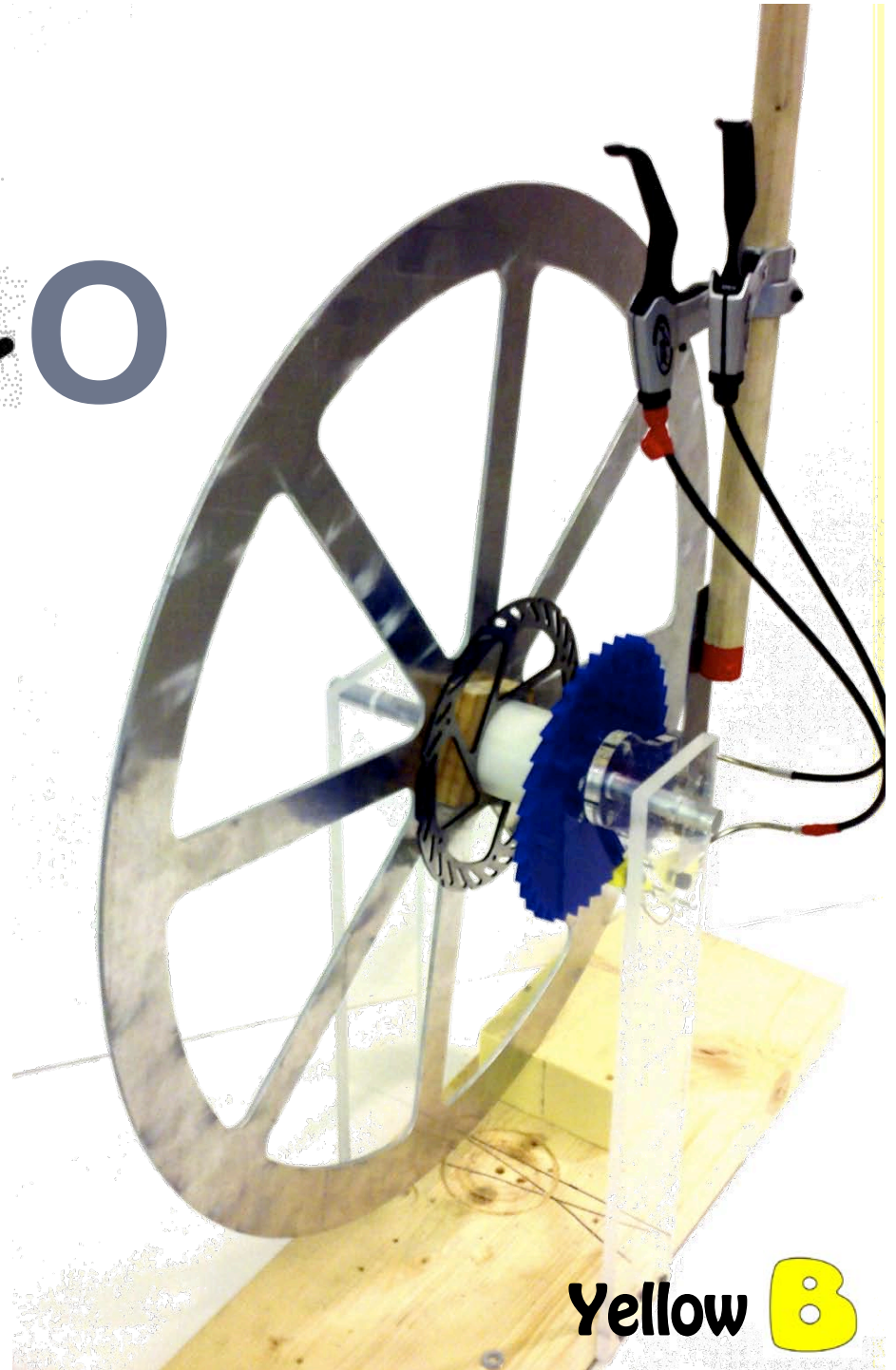
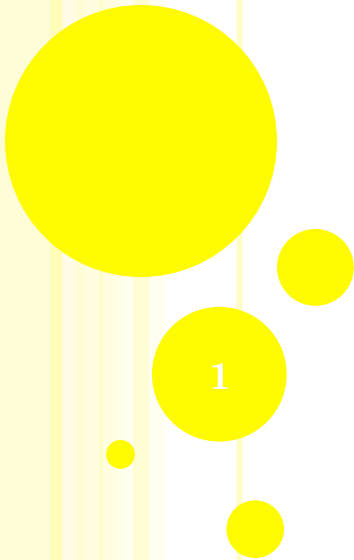


