

Making Stairs Accessible

Development of a stair-climber for wheelchairs

Stairs are a big part of everyone's everyday lives in today's society. While they do not present a problem for most people, for a wheelchair user, stairs can be a severe accessibility issue.

Stairs might seem like a trivial part of most people's everyday lives. However, for someone in a wheelchair, stairs can be an obstacle difficult to overcome even with the help of others.

In Sweden there are 130,000 wheelchair users that frequently face problems with places that are not wheelchair accessible - grocery stores, apartment buildings, restaurants and more lacks proper accessibility solutions. This greatly reduces the freedom of movement for people with disabilities and limits their everyday lives.

To tackle this problem, a stair-climber solution was developed. This stair-climber can be mounted on the person's own wheelchair and makes it possible for the wheelchair user to get up and down curbs and stairs in a simple way. The user is supposed to be able to use the product by themselves without the need for help, both outdoors and indoors. The stair-climber achieves this by utilizing a belt driven system that can be folded down when climbing to provide a comfortable, safe and stable climbing experience for the user. It is also supposed to provide help drive for the user to minimize physical strain on wrists and shoulders, to compensate for the added weight.

The stair-climber consists of two separate battery powered units mounted onto the wheel-mountings of the wheelchair, to simplify the handling of the product when getting the chair into a car or similar.

There are other stair-climbing solutions on the market, but they are often assisted, heavy, bulky, can only be used in one's own home and are often very expensive. These are areas that this product is trying to improve upon.

So far, tests have only been conducted on a small-scale prototype of the product. However, these tests have shown promising results where the functionality and concept seem to work as intended, which indicates that it is possible to make a small light weight stair-climber that the user can use by themselves. With an estimated price comparable with the cheaper of current stair-climbers on the market and with the added functionality of this product, the stair-climber could be developed into a full-blown product that could greatly improve the living standards for wheelchair users.

