Alternative Design #2

Hand Control Riding Lawn Mower

Team #4
Randy Corriveau
Eric Nastuk
Ian Wallis

Client Contact:
Shane and Suzanne Davis
6 Sunrise Drive
Columbia, CT
(954) 850-5448 (Mobile)
davisrpt@aol.com
This design calls for a system of levers and pulleys that will control all of the functions mechanically, giving the needed force to control the various functions of the lawn mower. The power needed to control the mower functions will be provided by the operator. The mower controls will be modified into accessible controls near the operator’s left hand. Switching gears and adjusting the cutter height might be difficult for Shane, so for this design, a series of mechanical levers will be installed to help with accessibility and ease. The levers will be designed in such a way that they are all within easy reach from the driver’s seat, and not in the way of the steering.

2.1 Seat

First, modifications will have to be made for safety and will promote easy use for the client. The seat will also be fitted with a standard seat belt to ensure the client’s safety. Shane’s seat will be a typical bucket seat, with armrests on either side which lock into place. The will have a seatbelt installed which will prevent the rider from becoming detached from the vehicle. The seat will be weatherproofed as well as covered in a strong yet flexible material for comfort and function.

![Figure 1: Seat design](image)

Another modification made to make the mower easier to use is the addition of a handle and step located next to the seat. On the base of the mower a small ledge will allow the client to support one of his legs while he transfers from his wheelchair to the mower. The left side of the mower will act as the loading and unloading area of the mower. Along with the transferring step a handle grip will assist the client into getting into the mower chair.

2.2 Steering

The steering will be modified to make the action of turning the wheel easier, as sometimes this can be difficult with older and heavier machines which operate on a direct rack and pinion setup. A hand crank will be installed to help turn the wheel with a higher gear ratio. The hand crank will be located close to the operator’s lap, and will extend to the middle.

2.3 Mower Controls

This design will take each of the mower controls and incorporate them in a way such that the client is able to use them. Modified levers and pulleys attached to the already existent main controls, cutting blade, gears, emergency power switch, will allow the client to control these mower functions. Simply by pulling up or down on the newly modified lever, which extends into the reachable domain of the user, the operator will be able engage and disengage each mower function.
Figure 2. Hand controlled lever with extension