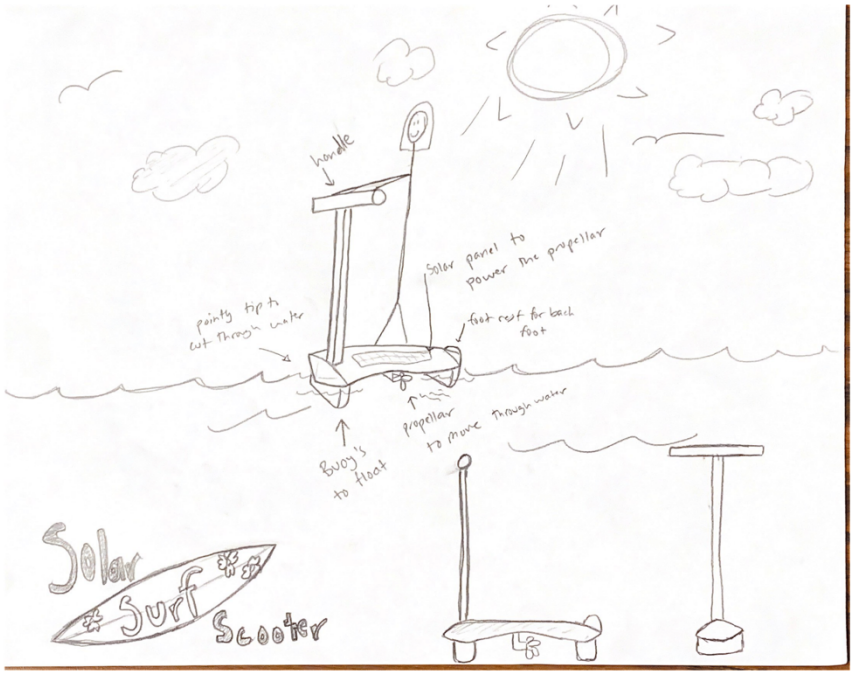
Solar Surf Scooter

ME 1770 | Section F | Group 4

Abigail Pawlowski, Keertik Bacon, Lee Gibson, Rashi Yadav

ME1770
Final Project Proposal Template

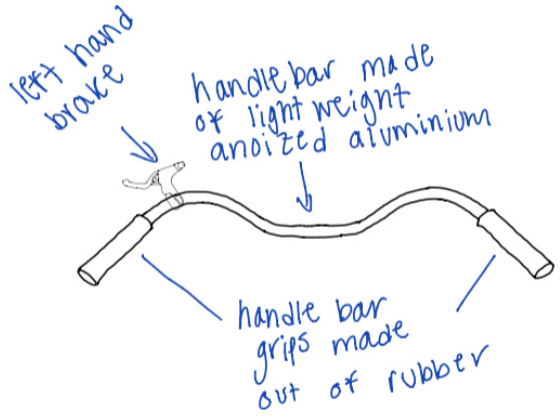
Section / Team Number	4
Team Name:	The Amphibinites
Team Members:	Keertik Bacon, Rashi Yadav, Abby Pawlowski, Lee Gibson
Proposed Project Title:	Solar Surf Scooter
Problem Definition:	While there are cheap and easy ways to traverse land, like bicycles, scooters, and skateboards, there isn't really an equivalent for water. Neither is there a way to go across both land and water without some sort of big, heavy duty, and expensive amphibious vehicle. And so, we designed the Solar Surf Scooter, a scooter that can drive on land and water. It functions like any other electric scooter on land, driving on two wheels, but when driven into the water, it automatically deploys front and rear floatation devices, as well as an underwater propeller, to enable transport across water. 

Potential Parts List:	Each team member must model at least 3 parts. The set of parts from the team will be assembled into one final assembly model. Please list the foreseeable/potential components of your design/assembly here, and if determined, who will be modeling each component on the team. Include a difficulty rating for each part, and attempt to distribute the more difficult parts among the team. 1 = easiest, 5 = hardest • Handlebar (2) -Abby • Handlebar grips (2) -Abby • Brake handles (4)-Abby • Pole (1) - Lee • Pole folding mechanism (4) -Lee • Fork (the thing that holds the front wheel) (3) -Lee • Scooter base (4) - Rashi • Solar panels (1) - Rashi • Kickstand (3) - Rashi • Wheels/buoys (3) - Keertik • Propeller (3) - Keertik • Propeller pylon (4) - Keertik
Rationale for interest in this project topic choice:	Describe why you chose this project topic. This could be based on an area of particular personal interest, an identified opportunity for improvement of the design of a product you currently use, or an invention that you came up through identification of a design opportunity, etc. Explain your motivation and interest, whatever it may be. Vehicles that can operate in more than one medium has always been of particular interest to humans, and due to technological improvements in the early 20th century, these dreams have become a reality in many forms, Yet, with the rise in motorized scooter companies such as Bird Scooters, we think this is a possible logical progression in the mobility industry. Being able to seamlessly transition between land and water in personalized mobile travel, while also not having to need a large area for storage of said amphibious vehicle, could allow for shorter travel time and, overall, a fun experience.
Foreseeable Challenges/ Difficulties in Modeling:	Describe any particularly challenging parts, features, modeling processes, or other aspects that you foresee as potentially difficult. The most challenging part of this will be integrating buoys and wheels on the bottom of the scooter. Some options would be putting two buoys on each side of the wheels or creating a wheel that is also floating. The scooter will have to always be adjusting for any ripples or waves in the water so it is safe for commuters and no one falls into the water. Designing something that will auto-balance the scooter might be difficult.

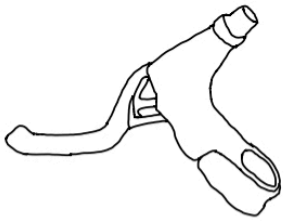
Argument for Level of Complexity/ Difficulty of Chosen Project:	Projects that are determined to be more complex and difficult will be judged and graded differently than those that are simpler. If a particularly complex or difficult design is chosen, grading will be adjusted to give extra credit for attempting a harder project. Make an argument for the level of difficulty of your project in terms of CAD modeling it, on a scale from 1 to 5: 5- numerous complex surfaces well outside the scope of ME 1770, 3- being a typical ME 1770 project 1- a project that employs only basic shapes and is too simple for ME 1770. I would say our project's difficulty lies between a three and four. Our project will have some easier parts, such as the solar panels, which will be created using extrusions of simple shapes. However, other shapes will pose unique challenges due to the complexity of their shape, such as the pylons. The implementation of smaller parts/details that go with larger parts, such as the spring suspensions systems within the wheels, may also provide an opportunity to either greatly increase or decrease the complexity of the project.
Additional Comments to Instructors:	

