Mario Moving Bridge

Ashley Cao, Kaniesa Deswal, Vanessa Wei Chye

Brief Prepared By Kaniesa

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Project Objective

The goal of the Mario Moving Bridge is to provide joy and entertainment to all children and adults alike.

With the Mario Franchise growing bigger everyday, our product will become a fun collectable that is also unique.

Unlike other merchandise, our bridge includes many details and even an aspect of movement within the bridge to engage users.

Mario fans everywhere will find enjoyment through our Moving Mario Bridge!

Research & Ideas

Research & Ideas I

Since the start, there had been interest in creating a structure mimicking a real-life large structure, one also that involves some form of movement.

Upon agreeing on the importance of aesthetics, we brainstormed potential themes, and landed on the idea of Mario-themed project.

Research & Ideas II

After continued discussion, we decided to create a bridge. During the designing process, we looked at many Mario-inspired creations and drawings, as well the the games themselves to ensure accuracy!

Research & Ideas III

Of course, to include the movement aspect into our bridge, we decided to use a crank and gear system moving the bridge through conveyor belt. However, to challenge us further, we looked into having the bridge able to move both forwards and backwards at the exact same time. We researched types of gear set ups, and eventually discovered bevel gears.

Hand Drawings

TDJ4MI Final Project

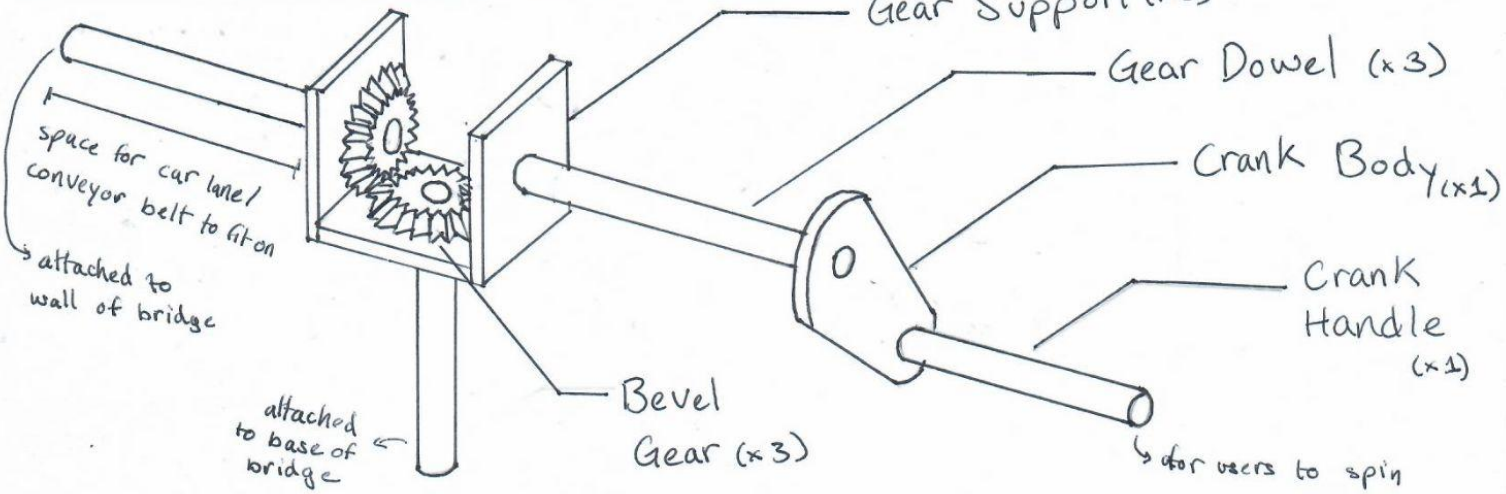
-Kaniesa Deswal-

JUNE 2024

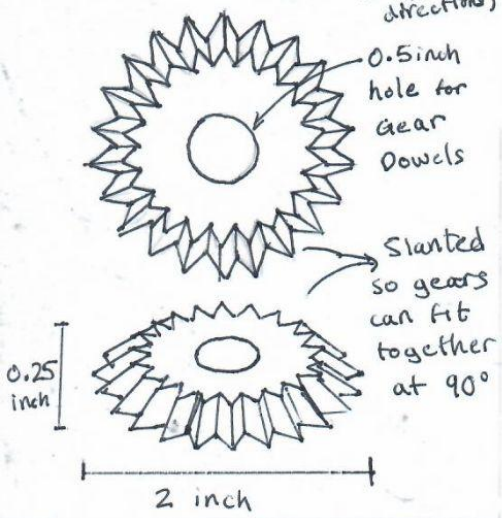
HAND SKETCH #1

- Crank Gear System Drawings -

ISOMETRIC VIEW (individual parts below this)



BEVEL GEAR (to rotate conveyor belts in opposite directions)



GEAR DOWELS

Long Dowel - 11.5 inch

↳ not on diagram above, on opposite side holding other end of conveyor belt up

Gear Dowel - 5.25 in | Gear Dowel for HANDLE - 6 inch

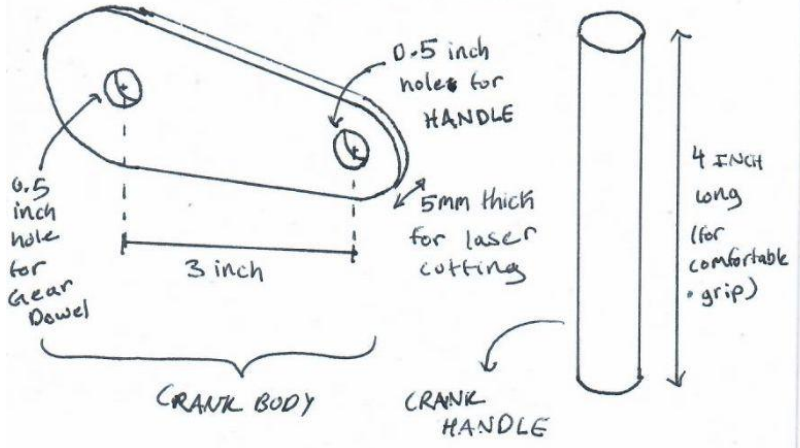
↳ on opposite ends, one is longer because also attached to handle

Gear Dowel for BOTTOM - 4 inch

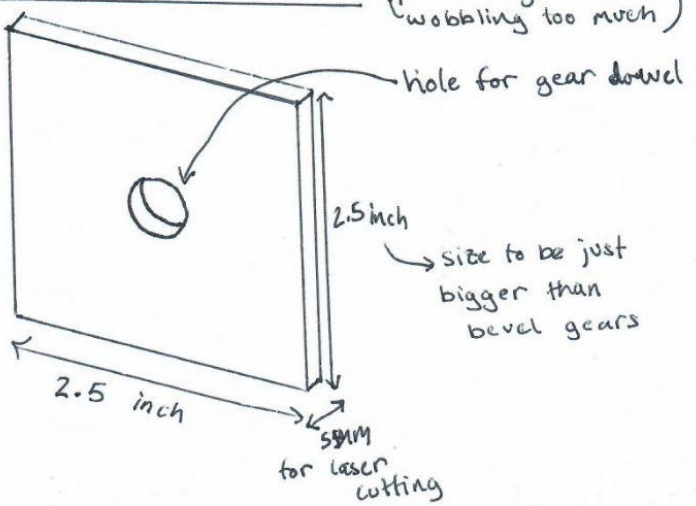
↳ smallest, attached to base of bridge

- All dowels drawn (roughly) to scale relative to each other
- All have diameter of 0.5 inch.

CRANK HANDLE + BODY (for user to spin/move project)



GEAR SUPPORTS (prevents gears from wobbling too much)



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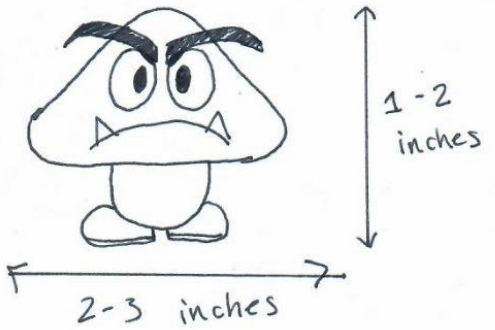
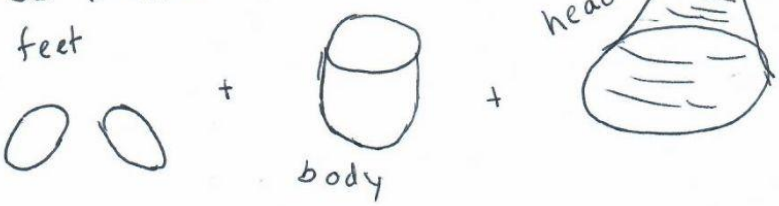
HAND SKETCH #2

- Decorations -

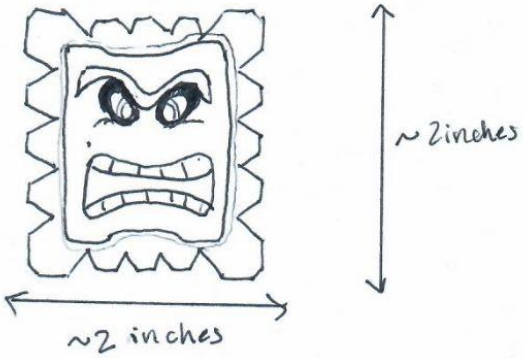
GOOMBA

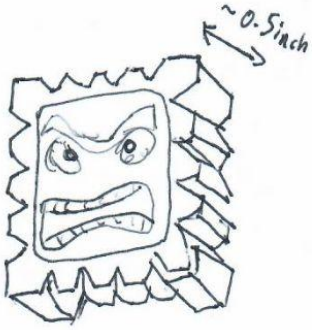


- A small, grumpy fellow with a heart of gold and a tendency to attack similar to the Canadian Geese
- 3D printed



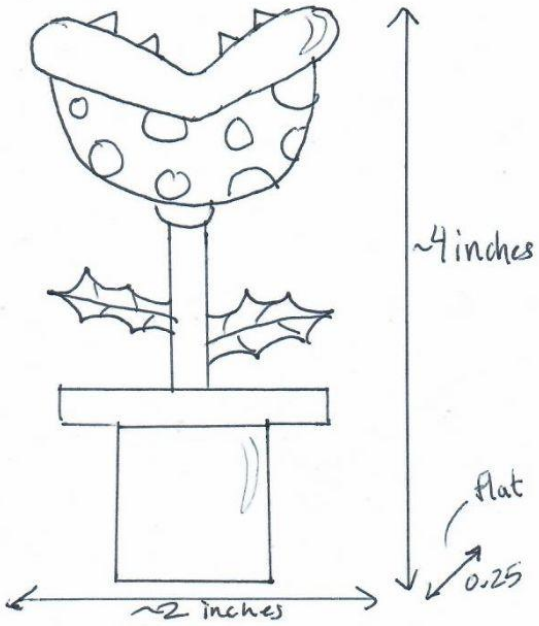
THWOMP





- Yet another grumpy fellow, but ~~not~~ not as small
- A protector of the bridge
- Cut from Cardboard

PIRANHA PLANT



- Not as grumpy as the two above, but does chomp at anyone/anything indiscriminately
- Also cut out of cardboard
  - ↳ use multiple layers for teeth, spots
- have plant itself flat
  - ↳ maybe pot be 3D constructed with cardboard...

ALTERNATE DESIGN

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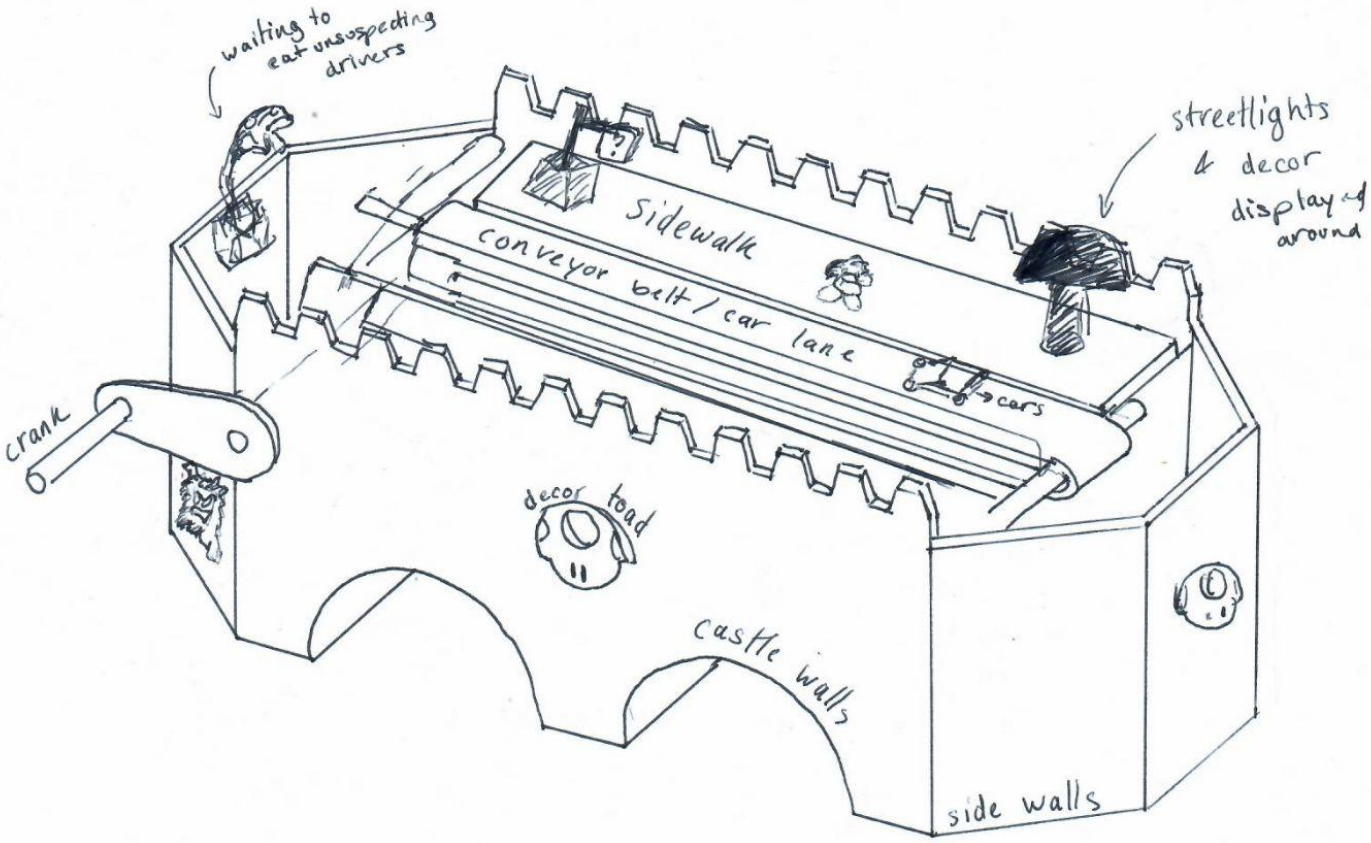
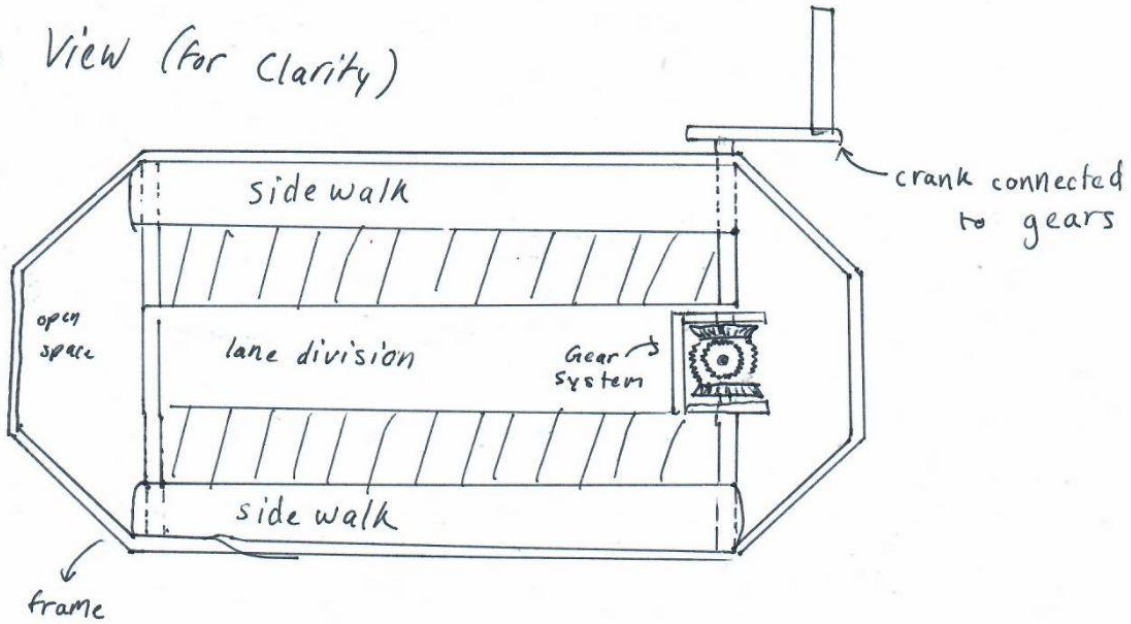
HAND SKETCH #3

