



## Delney M Ghost



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## Summary

Ghost is a 13 by 6cm frame paper clip, with a mouth and two eyes. Michal Quinney and Hugo Delfin developed it.

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The Ghost is a class project developed by Michael Quinney and Hugo Delfin, it is a replica of a model by Andrew Tessier, our teacher, with our initials on it.

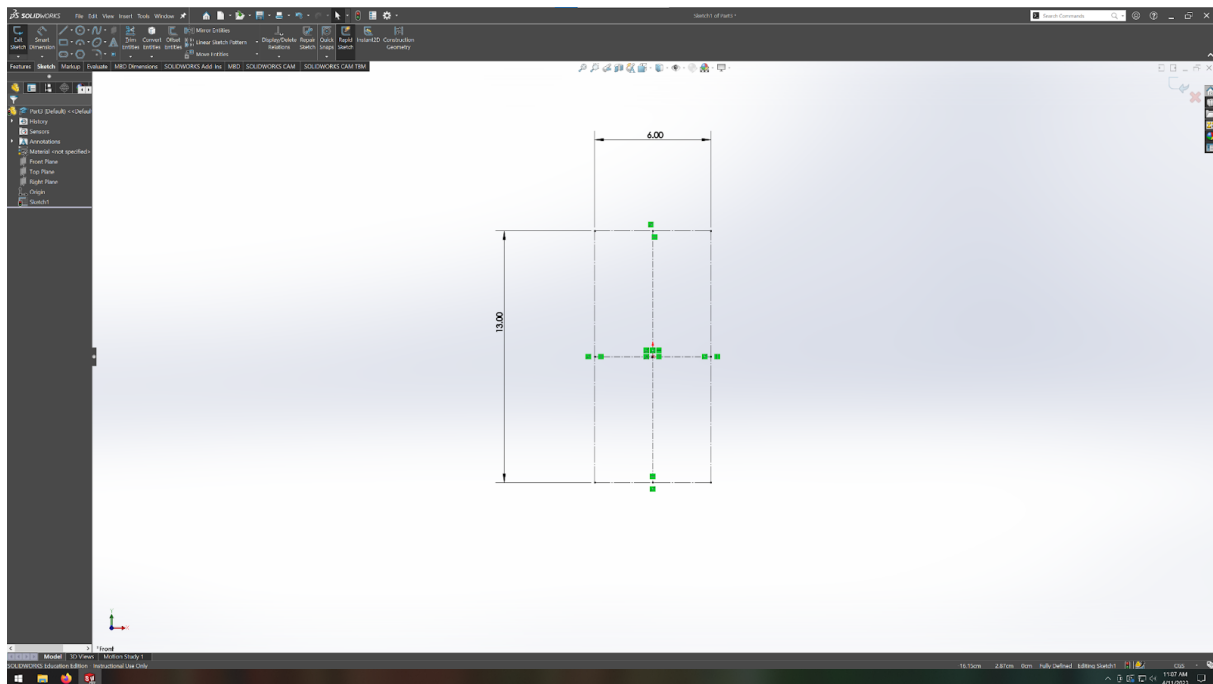
Link to Hugo Delfins model:

<https://www.printables.com/model/462587-intro-to-engineering-project-1-ghost-model>

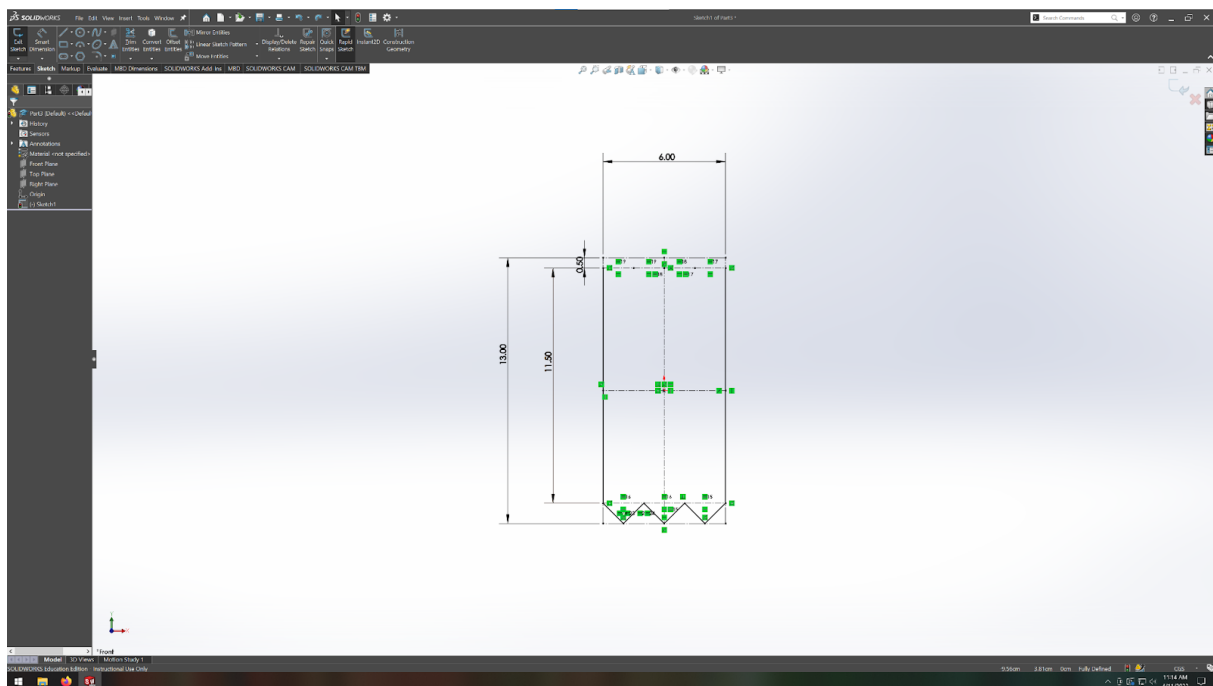
The Ghost can be used as a paperclip or a simple decoration, it can hold together a small amount of paper effectively due to its long clip.

The Ghost was developed and modeled in Solidworks. It is a single part, so once printed no assembly is required.

