

# Christmas Ornament Display Structure

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# Overview

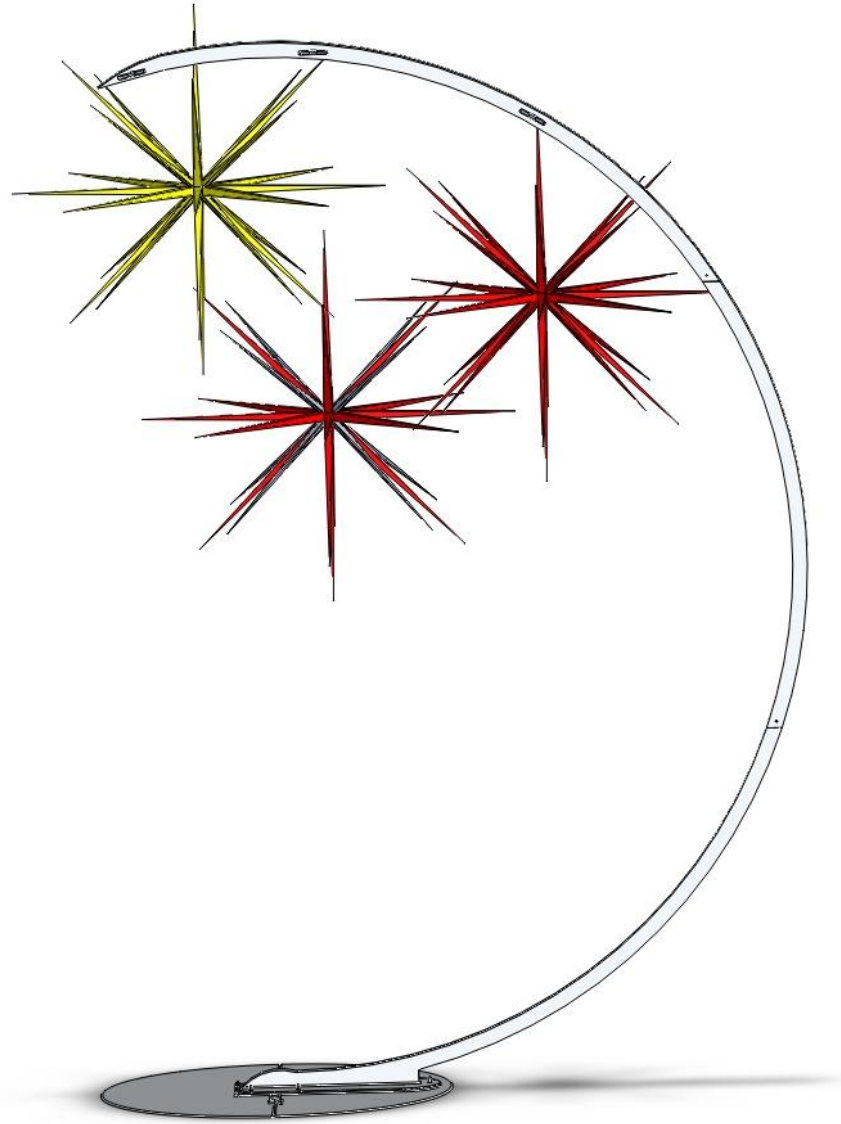
- Problem statement
- Final Design
- Manufacturing
- Cost analysis
- Constraints
- Project timeline
- Conclusion
- References

