

Individual Analytical Analysis

By:

Jarrah Albathali

Regulator

Assistive Device for the Art Studio Team (27)

Capstone Instructor:

Dr. David Trevas

*Submitted towards partial fulfillment of the requirements for
Mechanical Engineering Design I
November 18, 2016*



Department of Mechanical Engineering
Northern Arizona University
Flagstaff, AZ 86011

Introduction

Northern Arizona University giving help for all the disable people that who like to Draw and paint. Assistive device that we trying to build it's Easel Art that will helps disable people to have fun in drawing in easy way. So in this paper it's discusses the budge and cost to build it and how it will design the dives.

To crate device we have two choose to make this Assistive Device that can be helpful to disable people to draw and paint. First, rotation Easel Art it can rotate 360 Degree so he can draw any place in the Easel and disable people have the ability to draw upside down without any problem. Second, car windows Regulator that will attach to wood stands from the switch you can move it up or down when he want to draw in top or down. We will build the design that can match our budget and customer requirements it should not pass 200 dollars and can be fix.

Background

The purpose from this project is making disable people life easy and happy. So from what we study in university from our knowledge we will build it to match the price we have and helpful for disable people.

Rotation Easel

Its normal stand that made from the wood there is Bering between the Easel Art and Stand that made from wood. Bering will make the Easel Art move 360 Degree which he can draw in any point on the Easel Art. Engineering requirements:

- No sharp parts = all wood will be cover with piece of leather.
- Movable = it will have rolling tire to move it easy
- Light material < (30Ib)
- Flexible*
- Simple design *
- Force 8 Nm
- Cleanable*
- Easy to handle *
- Time
- Low cost < 200 \$

Regulator Easel

Install car windows regulator in stand and hock Easel Art on it. Motor for regulator will connect to the battery and switch that will help the disable people to move it up or down without any problems to rich high point and lower point in Easel Art. Engineering requirements:

- No sharp parts = it will have rolling tire to move it easy
- Movable = it will have rolling tire to move it easy
- Light material < (50Ib)
- Flexible*
- Simple design *
- Windows Motor = that can lift 5 Ib up and down
- Cleanable*
- Easy to handle *
- Time = 3 Second to take up and down
- Low cost < 500 \$

Easel Art Type	Cost
Rotational Easel	\$100 - \$200
Regulator Easel	\$300 - \$500

Table 1: Design name and cost

Material and Cost

As I mentioned before we had two design for our project and our client need something that easy to fix and cheap because they don't have support and enough money to replace expensive parts. So we want to be sure that all the material we will be use easy to find and cheap price and can handle the design that we will make.

Items	Cost Each	Location
	\$2 (5)	Home Depot
	\$15 (2)	Home Depot
	\$5 (2)	Home Depot
	\$14 (2)	Home Depot
Leather	\$3 Ft (6 Ft)	
Total	\$98	

Table 2: Material for our project

Conclusion

In the end all material we will use to build our project not that expensive and easy to find. Disable people can you rotations Easel Art to draw and paint by moving it to any direction they want. Its safe because all wood parts will be cover by leather his/her hand will not hurts by small pieces of wood. Everything will be Manuel it will stay longer that mechanic machine.