- Full Isometric View -

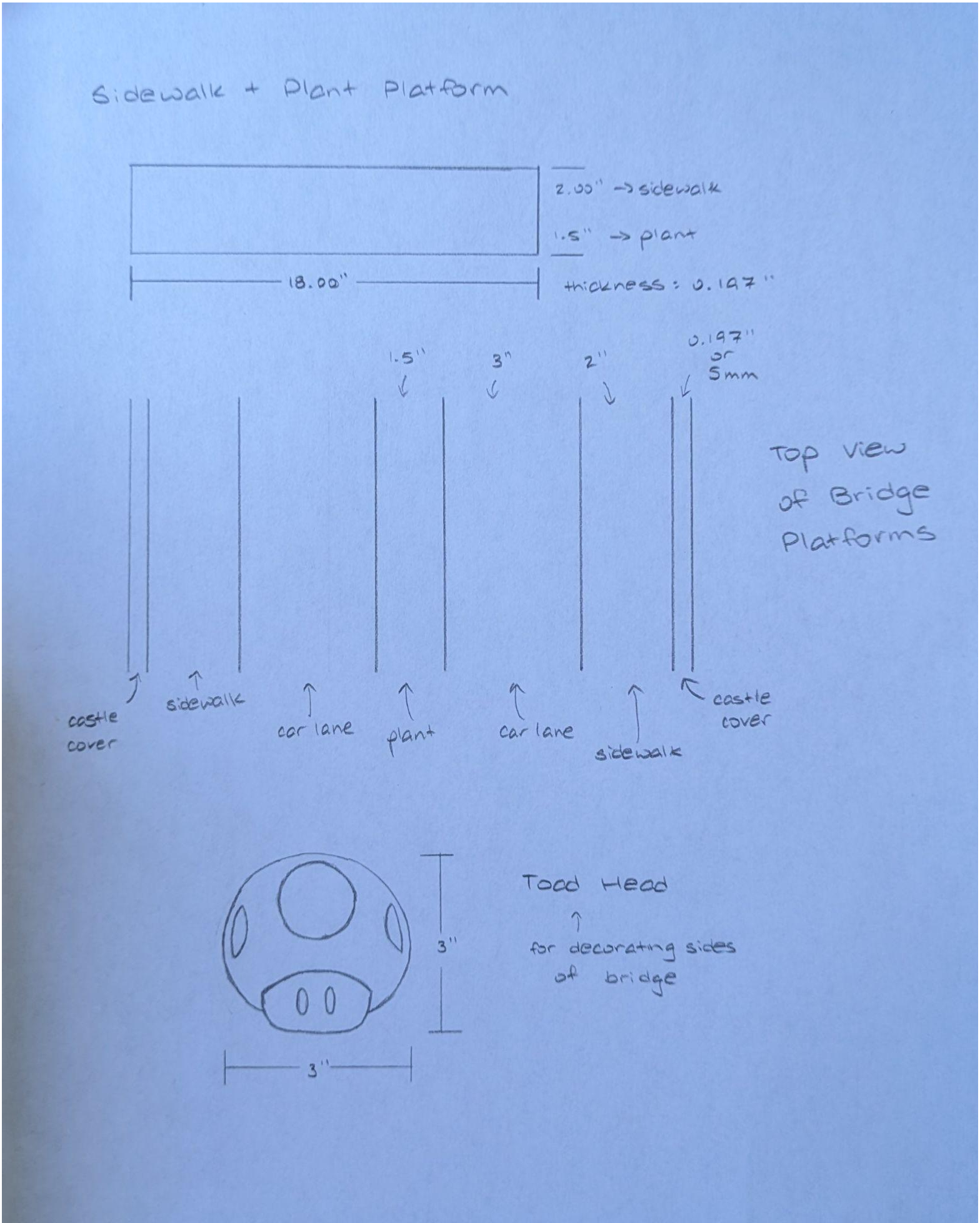


Bonus Top View (for clarity)



= car lane / conveyor belt

Ashley - Hand Drawing #1



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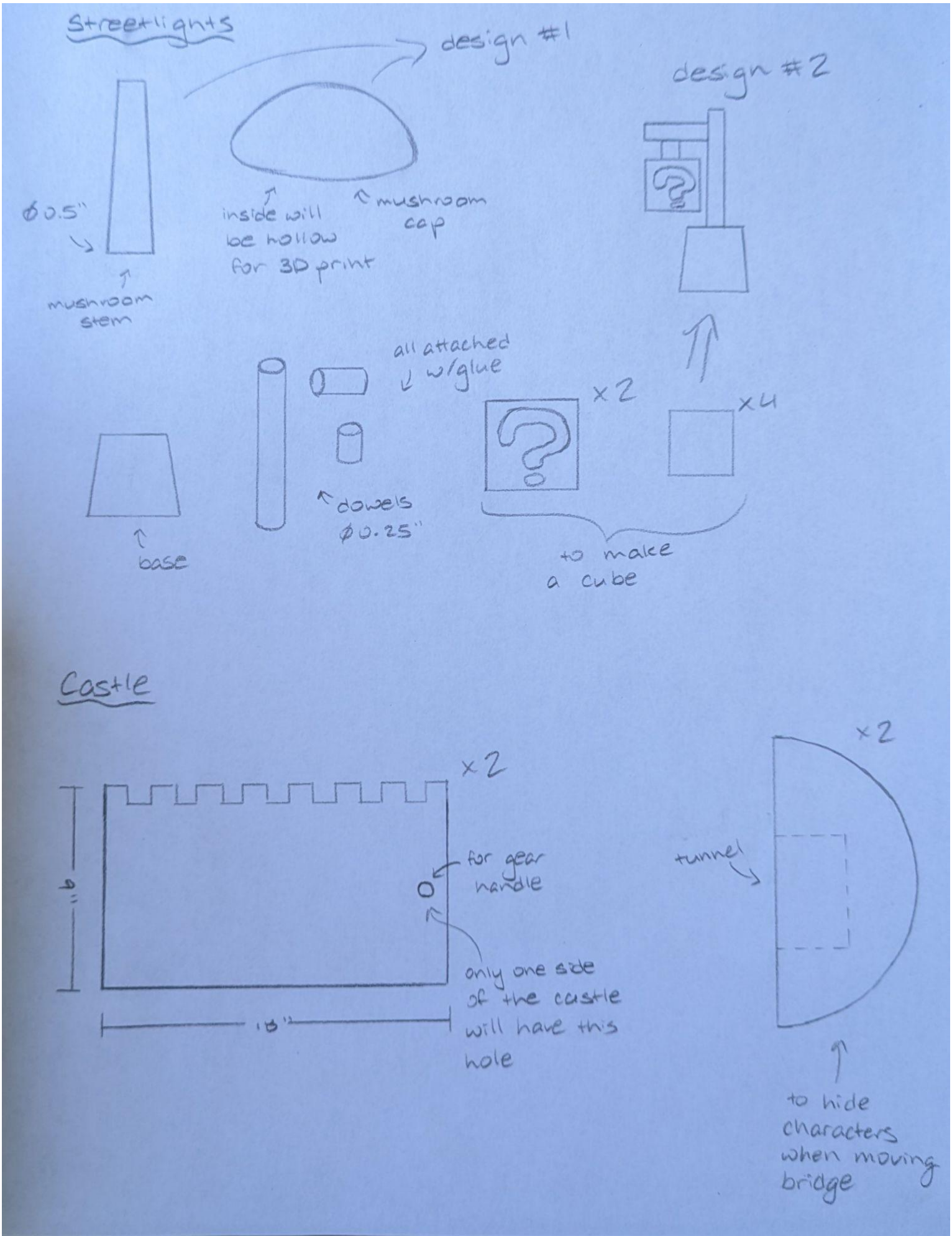
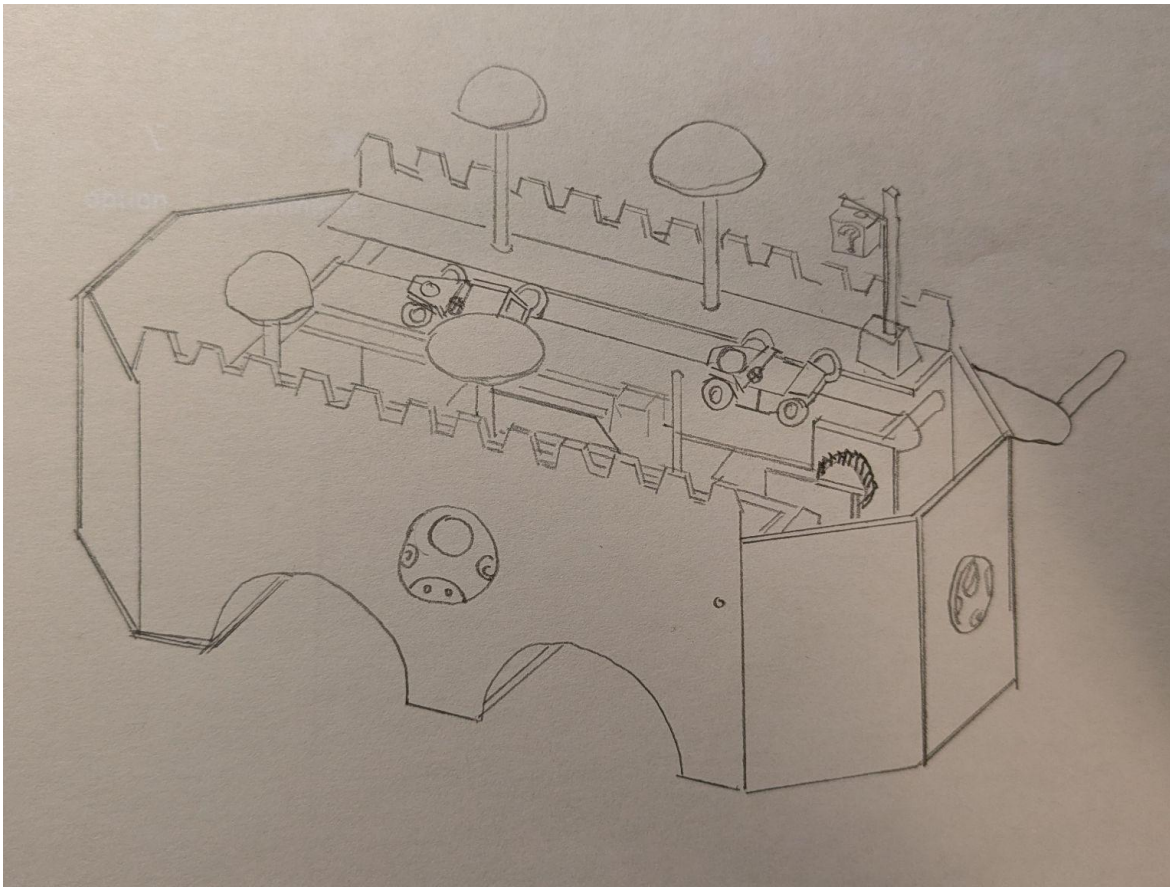
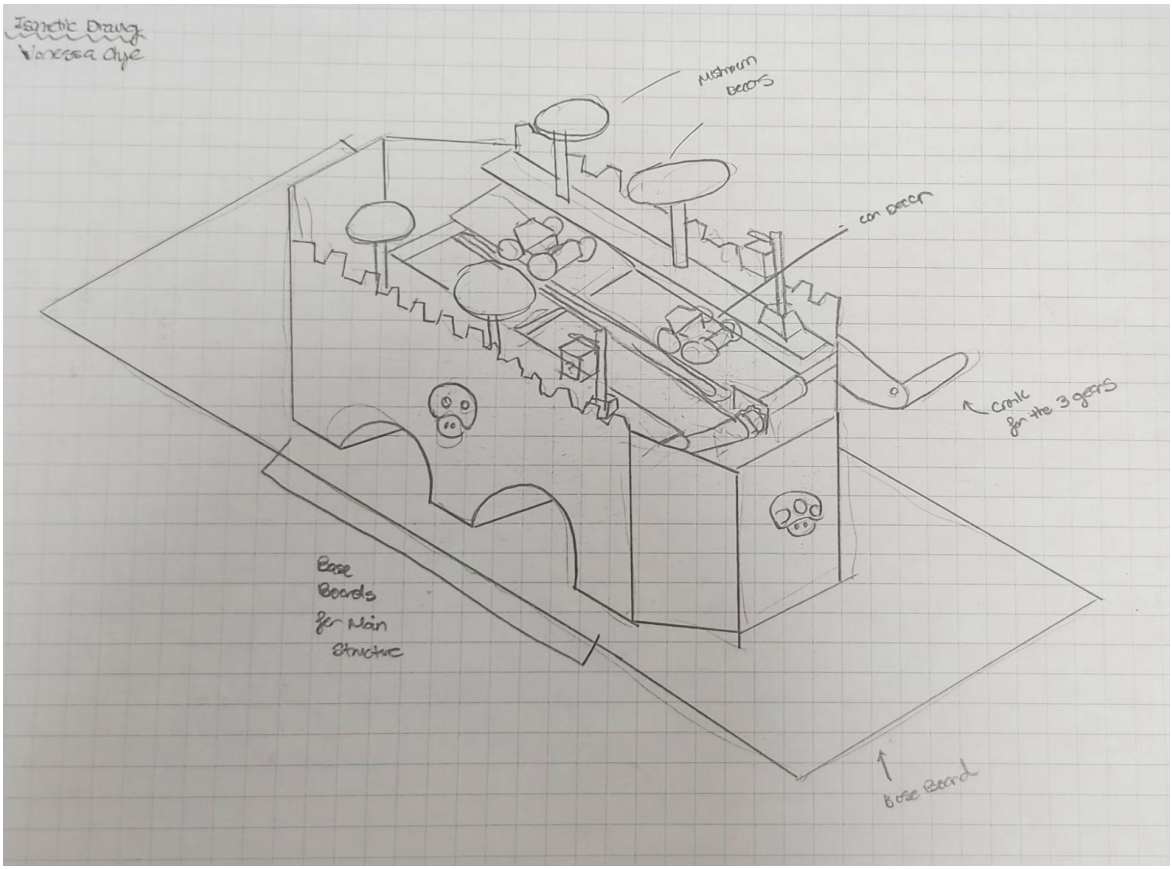
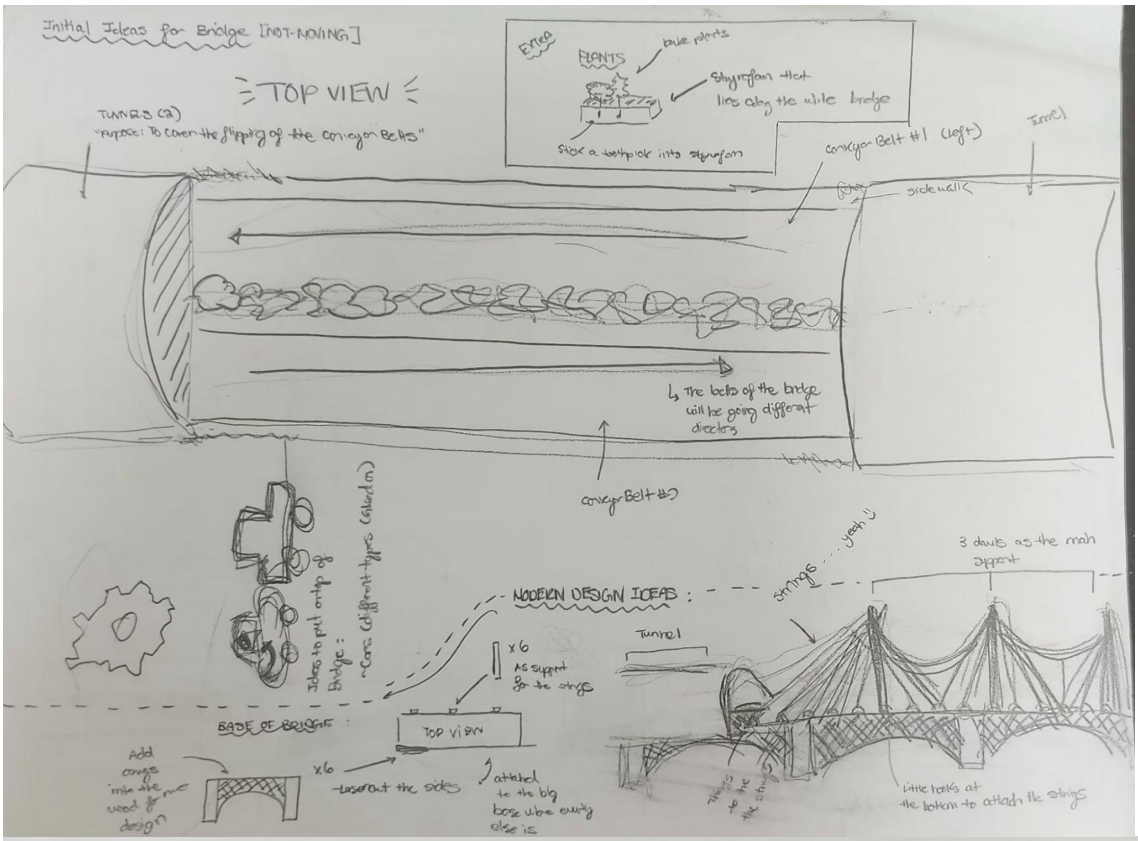


