

LASER CUTTING

ASSIGNMENT 10

(DSL-732)

Introduction

Laser cutting is a technology that uses a laser to cut materials, and is typically used for industrial manufacturing applications, but is also starting to be used by schools, small businesses, and hobbyists. Laser cutting works by directing the output of a high-power laser most commonly through optics.

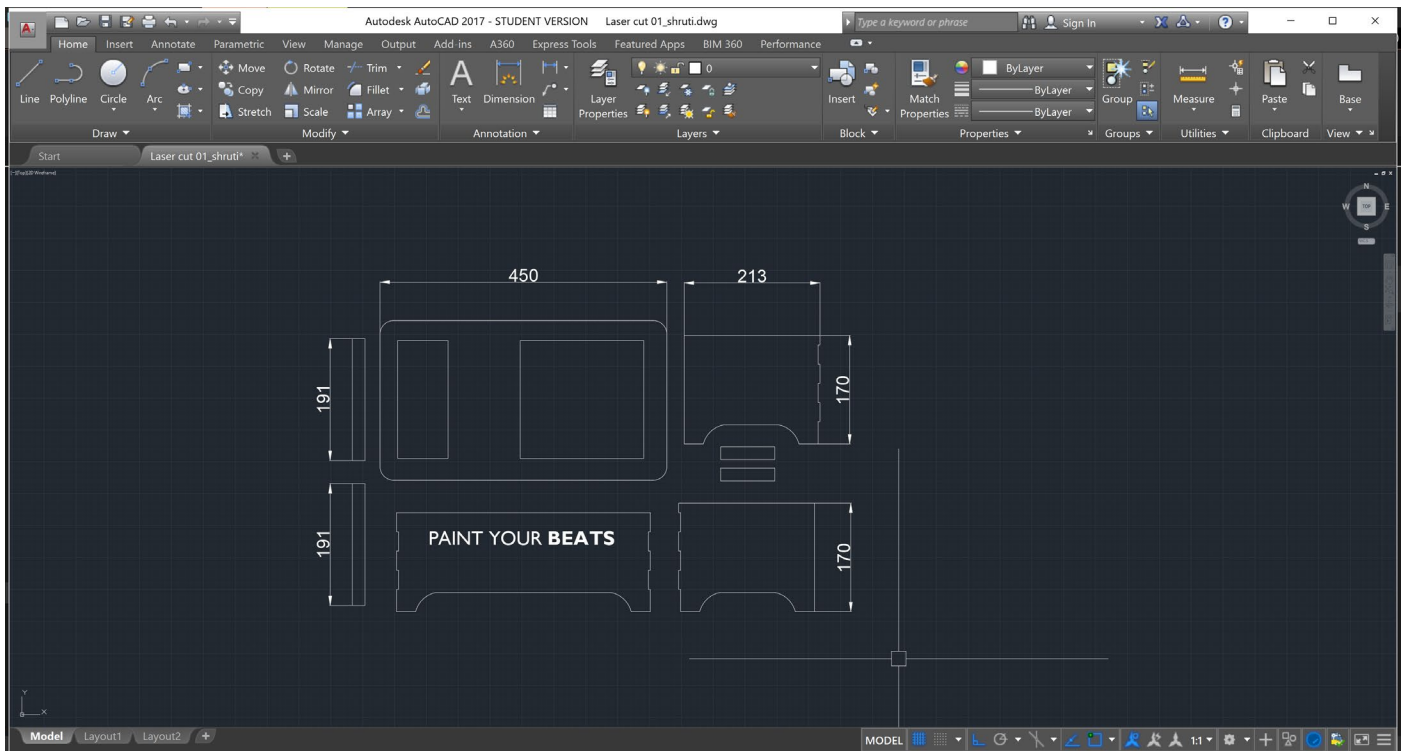
This assignment focussed on laser cutting using the Epilog laser Fusion m2 laser cutter. how to cut and also how to engrave on an acrylic ,mdf or a cardboard sheet.



