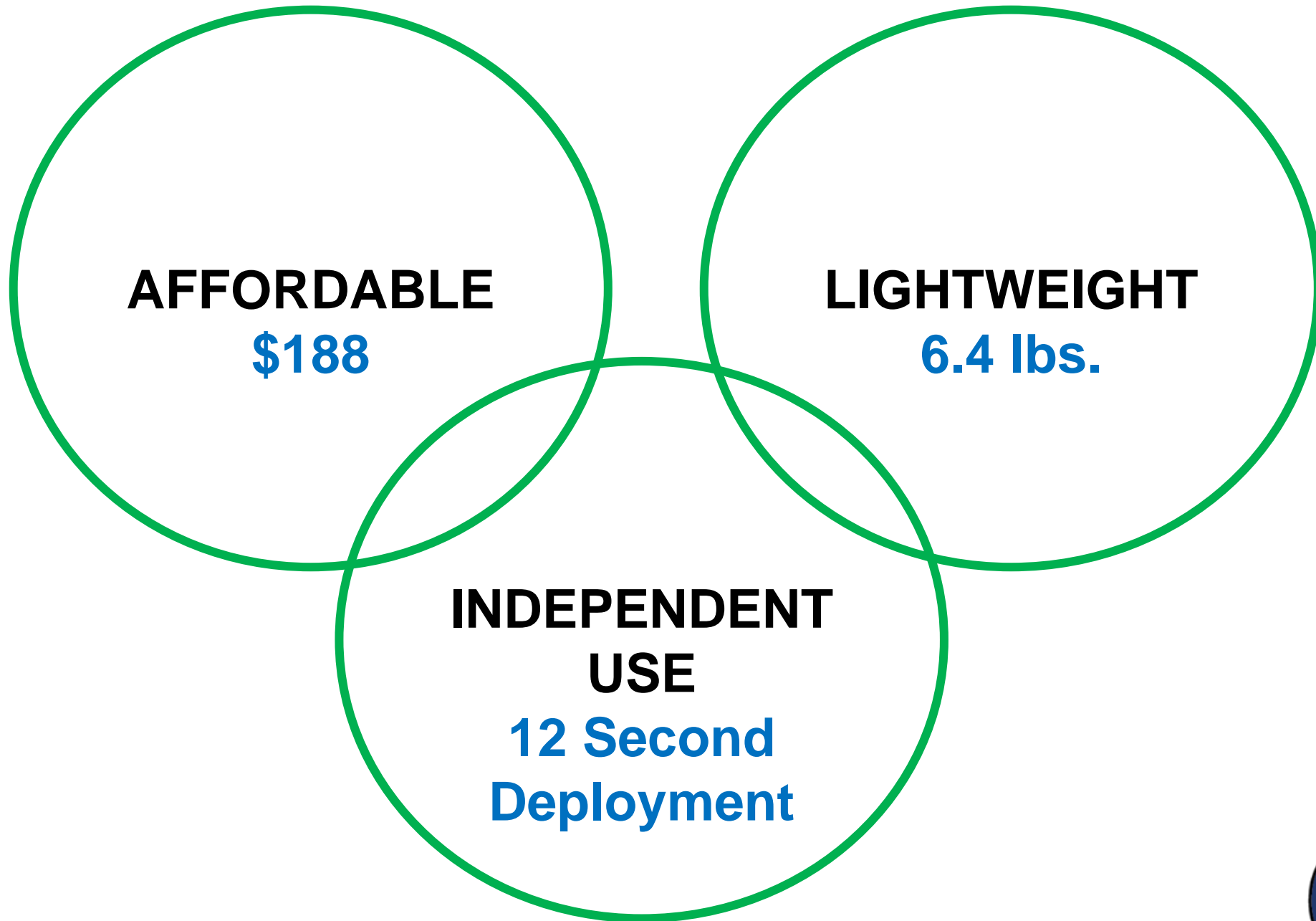
*Future  
Iterations...*

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# *Thank You!*

- Mr. Cahoon
- Mr. Lutz
- Mr. Bixler
- Mr. Mark Thompson
- The Paralyzed Veterans Association
- Mr. Corey Fleischer
- The Foundery
- Mr. Witmer
- Mr. Scott Warfield
- Ms. Lori Patria
- The Maryland Crab Pot Wheelchair Rugby Tournament Participants
- Halle Neal
- Samantha Hartman





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