Preliminary Sketches

Abigail Pawlowski

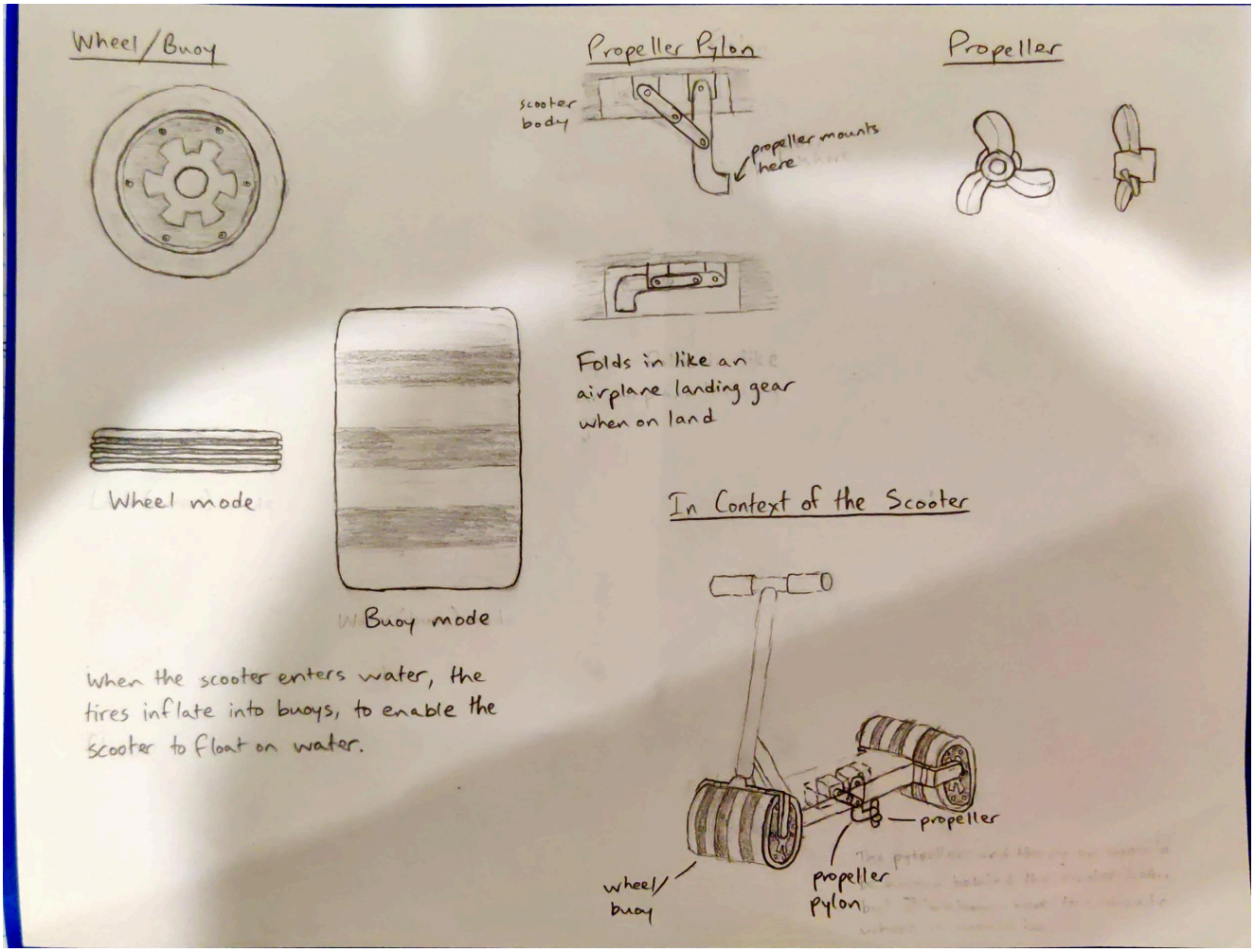


Curved handle bars similar to a beach cruiser bike

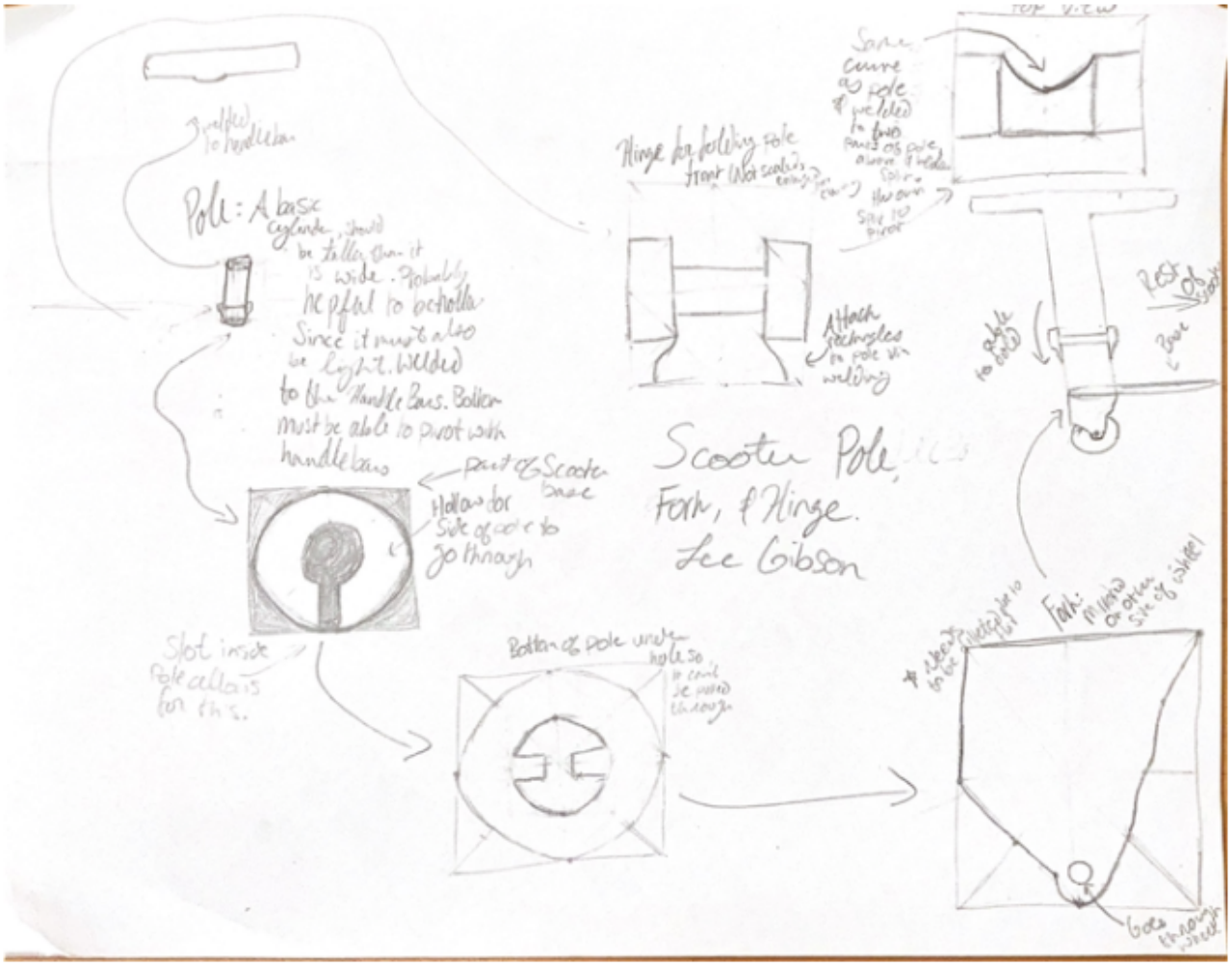


Zoom in of brake

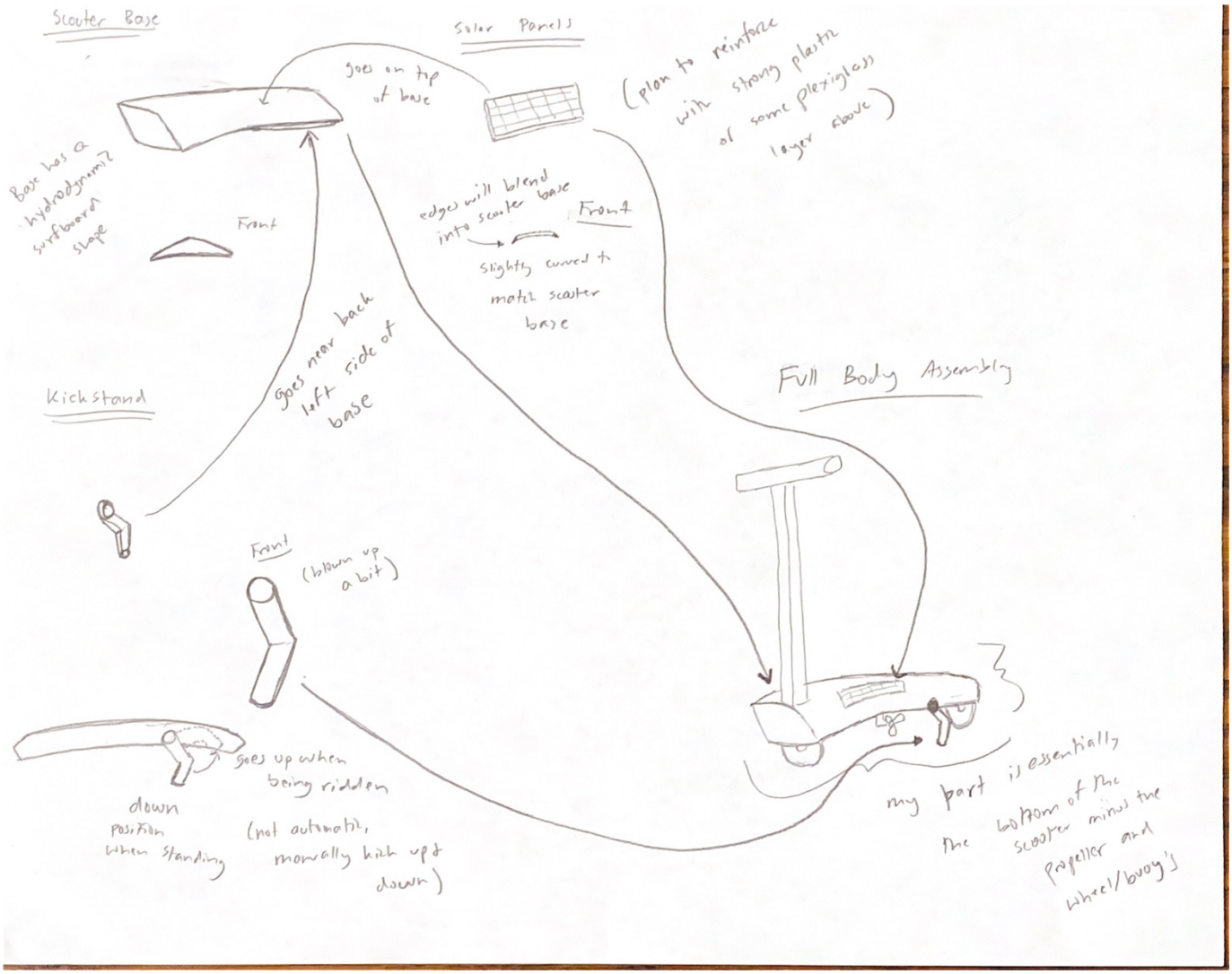
Keertik Bacon



Lee Gibson

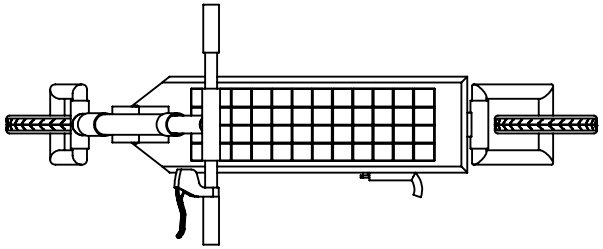

Pole: A basic cylinder, should be taller than it is wide. Probably helpful to be hollow. Since it must also be light. Welded to the Handle Bars. Bolier must be able to pivot with handlebars
part of Scooter base
Hollow for Side of pole to go through
Slot inside Pole allows for this.
Bottom of pole under hole so it can be welded through
Hinge for folding pole front (Not scooter base)
Attach rectangles to pole via welding
Scooter Pole, Fork, & Hinge.
Lee Gibson
Fork:

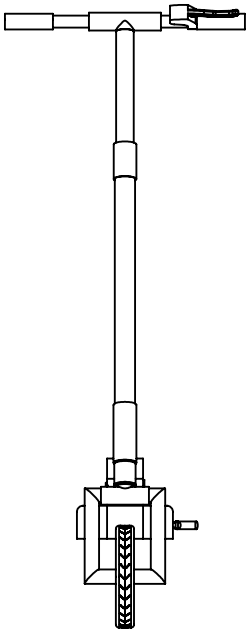
Rashi Yadav

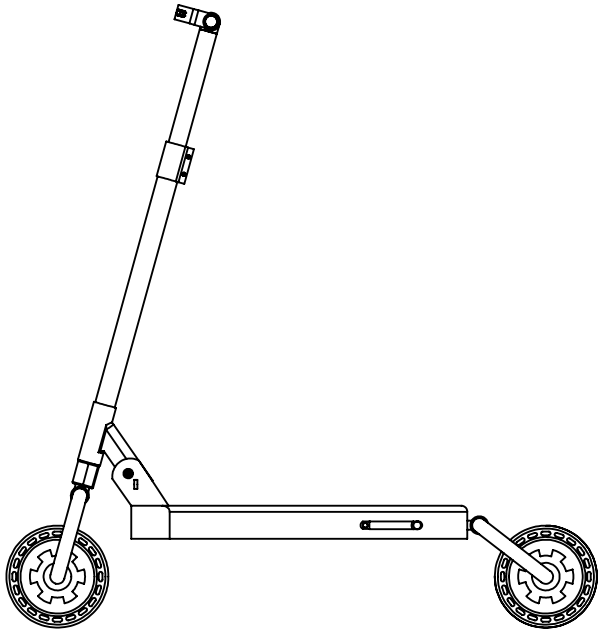

Scouter Base
Solar Panels
goes on top of base
(plan to reinforce with strong plastic or some plexiglass layer above)
Base has a hydrodynamic surfboard shape
Front
edges will blend into scouter base
Front
slightly curved to match scouter base
Kickstand
goes near back left side of base
Full Body Assembly
Front
(blown up a bit)
down position when standing
goes up when being ridden
(not automatic, manually kick up/down)
my part is essentially the bottom of the scooter minus the propeller and wheel/buoys

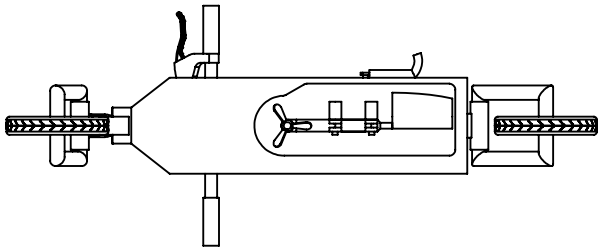
Engineering Drawings

(Assembly and Working Drawings)



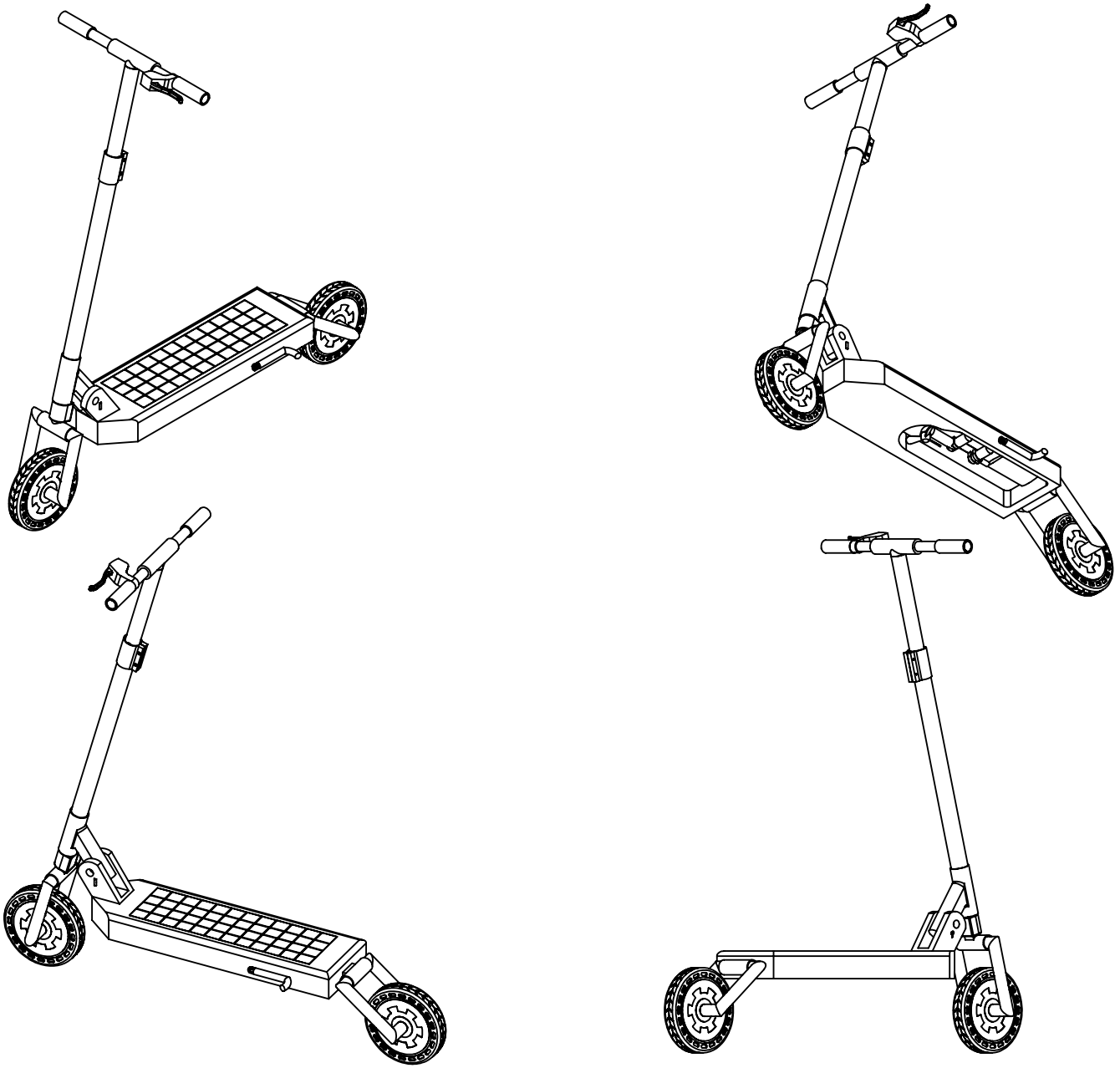






	TITLE		DATE	NAME					
Georgia Institute of Technology	**SCOOTER (LAND MODE)**		**5/5/2021**	**KEERTIK BACON**					
	COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES		SIZE	
	ME 1770	**SPRING 2021**	**F**			SCALE 1:16	SHEET 1 OF 5	**A**	

5 4 3 2 1



Georgia Institute of Technology	TITLE: **SCOOTER (LAND MODE)**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:16 SHEET 2 OF 5	SIZE: **A**

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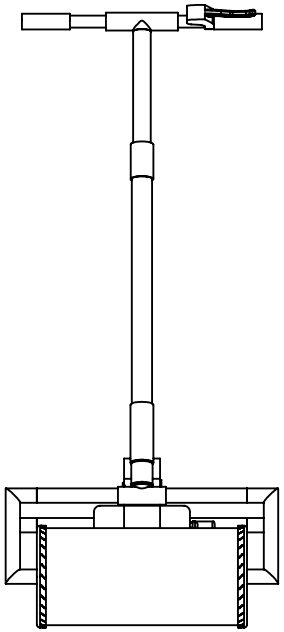

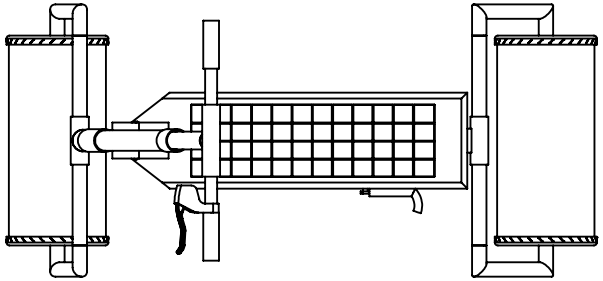

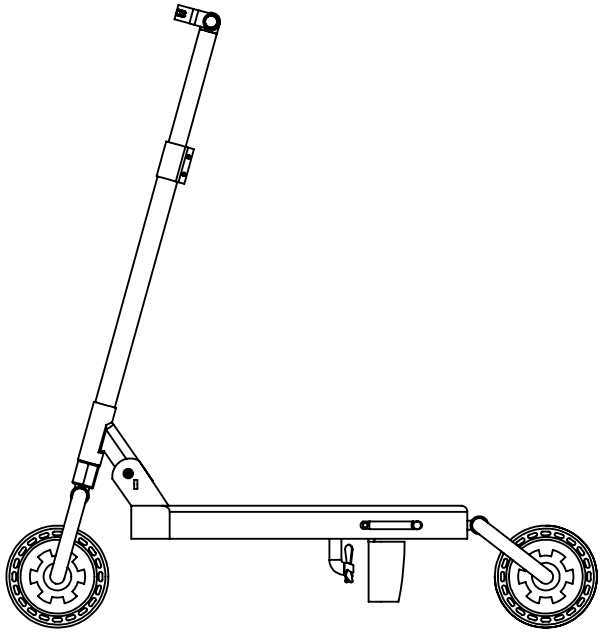

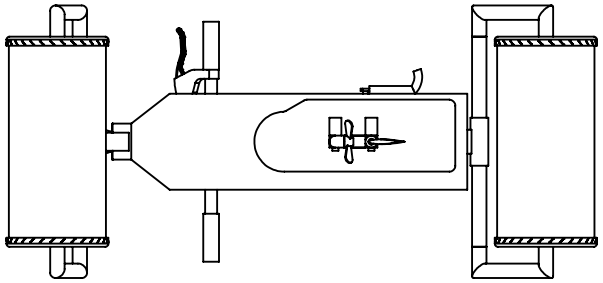

	TITLE		DATE	NAME					
Georgia Institute of Technology	**SCOOTER (WATER MODE)**		**5/5/2021**	**KEERTIK BACON**					
	COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES		SIZE	
	ME 1770	**SPRING 2021**	**F**			SCALE 1:16	SHEET 3 OF 5	**A**	