Ashley - Hand Drawing #3



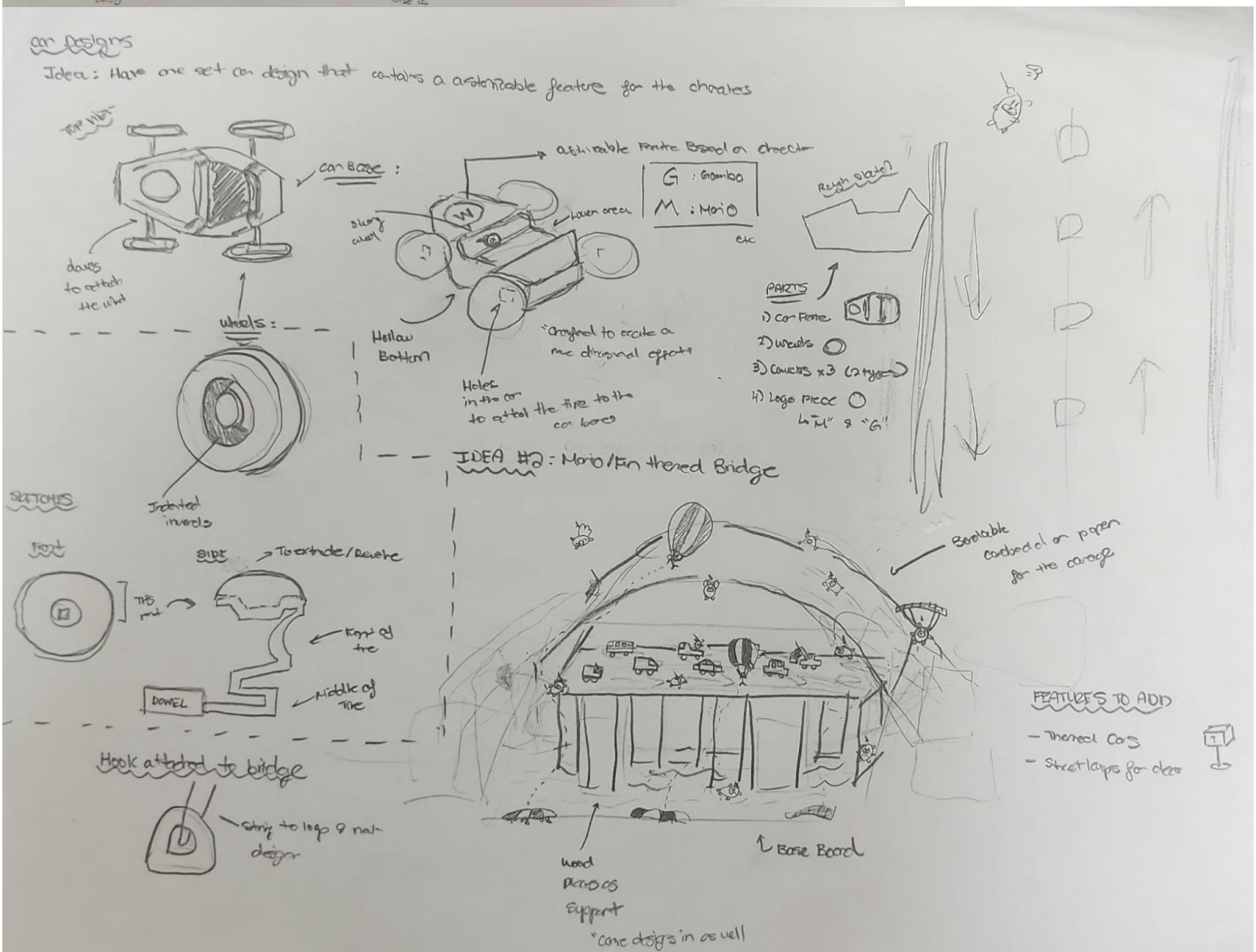
Vanessa - Hand Drawing 1



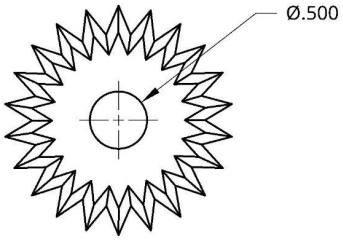


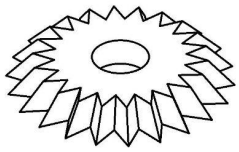
Vanessa - Hand Drawing #2

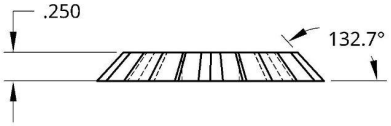
Vanessa - Hand Drawing #3

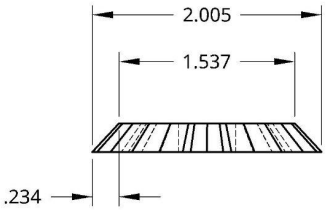


Technical Drawings
- Kaniesa -









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SURFACE FINISH
DO NOT SCALE DRAWING
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION
MATERIAL
FINISH

TITLE: Bevel Gear [TDJ4MI Final Project]

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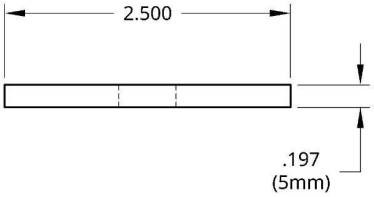

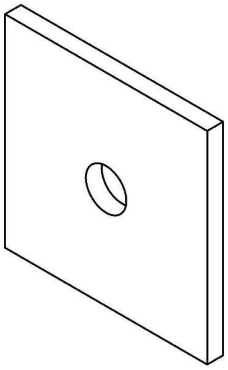

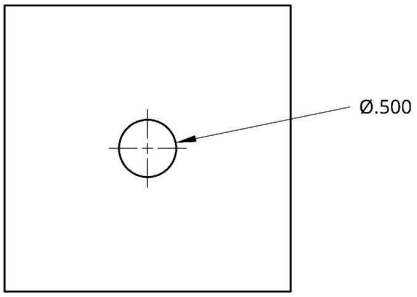

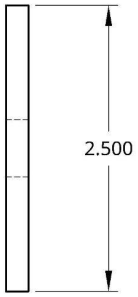

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THIRD ANGLE PROJECTION
MATERIAL
FINISH

TITLE: Gear Support [TDJ4MI Final Project]

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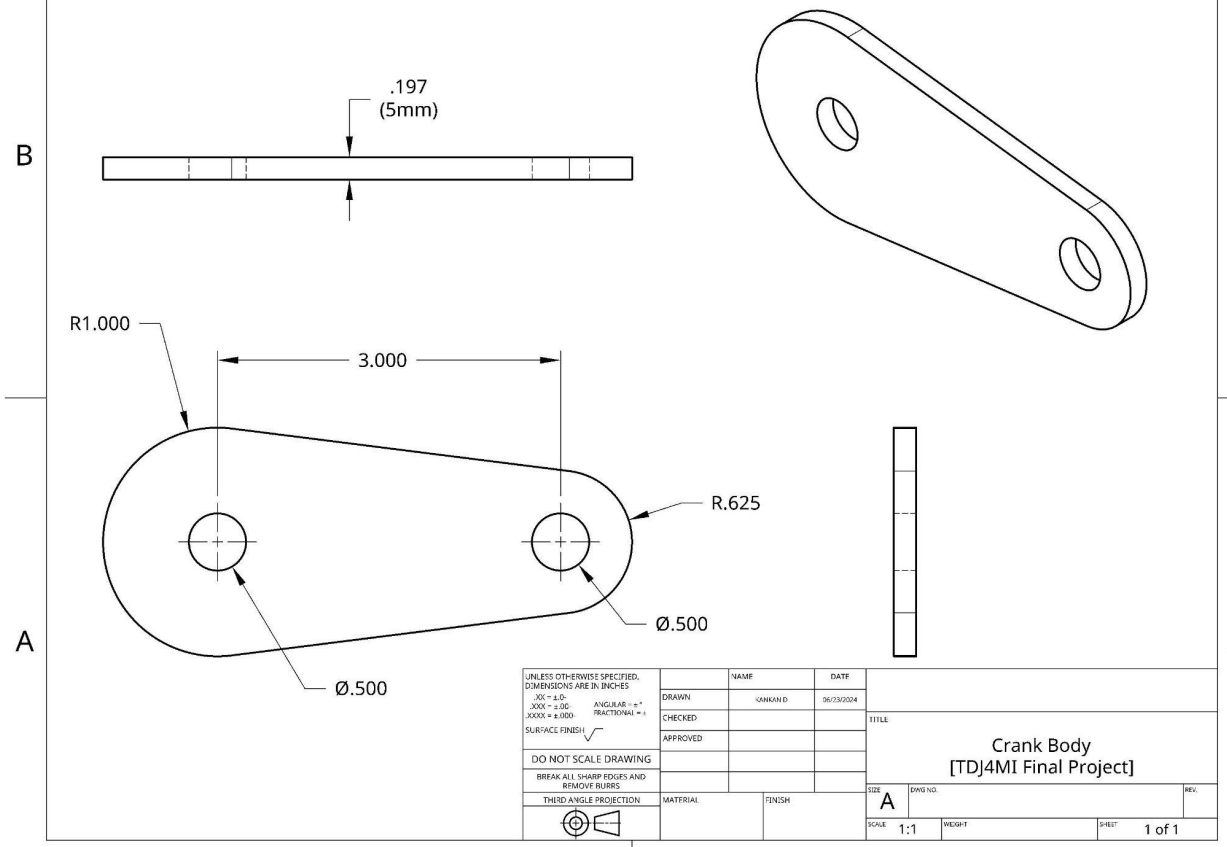

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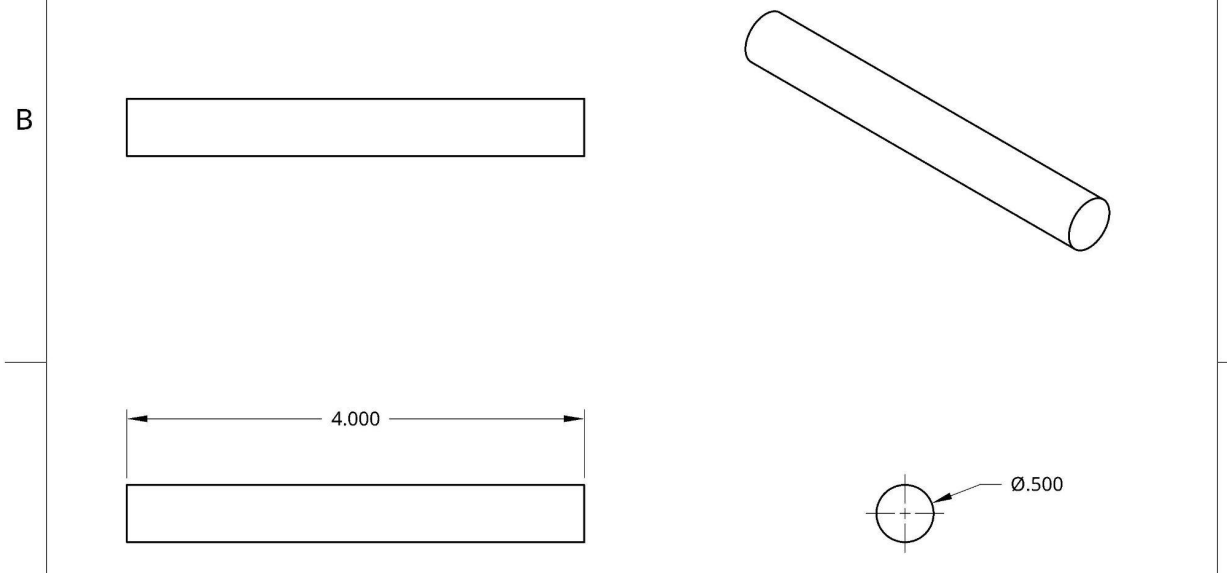
THIRD ANGLE PROJECTION
MATERIAL
FINISH

TITLE: Crank Body [TDJ4MI Final Project]

SIZE A | DWG NO. | REV.
SCALE 1:1 | WEIGHT | SHEET 1 of 1



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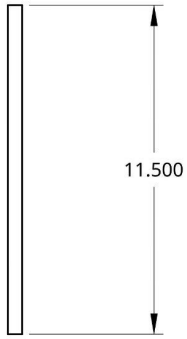
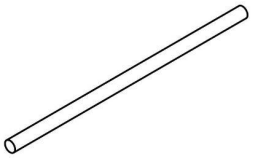
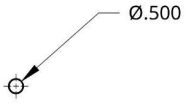
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION
MATERIAL
FINISH

TITLE: Crank Handle [TDJ4MI Final Project]

SIZE A | DWG NO. | REV.
SCALE 1:1 | WEIGHT | SHEET 1 of 1







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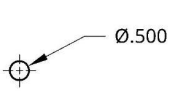

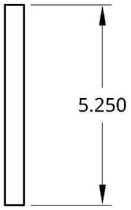

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	CHECKED		
	APPROVED		
MATERIAL		FINISH	
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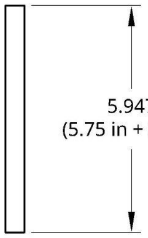

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SURFACE FINISH
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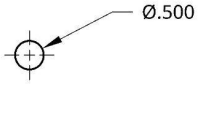
THIRD ANGLE PROJECTION

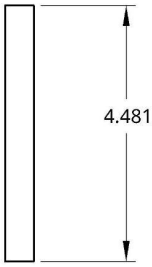
MATERIAL | FINISH

TITLE: Gear Dowel for Handle [TDJ4MI Final Project]

SIZE A | DWG NO. | REV.

