Project

Industrial Design Associate Professor Sang-gyeun Ahn is co-principal investigator on a project that will develop a modular kit to modify wheelchairs for the safe use of public restrooms. He is working with UW Bothell Associate Professor Wong Jong Yoon and graduate/undergraduate student research assistants. The project was recently awarded a competitive Amazon Catalyst grant of $35,000 for the 2017–2018 academic year. A second year of funding is possible. They plan to have a working prototype by the end of spring quarter 2018.

More about the project from their funding application:

Problem

Approximately 3.3 million of the US population are wheelchair users. Unfortunately, as many as half of these individuals have difficulty accessing public toilet facilities, according to surveys. Much of the time, wheelchair users need to haul themselves awkwardly out of their chairs in order to move to the toilet, so accidents and injuries are disturbingly common. According to the FDA, 73% of cases of such accidents resulted from falls and tips. Several thousand injuries related to wheelchair-to-toilet transfer, and vice versa, are reported every year. Thus, many wheelchair users choose not to use public toilet facilities out of fear of embarrassment or injury. Others simply lack the upper body strength necessary to lift themselves out of their wheelchair and onto the toilet. These individuals should not have to face such formidable obstacles simply in order to make use of public facilities that are theoretically available to all.

Solution

This invention proposes a novel, smart multifunctional wheelchair that will result from the transformation of a normal ergonomic wheelchair to a roll-over-toilet design, able to be positioned over any public toilet. Thus, the users may remain in their own seat while using the facility. The design will focus primarily on how to make the module adaptable for a variety of wheelchair models; installation will take place after market. The wheelchair add-ons contain the following
two features: first, an inexpensive but reliable mechanical lift system will move the seat up or down to the appropriate height, depending on each individual toilet. It will be packaged in modular form. Additionally, the seat will have an open/close mechanism suitable for the temporary creation of an aperture in the seat for when the device is positioned over the toilet.

Links

- Amazon Catalyst UW Project Page
- Sang-gyeun Ahn faculty page
- Wong Jong Yoon faculty page
- Infographic about project

Division:
Design
People Involved:
Sang-gyeun Ahn
News Category:
- Announcements
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