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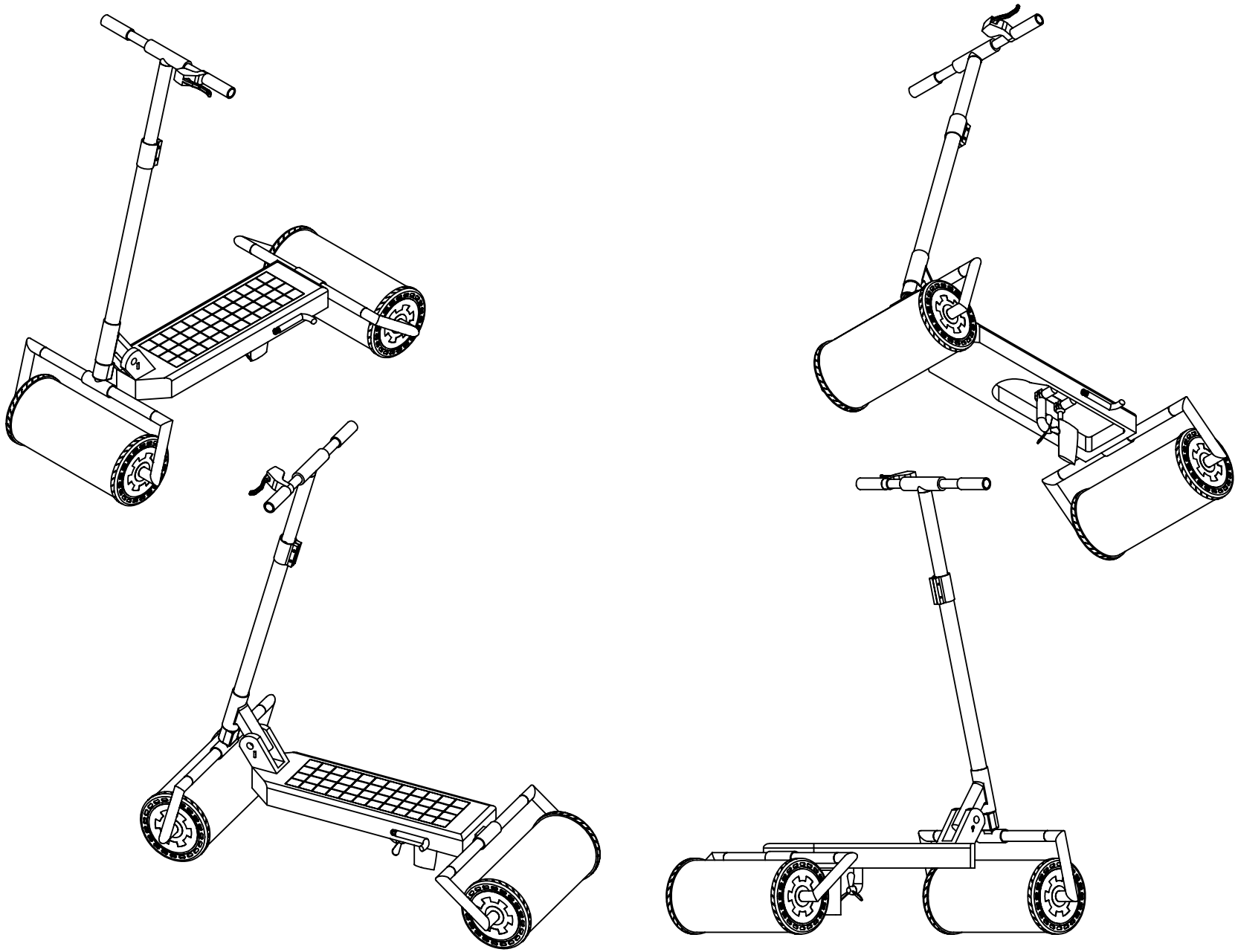

Georgia Institute of Technology	TITLE: **SCOOTER (WATER MODE)**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:16 SHEET 4 OF 5	SIZE: **A**

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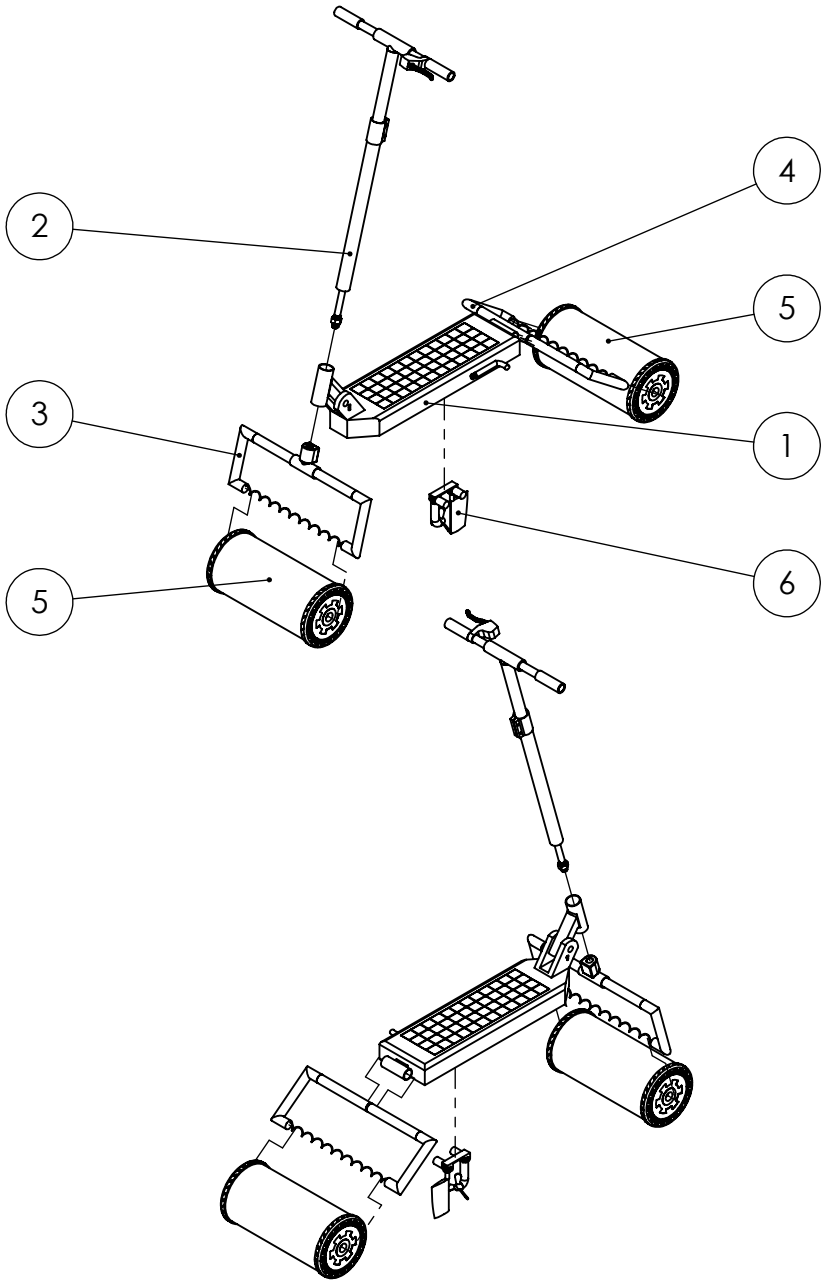

ITEM NO.	PART NUMBER	QTY.
1	Base Subassembly	1
2	Steering Assembly	1
3	Front Wheel Housing	1
4	Back Wheel Housing	1
5	Wheel	2
6	Propulsion Assembly	1

Georgia Institute of Technology

TITLE	DATE	NAME
SCOOTER (EXPLODED)	**5/5/2021**	**KEERTIK BACON**

COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES		SIZE
ME 1770	**SPRING 2021**	**F**			SCALE 1:24	SHEET 5 OF 5	**A**