INDE-O

Independence on the Go



Yellow 

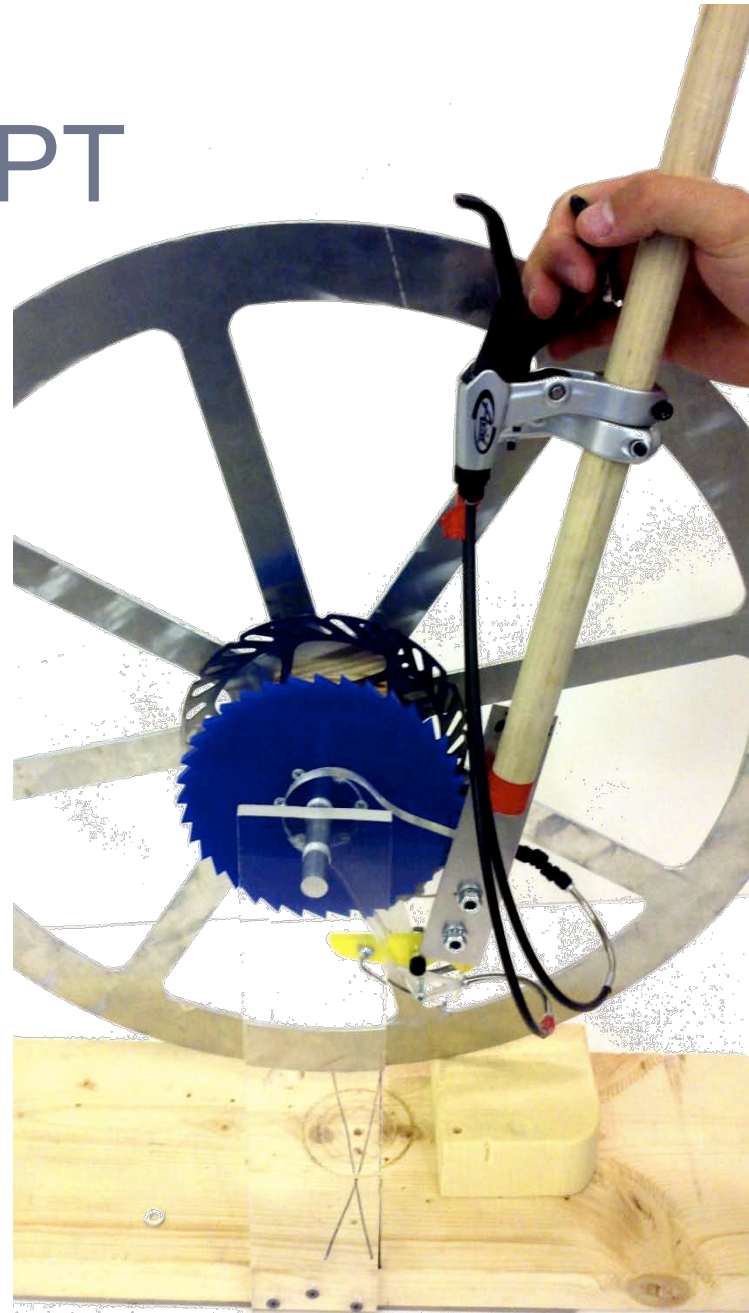
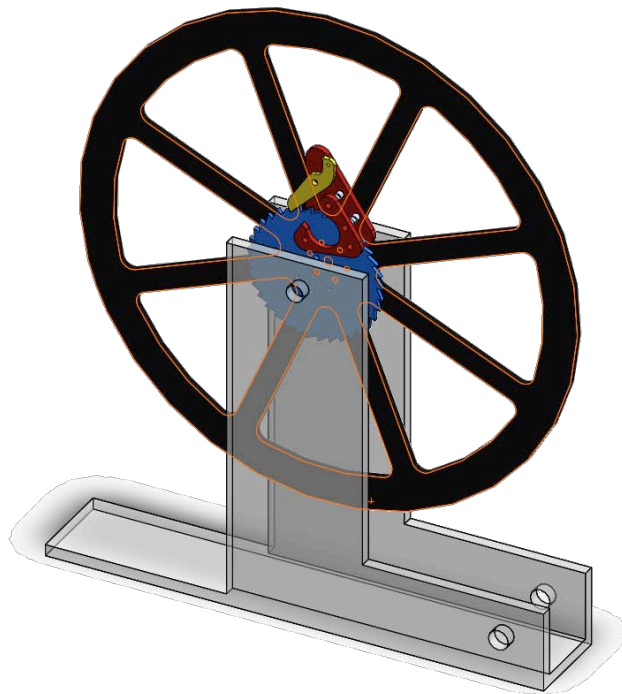
THE PROBLEM