SCALE 1:3 | WEIGHT | SHEET 1 of 1





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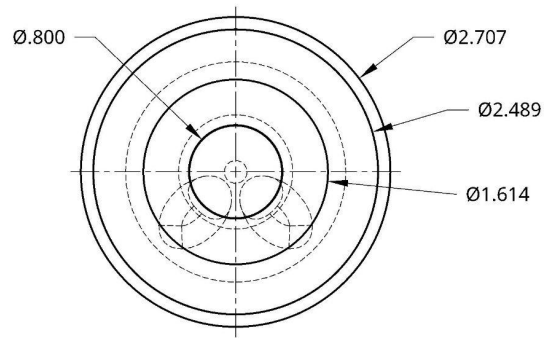
SURFACE FINISH
DO NOT SCALE DRAWING
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION

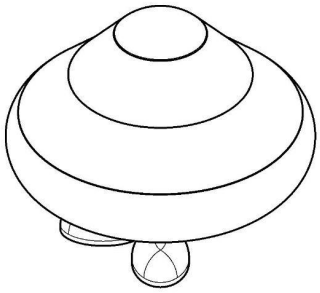
MATERIAL | FINISH

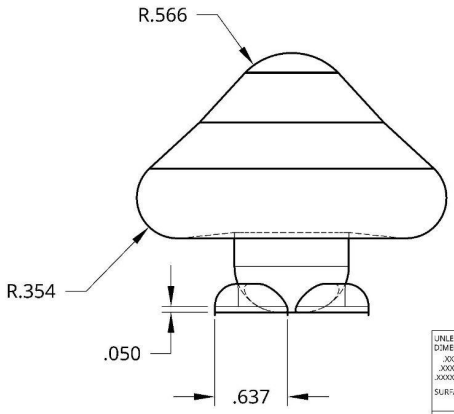
TITLE: Gear Dowel for Bottom [TDJ4MI Final Project]

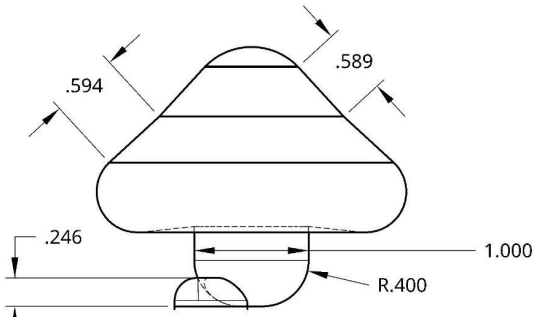
SIZE A | DWG NO. | REV.

SCALE 1:2 | WEIGHT | SHEET 1 of 1









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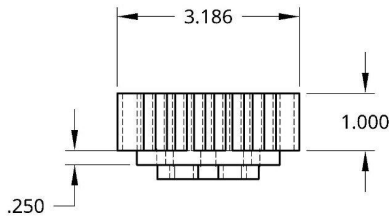
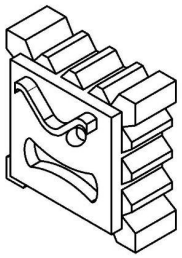
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

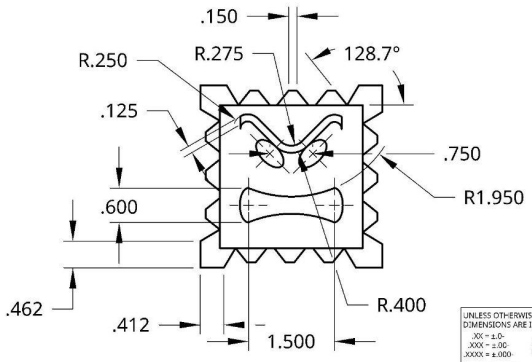
TITLE: Goomba
[TDJ4MI Final Project]

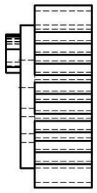
SIZE A | DWG NO. | REV.

SCALE 1:1 | WEIGHT | SHEET 1 of 1









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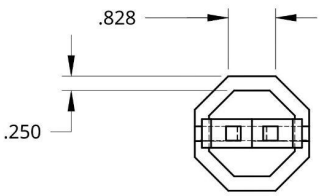
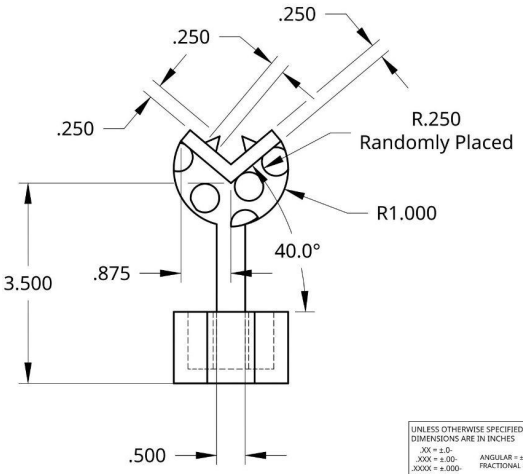
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	KANKAN D	06/24/2024
SURFACE FINISH	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

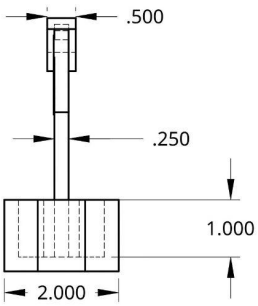
TITLE: Thwomp
[TDJ4MI Final Project]

SIZE A | DWG NO. | REV.

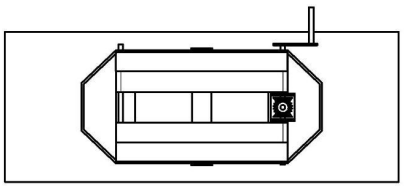
SCALE 1:2 | WEIGHT | SHEET 1 of 1

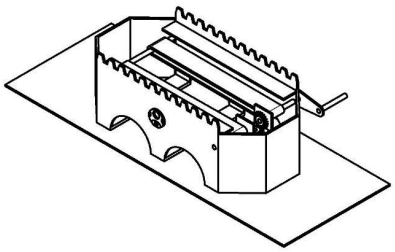


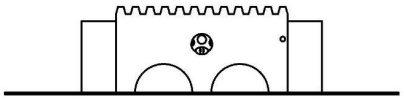


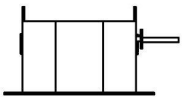


UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00- .XXXX = ±.000- ANGULAR = ± ° FRACTIONAL = ± SURFACE FINISH DO NOT SCALE DRAWING BREAK ALL SHARP EDGES AND REMOVE BURRS THIRD ANGLE PROJECTION		NAME	DATE
	DRAWN	KANKAN D	06/24/2024
	CHECKED		
	APPROVED		
	MATERIAL	FINISH	
TITLE: Piranha Plant [TDJ4MI Final Project]			
SIZE A	DWG NO.		REV.
SCALE 1:2	WEIGHT	SHEET 1 of 1	



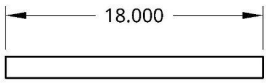


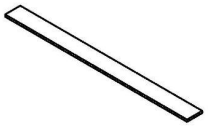


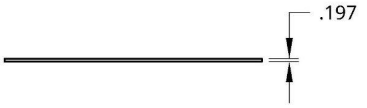


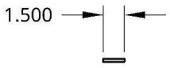
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00 .XXXX = ±.000- ANGULAR = ± ° FRACTIONAL = ± SURFACE FINISH DO NOT SCALE DRAWING BREAK ALL SHARP EDGES AND REMOVE BURRS THIRD ANGLE PROJECTION		NAME	DATE
	DRAWN	KANKAN D	06/24/2024
	CHECKED		
	APPROVED		
	MATERIAL	FINISH	
TITLE: Project Assembly [TDJ4MI]			
SIZE A	DWG NO.		REV.
SCALE 1:12	WEIGHT	SHEET 1 of 1	

Technical Drawings
- Ashley -

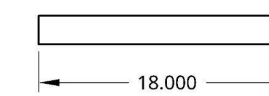


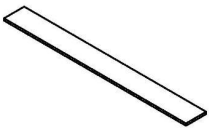


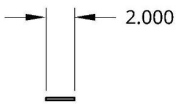




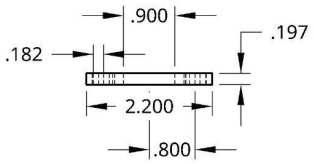
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	ASHLEY	06/17/2024	
SURFACE FINISH	CHECKED			TITLE: Plant Platform
DO NOT SCALE DRAWING	APPROVED			
BREAK ALL SHARP EDGES AND REMOVE BURRS				SIZE A / DWG NO. / REV.
THIRD ANGLE PROJECTION	MATERIAL		FINISH	SCALE 1:8 / WEIGHT / SHEET 1 of 1

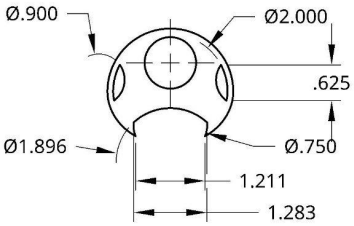


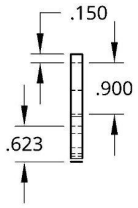




UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	ASHLEY	06/17/2024	
SURFACE FINISH	CHECKED			TITLE: Sidewalk Platform
DO NOT SCALE DRAWING	APPROVED			
BREAK ALL SHARP EDGES AND REMOVE BURRS				SIZE A / DWG NO. / REV.
THIRD ANGLE PROJECTION	MATERIAL		FINISH	SCALE 1:8 / WEIGHT / SHEET 1 of 1



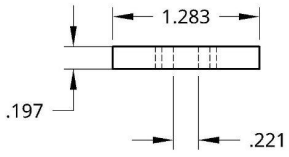


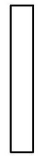


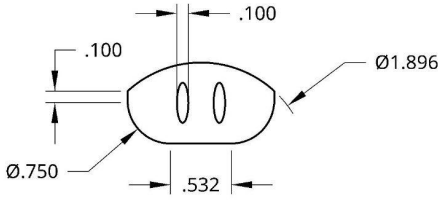
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ±° FRACTIONAL = ±		NAME	DATE
	DRAWN	ASHLEY	06/17/2024
	CHECKED		
SURFACE FINISH	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

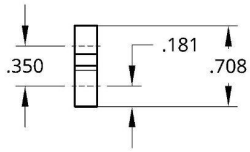
TITLE: Toad Head

SIZE	DWG NO.	REV.
A		
SCALE 1:2	WEIGHT	SHEET 1 of 1





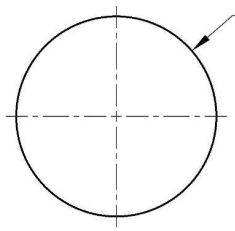


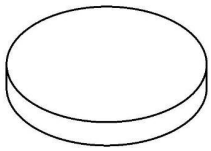


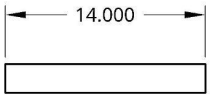
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ±° FRACTIONAL = ±		NAME	DATE
	DRAWN	ASHLEY	06/17/2024
	CHECKED		
SURFACE FINISH	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

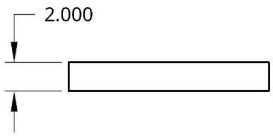
TITLE: Toad Face

SIZE	DWG NO.	REV.
A		
SCALE 1:1	WEIGHT	SHEET 1 of 1

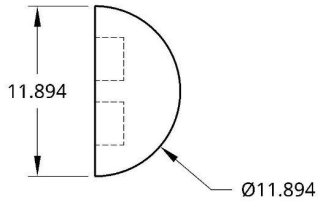


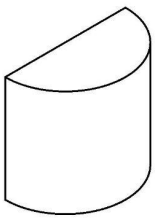


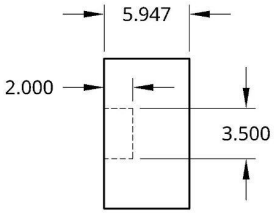


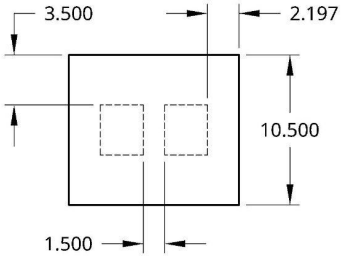


UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	
.XX = ±.0- ANGULAR = ± °	DRAWN	ASHLEY	06/17/2024	
.XXX = ±.00 FRACTIONAL = ±	CHECKED			TITLE: Tunnel Top
.XXXX = ±.000	APPROVED			
SURFACE FINISH				
DO NOT SCALE DRAWING				SIZE A / DWG NO. / REV.
BREAK ALL SHARP EDGES AND REMOVE BURRS				SCALE 1:8 / WEIGHT / SHEET 1 of 1
THIRD ANGLE PROJECTION	MATERIAL	FINISH		

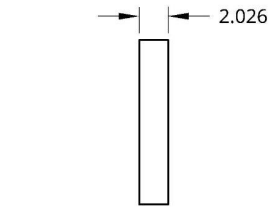


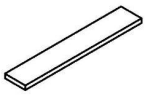


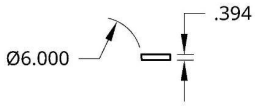


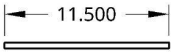


UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	
.XX = ±.0- ANGULAR = ± °	DRAWN	ASHLEY	06/17/2024	
.XXX = ±.00 FRACTIONAL = ±	CHECKED			TITLE: Tunnel
.XXXX = ±.000	APPROVED			
SURFACE FINISH				
DO NOT SCALE DRAWING				SIZE A / DWG NO. / REV.
BREAK ALL SHARP EDGES AND REMOVE BURRS				SCALE 1:8 / WEIGHT / SHEET 1 of 1
THIRD ANGLE PROJECTION	MATERIAL	FINISH		





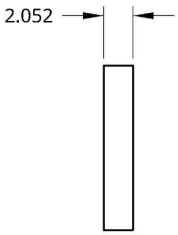


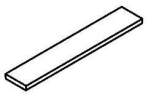


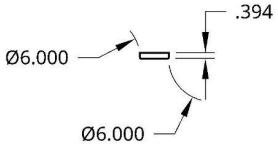
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ±° FRACTIONAL = ±		NAME	DATE
SURFACE FINISH	DRAWN	ASHLEY	06/17/2024
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

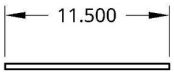
TITLE: Castle Base Sides

SIZE	DWG NO.	REV.
A		
SCALE 1:8	WEIGHT	SHEET 1 of 1





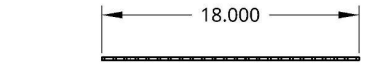


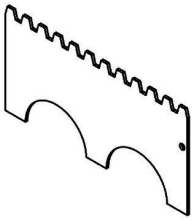


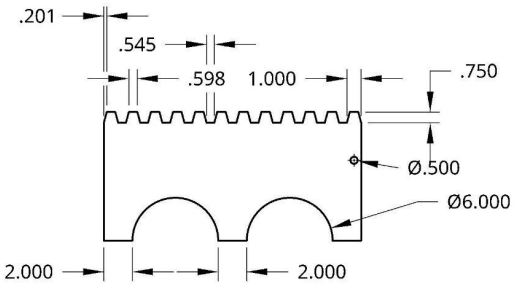
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ±° FRACTIONAL = ±		NAME	DATE
SURFACE FINISH	DRAWN	ASHLEY	06/17/2024
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