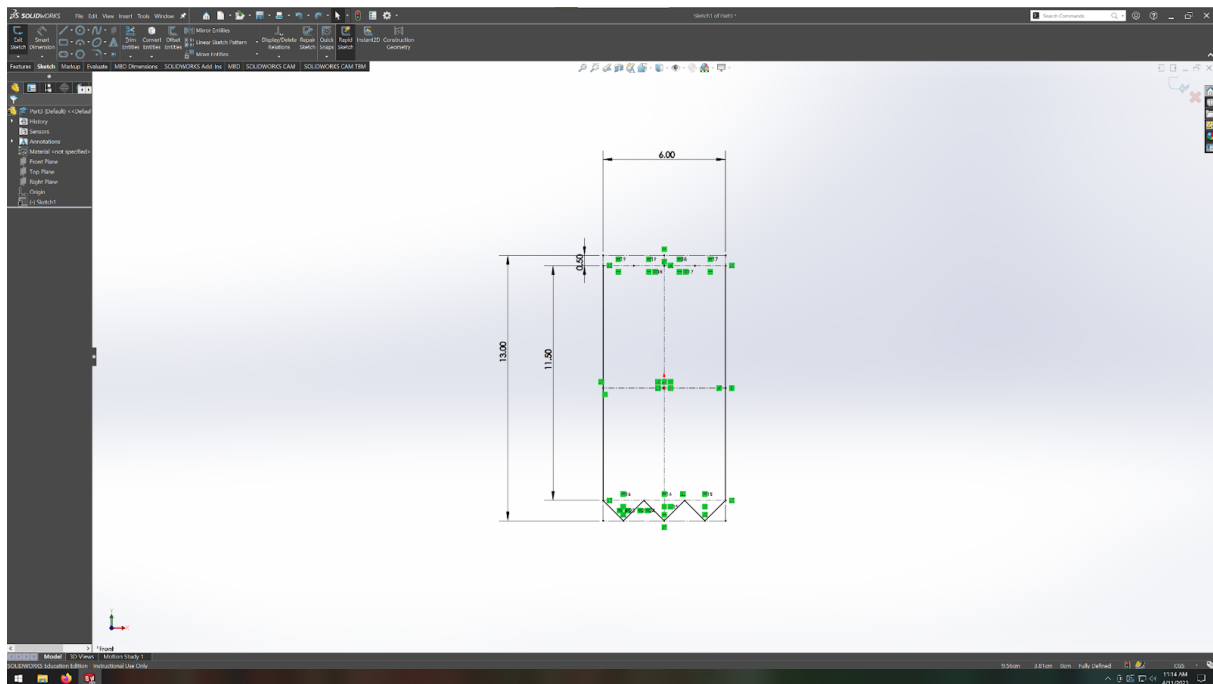
- Make a frame of the ghost, 13 cm by 6cm. Use a construction line.



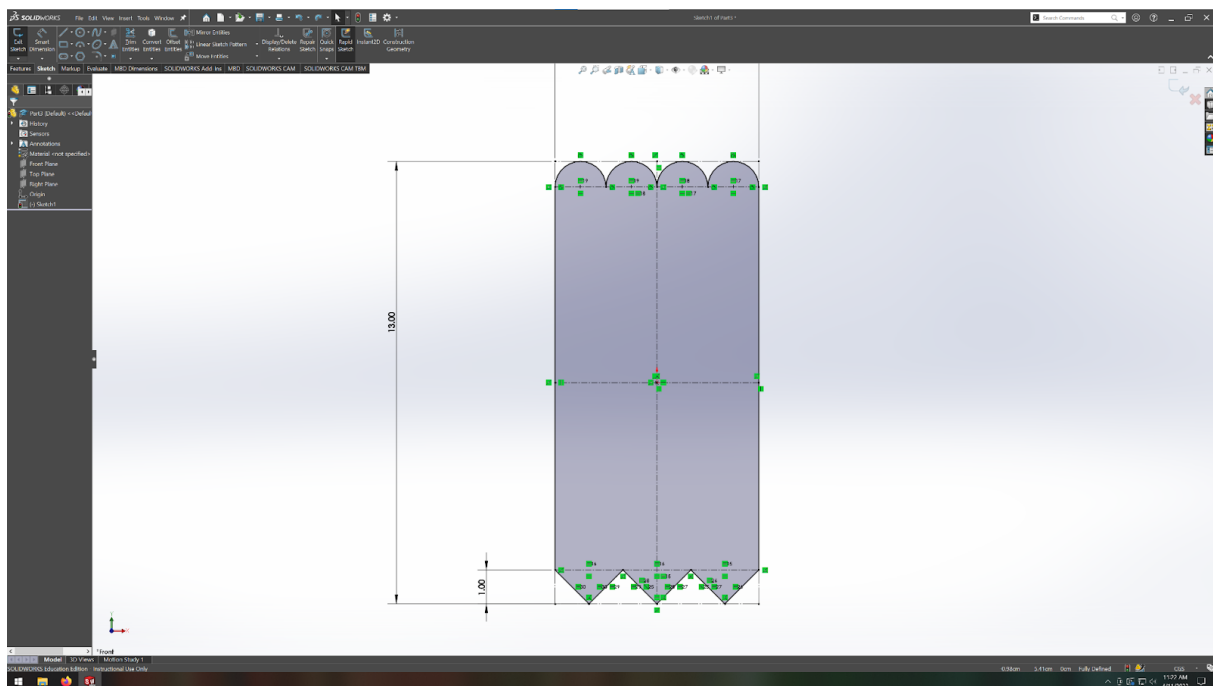
- Make a rectangular shape for the ghost, start from the top down by .5cm, 11.5 cm by 6 cm, for the 6 cm head line, make four 1.5cm lines set to construction, and the bottom lines 2cm set to construction



