

The Problem

For manual wheelchair users, inclines are a challenge. Each time users reposition their hand to turn the wheels forward, the wheelchair slips backwards. To prevent this, users must push harder, leading to strain and overuse injuries.

Climbing inclines is also a challenge for individuals pushing a wheelchair. For example, in places such as assisted living homes, staff members must help many wheelchair users daily. While moving up inclines, they must insure that the wheelchair moves forward smoothly and continuously. A trip or fall could be harmful for both the wheelchair pusher and user as the wheelchair rolls downhill.

Our Solution

Slope Support a technology developed at MIT, prevents rollback - making inclines easier to climb and alleviating overexertion of users' joints and muscles.



Slope Support

- Enables users to pause and rest mid-slope
- Decreases shoulder strain and overuse
- Provides a safety feature if wheelchair pusher trips or falls
- Allows movement in reverse direction during engagement
- Requires no power
- Easy to use shifter
- Includes shifter that can be placed anywhere
- Maintains wheelchair width

Usage

The Slope Support mechanism is engaged prior to climbing an incline. Users are able to override the stop by driving the wheels backward.



Disengaged



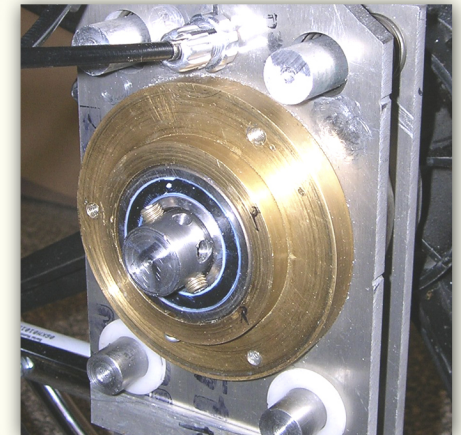
Engaged

How It Works

At the center of Slope Support is a sprague clutch bearing.



Designed to only allow forward movement, this bearing engages through our innovative frictional ring clutch.



The interconnected cable actuation allows one lever to control both wheels.