- **Slippery and cold** in rain and snow
- **Impact Injury** on wrists, shoulders, elbows
- **Uncomfortable** to use



DESIGN CONCEPT

- Lever attached to:
 - Ratcheting mechanism
 - Disc brake

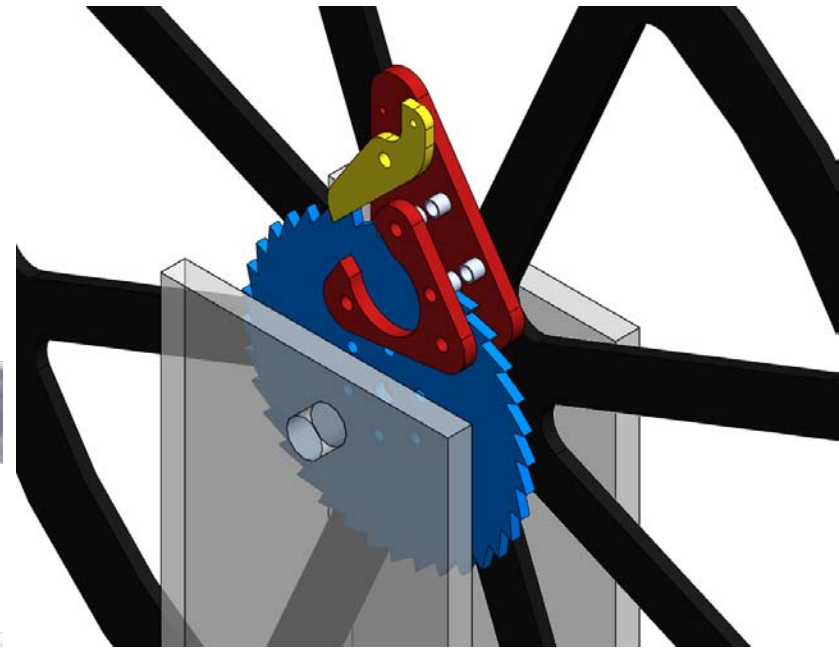
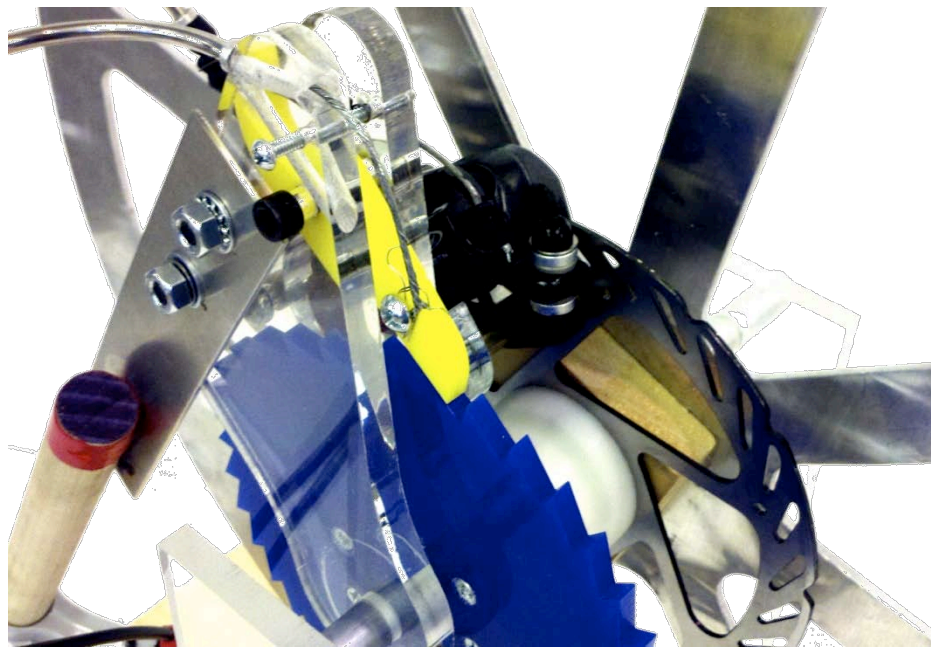


