Project Specifications

Hand Control Riding Lawn Mower

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**Operational Specifications**

The mower will have to accommodate the needs of the client. Due to Shane’s cerebral palsy, the mower must driven with a joystick similar to the one used by Shane in his wheelchair. The mower’s driver seat must be structurally modified to give more abdominal and lower back support during long periods of use. Armrests will need to support Shane when he is operating the mower to ensure safe operation. A method for transferring from the wheelchair to the mower and back safely will need to be implemented. A safety harness will need to be attached to the seat to prevent Shane from being dismounted from the mower. The team will need to format a design for the cut grass clippings to be disposed of with ease by the operator. In the event that the mower would need to be turned off right away an emergency shutdown switch would need to be implemented at a reachable distance for Shane.

**Technical Specifications**

*Environmental:*
  - Operating Temperature: 45-120°F Fahrenheit
  - Operating Environment: Seasonal Connecticut outdoors, moisture/humidity, heat
  - Operating Area: 2 Acres

*Mechanical:*
  - Seat Size Width: 16.5”
  - Ground to Chair Height: 20”
  - Motors to control steering
  - Actuators to control levers (throttle, break, gears)

*Electrical:*
  - Joystick operated
  - Actuators to operate levers and throttle
  - Microcontroller to process input from joystick to actuators

*Safety:*
  - For operator safety, the machine must be constructed with a rugged and sturdy design to withstand long term use
  - A seatbelt will be needed to properly secure Shane when he is mowing the lawn.
  - Emergency shut off switch/lanyard to ensure client safety