

CNC RACE PROJECT

Progress update

#2

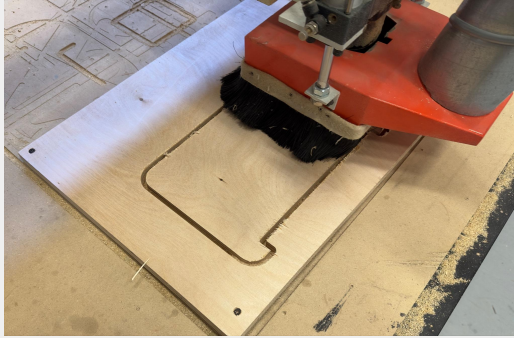
-Tristan Hassarath

FIRST AND FOREMOST, I FINISHED THE RACE SEAT



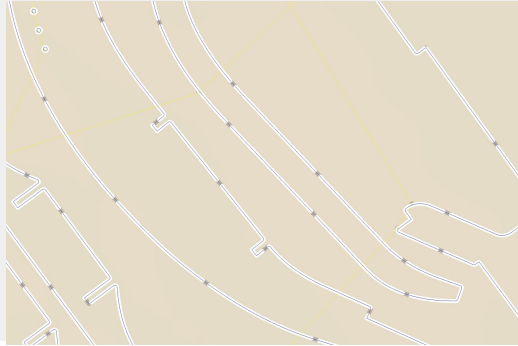
CUTTING TEST PLY

Before I went and ruined my whole 4'x8' sheet I wanted to test it on a smaller scale
- I used a small piece of ply and started to make contours for a small piece of the simulator that had use for both bits.



This test turned out to be very crucial because at the end of its final cut, nothing was holding it down, so when it was getting ready to enter to cut the hole inside, it actually threw the block across the shop. *A drill bit spinning 5000 rpm*

This is where Professor McCullough recommended I insert tabs so the ply stays in place.

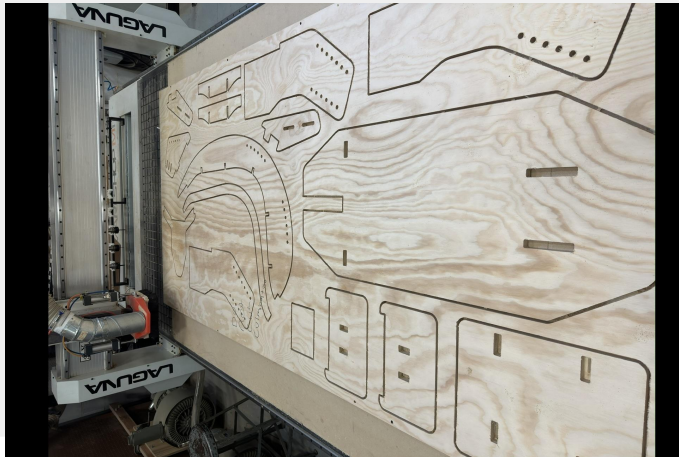


¼ CONTOUR ON FIRST SHEET

-After simulating the First sheet on Fusion 360 and ensuring all the tabs were in the correct spots. We decided to pull the green light and cut the first sheet.



-First sheet took around 3 hours since it had the most parts to the seat, and it went smoothly. All part cut all the way through and accurately.



We kept the dust collector up because it was my first time running this machine, I wanted to be able to see the bit and cuts



SECOND SHEET

The second sheet first contours went well, which was the $\frac{1}{4}$ bit, until we started hitting the dog bones.



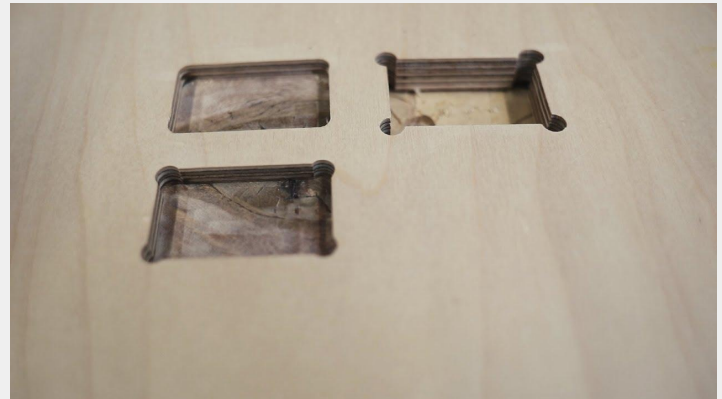
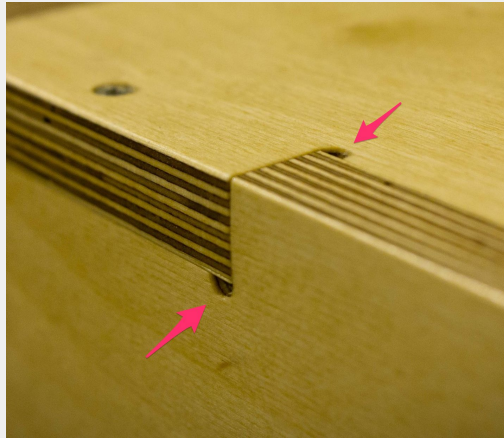
The machine was used for another student project and seems the machine lost its calibration and home point by a few millimeters.

The dog bones ended up being off by 1 or 2 millimeters, which was not that bad, or not bad enough to scrap the sheet, I used a jig saw and just cut the rest out

Dog Bones



The purpose of dog bones in Wood CNC is to enable the creation of precise, tight-fitting joints without the need for manual finishing or adjustment of each corner.