PRODUCT CONTRACT

Customer Need	Product Attributes	Engineering Specifications
Forward/Reverse transition time	Time to switch fwd/rvs	< 1 sec
Reduce impact on joints	Force of impact	< 103 N
Easy to install	Time to install	< 60 sec
Compact design	Width of wheelchair	< 27"
Lightweight	Weight of final product	< 2 lbs

MOBILITY

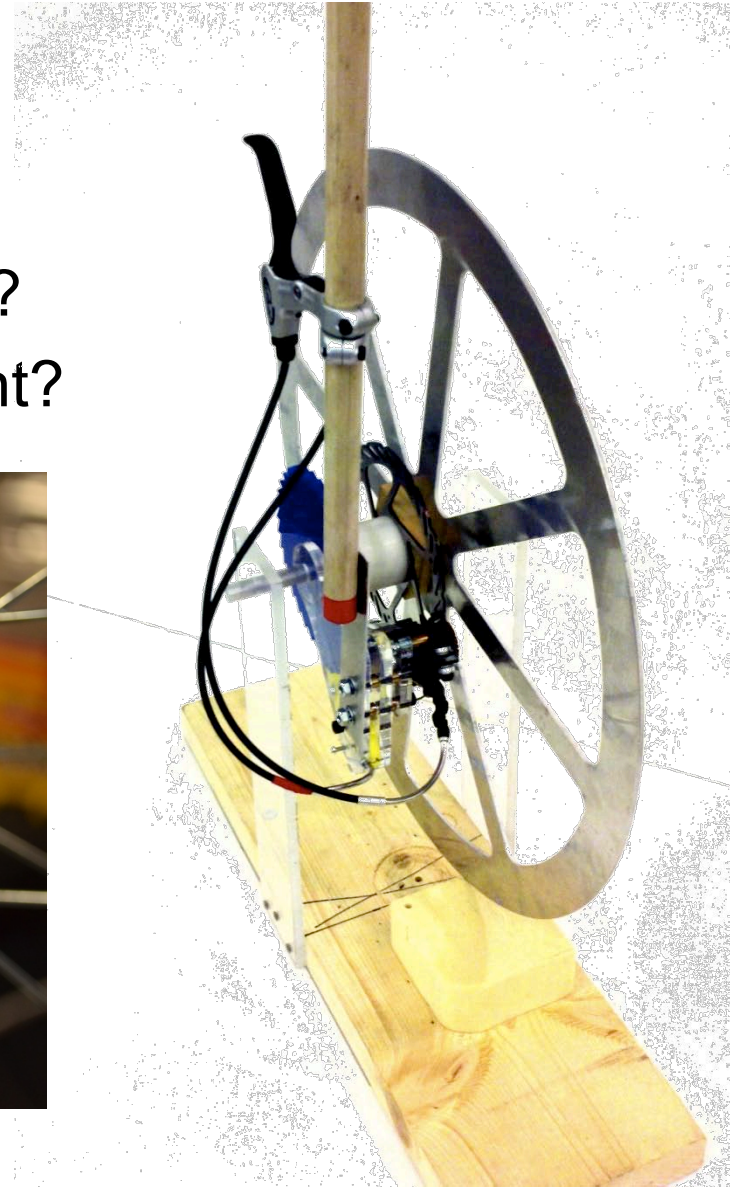
- Can our product provide adequate mobility and motion?