# Problem Statement

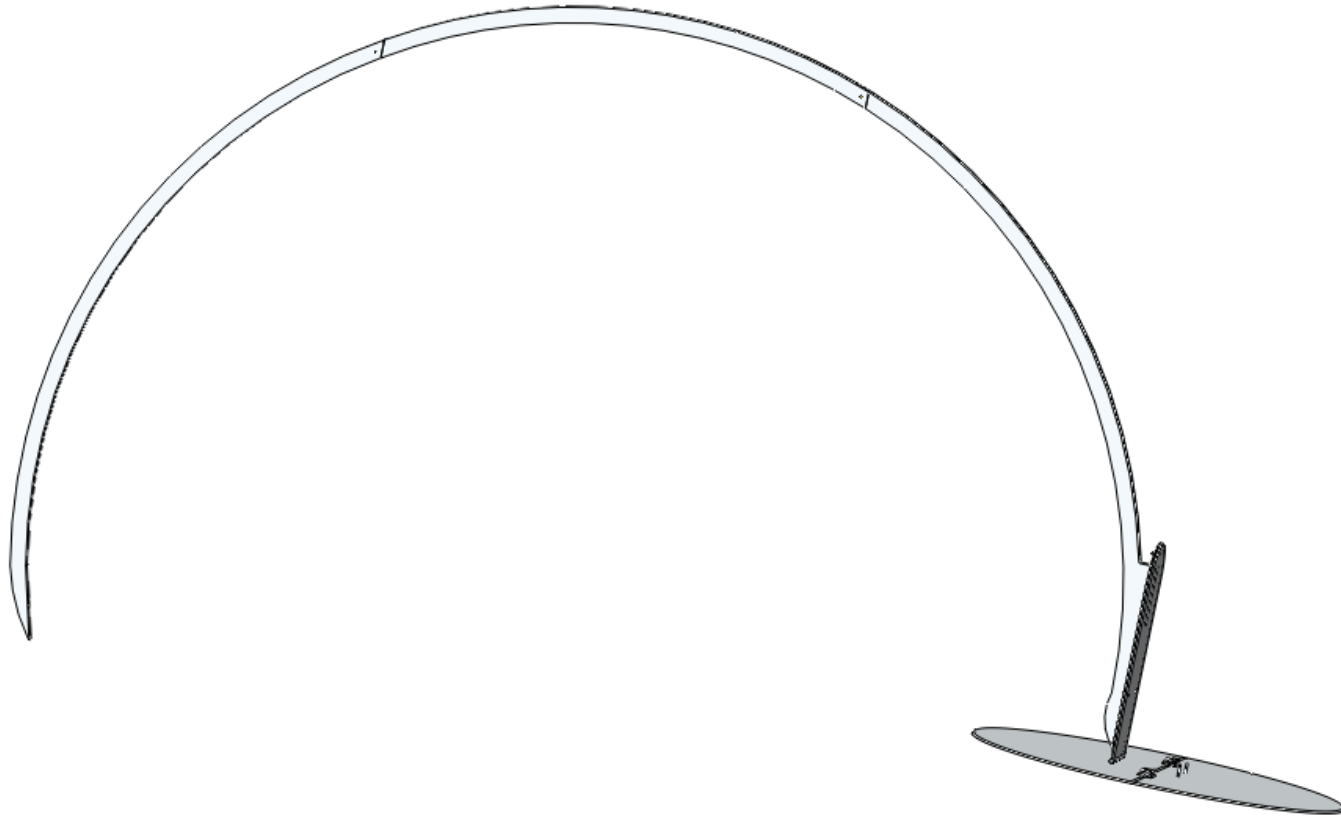
**Need:** My Star of Bethlehem LLC does not have an aesthetically pleasing way to display their products at multiple venues.

**Goal:** Design and manufacture a portable display structure that will showcase the ornaments of My Star of Bethlehem LLC when being marketed at various venues.

