

# MPOWRD

## Manual Patient Operated Wheelchair Rehabilitation Device

### Background, Vision, Impact:

Many patients recovering from a stroke, arthritis, cerebral palsy, or general deconditioning from long hospital stays suffer from loss of strength and the inability to independently move around. Thus, a Manual Patient Operated Wheelchair Rehabilitation Device helps patients rehabilitate and move independently in a wheelchair.

By choosing to create the device that is fitted to the wheelchair used by the Free Wheelchair Mission (FWM), MPOWRD can be used in many developing countries that do not have the privilege and opportunity to invest in expensive devices for rehabilitation. FWM has provided almost a million wheelchairs to more than 91 countries around the world.

### Goals & Innovation:

Create a wheelchair rehabilitation device that can be detached from the wheelchair and transported independently.

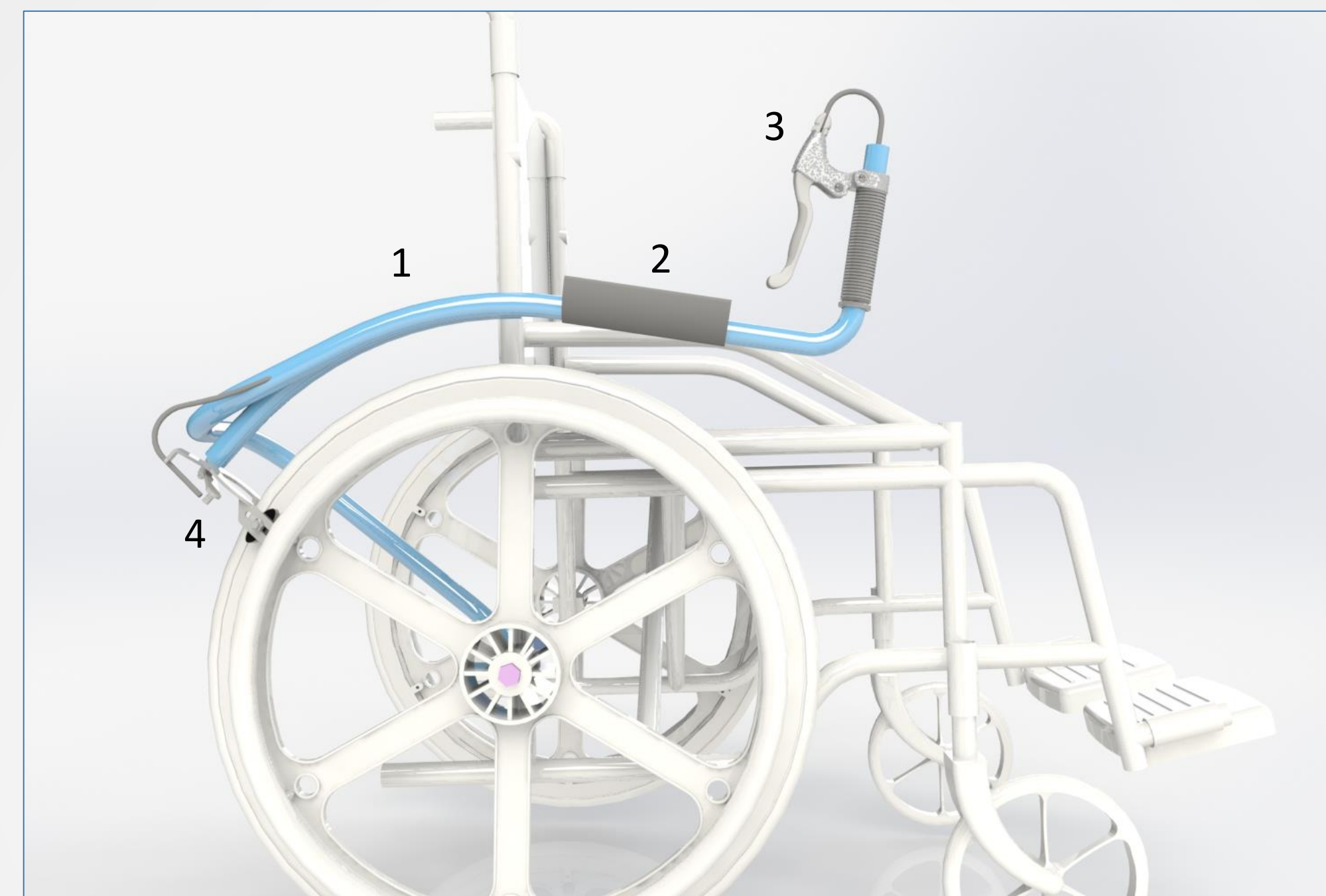
### Objectives:

- To minimize the tools needed for assembly
- To minimize the complexity through the amount of materials used.

Although there are many devices like this on the market, MPOWRD will be the first stand-alone device that can fit onto existing wheelchairs

### Computer-Aided Design Model

The CAD Model below displays different viewpoints of the design.



Key components to the design:

1. Lever
2. Arm Rest
3. Brake Clutch
4. Brake Pad

Please refer to the diagram above for the location of the components

### Timeline:

Fall Quarter: Create initial cardboard prototype and CAD design

Winter Quarter: Develop manufacturing plan and create test prototype

Spring Quarter: Testing and improve prototype

### Budget:

Budget: \$600

A more accurate cost will be presented next quarter as the manufacturing plan is solidified.



### Wheelchair:

The picture to the left is the wheelchair provided by FWM

**FREE  
WHEELCHAIR  
MISSION**



### Team:

Team Manager: Selina Eich, seich@uci.edu

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