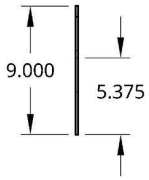
TITLE: Castle Base Middle

SIZE	DWG NO.	REV.
A		
SCALE 1:8	WEIGHT	SHEET 1 of 1



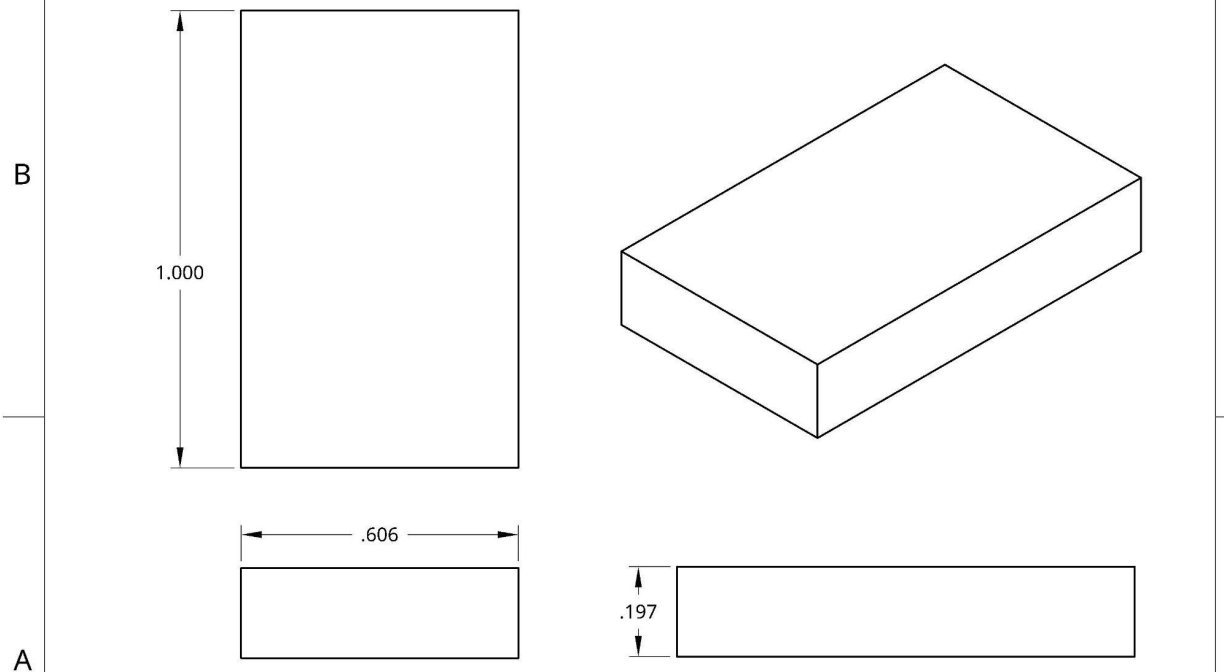






UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	ASHLEY	06/17/2024	
SURFACE FINISH	CHECKED			TITLE: Castle Back
DO NOT SCALE DRAWING	APPROVED			
BREAK ALL SHARP EDGES AND REMOVE BURRS				SIZE A / DWG NO. / REV.
THIRD ANGLE PROJECTION	MATERIAL		FINISH	SCALE 1:8 / WEIGHT / SHEET 1 of 1

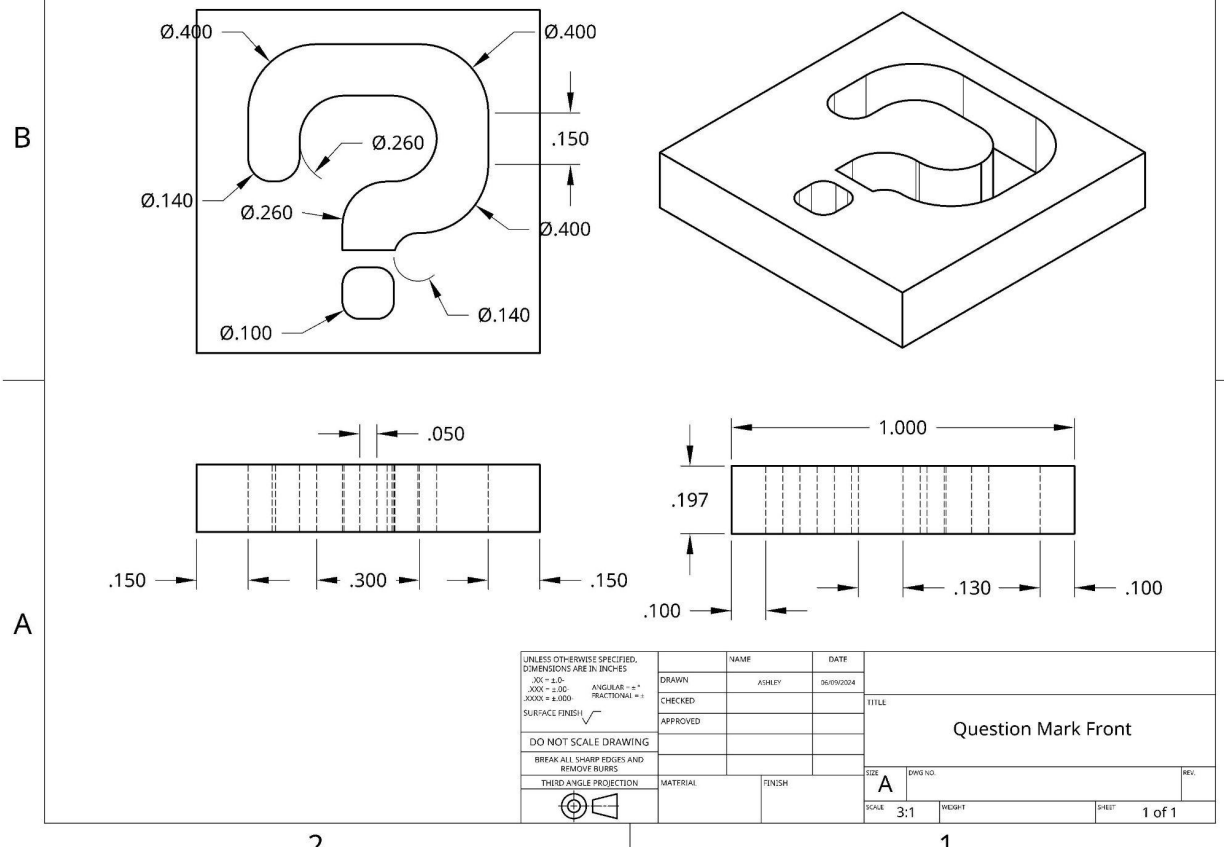
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	ASHLEY	06/17/2024	
SURFACE FINISH	CHECKED			TITLE: Castle Front
DO NOT SCALE DRAWING	APPROVED			
BREAK ALL SHARP EDGES AND REMOVE BURRS				SIZE A / DWG NO. / REV.
THIRD ANGLE PROJECTION	MATERIAL		FINISH	SCALE 1:8 / WEIGHT / SHEET 1 of 1



	NAME	DATE
DRAWN	ASHLEY	06/12/2024
CHECKED		
APPROVED		

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
.XX = ±.0- ANGULAR = ±°
.XXX = ±.000- FRACTIONAL = ±
SURFACE FINISH
DO NOT SCALE DRAWING
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION
MATERIAL
FINISH

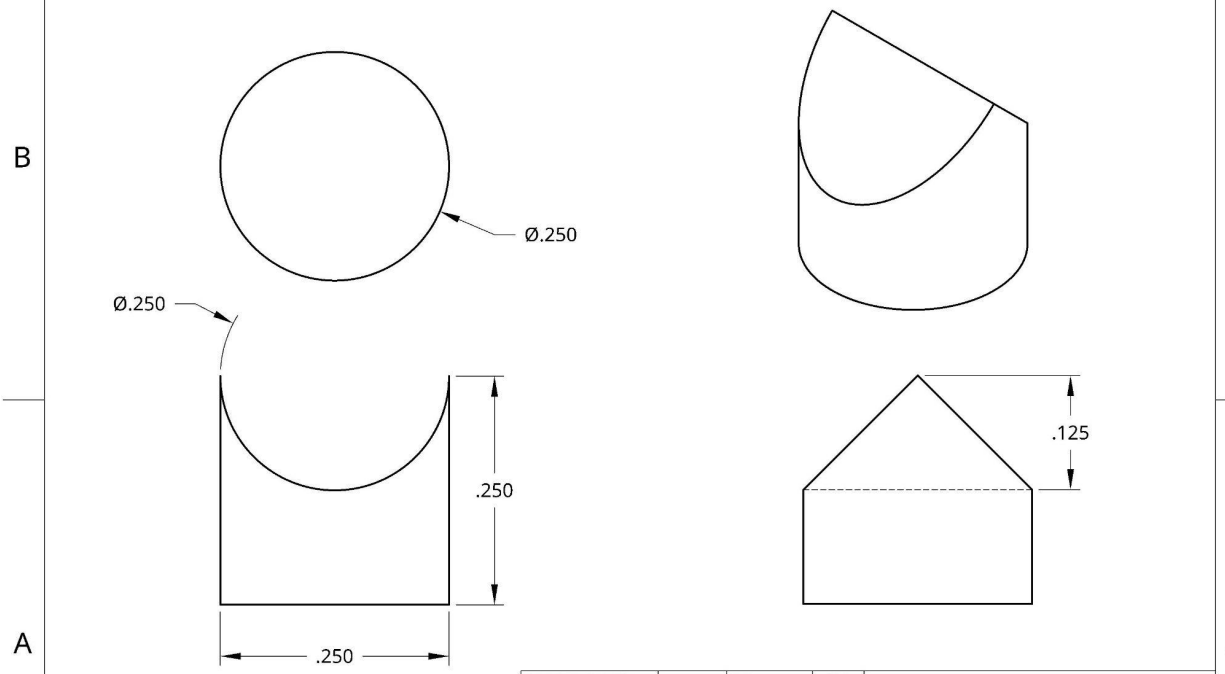
TITLE: Question Mark Side
SIZE: A
DWG NO.
REV.
SCALE: 4:1
WEIGHT
SHEET: 1 of 1



	NAME	DATE
DRAWN	ASHLEY	06/09/2024
CHECKED		
APPROVED		

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
.XX = ±.0- ANGULAR = ±°
.XXX = ±.000- FRACTIONAL = ±
SURFACE FINISH
DO NOT SCALE DRAWING
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION
MATERIAL
FINISH

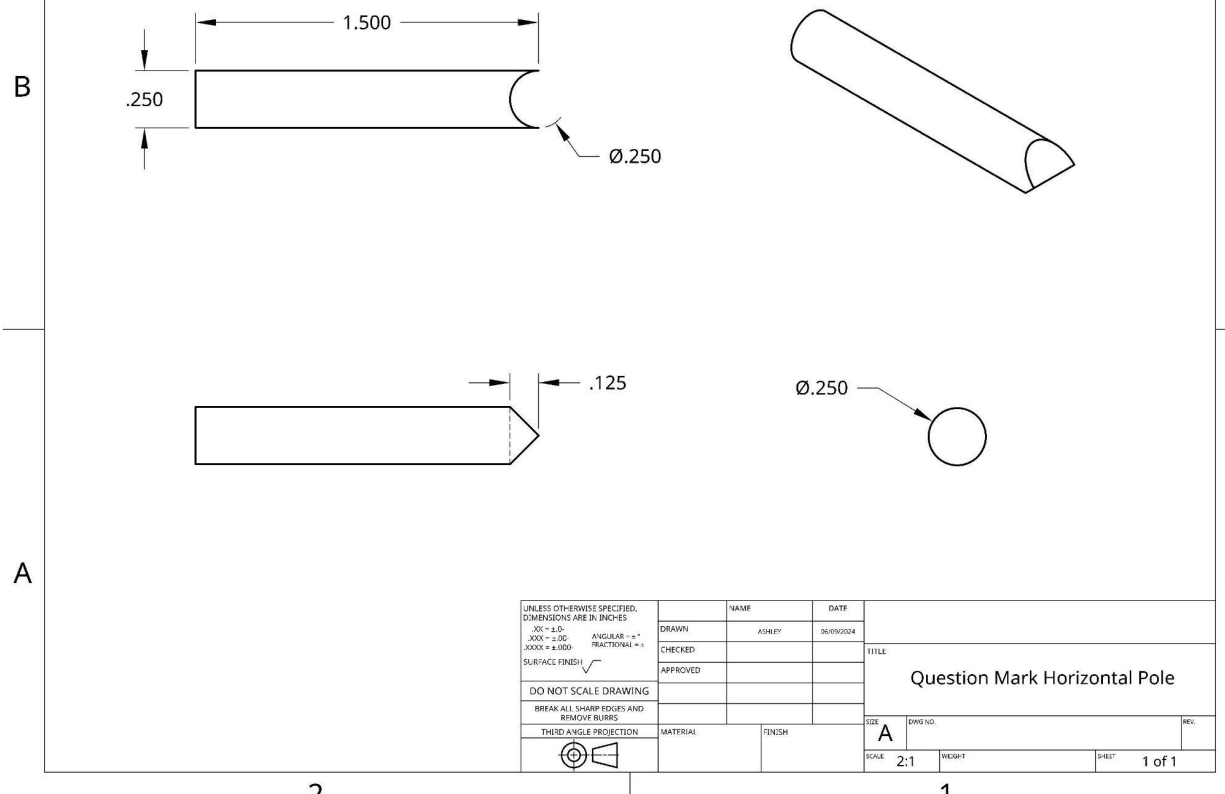
TITLE: Question Mark Front
SIZE: A
DWG NO.
REV.
SCALE: 3:1
WEIGHT
SHEET: 1 of 1



	NAME	DATE
DRAWN	ASHLEY	06/09/2024
CHECKED		
APPROVED		

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
.XX = ±.0- ANGULAR = ±°
.XXX = ±.00- FRACTIONAL = ±
.XXXX = ±.000-
SURFACE FINISH
DO NOT SCALE DRAWING
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION
MATERIAL
FINISH

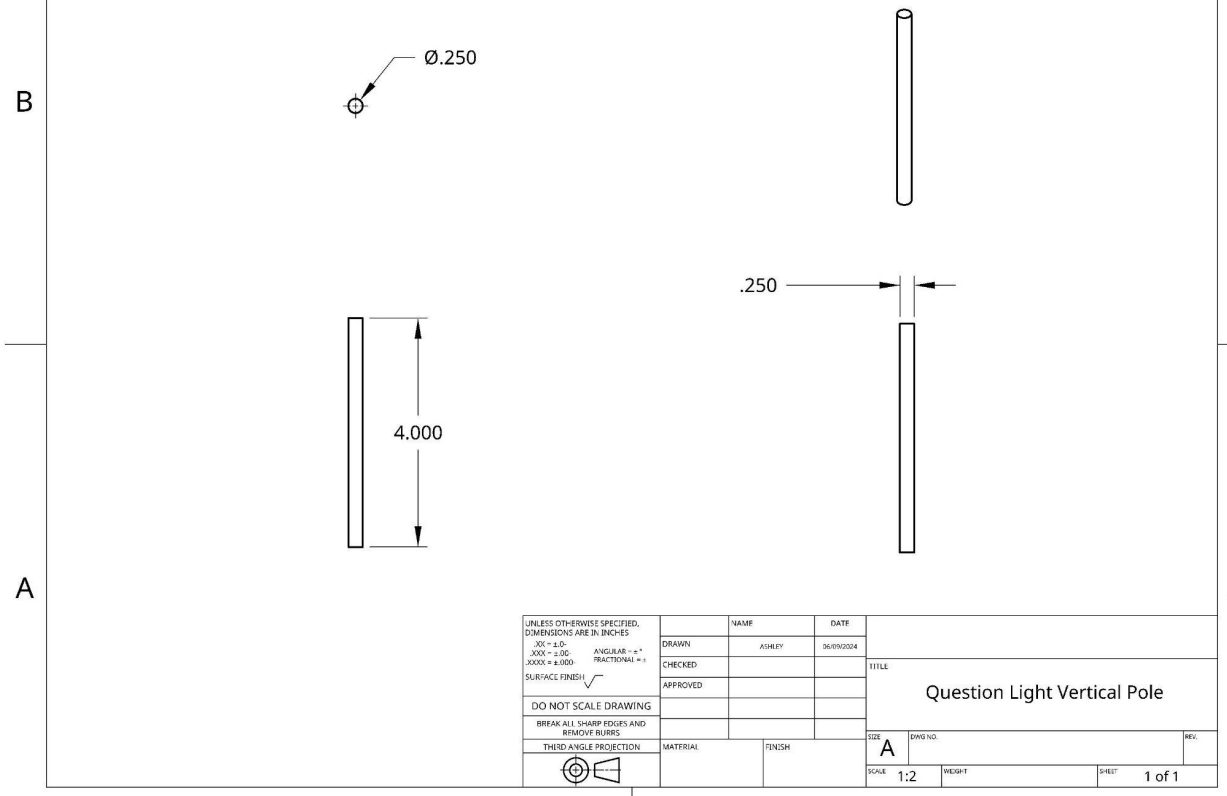
TITLE: Question Mark Attach
SIZE: A
DWG NO.
REV.
SCALE: 8:1
WEIGHT
SHEET: 1 of 1