PART 2

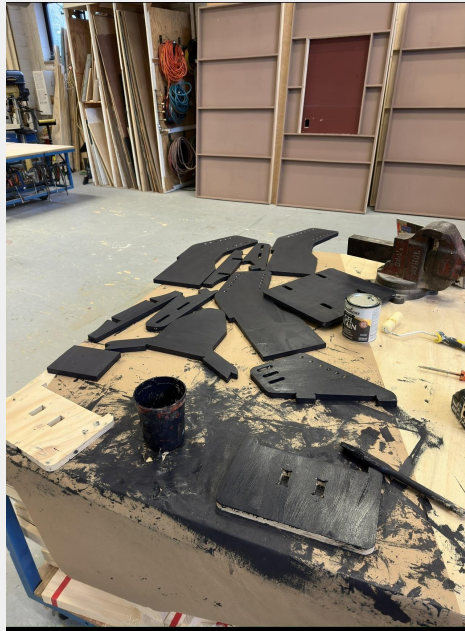


STAIN AND ASSEMBLY

STAINING THE PIECES



I decided to stain all the pieces, it's going to go through a lot of wear and tear so I wanted it to be a dark color and also seal the wood.



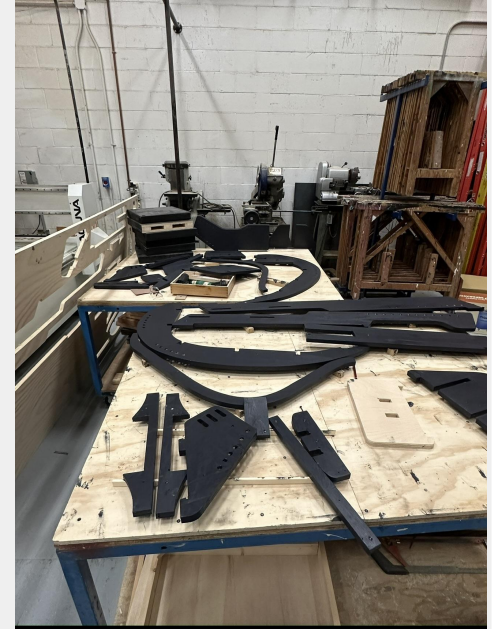
Found a gel stain that sealed and stained the wood in one and went with that. Picked a Dark blue but ended up looking black. But since it came out was to dark I was going to offset it using the seat skin



ASSEMBLY



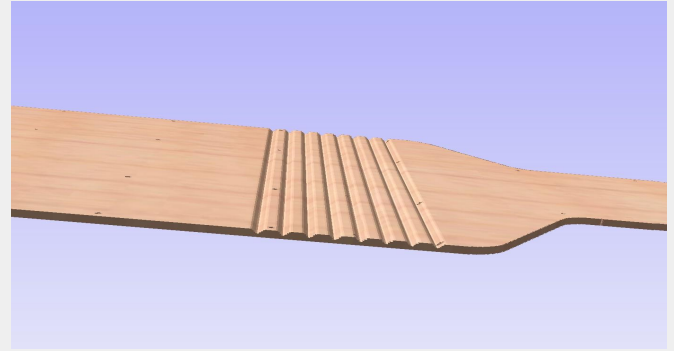
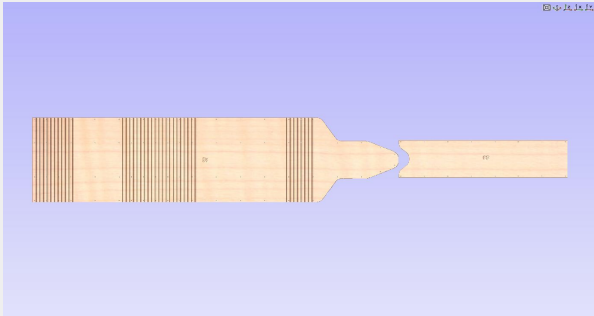
Assembly probably took around 30 minutes. Our shop or cage had most of the hardware to put together the base which was simple $\frac{3}{4}$ " screws. The hardware I had to buy personally were the m12 rods and nuts to position where I want my pedals and steering wheel.



Cutting seat skin



After the base was complete the last thing to cut and assemble is the seat skin. We saved this for last because it was the most technical. This ply was a ¼” thick and needed to bend in the form of the seat. Also we had to make little slits into this thin ply without penetrating it. Also suppose to bend it and screw it down with it snapping or cracking.



Cutting seat skin



The first cut we made was the 1/4 “ contours which was basically the outline of the ply.

It went through that fine, but when we started getting the V bit to make the slits in the wood, half way through, it started penetrating the wood and we were forced to stop.

Upon closer examination we noted that I was using longer screw to keep the ply to the base and what happened is it actually lifted the whole base completely throwing off the machine height.

Cutting seat skin



Here you will see it start cutting the line, then we stop it,, if you pay close attention you can see the ply sticking up because it went through

Cutting skin



We still had room to do it a second time, so I used the correct screws and made sure it was completely flat everywhere. It ended up doing the contours perfectly, even the V-Bit

Laying skin down



Laying the actual skin down was also a challenge. I had to lift and transfer this thin and long piece of wood without snapping it.

One thing I did to help we was soak my wood so it wouldn't be so brittle and snap.

Took some hot water and had it soak for 2 hours and it bent it on my seat without a problem.

Stain the seat skin



Now that the seat was on, I decided to stain it with a lighter color. We had this brown tinted color in the shop and it was clear. I already like grain of the wood on the seat and wanted to keep it. So i simply added a little tint and seal to give it a little more pop

The finished seat



I had put the finished hardware which is the M12 rods and nuts to hold everything in place and now I am ready to attach my base and film my race.

Next steps



Film race

Figure out what shots I want to show and the mood I want to set with the race



Thank you