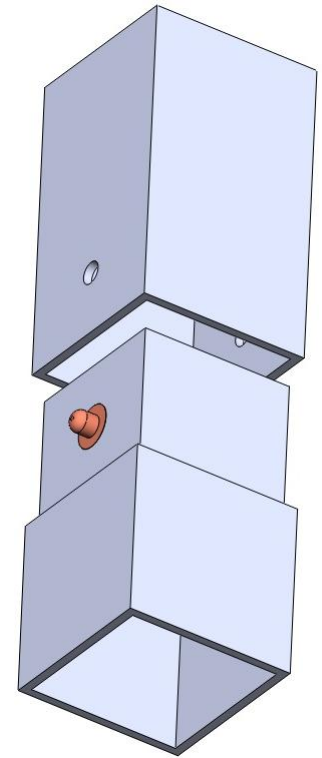
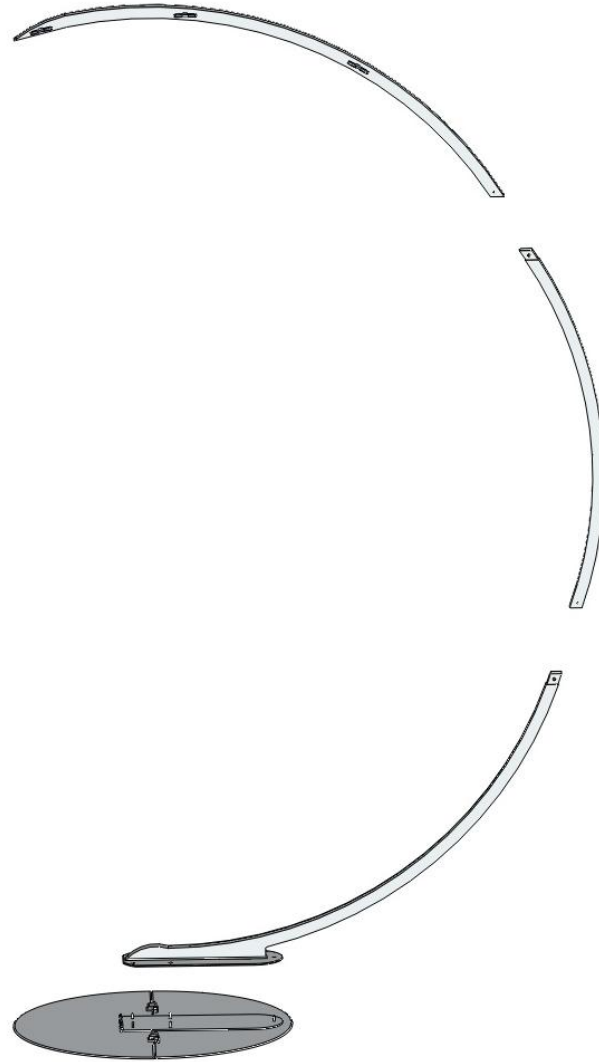
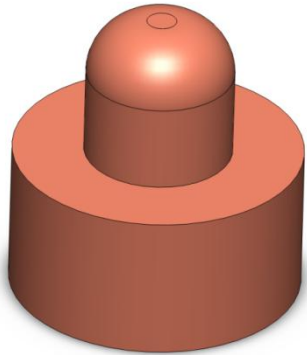
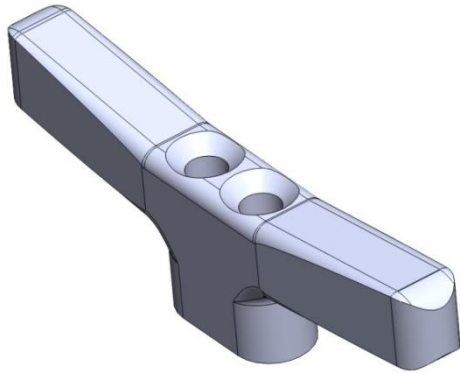
# Final Design



