

TITLE: Modified Patient Lift

GOAL: The goal of this project is to design a new lifting and transportation system that can be used at home by wheelchair users.



#### ABSTRACT:

The fundamental use of a patient lift is to transport a person without the ability to transport themselves safely and comfortably from items such as a bed to a wheelchair. This can be done with the use of one or more caregivers, who more often than not use more effort than what should be necessary for a procedure that is also uncomfortable for the patient. Our design team has identified several problematic areas with the current design, primarily the lack of leg room, the lack of head support, and the amount of physical exertion required of the caregivers. We used the standard design process to propose an array of alternative solutions after defining the problem and requirements, and a decision matrix was used to evaluate the alternatives against a variety of factors, including safety, physical properties, and cost. The final design chosen and produced includes a cylindrical joint attached to the base of the lift and a dropdown leg that also attaches to the base of the lift to allow for the rotation of the mast. After fabrication, our team was able to test our new design and found that it safely supported a patient of approximately 200 lbs and had a transfer time comparable to the original patient lift. Currently, there exists no analogous device on the market, especially in the area of portability. It is our hope that our innovation will serve as a catalyst for further developments of this design and other improvements on the original design of the patient lift.