Process

Step 1 : making CAD drawing

Creating a drawing in Autodesk AUTOCAD for the prototype to be assembled and created. The units and dimensions are kept in consideration while creating the .dwg file .



Step 2 : inputting the vector into corel draw

Saving the .dwg file as .dxf file for being compatible in Coreldraw. This file is then imported into Corel draw and the proportions are set to achieve a 1:1 scale.

Step 3 : Setting up the printer.

Along with the printer the motor also has to be turned on which helps to avoid flames that generates during the printing process. After turning on the printer, do the 'Jog' setting to move the print head to required position. Then 'Focus' has to be adjusted with the joystick in the control panel to adjust the height between the printhead and the material to be cut.

Step 4 : Cutting

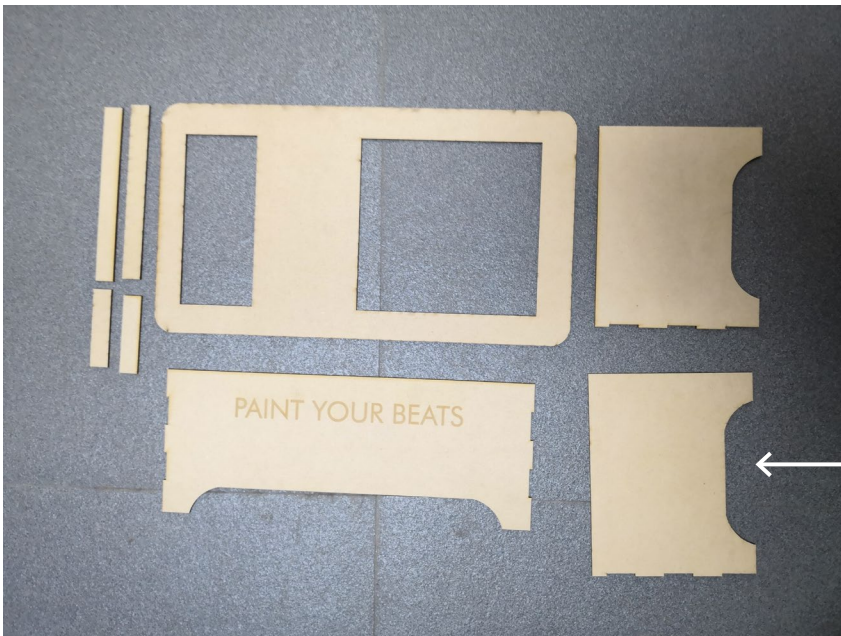
Steps to be followed :

1. Open Corel Draw, and set the page reference point as top left corner
2. Import the file which is to be cut.
3. The part which is to be cut is to be made as 'Hairline' (which is vector graphics) and the remaining part will be considered as raster graphics by the printer. So here the outline is made as 'Hairline' in line settings.
4. Give print command.
5. Verify 'Both combined(vector and raster)' option is checked.
6. Adjust the speed and power settings according to the material selected based on optimization. The speed setting used for 6 mm thick MDF here is '8' and power setting used is '50'.
7. Give the print job.
8. On printer control panel the job will be listed. Click on 'Go' to continue with printing.

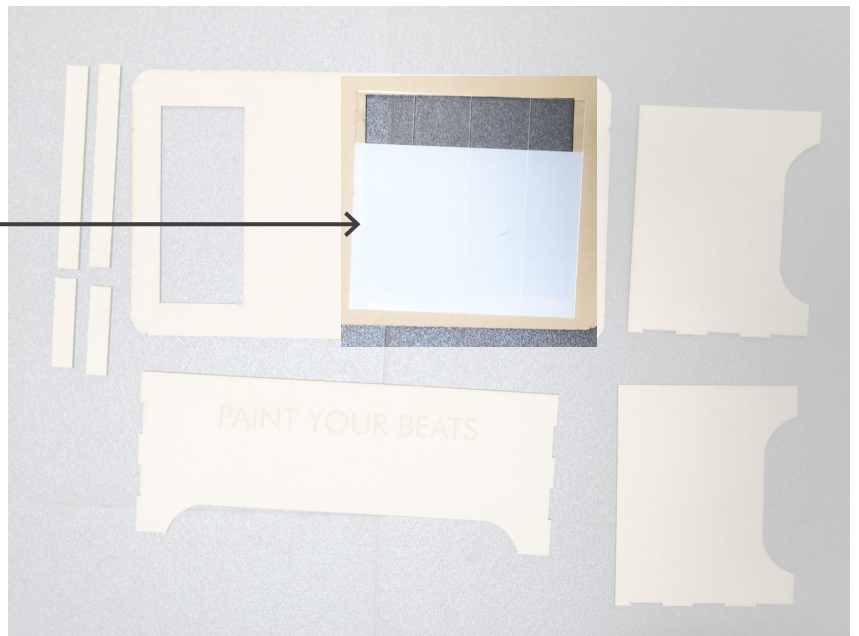
video links :