# Assembly Position



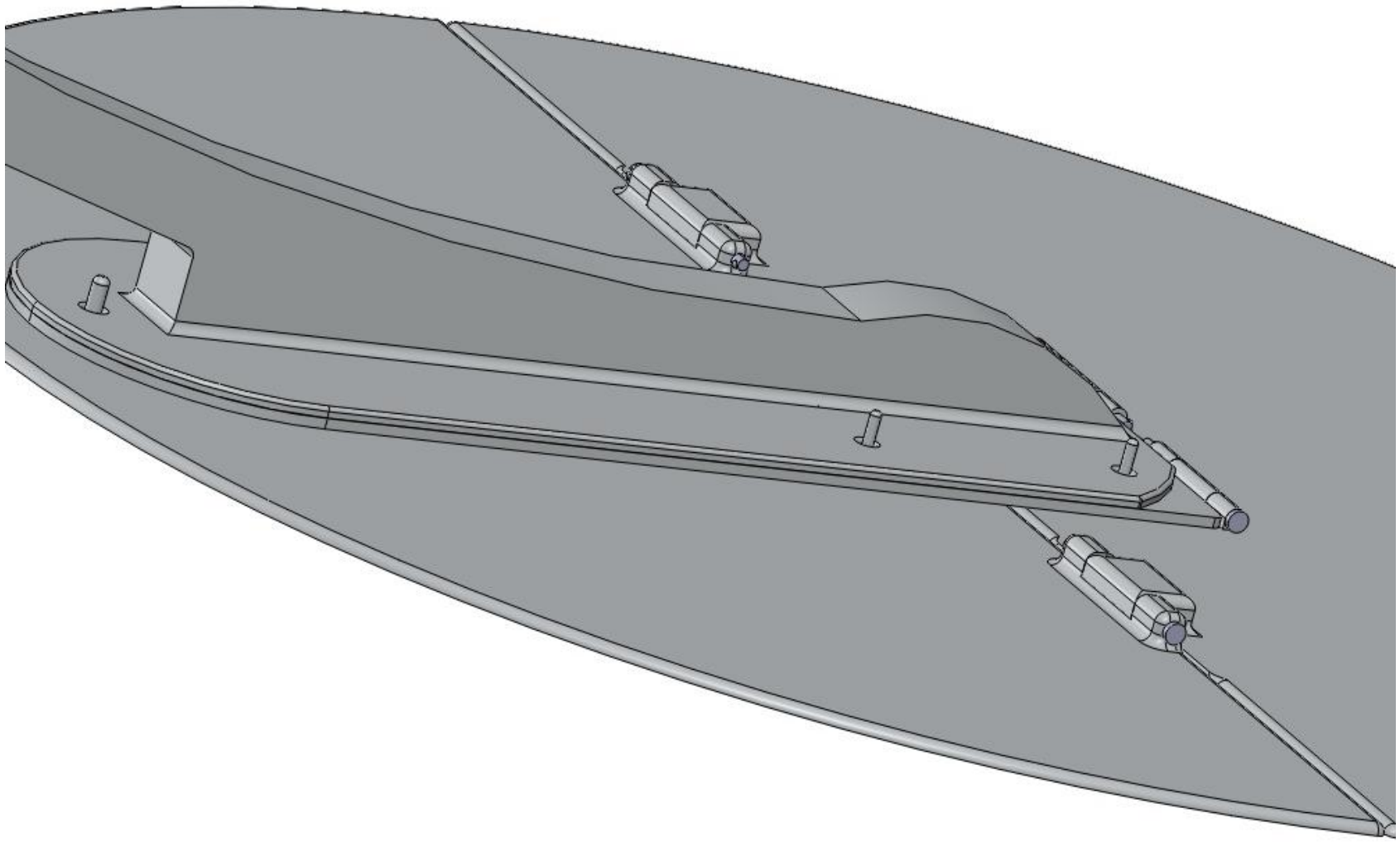
# Exploded Views



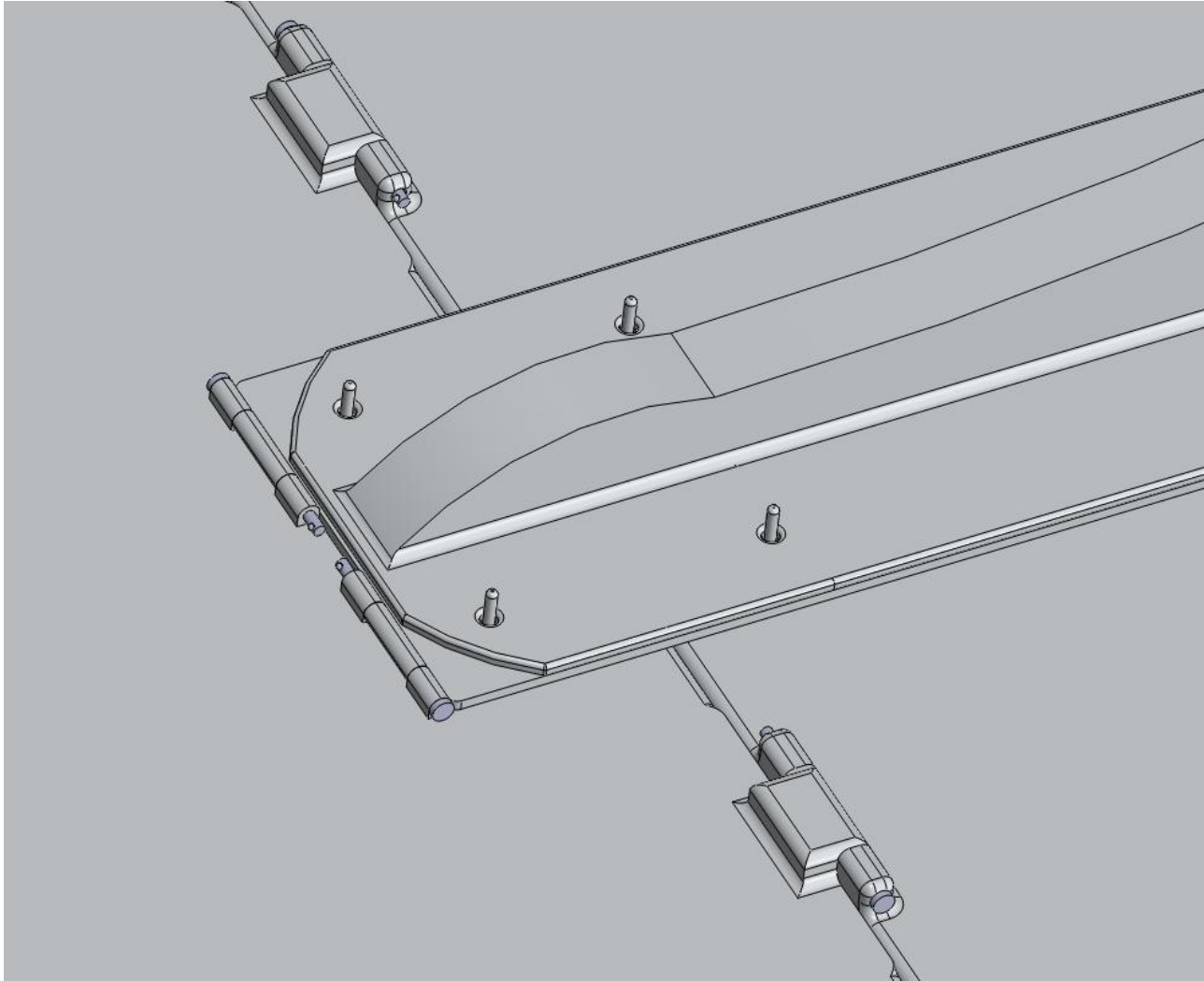
Without Lanyard

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# Base Section

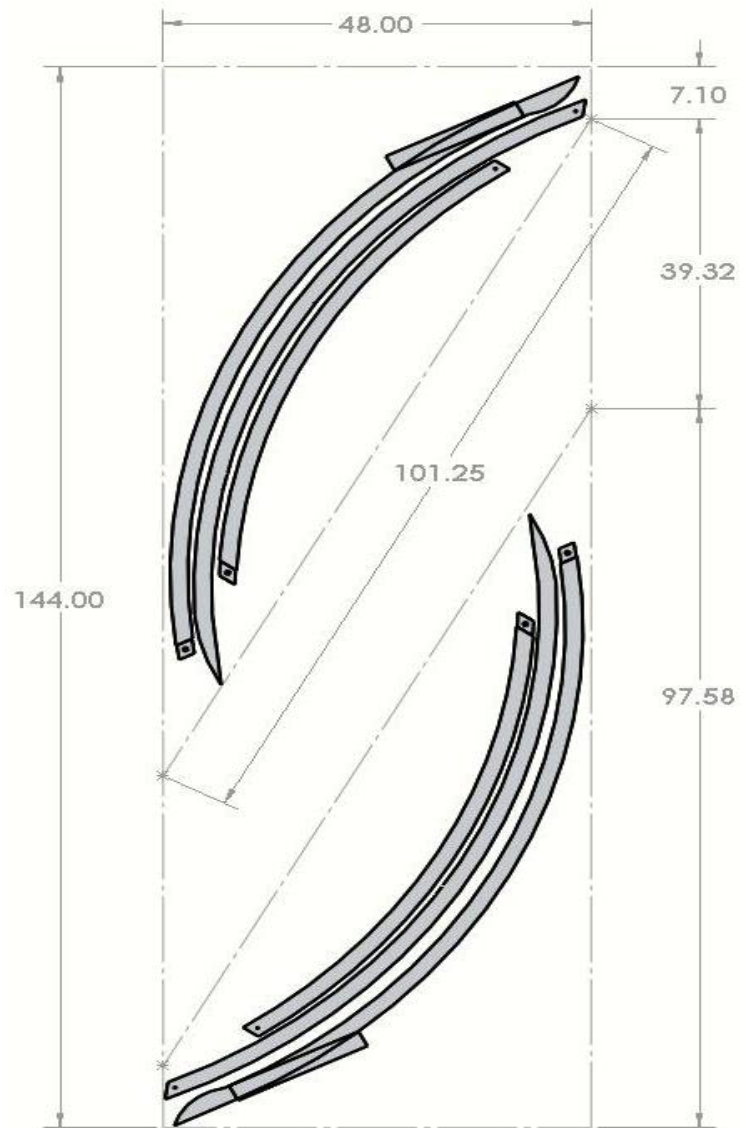


# Hinge Orientation





# Manufacturing



All dimensions are in inches

# Cost Analysis

Qty	Item Description	Size (w x t)	Length	Price (each)	Total Cost
1	6061-T6 Aluminum Sheet	48 x .13	144	\$295.80	\$295.80
2	6061-T6 Aluminum Plate	24 x 0.25	48	\$115.55	\$231.10
2	6061-T6 Aluminum Plate	12 x 0.25	24	\$62.65	\$125.30
		<b>Size (D)</b>			
4	18-8 Stainless Steel Quick-Release Pin	0.19 (pin)	3	\$2.18	\$8.72
4	Retractable Captive Panel Plunger Press in	0.25 (pin)	0.75	\$4.12	\$16.48
6	Surface-Mounted Lift-Off Hinge without holes	0.19 (pin)	2	\$3.56	\$21.36
6	Rope Cleat Wing Style	0.25 (rope)	3.5	\$0.92	\$5.52
1	Press-In Captive Stud 18-8 Stainless Steel (Pack of 10)	0.25	1.5	\$9.26	\$9.26
				<b>Sales Tax</b>	\$60.65
				<b>Shipping</b>	\$73.50
				<b>Final Cost</b>	\$847.69