	NAME	DATE
DRAWN	ASHLEY	06/09/2024
CHECKED		
APPROVED		

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
.XX = ±.0- ANGULAR = ±°
.XXX = ±.00- FRACTIONAL = ±
.XXXX = ±.000-
SURFACE FINISH
DO NOT SCALE DRAWING
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION
MATERIAL
FINISH

TITLE: Question Mark Horizontal Pole
SIZE: A
DWG NO.
REV.
SCALE: 2:1
WEIGHT
SHEET: 1 of 1

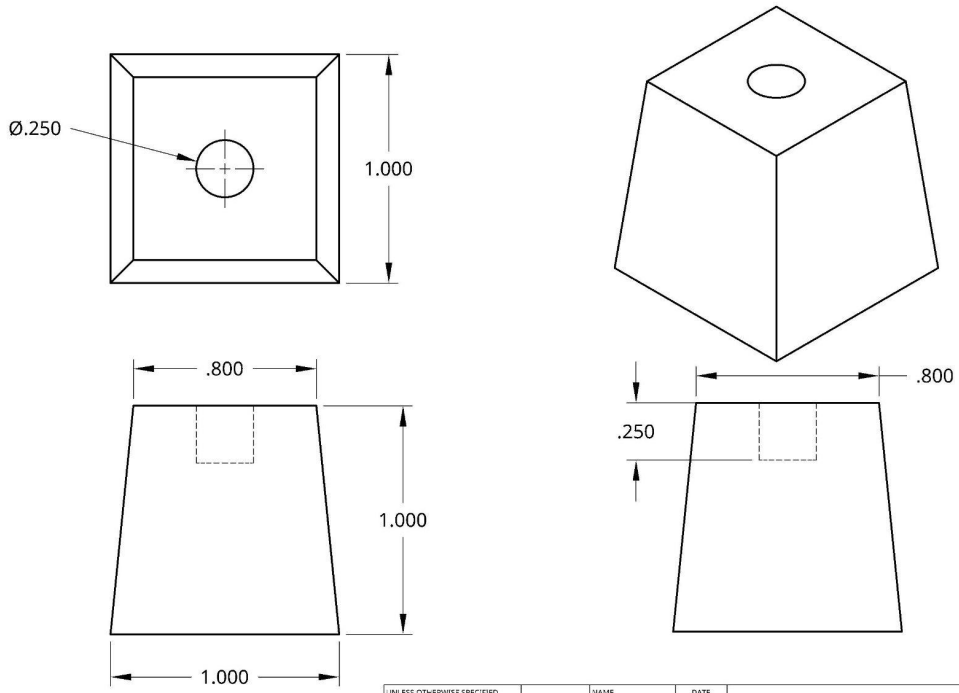


UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ±° FRACTIONAL = ±	DRAWN	ASHLEY	06/09/2024
SURFACE FINISH	CHECKED		
DO NOT SCALE DRAWING	APPROVED		
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

TITLE: Question Light Vertical Pole

SIZE A | DWG NO. | REV.

SCALE 1:2 | WEIGHT | SHEET 1 of 1

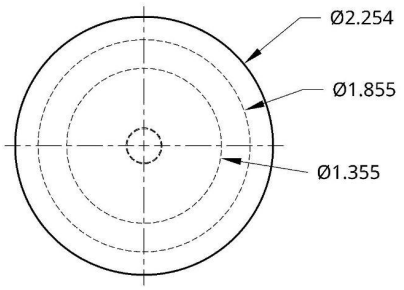


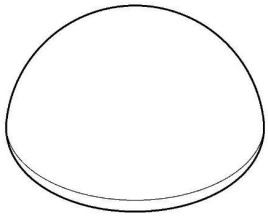
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ±° FRACTIONAL = ±	DRAWN	ASHLEY	06/09/2024
SURFACE FINISH	CHECKED		
DO NOT SCALE DRAWING	APPROVED		
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

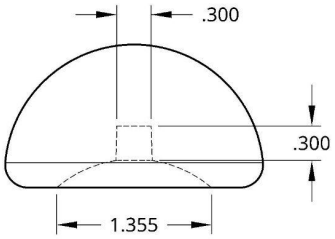
TITLE: Question Light Stand

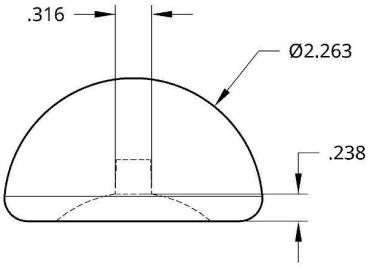
SIZE A | DWG NO. | REV.

SCALE 2:1 | WEIGHT | SHEET 1 of 1





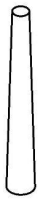




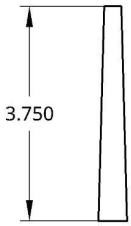
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	ASHLEY	06/09/2024
SURFACE FINISH	CHECKED		
DO NOT SCALE DRAWING	APPROVED		
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

TITLE: Mushroom Cap #1

SIZE	DWG NO.	REV.
A		
SCALE 1:1	WEIGHT	SHEET 1 of 1



.300



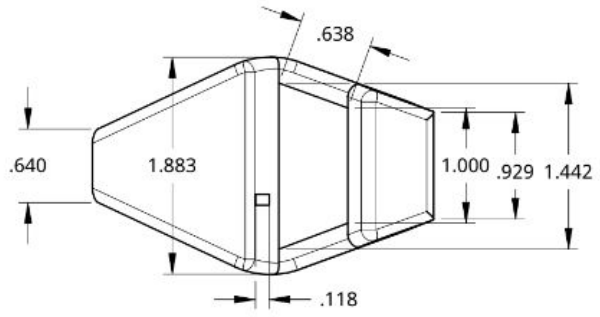
.500

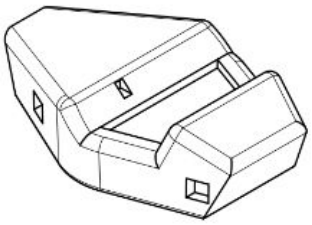
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE
.XX = ±.0- .XXX = ±.00 .XXXX = ±.000 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	ASHLEY	06/09/2024
SURFACE FINISH	CHECKED		
DO NOT SCALE DRAWING	APPROVED		
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

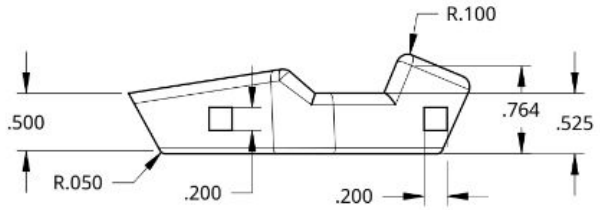
TITLE: Mushroom Stem

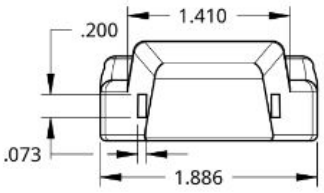
SIZE	DWG NO.	REV.
A		
SCALE 1:2	WEIGHT	SHEET 1 of 1

Technical Drawings
- Vanessa -







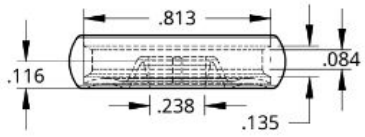


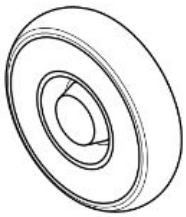
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00- .XXXX = ±.000- ANGULAR = ± ° FRACTIONAL = ± SURFACE FINISH √		NAME	DATE
	DRAWN	VANESSA C	06/18/2024
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

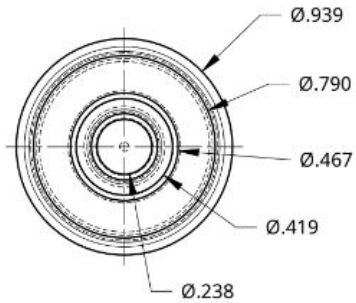
TITLE: Car Frame

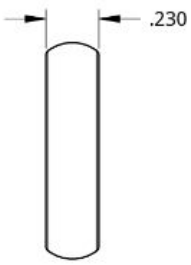
SIZE: A | DWG NO. | REV.

SCALE: 1:1 | WEIGHT | SHEET: 1 of 1







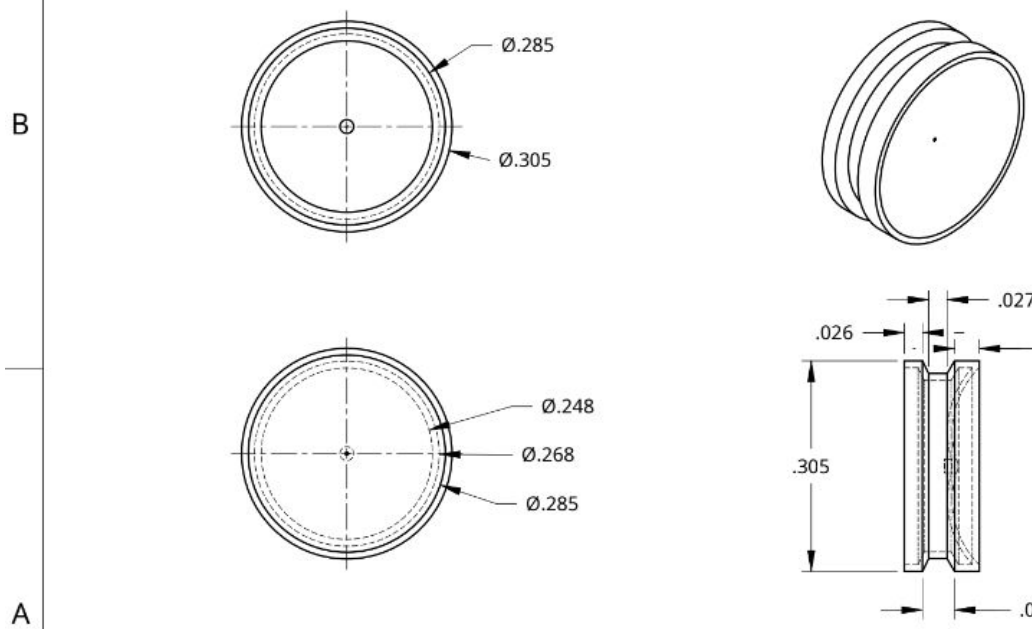


UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00- .XXXX = ±.000- ANGULAR = ± ° FRACTIONAL = ± SURFACE FINISH √		NAME	DATE
	DRAWN	VANESSA C	06/18/2024
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

TITLE: Kart Wheels

SIZE: A | DWG NO. | REV.

SCALE: 2:1 | WEIGHT | SHEET: 1 of 1

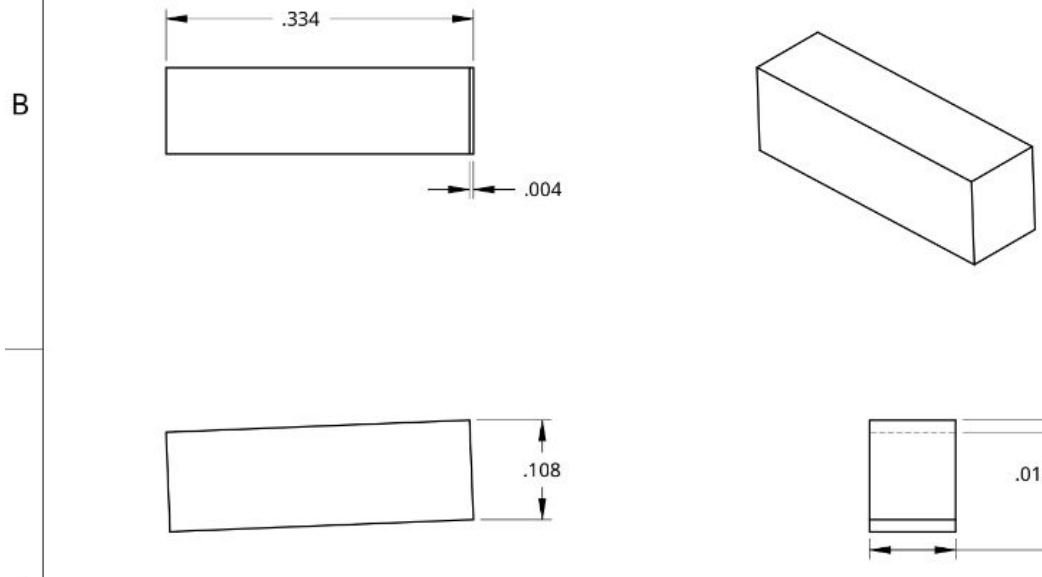


UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.03 .XXX = ±.005 ANGULAR = ± ° .XXXX = ± .0005 FRACTIONAL = ±		NAME	DATE
SURFACE FINISH	DRAWN	VANESSA C	06/18/2024
DO NOT SCALE DRAWING	CHECKED		
BREAK ALL SHARP EDGES AND REMOVE BURRS	APPROVED		
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

TITLE: Steering Wheel

SIZE A | DWG NO. | REV.

SCALE 6:1 | WEIGHT | SHEET 1 of 1

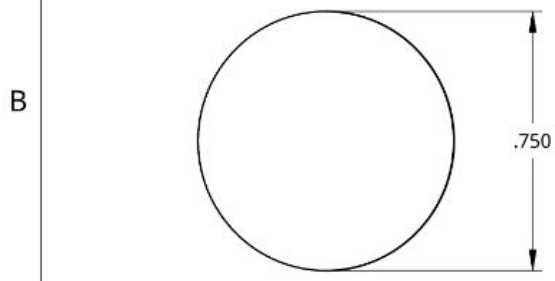


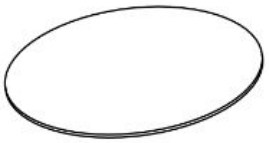
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.03 .XXX = ±.005 ANGULAR = ± ° .XXXX = ± .0005 FRACTIONAL = ±		NAME	DATE
SURFACE FINISH	DRAWN	VANESSA C	06/18/2024
DO NOT SCALE DRAWING	CHECKED		
BREAK ALL SHARP EDGES AND REMOVE BURRS	APPROVED		
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

TITLE: Steering Wheel Connector

SIZE A | DWG NO. | REV.

SCALE 8:1 | WEIGHT | SHEET 1 of 1





	NAME	DATE
DRAWN	VANESSA C	06/18/2024
CHECKED		
APPROVED		

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
.XX = ±.03
.XXX = ±.00
.XXXX = ±.000
ANGULAR = ± °
FRACTIONAL = ±
SURFACE FINISH

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND REMOVE BURRS

THIRD ANGLE PROJECTION

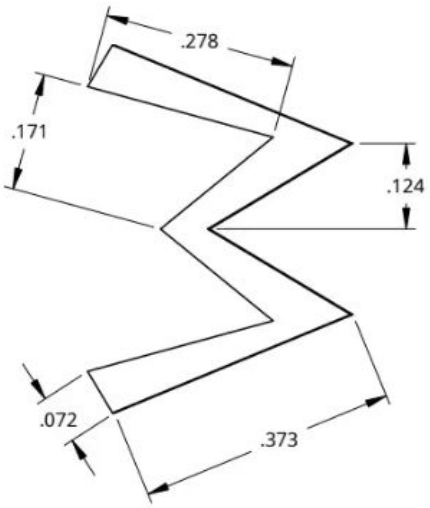
MATERIAL

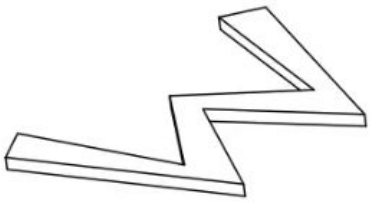
FINISH

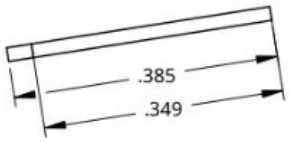
TITLE: Logo Plaque

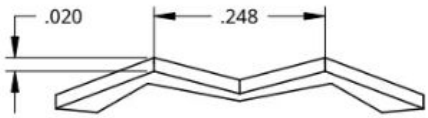
SIZE: A | DWG NO. | REV.