<https://youtu.be/8EZiEBoD0to>
<https://youtu.be/3Z9K5LPgup0>





different blocks after laser cut



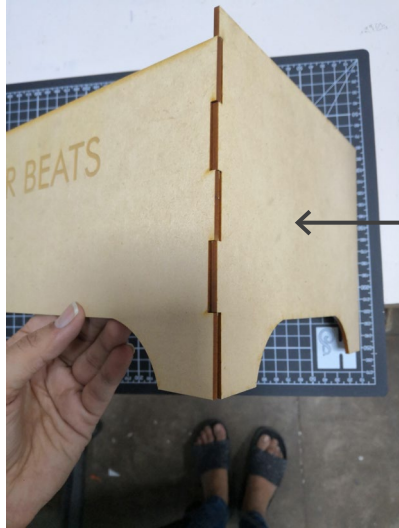
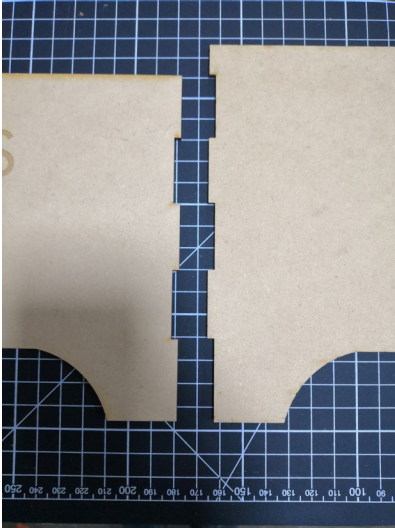
laser cut acrylic sheet



pressfit blocks

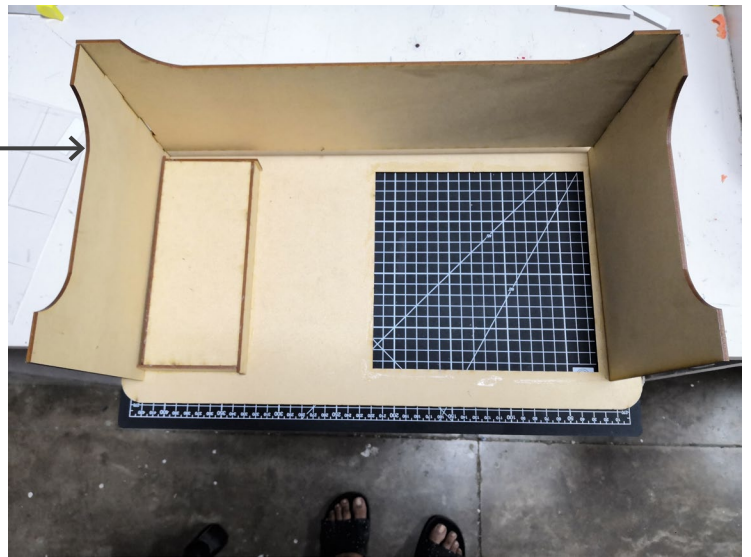
Assembly

The final assembly after several press fits looks like this.



← pressfit allowing the surfaces to join adjacently

laser cut acrylic sheet →



← the complete arrangement

THANKYOU