Forward/Reverse transition time	Time to switch fwd/rvs	< 1 sec
Reduce impact on joints	Force of impact	< 103 N

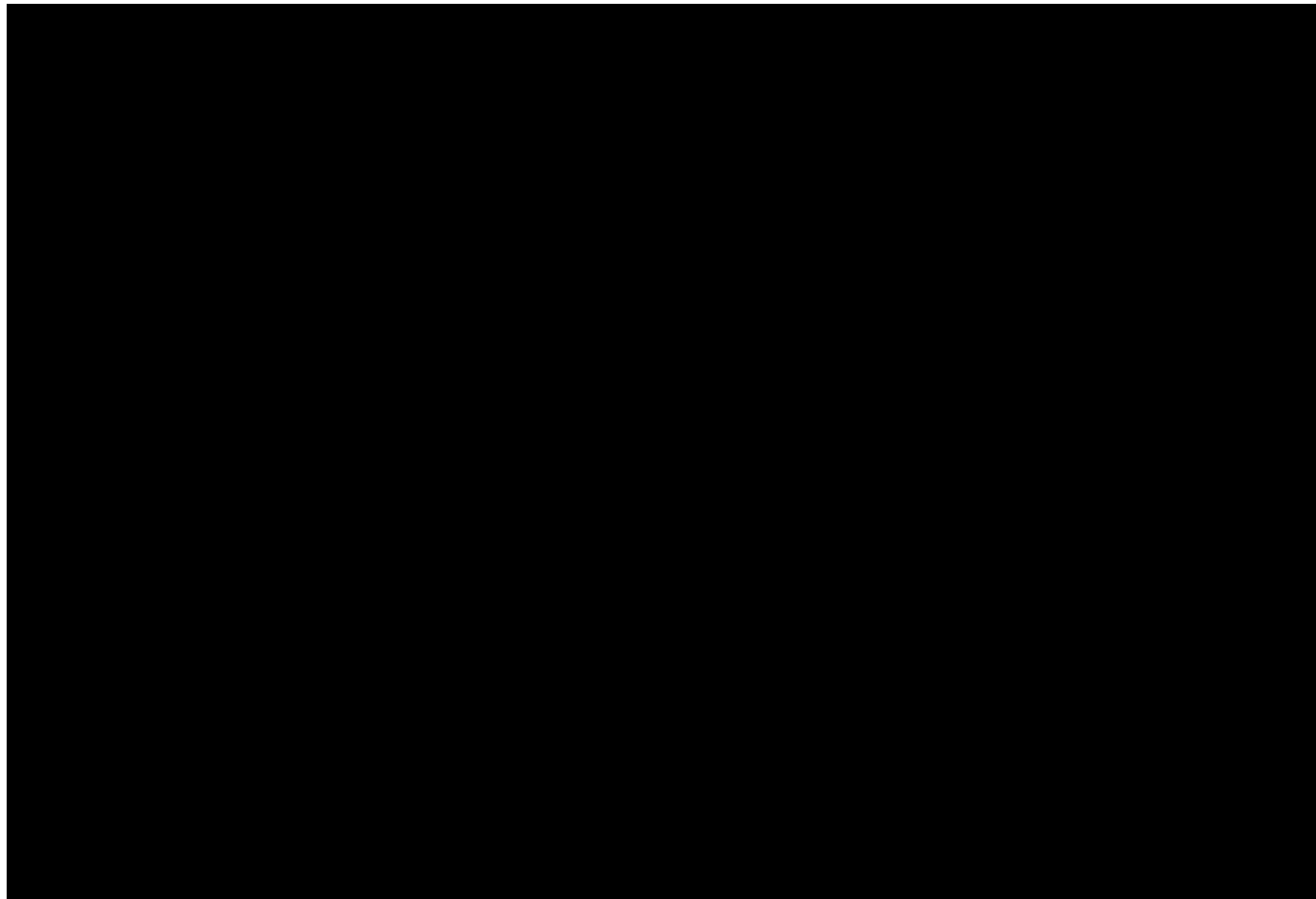
IMPLEMENTATION

- Can it easily attach to the wheel?
- Will it be compact and lightweight?



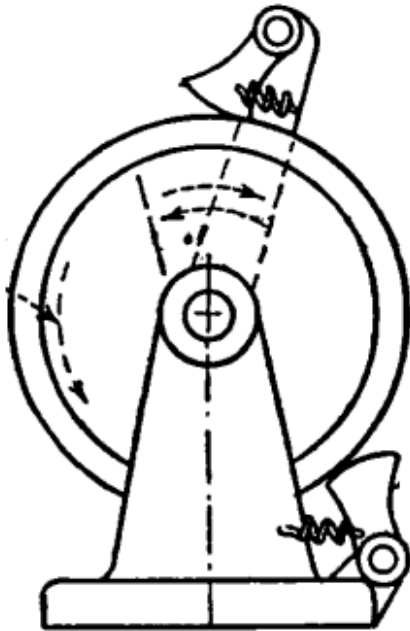
Easy to install	Time to install	< 60 sec