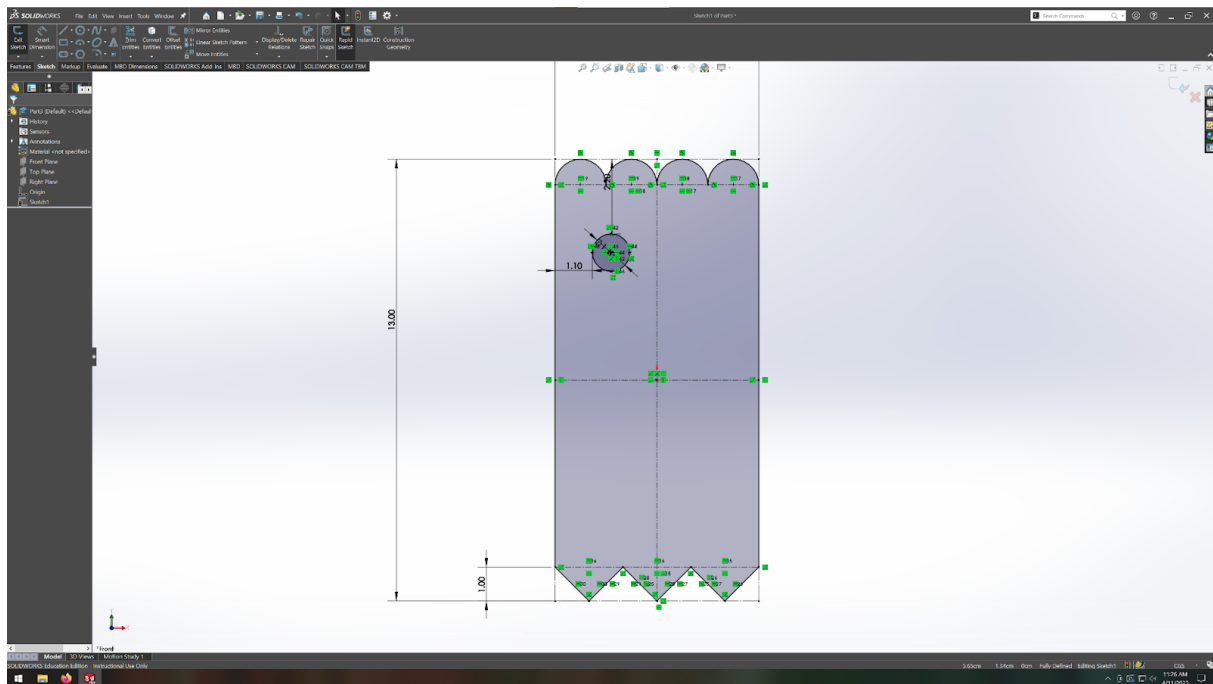
- Add 3 down-facing triangles on the bottom, the side length of the triangle is 1.5 cm, the down length is 1 cm, the total length of both side angles is 2 cm across. The total length across for all 3 should be 6 cm.



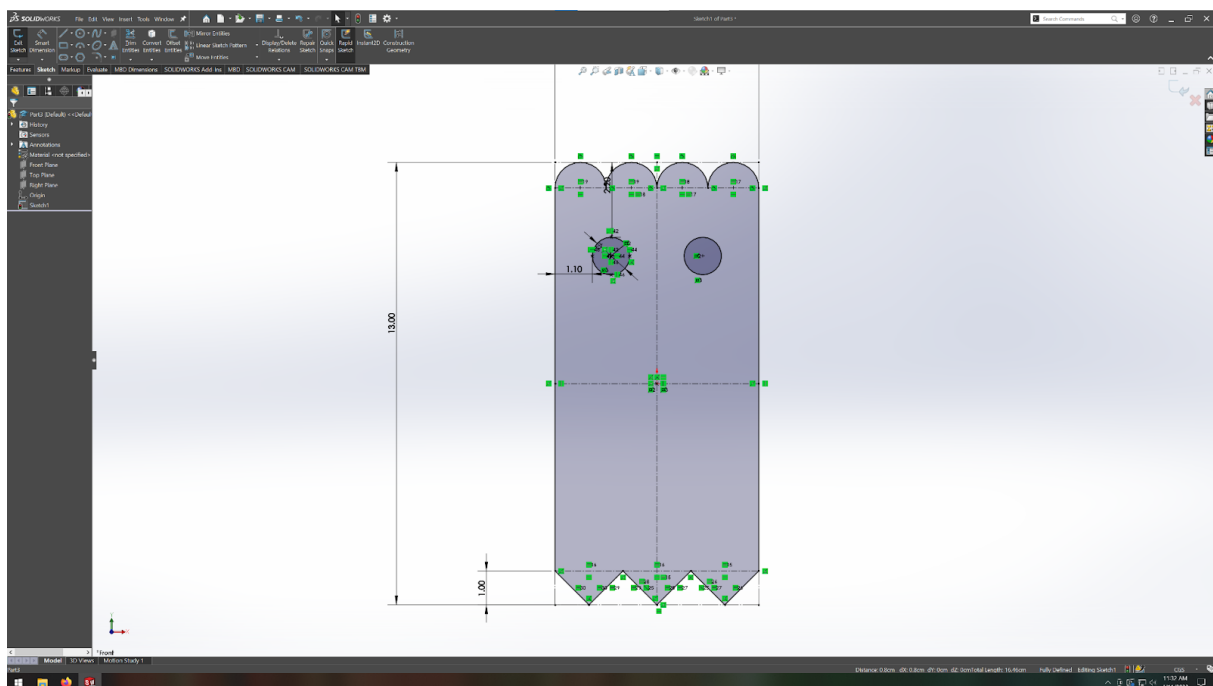
- Make the 4 top half circles to be 0.5 cm, have them across 1.5 cm, and the 4 of them should all be across the head a total of 6 cm. Make them tangent with the top line and the left line, then repeat.



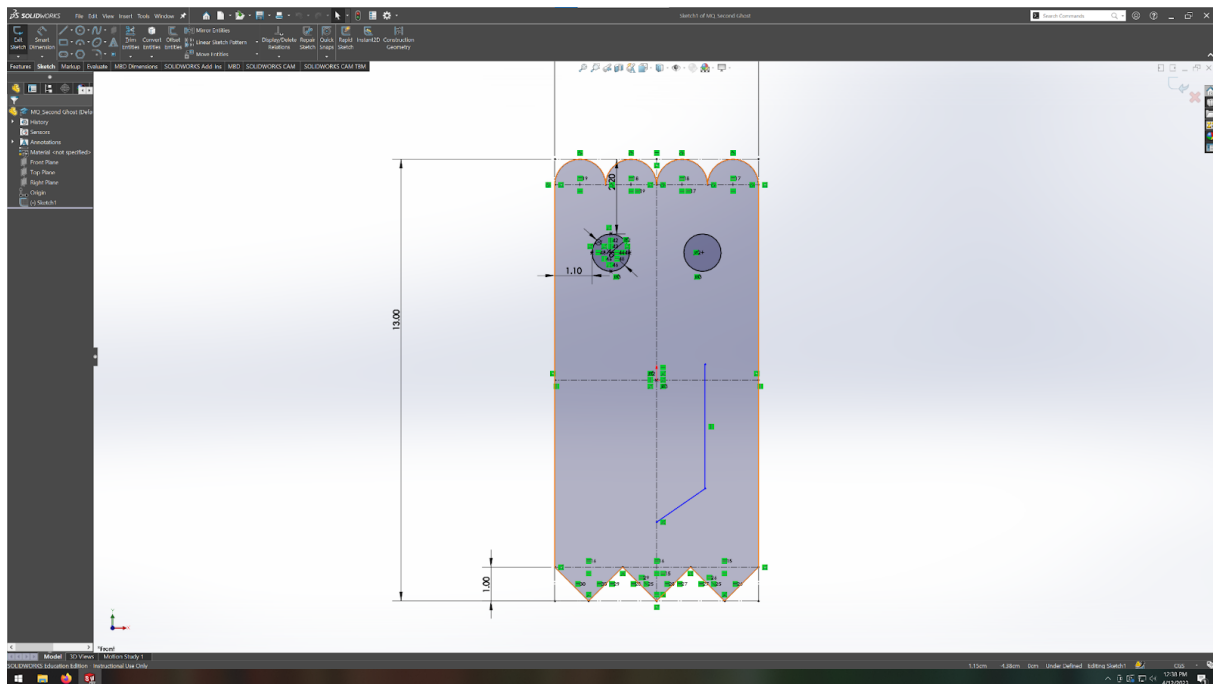
- Create the left eye: the top of the eye circle should be 2.2 cm down from the very top of the head, and the bottom of the circle to the head should be 3.6 cm. The lengths between the circle edges should be 1.1cm and the length from the left side of the ghost to the left side of the circle should also be 1.1 cm. You should create 4 points for each side of the circle, this will allow you to use smart dimensions with the outer rim.