SCALE: 3:1 | WEIGHT | SHEET: 1 of 1









	NAME	DATE
DRAWN	VANESSA C	06/18/2024
CHECKED		
APPROVED		

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
.XX = ±.03
.XXX = ±.00
.XXXX = ±.000
ANGULAR = ± °
FRACTIONAL = ±
SURFACE FINISH

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND REMOVE BURRS

THIRD ANGLE PROJECTION

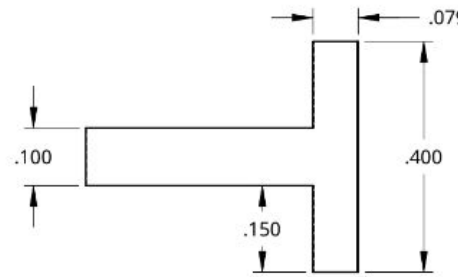
MATERIAL

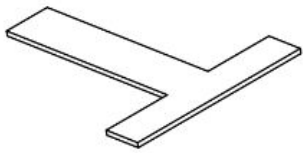
FINISH

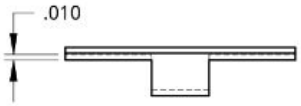
TITLE: M Letter (Mario Kart)

SIZE: A | DWG NO. | REV.

SCALE: 6:1 | WEIGHT | SHEET: 1 of 1





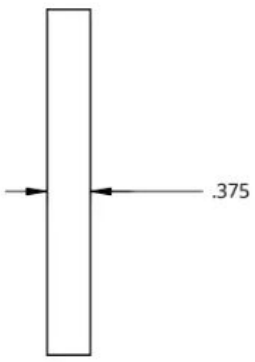


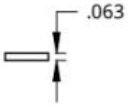
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE
.XX = ±.03 .XXX = ±.005 .XXXX = ±.0005 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	VANESSA C	06/20/2024
SURFACE FINISH √	CHECKED		
DO NOT SCALE DRAWING	APPROVED		
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

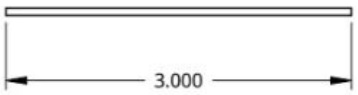
TITLE: T Shape (Toad Kart)

SIZE A | DWG NO. | REV.

SCALE 5:1 | WEIGHT | SHEET 1 of 1





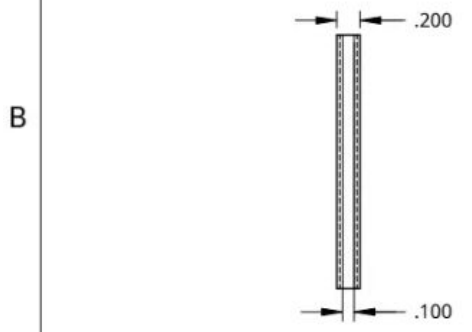


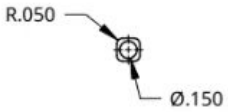
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE
.XX = ±.03 .XXX = ±.005 .XXXX = ±.0005 ANGULAR = ± ° FRACTIONAL = ±	DRAWN	VANESSA C	06/20/2024
SURFACE FINISH √	CHECKED		
DO NOT SCALE DRAWING	APPROVED		
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

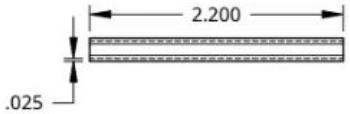
TITLE: Road Tiles

SIZE A | DWG NO. | REV.

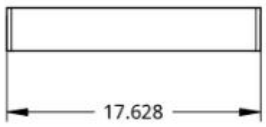
SCALE 1:1 | WEIGHT | SHEET 1 of 1

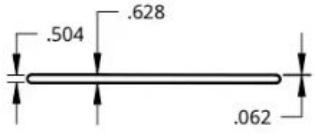


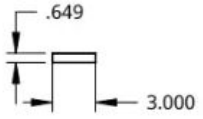




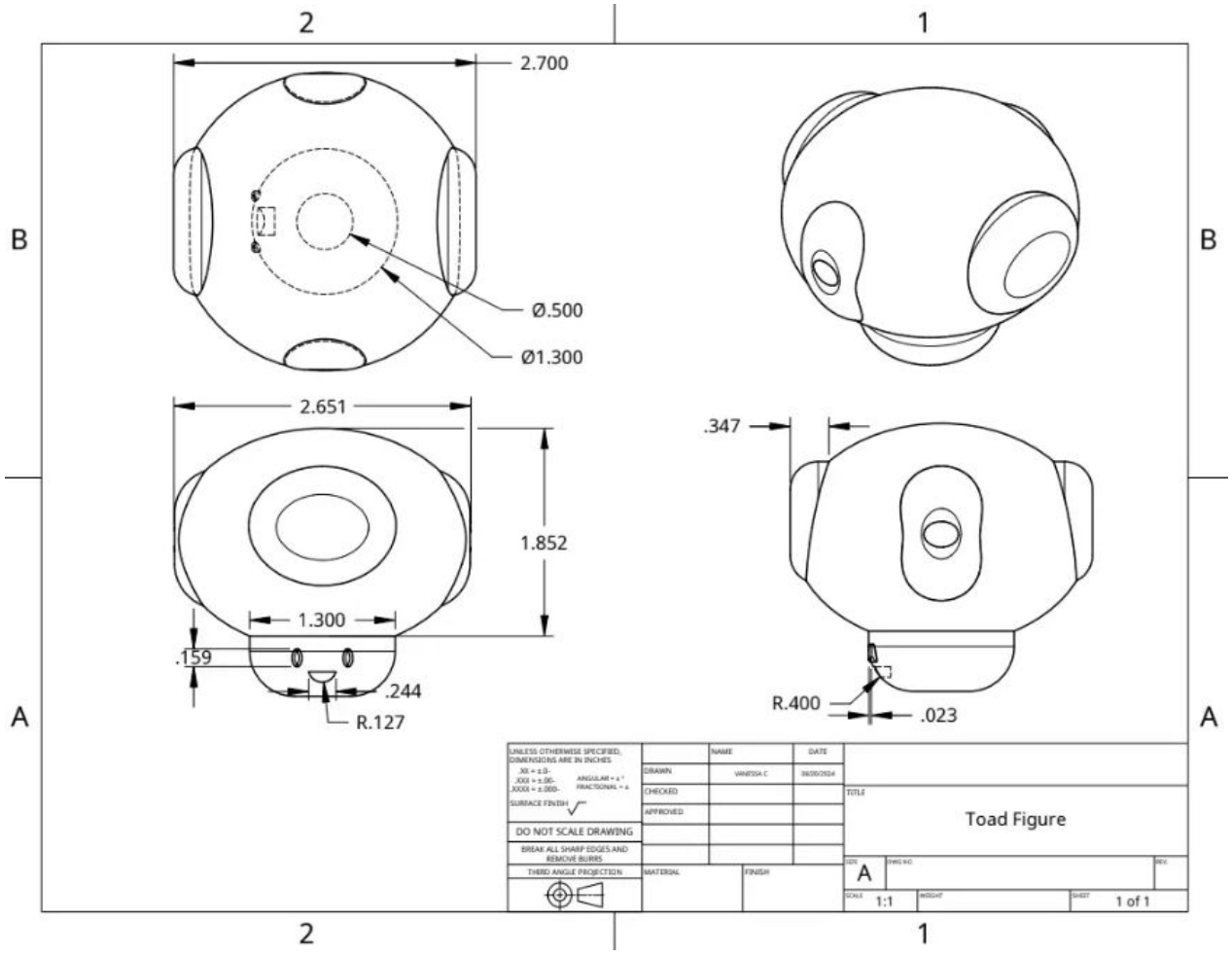
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.03- ANGULAR = ± ° .XXX = ±.00- FRACTIONAL = ± .XXXX = ±.000- SURFACE FINISH DO NOT SCALE DRAWING BREAK ALL SHARP EDGES AND REMOVE BURRS THIRD ANGLE PROJECTION		NAME	DATE
	DRAWN	VANESSA C	06/18/2024
	CHECKED		
	APPROVED		
	MATERIAL		FINISH
TITLE: Dowel Connector (Wheels)			
SIZE: A	DWG NO.		REV.
SCALE: 1:1	WEIGHT		SHEET: 1 of 1







UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.03- ANGULAR = ± ° .XXX = ±.00- FRACTIONAL = ± .XXXX = ±.000- SURFACE FINISH DO NOT SCALE DRAWING BREAK ALL SHARP EDGES AND REMOVE BURRS THIRD ANGLE PROJECTION		NAME	DATE
	DRAWN	VANESSA C	06/18/2024
	CHECKED		
	APPROVED		
	MATERIAL		FINISH
TITLE: Conveyor Belt			
SIZE: A	DWG NO.		REV.
SCALE: 1:8	WEIGHT		SHEET: 1 of 1


2
1
B
A
2.700
Ø.500
Ø1.300
2.651
1.852
1.300
.159
.244
R.127
.347
R.400
.023
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
SURFACE FINISH
DO NOT SCALE DRAWING
BREAK ALL SHARP EDGES AND REMOVE BURRS
THIRD ANGLE PROJECTION
NAME
DATE
DRAWN
VANESSA C
08/20/2024
CHECKED
APPROVED
MATERIAL
FINISH
TITLE
Toad Figure
SIZE
A
SCALE
1:1
SHEET
1 of 1

Materials & Tools

Materials

- 3D Print Filament
- 3D Printer
- Laser Cut Wood
- Laser Cutter
- 0.5 Inch Dowels
- 0.25 Inch Dowels
- Cardboard
- Rubber Bands

Tools

- Hot Glue
- Super Glue
- Scissors
- Exacto Knife
- Dowel Cutters
- Hand Drill
- Drill Press
- Band Saw

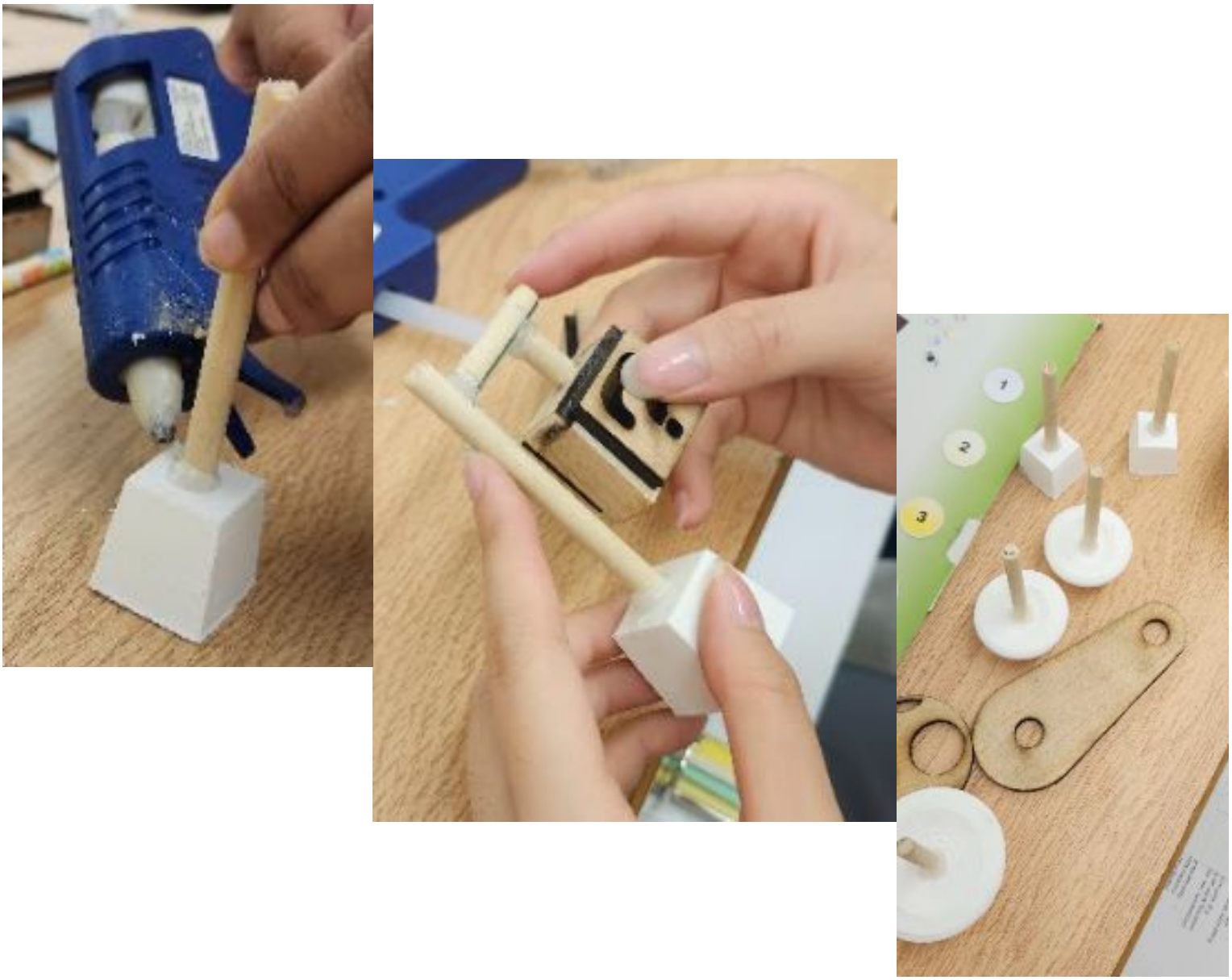
Prototype Construction Sequence

Construction Sequence I

Above: Getting materials 3D Printed (in white) and Laser Cut and then gathering them together for construction.