All dimensions are in inches

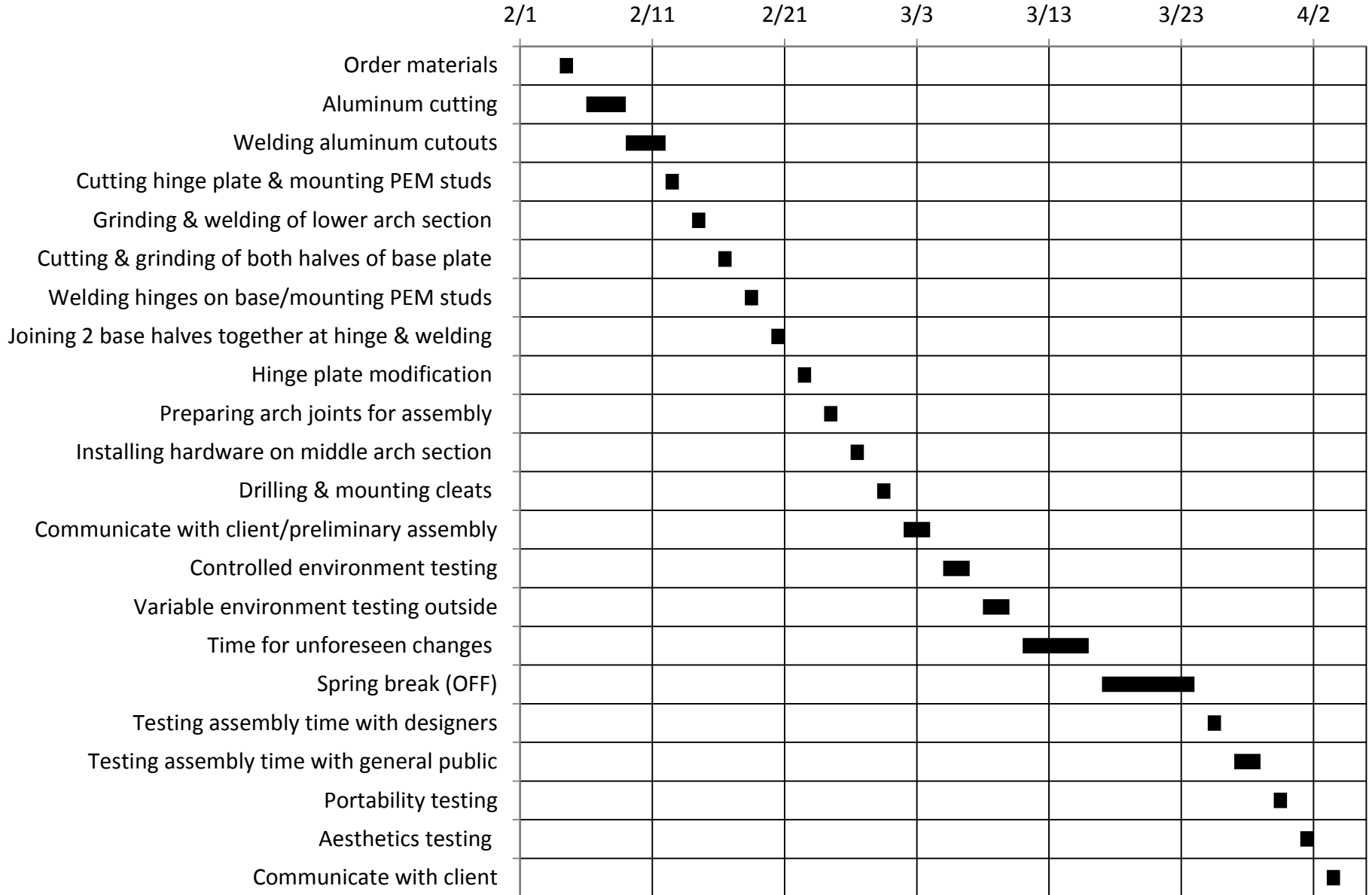
w = width, t = thickness, D = diameter

Sales tax applies to products bought in Arizona

# Constraints and Proposal

- Highest ornament elevated a minimum of 6-8 ft from the stand base
- Can fit in a compact car when disassembled
- No individual component can weigh more than 50 lb
- Ornament(s) must be hung or mounted
- Assembly time cannot exceed 30 min
- Stand must support 2 different sized ornaments
- Freestanding
- Total costs must not exceed \$1000
- Lightweight – individual components can be carried by one adult
- Collapsible