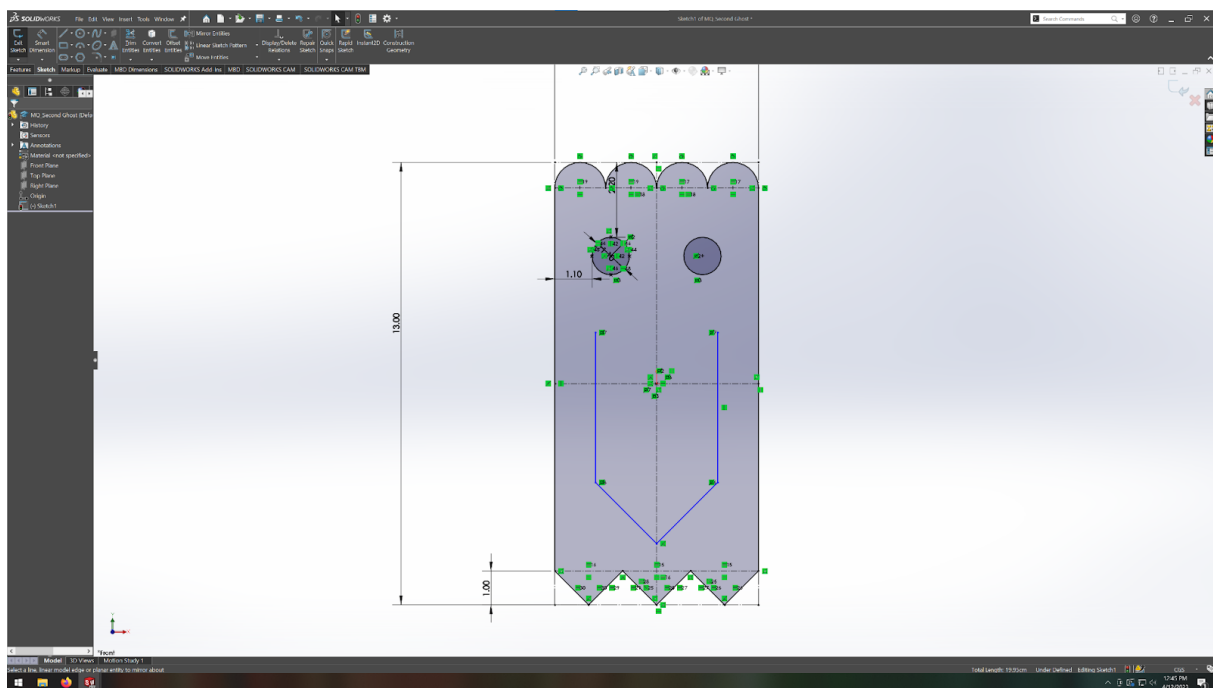
- Create the right eye. Follow the same instructions as for the left eye, but set the length between them to be 1.4 cm, or confirm that it is. If it is not, then something was done wrong and you should go back and check for mistakes. You could also use the mirror tool to create an exact copy on the opposite side if you want a quicker route.



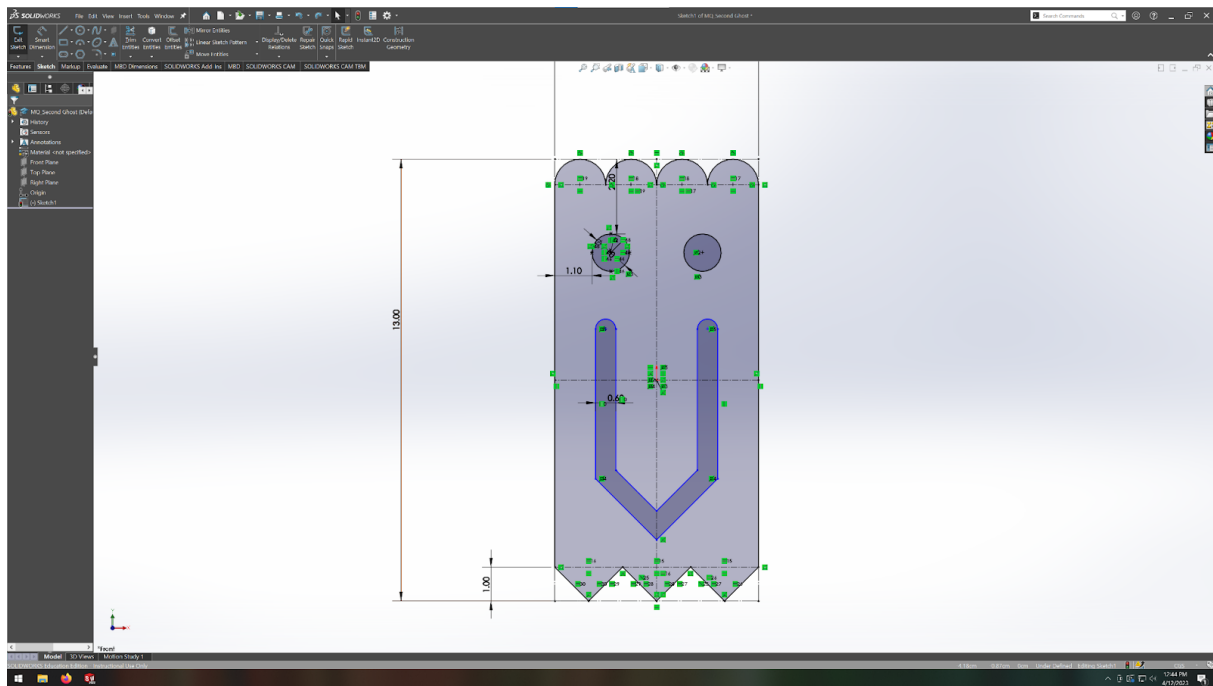
- Make the general shape of one side of the mouth with only one line, this will be offsetted to form the mouth shape. Measurements are longest line 4.4cm, bottom diagonal 1.8cm, across 1.8cm, distance from very bottom 1.8cm