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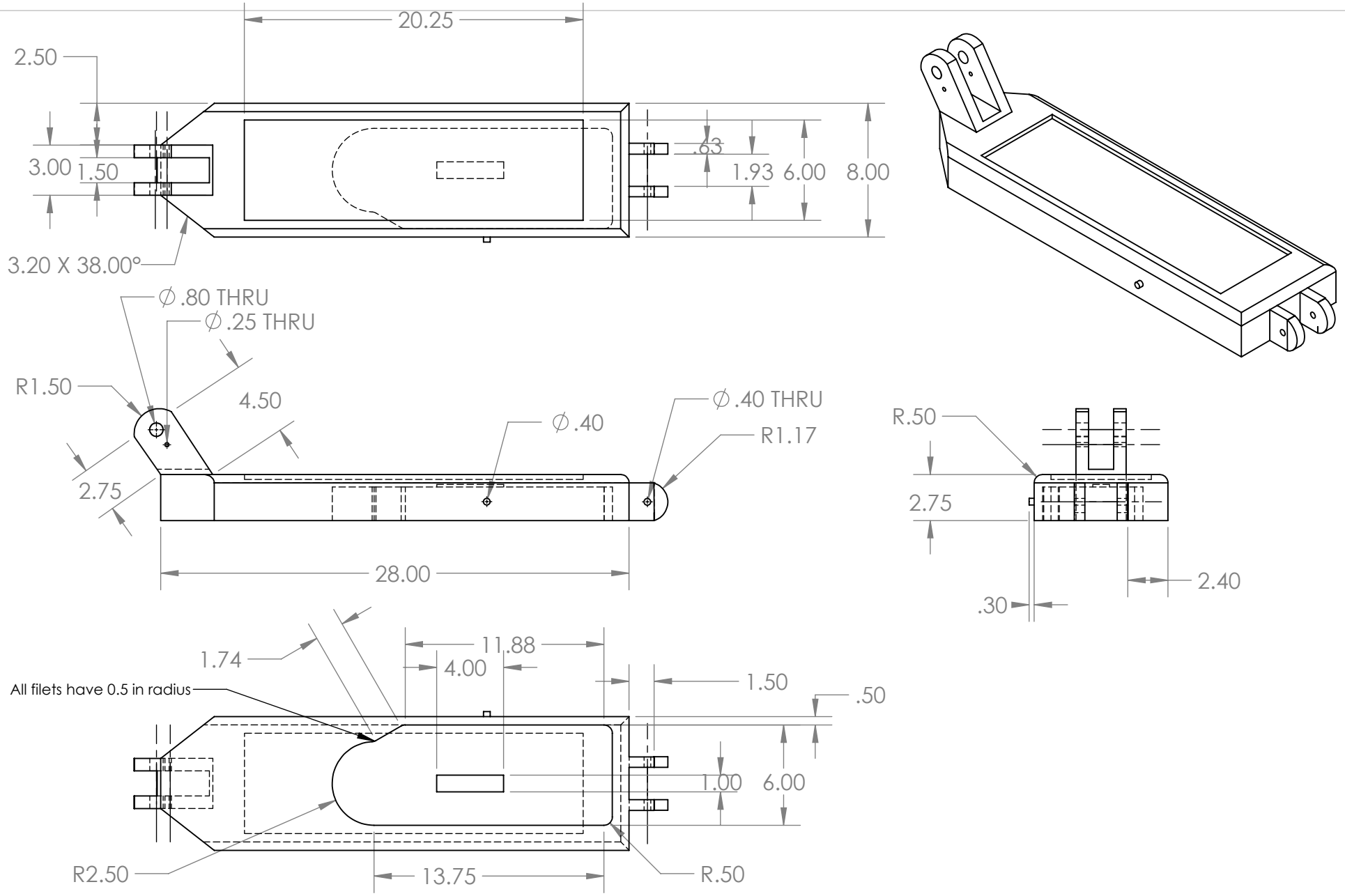
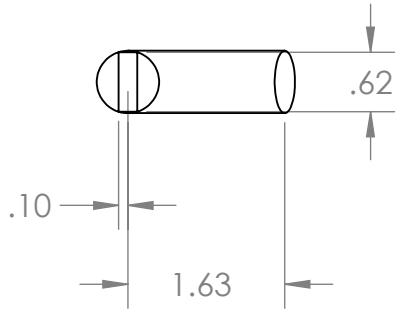
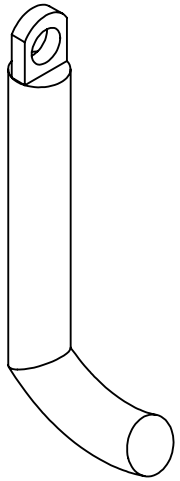
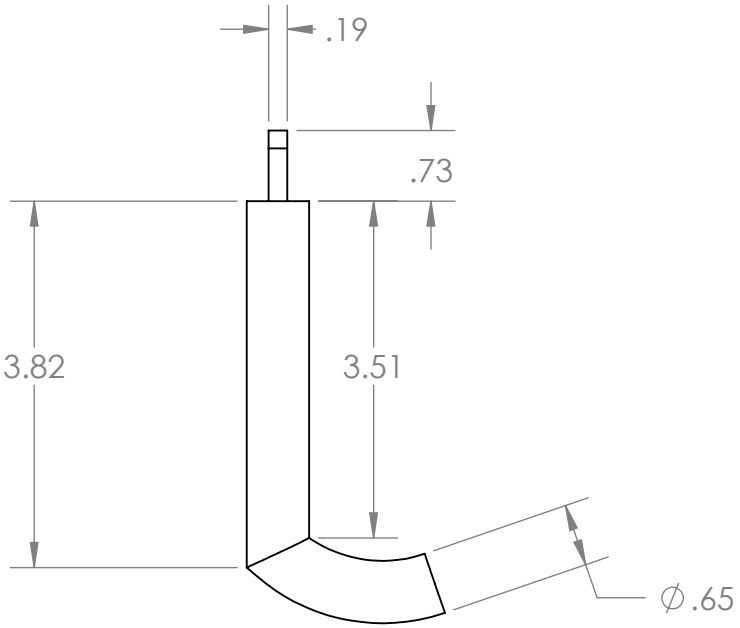


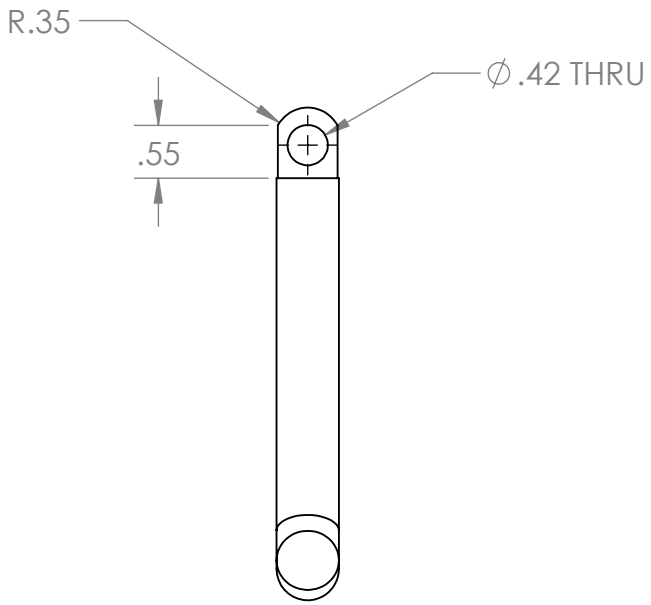
Georgia Institute of Technology	TITLE: SCOOTERBASE		DATE: 05/03/2021		NAME: RASHI YADAV		
COURSE: ME 1770	SEMESTER: SPRING 2021		SECTION: F	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:8 | SHEET 1 OF 3	SIZE: A

5 4 3 2 1



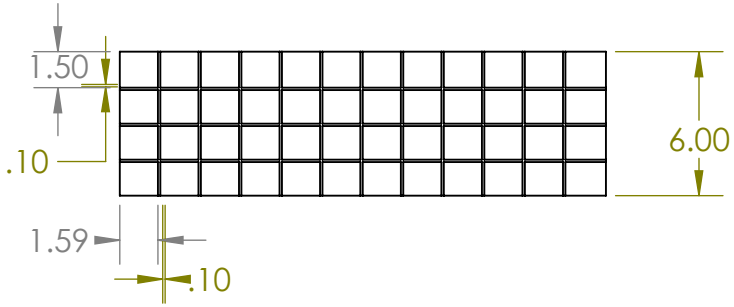


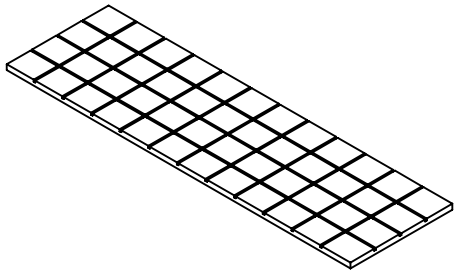


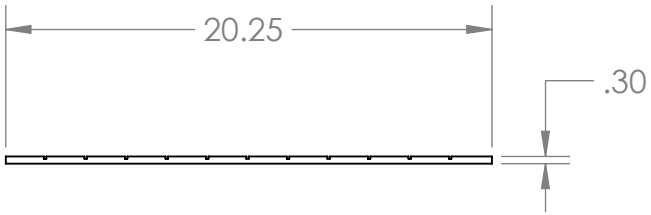


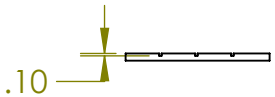
Georgia Institute of Technology	TITLE: KICKSTAND		DATE: 05/03/2021	NAME: RASHI YADAV			
COURSE: ME 1770	SEMESTER: SPRING 2021	SECTION: F	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SCALE 1:2	SHEET 1 OF 3	SIZE: A