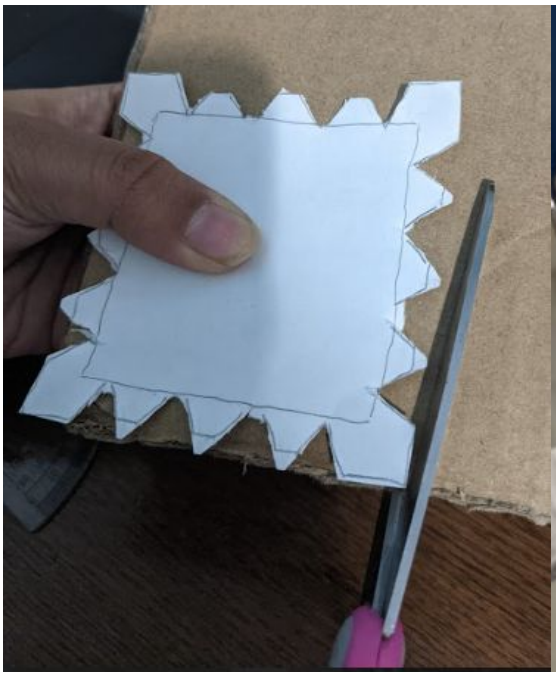
Right: Cutting other non-printed/non-laser cut parts (mainly dowels)

Construction Sequence II



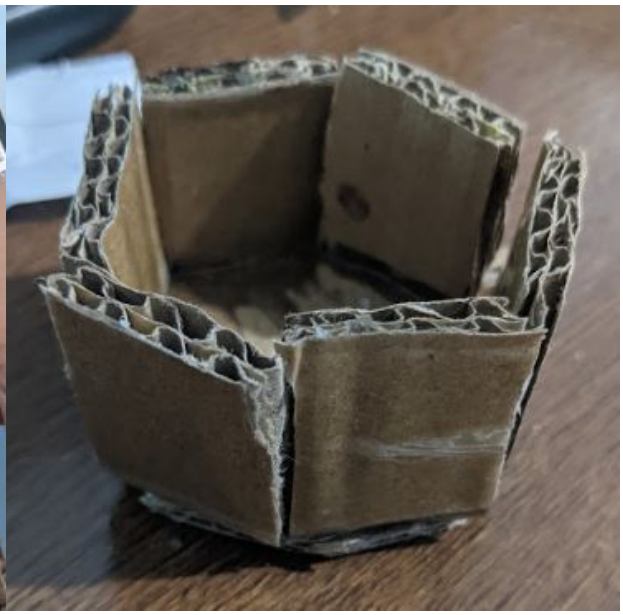
Above: Gluing together dowels and laser cut / 3D printed materials (e.g. Streetlights as shown)

Construction Sequence III

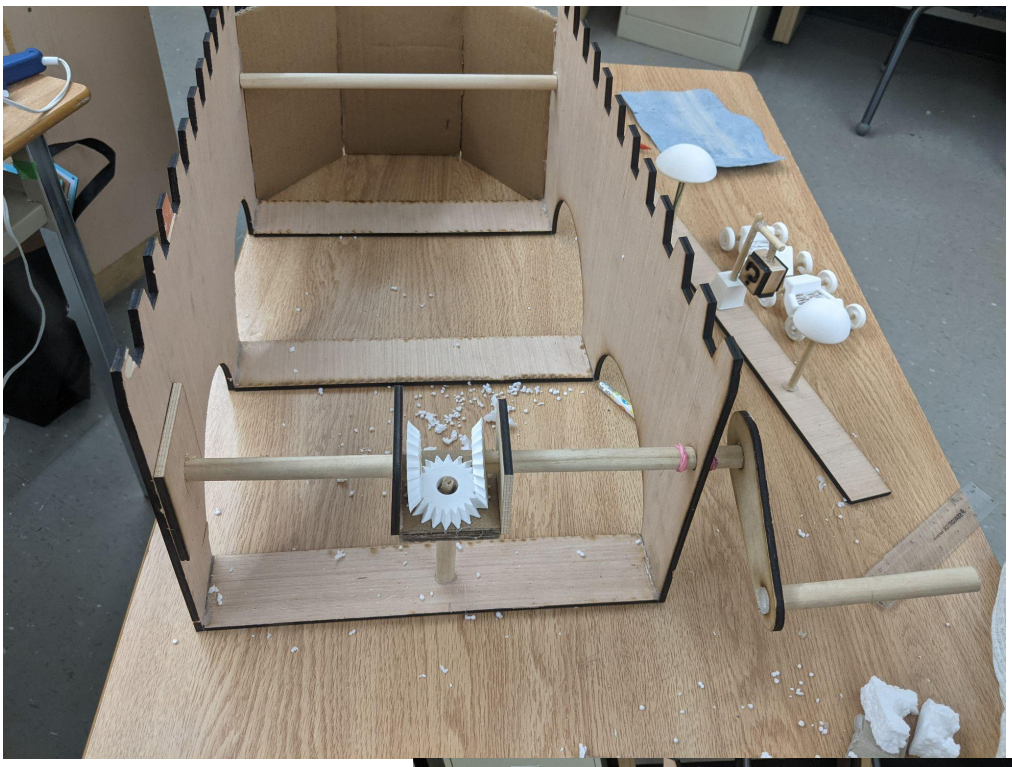


Left Images: Cutting up cardboard for any remaining parts

Right Images: Gluing remaining parts (e.g. bridge decor)



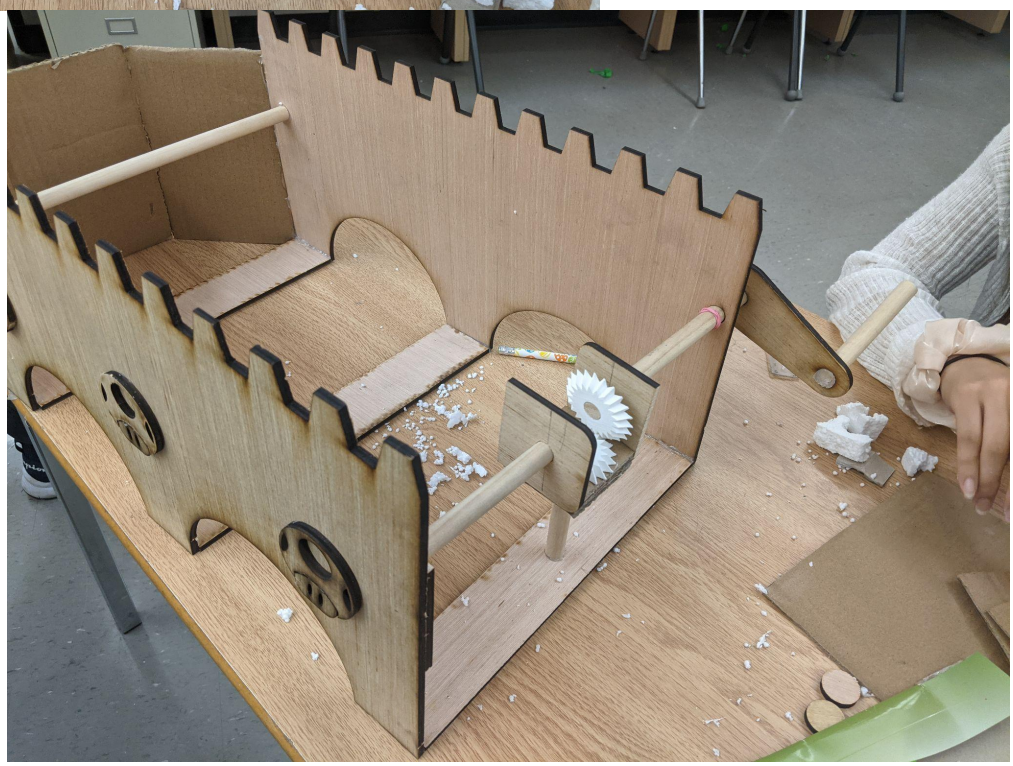
Construction Sequence IV



Both Images: Putting everything together, attaching parts to the base

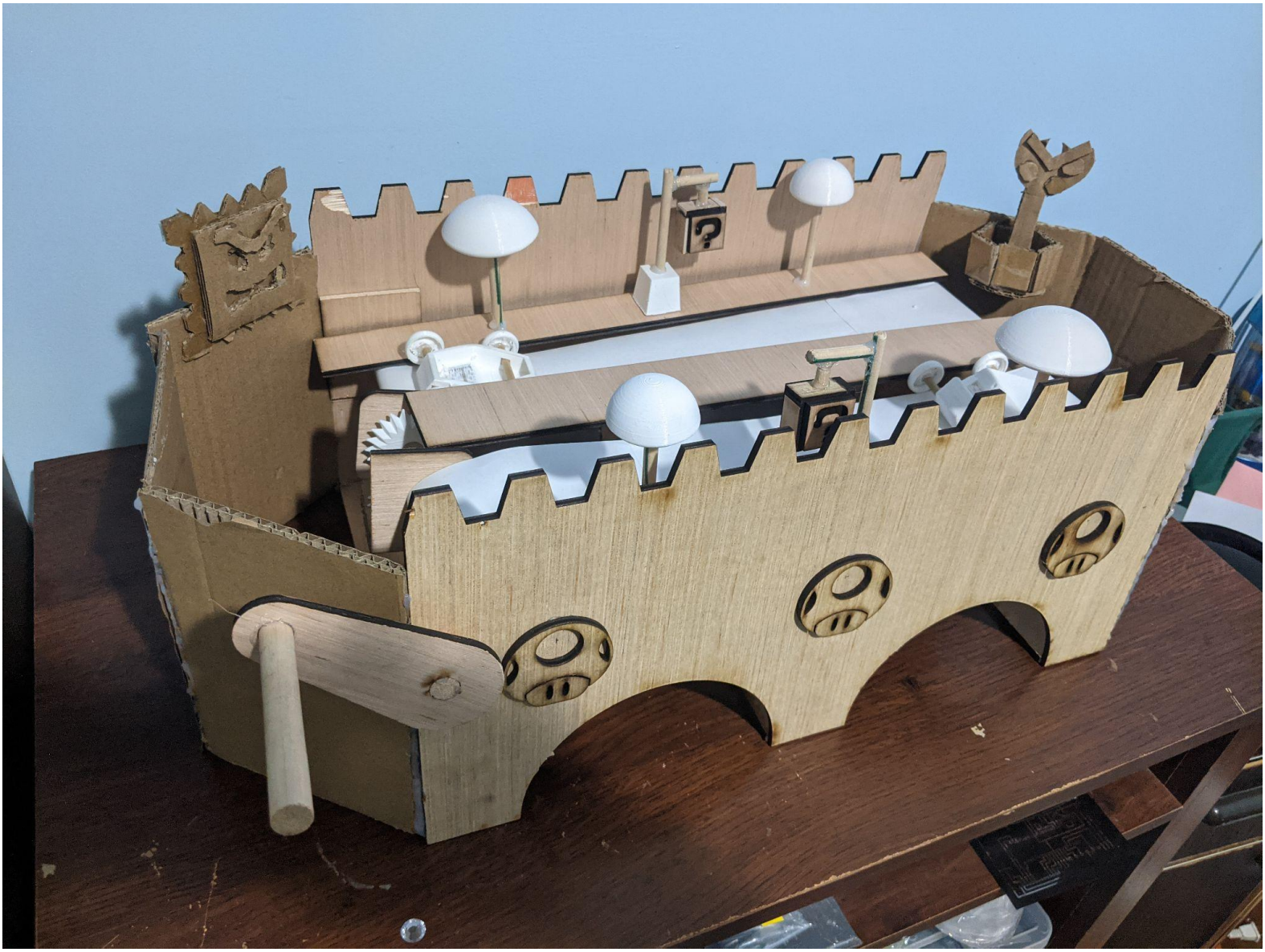
Top Image: Side View

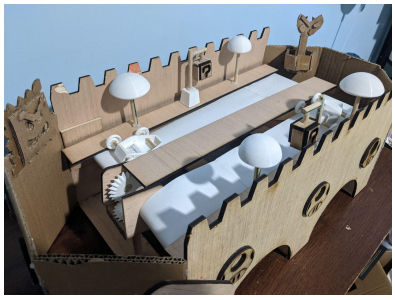
Right Image: Isometric View (from Side)

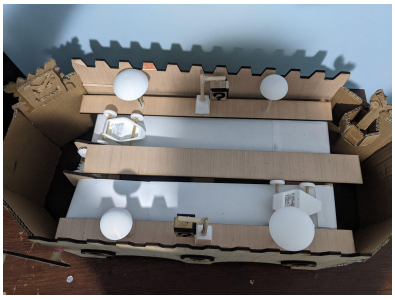


Prototype Testing

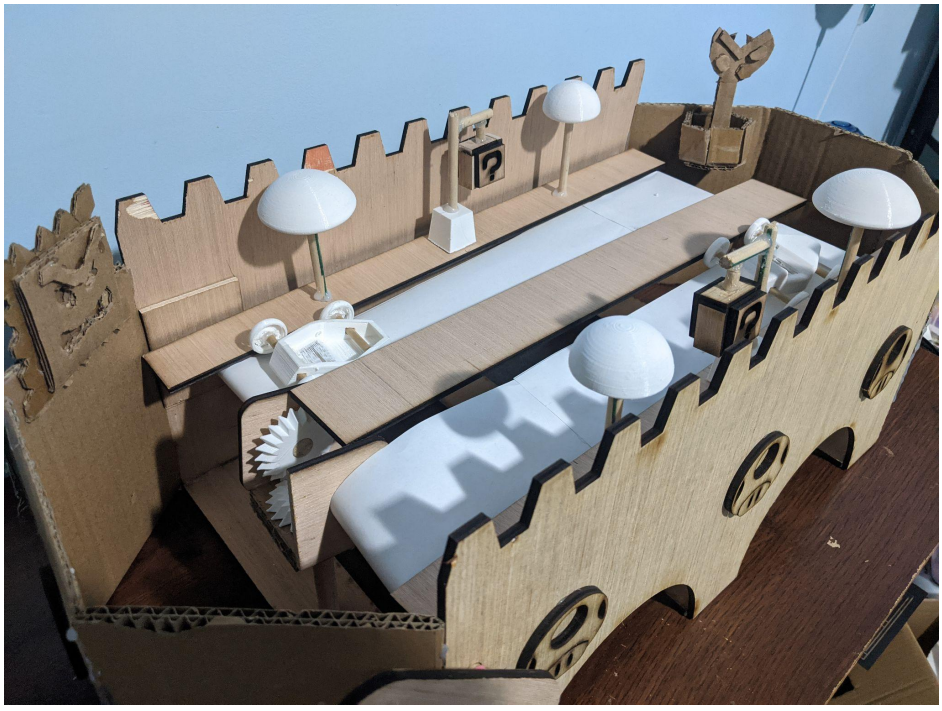
The Mario Moving Bridge!

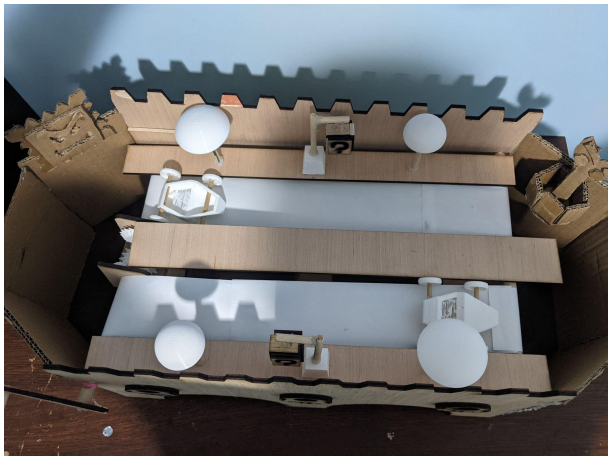






The Mario Moving Bridge!





Presenting the bridge from all angles!

The Bridge In Motion

While the conveyor belt was not able to move (see next section for further details), the bevel gear were a success!

Here's videos of the bridge's Crank & Gear System in motion:

Bridge In Motion ZOOMED IN:

https://drive.google.com/file/d/1EK9ucgzS89kc5h3qHv9t07SZzhf91R00/view?usp=sharing

Bridge In Motion Video #2:

https://drive.google.com/file/d/1ENJdEdJn4d6JlMsNZBPbkyu_vnS5gUoo/view?usp=sharing

Prototype Results and Concluding Statements

What Went Well

- The overall construction went very well. There were little both when laser cutting / 3D printing, and later when putting parts together.
- Adaptability & Teamwork. When small issues did arise, the team was quick to assess and make changes.
- Project Idea. I quite liked how our project was set up to be almost always a “finished” product. The amount of decorations and details (e.g. toads, streetlights, plants) could have increased or decreased depending on how the project was progressing.
- Fun & Aesthetic result. The project looks neat (not messily attached) which is important as the objective is enjoyment / entertainment.

What Didn't Go Well

- The conveyor belt did not work. Due to this, the bridge itself did not rotate the way we had planned. Upon reflection, I think this may be due to material chosen, and how we had applied said material.
    - By material, I mean paper. We had originally tried cardboard, but was too stiff and would not bend.
    - Other materials could result in going over budget.
    - In the end, the paper did not have enough "stretchy" tension to move, and if it had, would be too light to support weight of cars.

Improvements!

- Get the conveyor belt to work. This could be done in many ways such as finding a more suitable material, or perhaps using a motors instead of gears. While the gears worked, it was not as powerful as motors would be.
- Paint! While the bridge looks plenty elegant in it's whites and browns, as a Mario themed item, it may be suitable for it to have the bright colours associated with the Mario franchise.
- More decorations. Due to time constraints, as well as material constraints (e.g. not enough 3D printer space + time to print out the Goomba), many extra details had to be cut out. This could be improved by finishing designing stage earlier.

Mario Moving Bridge

Thank You.