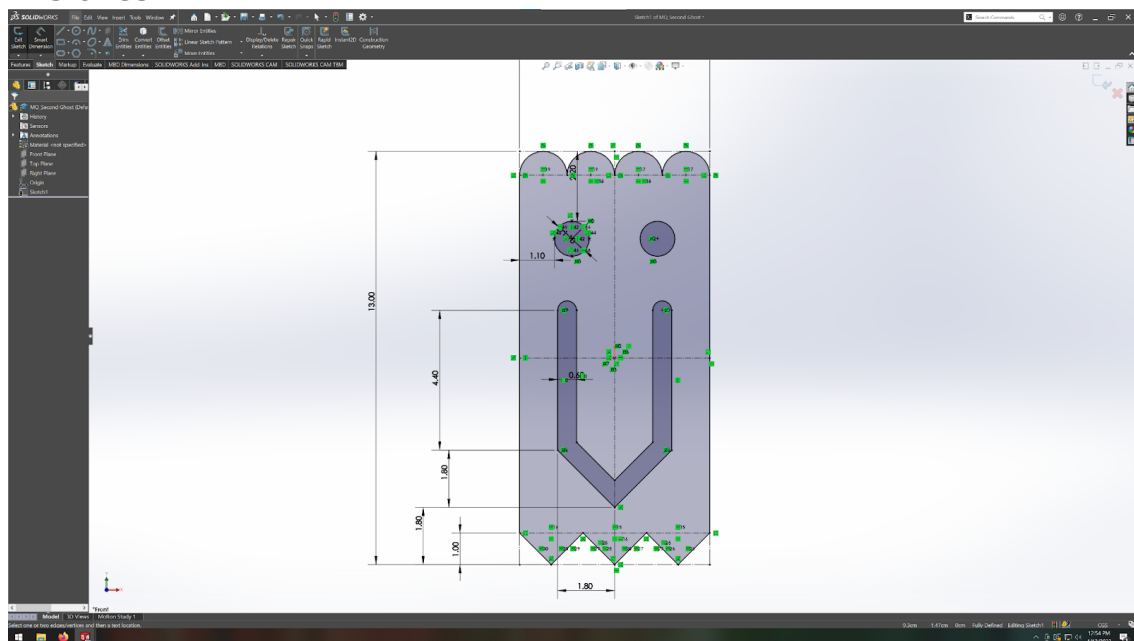
- Mirror the lines



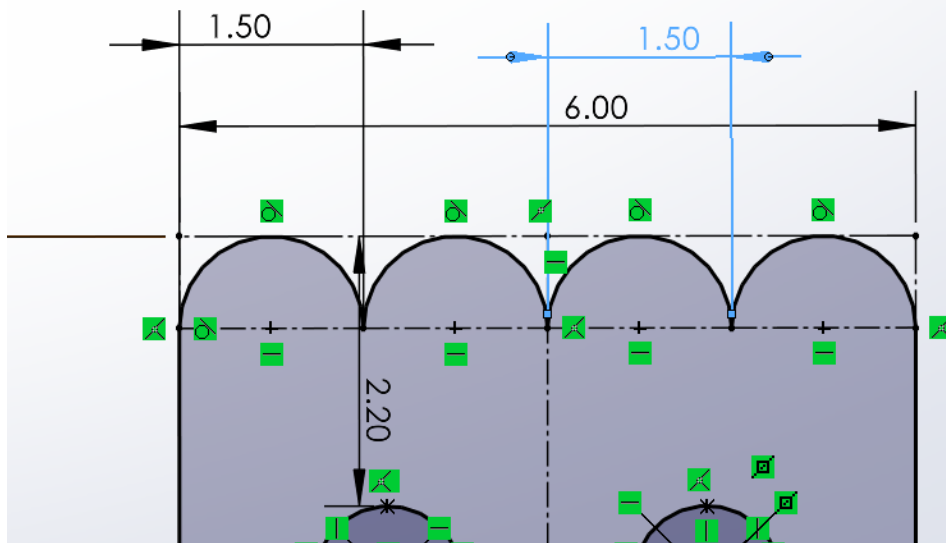
- Offset the lines, have it be .6 cm



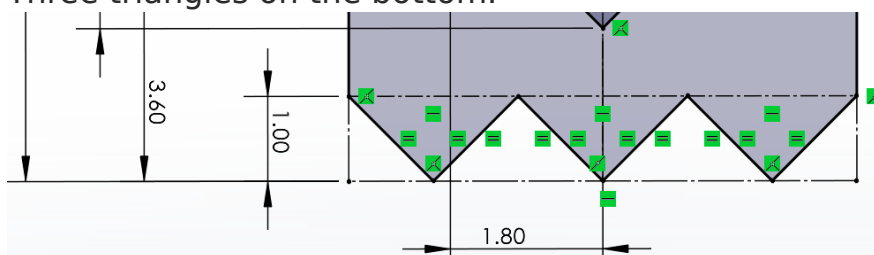
- The ghost is complete! Review your model, and double-check for any mistakes.



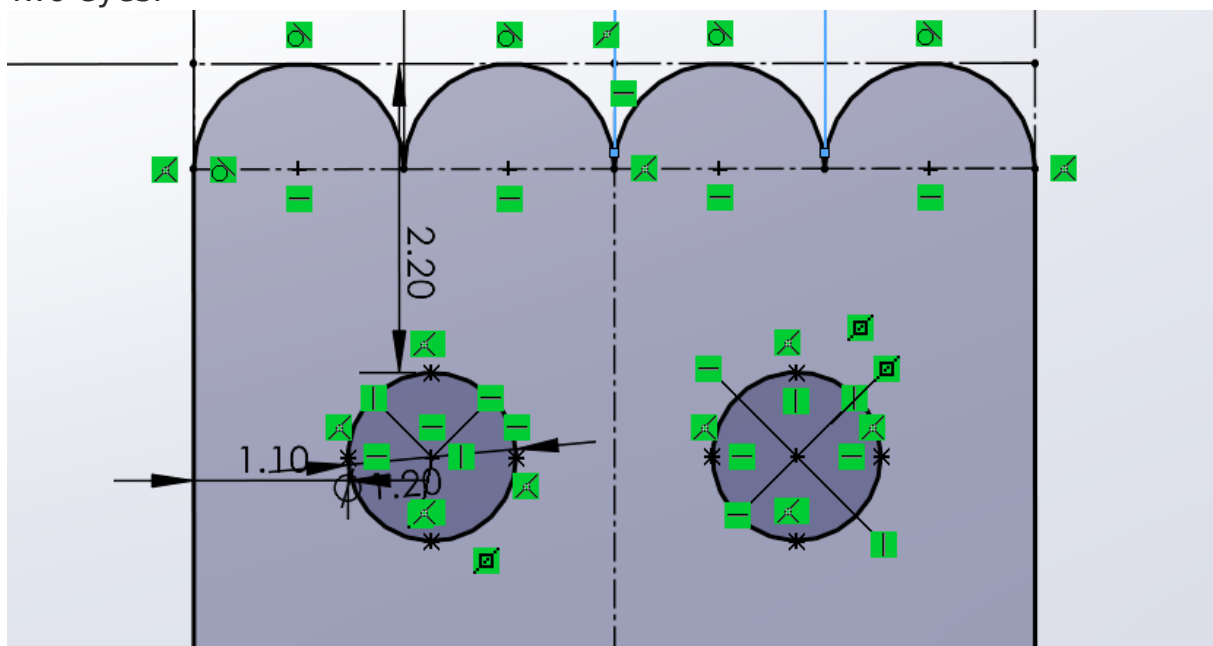
It has four half circles on its head:



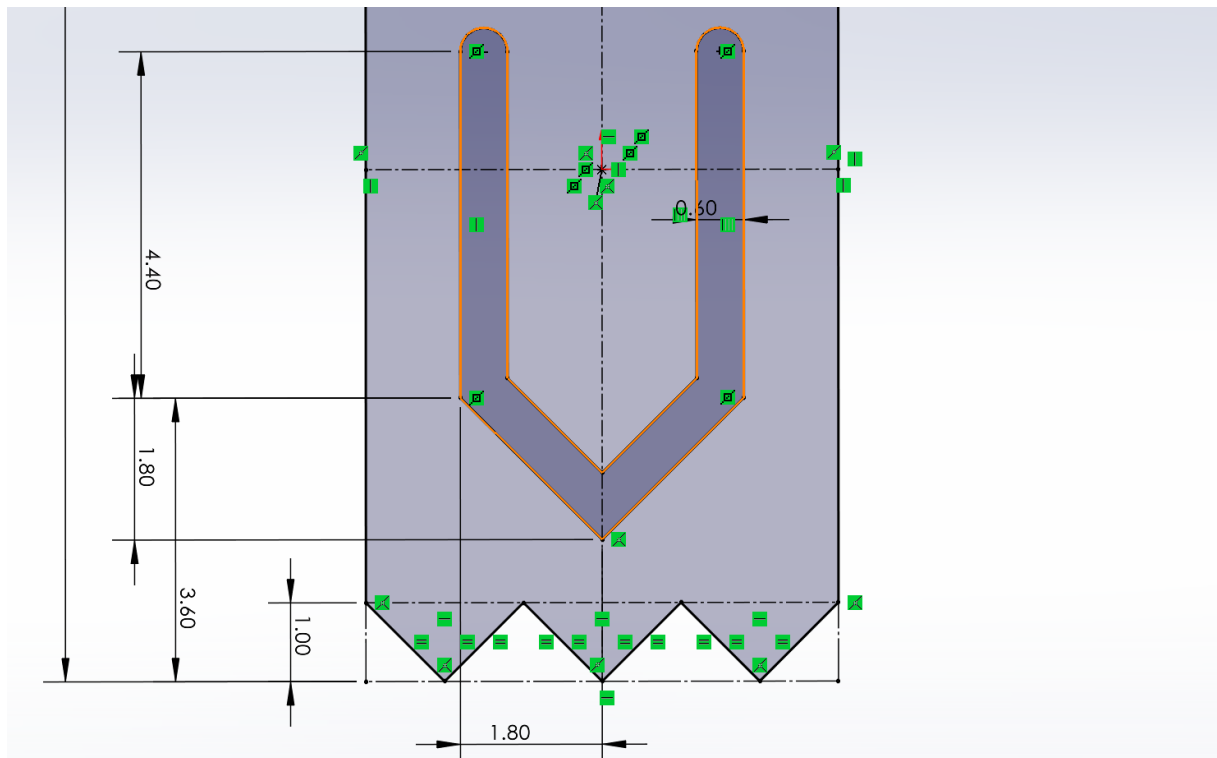
Three triangles on the bottom.



Two eyes:

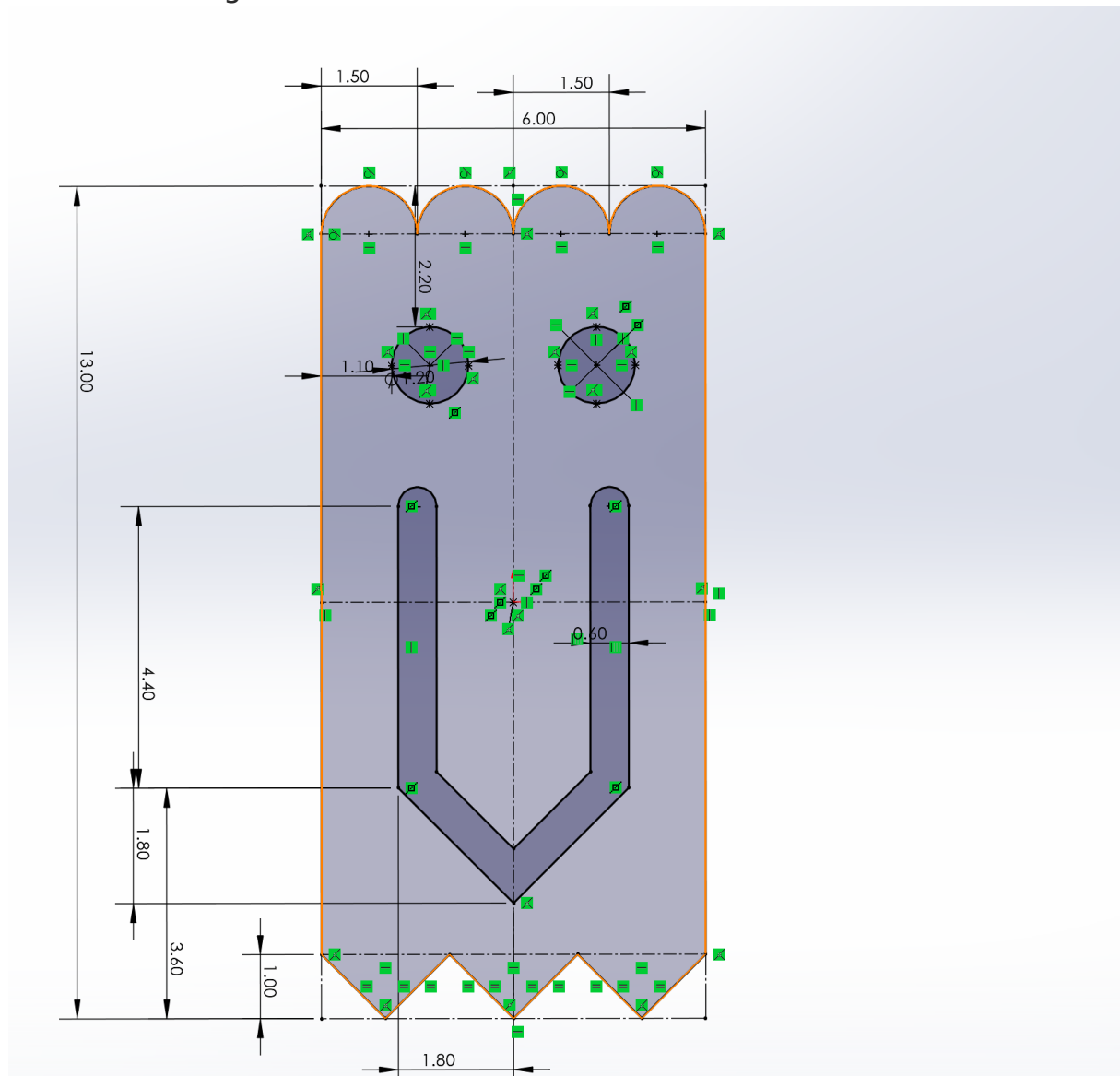


And a mouth:

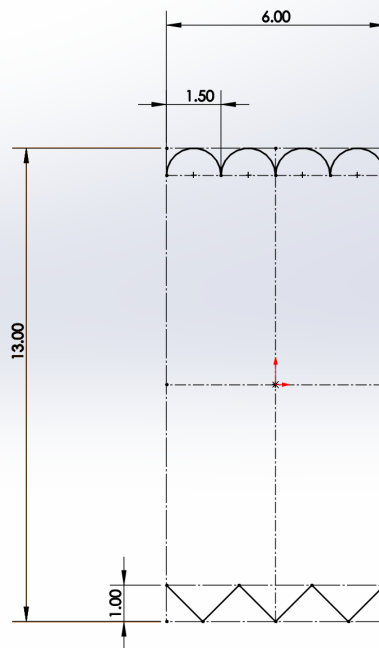
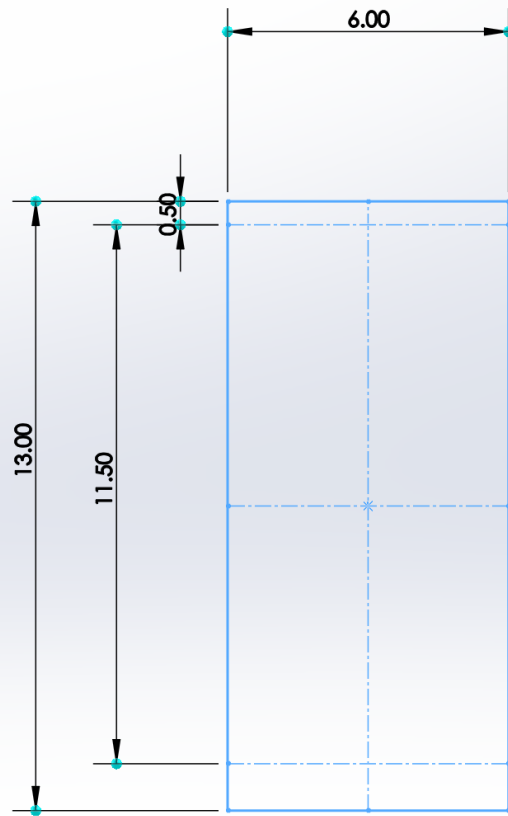


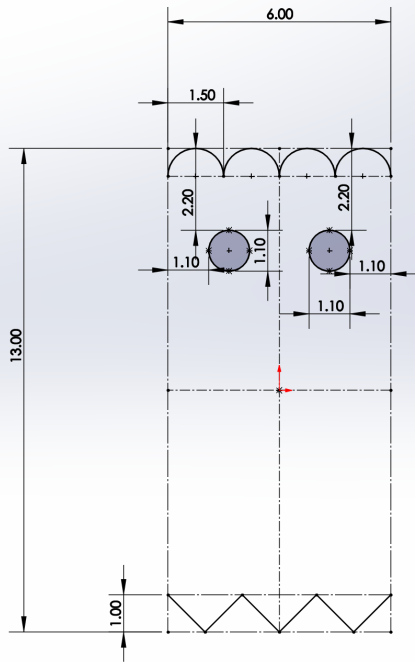
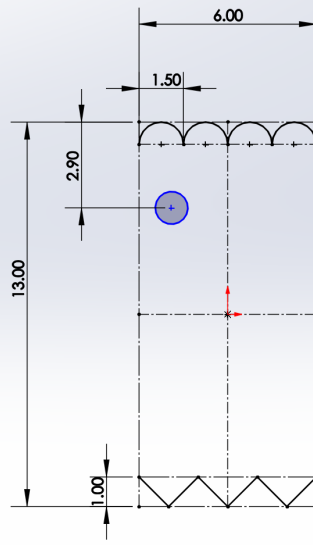


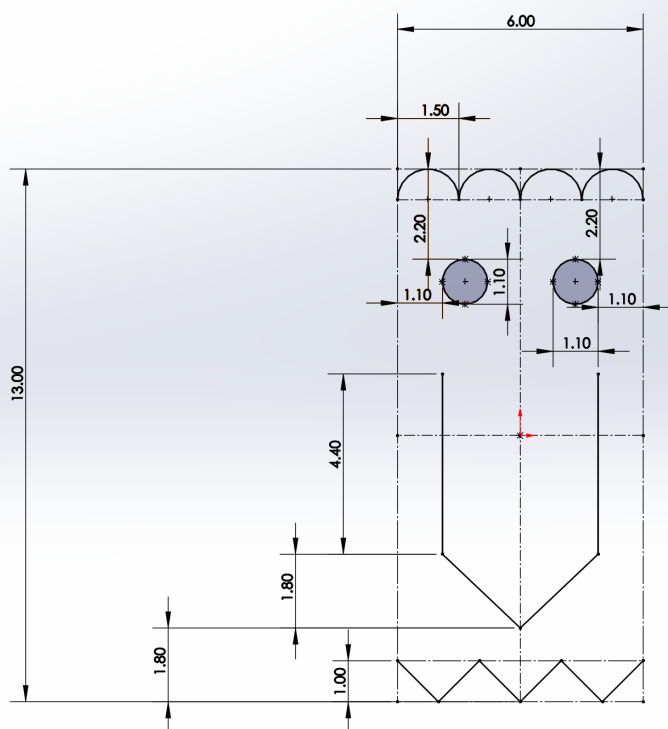
This is the full ghost with all of the dimensions:

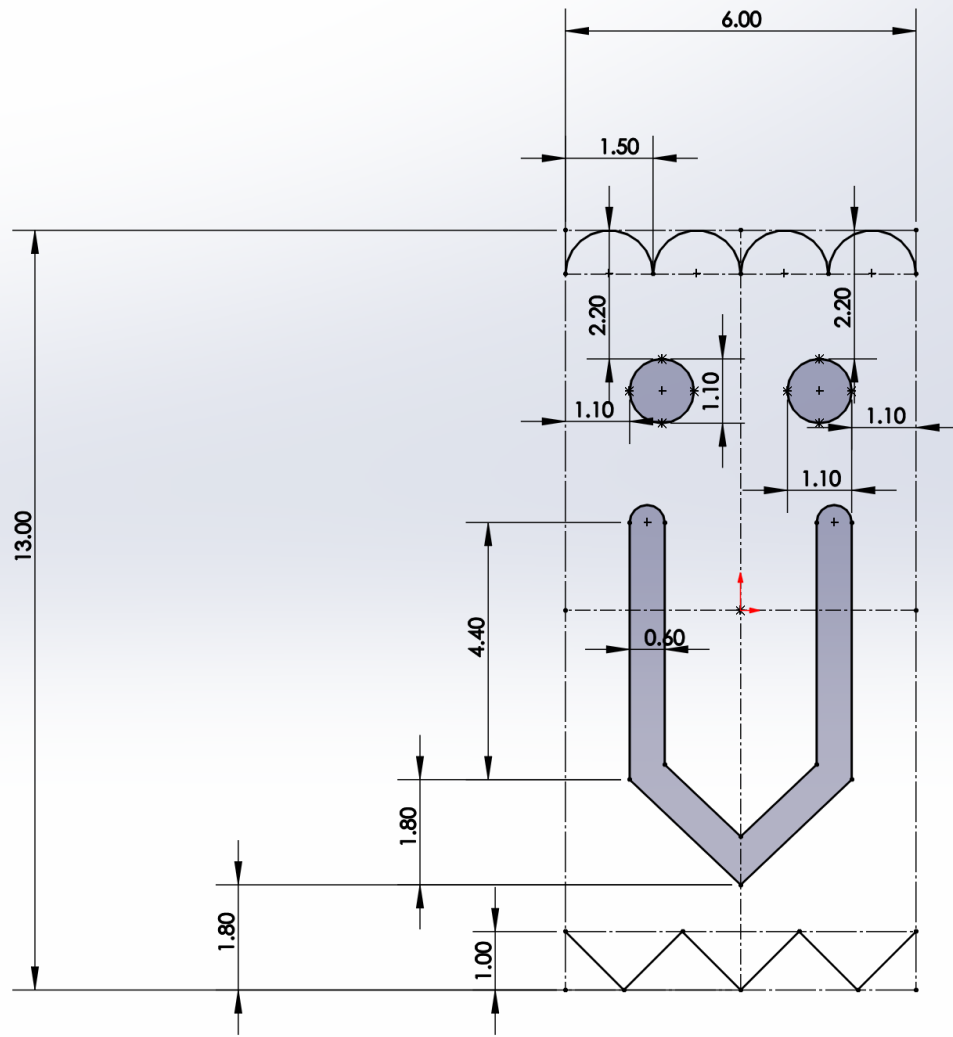


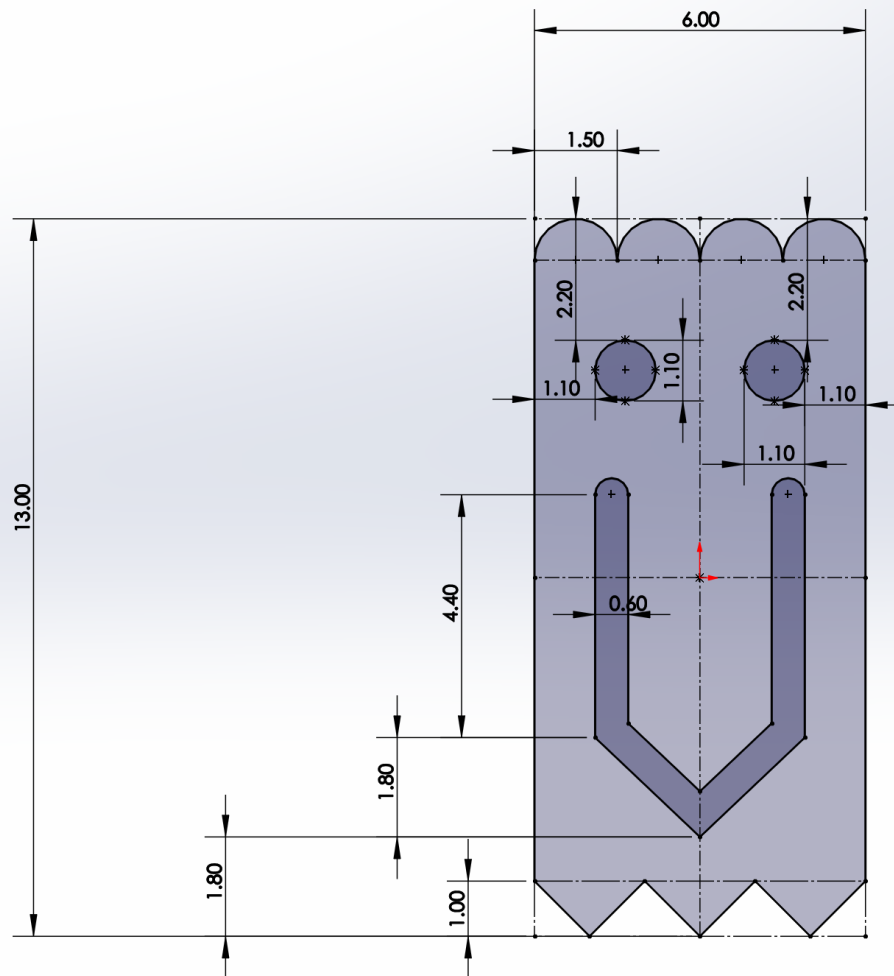
Below is Hugo Delfin's work process. It is the same as mine above, with different reference points.











The original sketch and the final design only differ in small measurements. Some of the lengths, i.e. the mouth and eyes, had minorly incorrect details, and in the final product, we fixed those to be more exact to the original ghost model. We did not change any details other than engraving our initials into the final product, otherwise, it is the exact same.

In action and real world product:









# Model files



delney\_m\_ghost.3mf

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