5 4 3 2 1





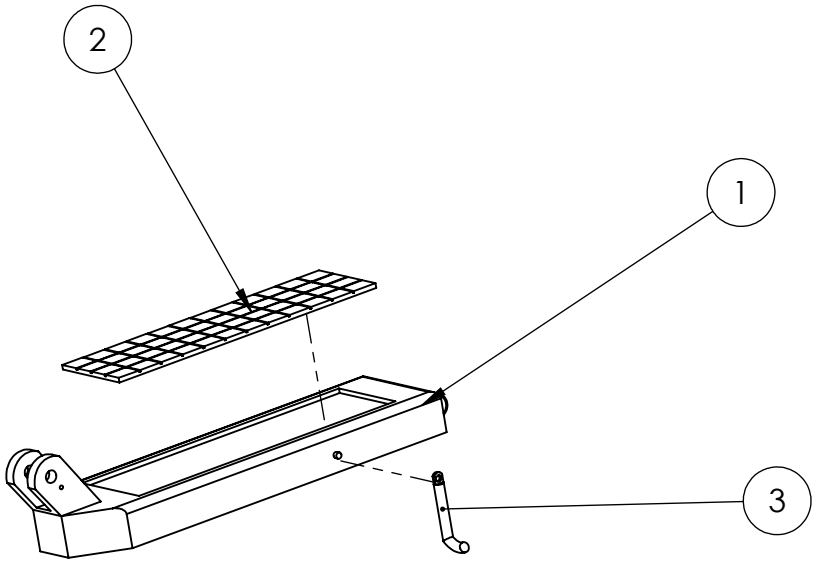




Georgia Institute of Technology	TITLE: **SOLAR PANEL**		DATE: **05/03/2021**	NAME: **RASHI YADAV**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:8 | SHEET 1 OF 3	SIZE: **A**

5 4 3 2 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	scooterbasev2		1
2	Yadav_Rashi_solarpanel		1
3	Yadav_rashi_kickstand		1

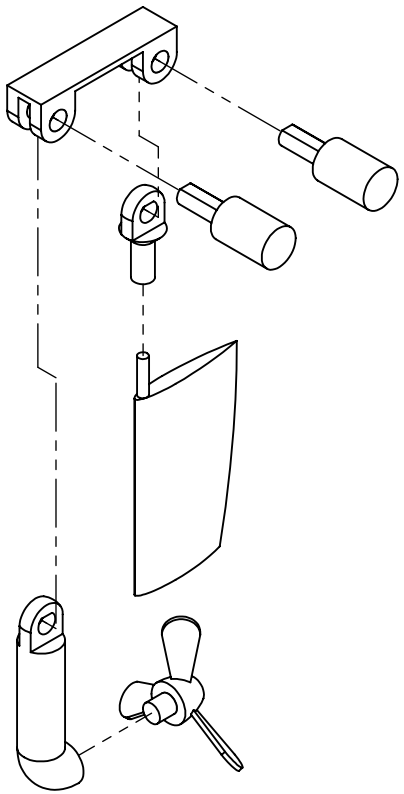


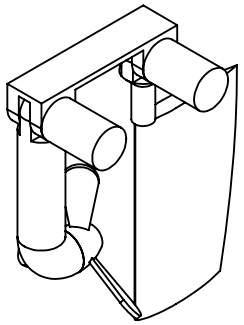
Georgia Institute of Technology

TITLE	DATE	NAME
SUBASSEMBLY EXPLODED VIEW	**5/4/21**	**RASHI YADAV**

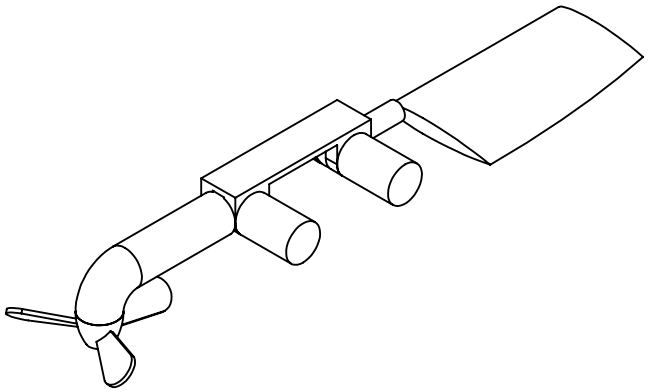
COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES		SIZE
ME 1770	**SPRING 2021**	**F**			SCALE 1:12	SHEET 1 OF 3	**A**

5 4 3 2 1





WATER MODE



LAND MODE

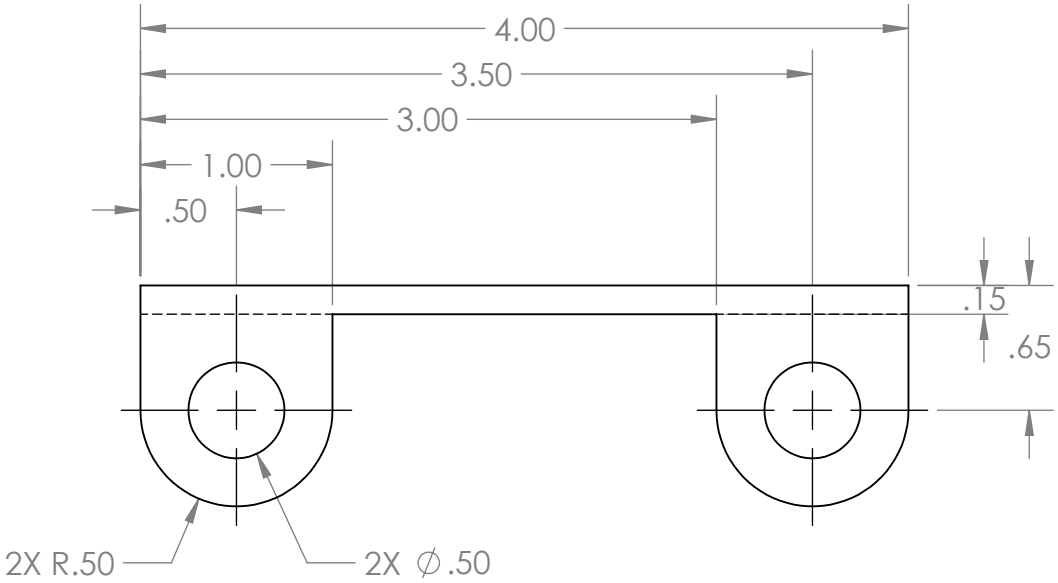
ITEM NO.	PART NUMBER	QTY.
1	Propeller/Rudder Mount	1
2	Propeller Mount Leg	1
3	Propeller	1
4	Rudder Mount Leg	1
5	Rudder	1
6	Motor	2

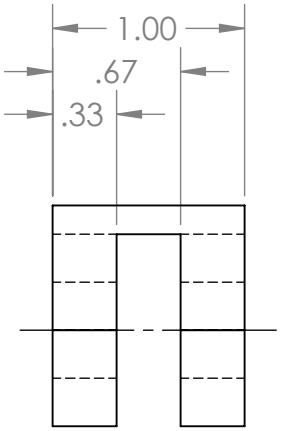
Georgia Institute of Technology

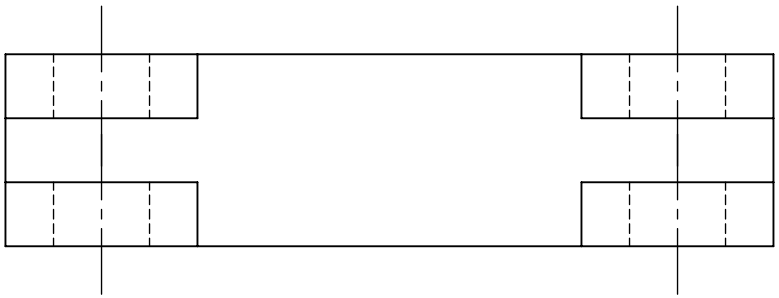
TITLE	DATE	NAME
PROPULSION ASSEMBLY	**5/5/2021**	**KEERTIK BACON**

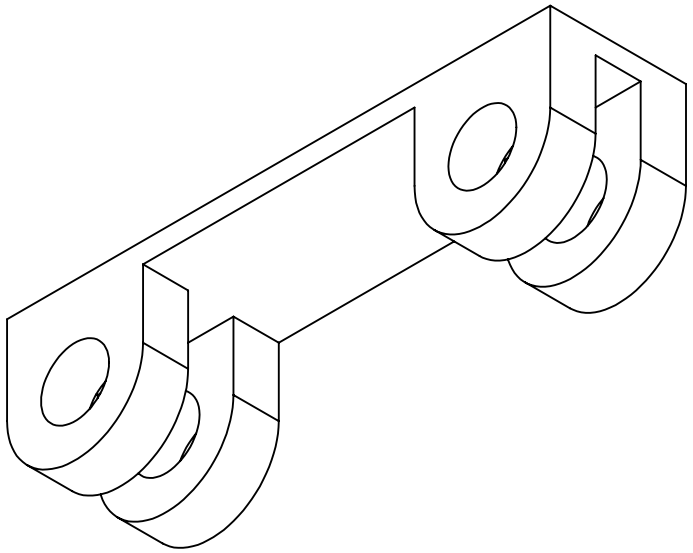
COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES		SIZE
ME 1770	**SPRING 2021**	**F**			SCALE 1:4	SHEET 1 OF 9	**A**