# Project Timeline



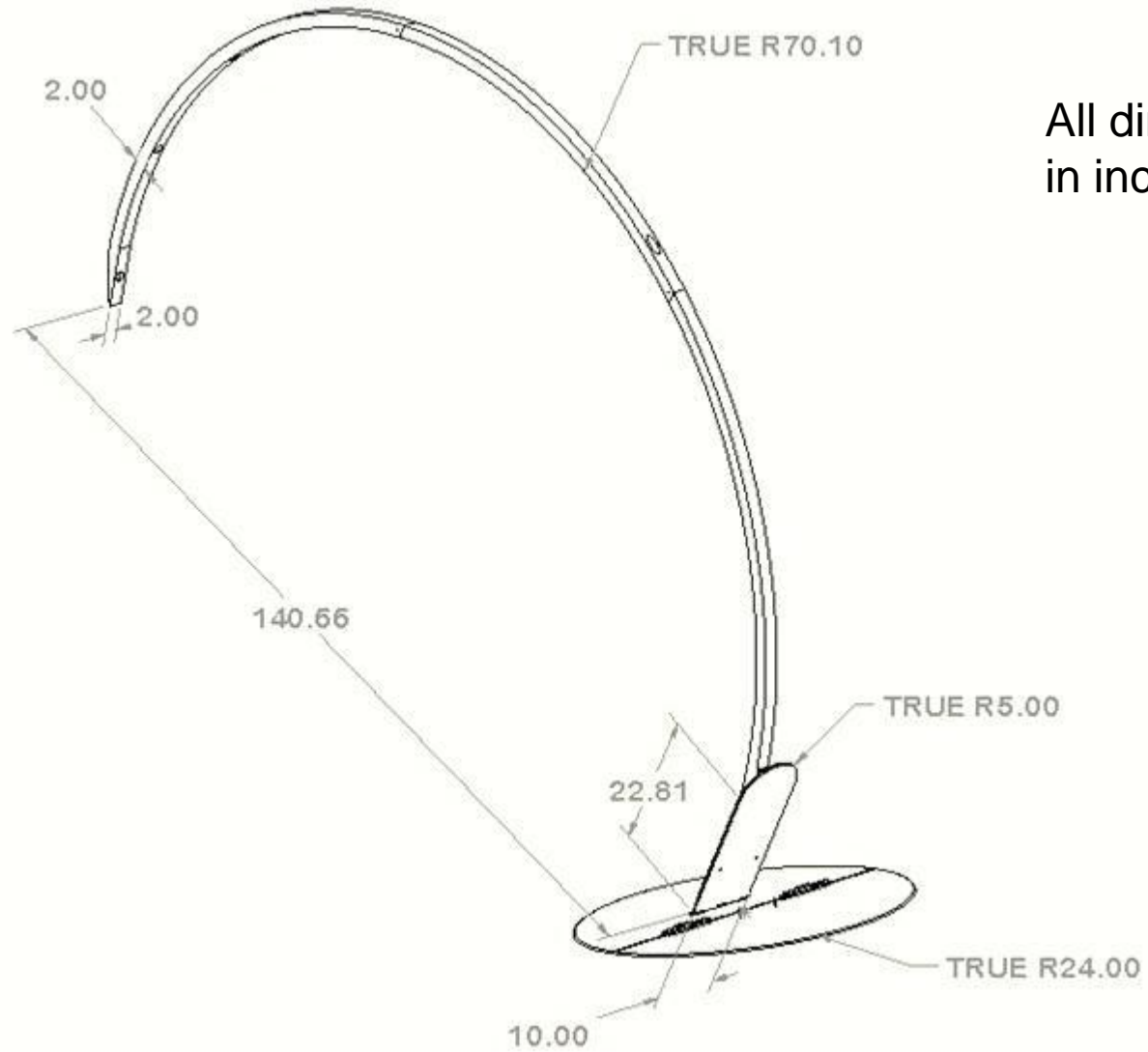
# Conclusion

- Problem
  - Need – Client does not have a visually appealing way to display their products.
  - Goal – Design and manufacture a portable display stand to highlight ornaments.
- Final design
- Manufacturing
- Cost analysis
- Constraints
- Project timeline
  - Future tasks

# References

- [1] Dr. Dieter Otte  
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- [2] McMaster-Carr. (n.d.). *McMaster-Carr*.  
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# Questions



All dimensions are  
in inches