

Introduction to Engineering ENGIN-110
Professor Garen Avanessian
Diablo Valley College

Technical Report
Remote Controlled Shopping Cart

By Waheeb Thabit
Submitted: December 13, 2016

Abstract

This project is a model of a remote controlled shopping cart. It is battery operated and is meant so shoppers will not have to push carts themselves especially when buying a lot of items

Table of Contents

1. Introduction
2. The Shopping Cart
 - a. Remote Controlled Car
 - b. Spacers
 - c. Building the Basket
 - d. Assembly
3. Conclusion

Figures

F-2a

- Remote Control Car

F-2b

- Spacers

F-2c

- Basket

F-2d

- Remote Controlled Shopping Cart

1. Introduction

While shopping, many people face the problem of requiring a lot of strength to push heavy carts filled with items they are buying. This can cause congestion in stores especially during holiday seasons when consumers pile their carts with items.

My solution for this problem was to make a remote controlled shopping cart that can reduce the manual labor and also remove congestion from stores. It is easy to maneuver and has a basket with dimensions

2. The Shopping Cart

a. Remote Controlled Car

The first step in starting this project was to buy the base of the cart. I proceeded to buy a remote controlled car for \$20.99. The car weighed 1.85 pounds and was 6.5

inches wide, 7.25 inches tall, and 15 inches long. I then took of the back of the car to create a base for my basket



F-2a (Remote Controlled Car)

b. Spacers

A problem I faced when thinking about the placement of the basket. When opening up the car, I discovered that the wires were gathered near the center of the car which made it uneven. My conclusion was to make a raised platform to place the basket on. This I solved by gluing six nylon spacers around $\frac{3}{4}$ in. tall to the car.

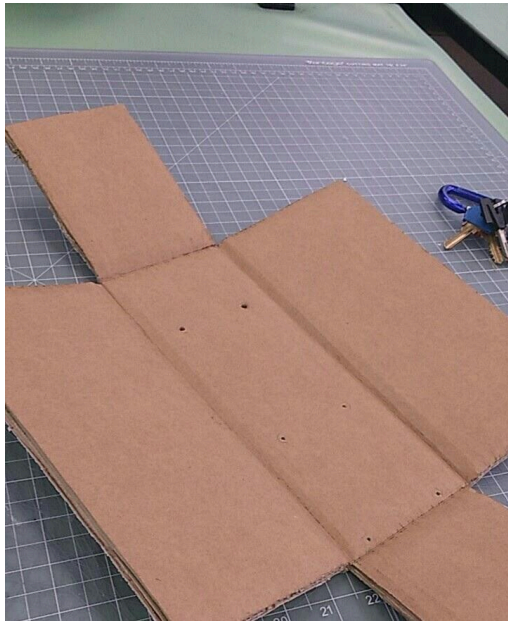


F-2b (Spacers)

c. Building the Basket

The key piece of the shopping cart is the basket. The basket I made was out of cardboard from a box holding a panasonic TV. The good thing about this box was that the inside was soft while the outer layer was hard which would help me later on in the project. To draw the basket, first I had to draw a perfect rectangle and then was able to continue with drawing a 9.5 in. by 3.625 in. by 4.5 in. After that, I was then able to cut

it out using a box cutter and poke holes in with a screwdriver that lined up with the spacers.



F-2c (Basket)

d. Assembly

One of the final steps of the project was to screw the basket to the base of the cart. I automatically found a problem as the screws were too short to fit through the cardboard so I pounded the cardboard to get it as this as possible. Since the outer layer of cardboard was hard, the screw didn't fall throw even as the softer layer was ruined. Once finished with this, the last step was to put my basket together which I did with packaging tape. I then made a small handle as a backup in case battery ran out or the remote stopped working.



F-2d (Remote Controlled Shopping Cart)

3. Conclusion

This product can truly revolutionize the maneuverability and congestion in shopping centers. Because it is hands free, it is easier to control while filled with items and will speed up the shopping process. As a person who always buys heavy items whether they be a cart full of food items or lumber, this would be a great help in my everyday life and it should be introduced to shopping centers nationwide and even worldwide.