5 4 3 2 1



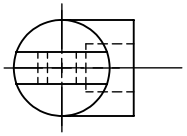


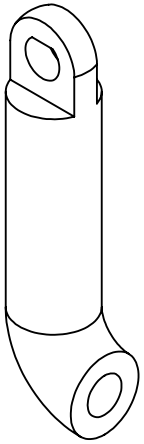


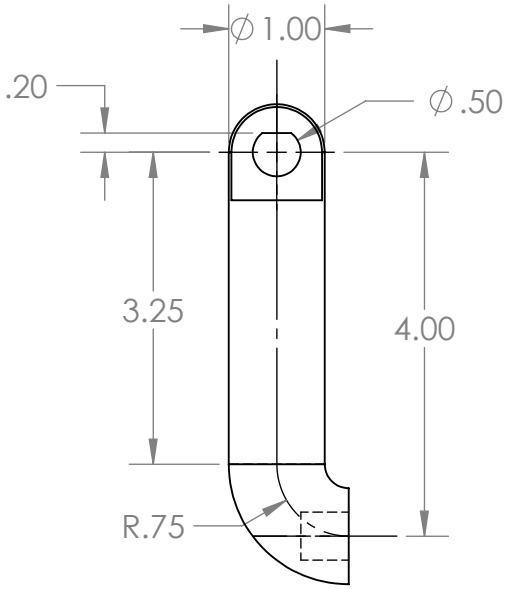


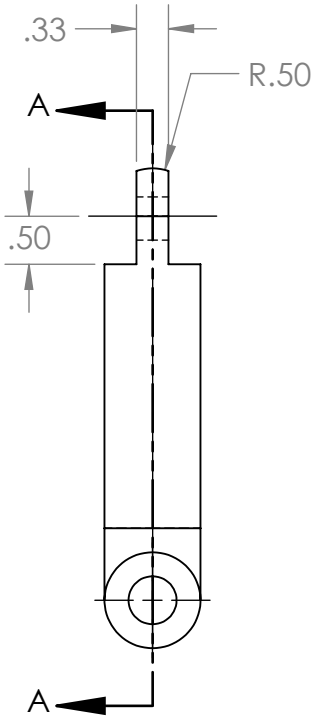
Georgia Institute of Technology	TITLE: **PROPELLER/RUDDER MOUNT**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES		SIZE: **A**
					SCALE 1:1	SHEET 2 OF 9	

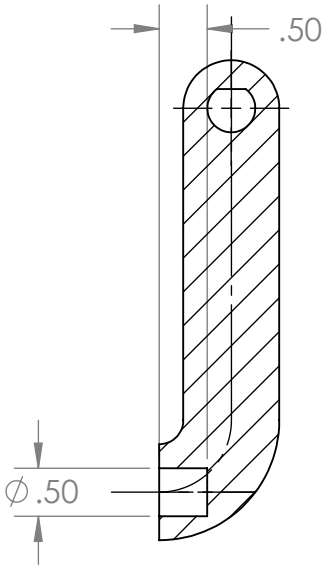
5 4 3 2 1







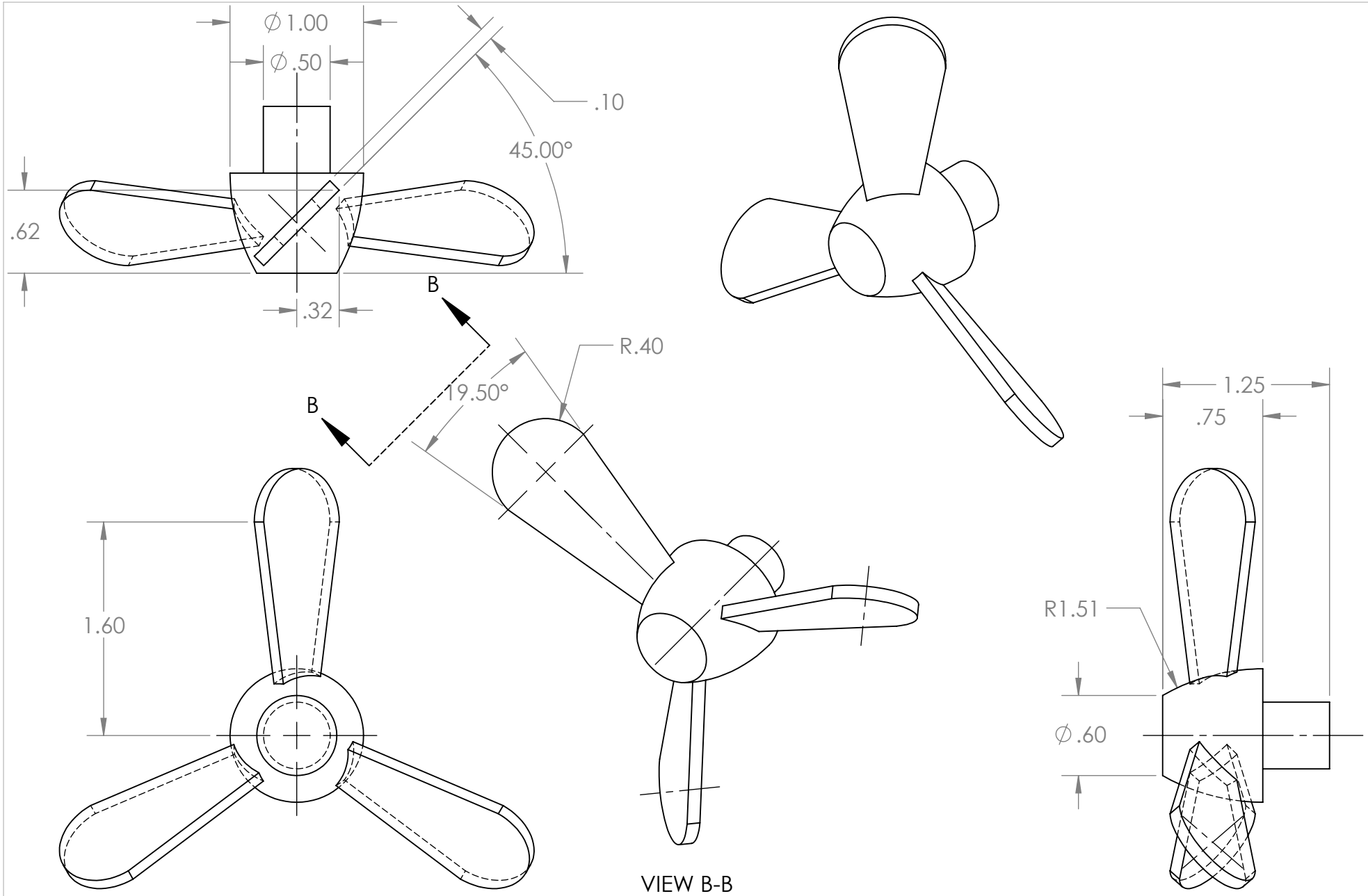




SECTION A-A

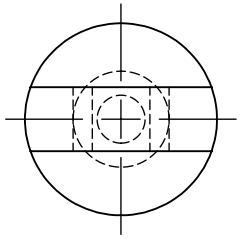
Georgia Institute of Technology	TITLE: **PROPELLER MOUNT LEG**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:2 | SHEET 3 OF 9	SIZE: **A**

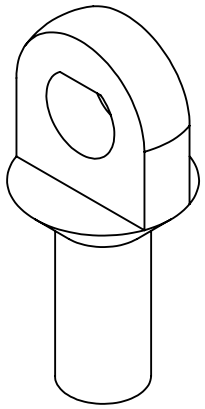
5 4 3 2 1

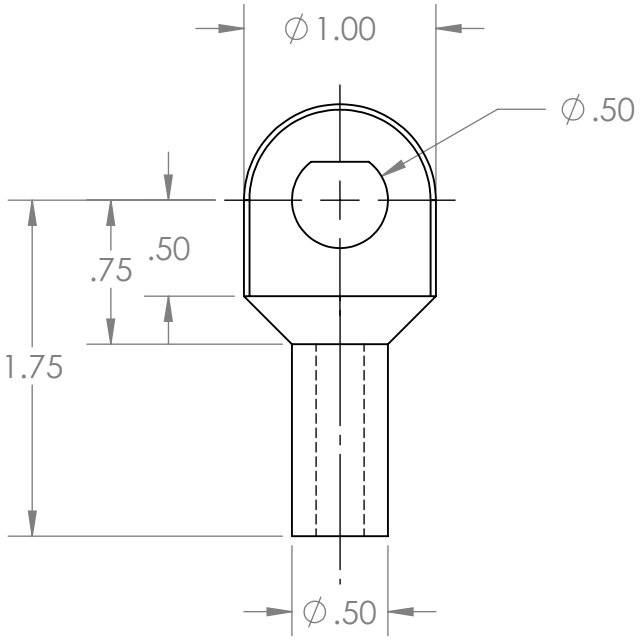


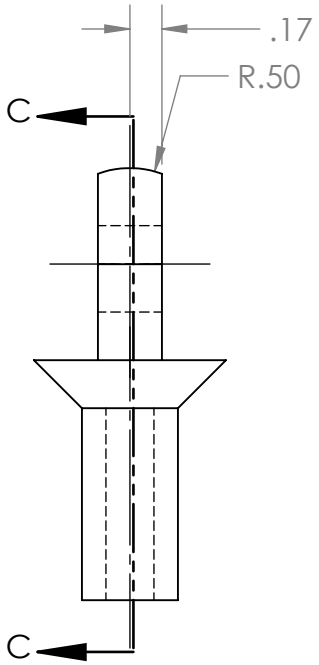
Georgia Institute of Technology	TITLE: **PROPELLER**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:1 | SHEET 4 OF 9	SIZE: **A**

