**Introduction:**

This design is for a multi-purpose card designed towards helping the disabled. Many people suffer from different disabilities affect their ability to carry/lift heavy objects, such as schoolbooks, groceries, or heavy items. The cart will function as a self-propelled baggage transporter. The design will utilize sensors to travel to a destination. This project will take several years to complete in full.

**Requirements:**

Previously Completed Goals:

* Cart assembly
* Motor controls for wheels
* Sensors to avoid obstacles
* Include basket for carrying items
* Include joystick for manual control of cart
* Cart fits through normal-sized doors
* Ability to carry at least 35 pounds

Primary Goals:

* The ability to follow a person
  + Maintain a distance approximately 1 meter from the person
  + Avoid obstacles
  + Fluid movement
  + Ability to remotely start and stop the cart
* Measure distance from .1 to 3 meters with a .1 meter resolution
* Measure speed from -2 rev/s to 2 rev/s with a .02 rev resolution
* Sense direction of a person -45 degrees to 45 degrees from the cart at 10 degree increments
* Include LED lights for safety and visibility
* Wire safety
  + Fuses
  + Cable management
* Battery
  + Quick connect charger
  + DC rechargeable

Stretch Goals:

* Write a phone application
  + Displays cart information such as battery charge remaining
  + Control cart remotely
    - Start/stop feature
    - D-pad feature

**Summary:**

The multi-purpose cart will include many features that will benefit the user. The cart will allow the user to move unburdened throughout his daily activities. The cart will be designed to utilize location and distance sensors to navigate itself to the user’s desired destination.