Compact design	Width of wheelchair	< 27"
Lightweight	Weight of final product	< 2 lbs

TESTING

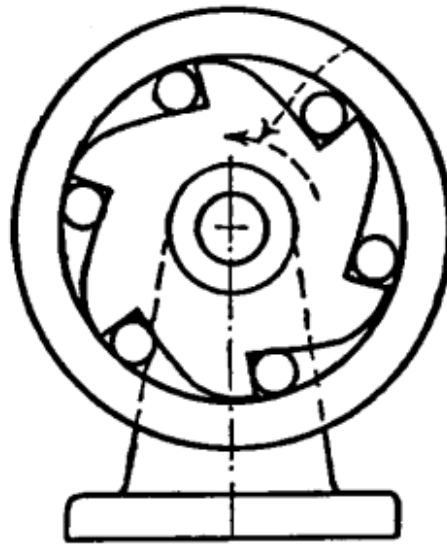


MOVING FORWARD

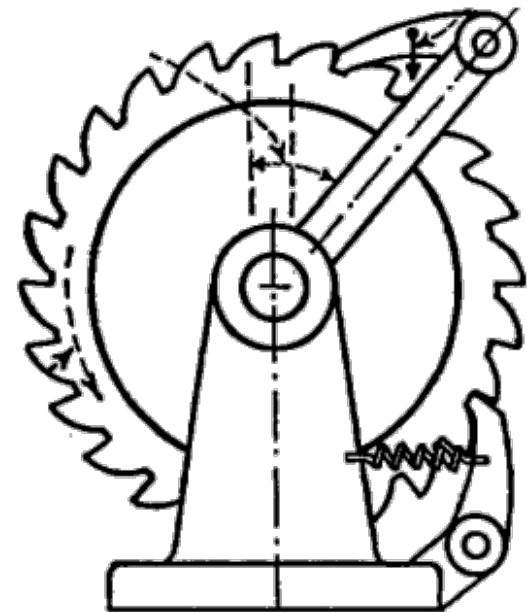
- Other design solutions must be explored



Friction clutch



Roller clutch



Improved ratchet

THANK YOU

Come see us in Pappalardo!

