Culmination Project Proposal

Learning CNC Machinery

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Abstract

The finished product of my project would be a piece of scenery made with Pexiglass, wood, metal, and LED’s. In the process of making this piece of scenery I would improve my drafting skills, learn the basics of 3D drafting in AutoCAD, then how to use a CAM software to turn my drawing into G-code; G-Code is the generic name for a control language for CNC machines. It is a way for you to tell the machine to move to various points at a desired speed, control the spindle speed, turn on and off various coolants, and all sorts of other things. It is fairly standard, and is a useful tool. CNC Machining is a process used in the manufacturing sector that involves the use of computers to control machine tools. Tools that can be controlled in this manner include lathes, mills, routers and grinders. The CNC in CNC Machining stands for Computer Numerical Control.

Introduction

For my culmination project I will build an LED lamp with Plexiglass, wood, and metal. For all cutting I will use CNC (Computer Numerical Control) machinery. In order to use a CNC machine I first have to come up with a design, then take that idea, draft it in AutoCAD, and then that drawing will be taken to a CAM software to convert it into G-code for an CNC machine to read.

PAPER WORK:Culmination Calendar.pdf

PAPER WORK:CULMINATION BUDGET.pdf

|  |  |
| --- | --- |
| Inventory | |
| Item | Qty |
| 3/4 in. x 2 ft. x 4 ft. PureBond Walnut Plywood | 1 |
| Clear Acrylic Plexiglass sheet 1/8" x 24" x 48" | 1 |
| 16ga Stainless Steel Sheet Mirror Finish 6" x 12" | 2 |
| 12 in. - RGB Color Changing - LED 24 Volt | 8 |
| 48 Watt Power Supply for 24 Volt LED Tape Light | 1 |
| Wiring Accessories | 1 |
| Controller and RF Remote | 1 |
|  |  |

Data Collection

-http://www.thomasnet.com/about/cnc-machining-45330503.html

-http://www.shopbottools.com/mproducts/whatscnc.htm

# -CNC Tutorial 1 of 3: Introduction to Machining (19 minutes) (https://www.youtube.com/watch?v=yW2YWhIv6V0)

# -CNC Tutorial 2 of 3: Using the CNC Mill (34 minutes) (https://www.youtube.com/watch?v=5xNA18xcna0)

# -CNC Tutorial 3 of 3: Making the Nameplate (https://www.youtube.com/watch?v=6WXnWvkzcis)

Bibliography

-"Primer: What Is GCODE." Weblog post. *Replicat*. N.p., n.d. Web. 06 Sept. 2015. <http://replicat.org/primer>

- "About CNC Machining." *About CNC Machining*. N.p., n.d. Web. 06 Sept. 2015. <http://www.thomasnet.com/about/cnc-machining-45330503.html>.