Project Statement – Lift and Walker

A seven year old, Thalia, requires assistance with mobility on stairs, as well as around the house. She is diagnosed with Spina Bifida which has result in limited leg mobility. She relies mostly on the use of her upper body to perform everyday tasks and to move around in a wheelchair and makeshift walker.

We propose a chair lift system to transport her through her split-level home. The split-level staircase requires a design that encompasses a tight turn in a confined space. In addition, the user must be able to safely operate the system while traveling up and down the stairs. A winch based system is currently our main prototype as it satisfies the requirements as well as cost considerations. A foldable chair will be used to minimize intrusion for other family members.

For mobility around the home, a walker will be optimized to fit Thalia. Current offerings are adult size and require significant leg mobility to move and turn. We propose a walker that utilizes upper body strength while maintaining stability. A hand braking system will be implemented to ensure Thalia’s safety. Both devices created in this project will be specifically designed to fit Thalia. Accommodations will be made to ensure the devices created are adjustable allowing for continuous use as Thalia grows older.
Stair Lift system and Walker: Senior Design Project

Description

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September 4th 2012