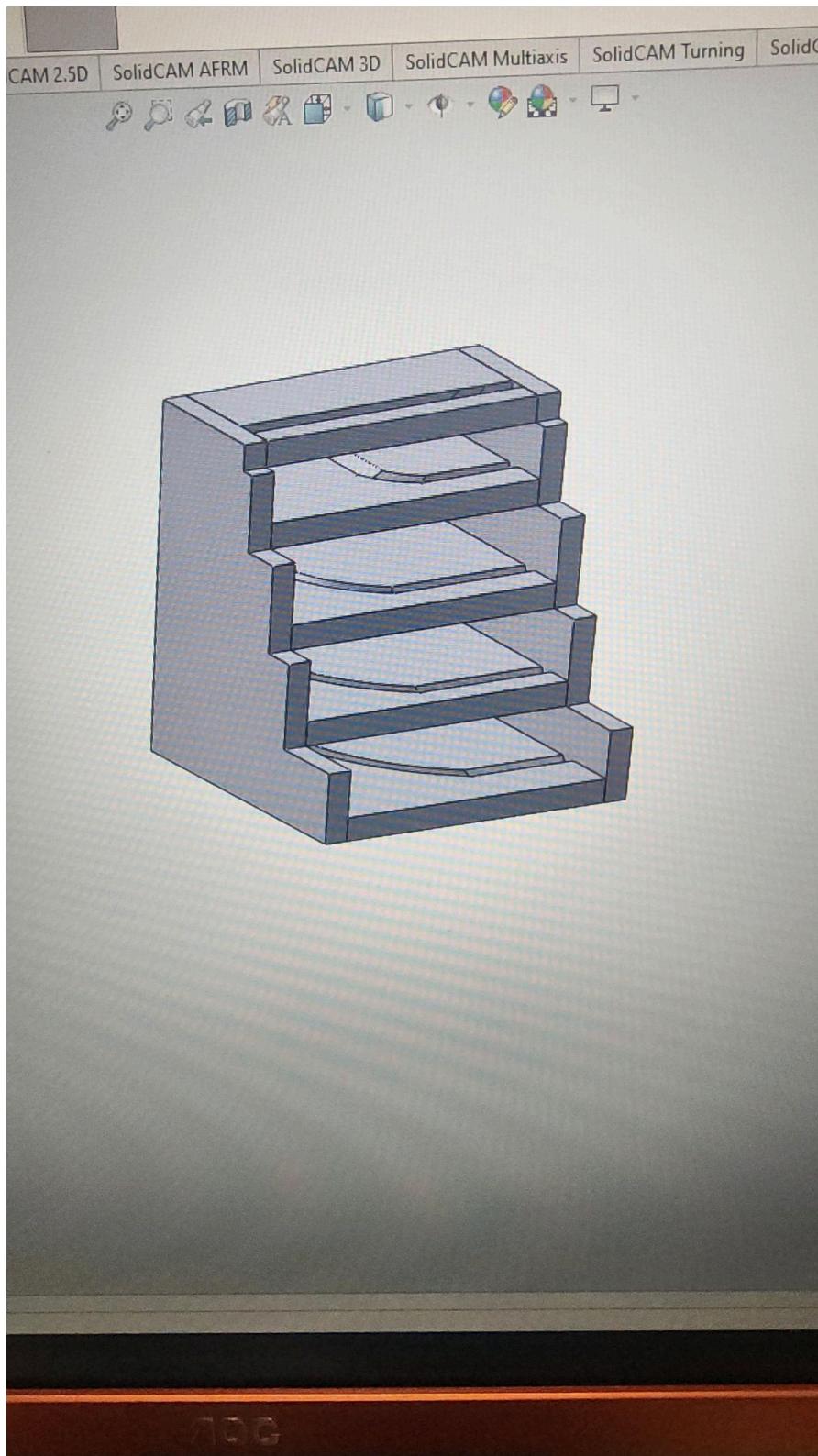


Mantis Table Picture Diary, Blake Reed 2230016

Following my design from assignment 2 I intended to start with the creation of the complex leg design.

I originally designed forms in order to bend and layer veneer into the intended shapes.



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I then cut out each of the individual pieces on the waterjet.

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As these pieces were complex and not simple 2D shapes, I cut out the larger side of the piece on the waterjet, I then printed out, cut out then glued the smaller side shape to the other side of each piece.



Following this I then used carving and sanding tools to join the edges of these two shapes to create the desired 3D shape.



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I then joined the pieces using screws and glue, as per the soldiworks design.



I then used 0.5mm aluminium sheet to act as the faces of the mould, to create a smooth transition from every individual piece of the mould, this was then covered in foam using double sided tape to allow for deviation on the overall shape, due to human error.

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I then obtained many sheets of veneer to layer and glue.

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These sheets were cut out to minimise material waste.



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These pieces were then glued together and sandwiched between each mould. The initial results were rough but showed the overall shape.



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I then printed out the intended shape of each leg and glued it to them. This template was then used to cut out each leg.



Unfortunately I did not order enough veneer, despite my calculations, this was a shame as I did not have enough time to wait for the veneer to be delivered. This would mean the table would be half the intended size, additionally the results of each leg varied greatly. If I had more time I may have been able to create multiple legs and some may have been the same.

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During this time I also worked on the table top. The top was designed to recess a piece of aluminium, which would hold down a piece of leather. Due to this pocketed design the CNC router was needed. However the initial results were quite rough.



The pockey was intended to be flush against the aforementioned aluminium, however due to the roughness of the cut alot of sanding was needed to smooth it out, which resulted in quite a drastic change in shape.

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If done again I would leave more space for the CNC router to cut, then use a hand router to trim the excess, however I did not have the time to restart the piece.



Following some deliberation I decided to redesign the legs, following the mantis inspiration. Using planks of Radiata Pine I designed then cut out 2D shapes using a bandsaw.

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I then used double sided tape to temporarily hold the two bottom, the top legs together whilst I used a belt sander to ensure they had the same shape, in this process the two smaller legs featured on the bottom legs were removed due to difficulties on obtaining the correct shape and their overall weakness.

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After each shape was defined a round-over bit in a router was used to fillet each edge of the legs. These legs were then joined together with a joined aluminikum and pine middle shelf using screws and adhesive, as per the original design.

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The leather on the top was held down using the aforementioned alimiunim and screws, due to the chnage in shape resuklting from excessive sanding the dge on the alimumium and leather was visible, however it was too late to fix at this point.



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The finished product was quite strong and exhibited a unique 3D design with multiple elements, I wish I had more time to further finish each surfaces and refine the shapes, however I am happy with the overall result given the limitations.



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