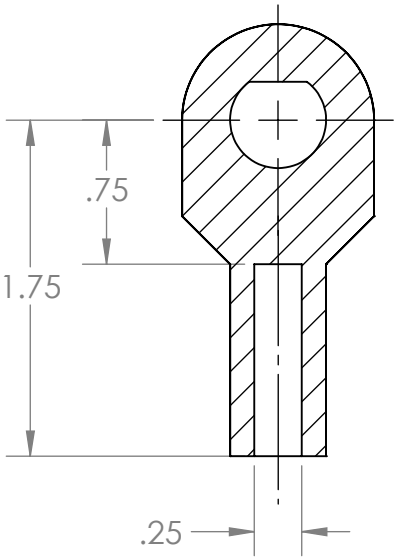
5 4 3 2 1







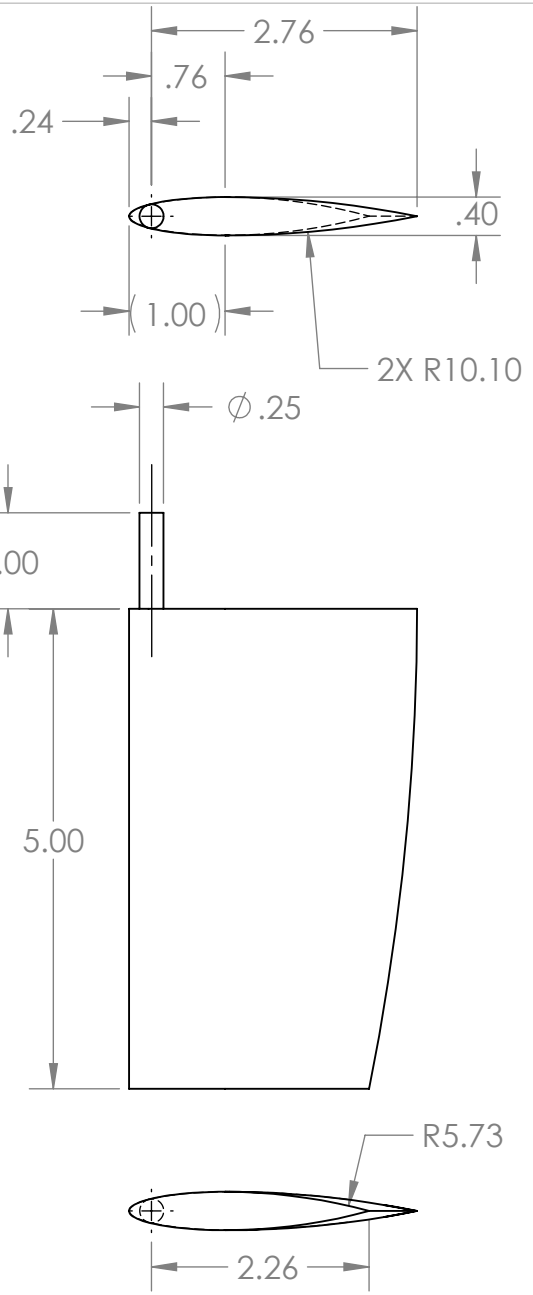




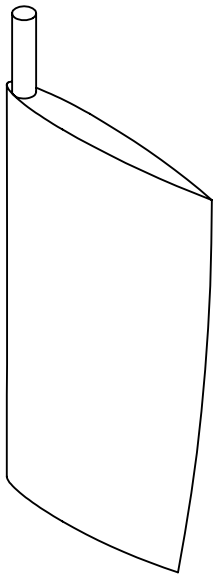
SECTION C-C

Georgia Institute of Technology	TITLE: **RUDDER MOUNT LEG**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE: **A**	
					SCALE 1:1	SHEET 5 OF 9	

5 4 3 2 1



NOTE: THE TOP PROFILE OF THE RUDDER IS DEFINED BY TWO SHAPES. THE LEFT PORTION IS A SEMI-ELLIPSE WITH MAJOR DIAMETER 2.00 AND MINOR DIAMETER .40, WHILE THE RIGHT PORTION IS TWO VERTICALLY SYMMETRICAL ARCS OF RADIUS 10.10. THE TRANSITION BETWEEN THE SHAPES HAPPENS WHERE THE HEIGHT OF THE PROFILE IS .40.

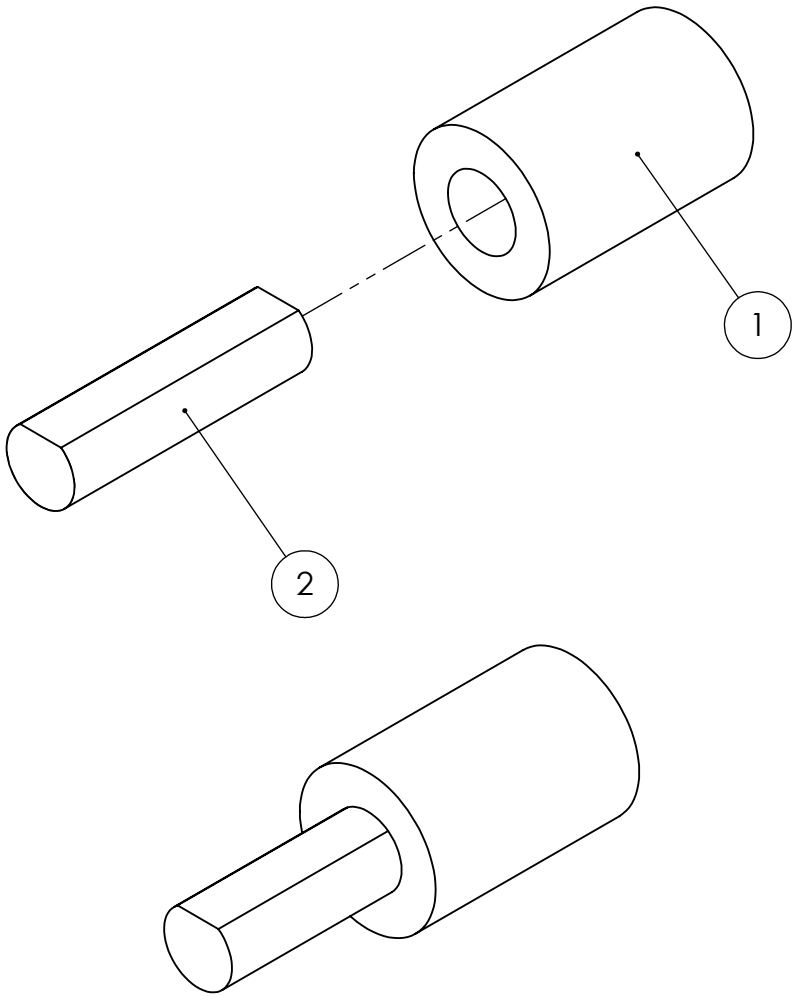


Georgia Institute of Technology

TITLE	DATE	NAME
RUDDER	**5/5/2021**	**KEERTIK BACON**

COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE
ME 1770	**SPRING 2021**	**F**			SCALE 1:2 SHEET 6 OF 9	**A**

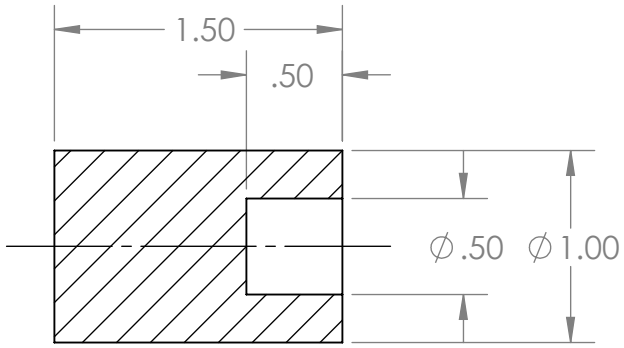
5 4 3 2 1



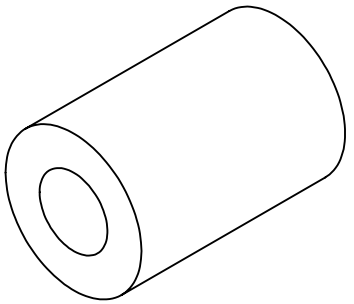
ITEM NO.	PART NUMBER	QTY.
1	Motor Casing	1
2	D-shaft	1

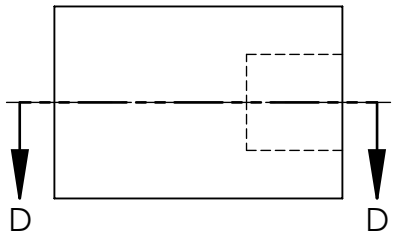
Georgia Institute of Technology	TITLE: **MOTOR**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SCALE 1:1	SIZE **A**
						SHEET 7 OF 9	

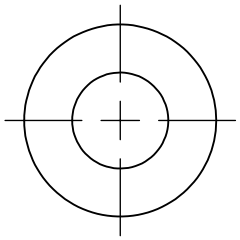
5 4 3 2 1



SECTION D-D

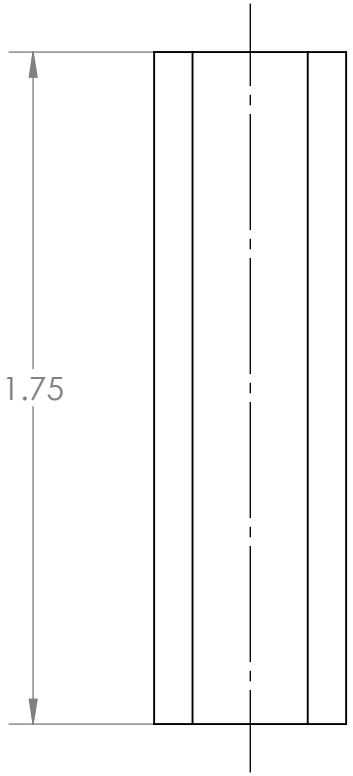


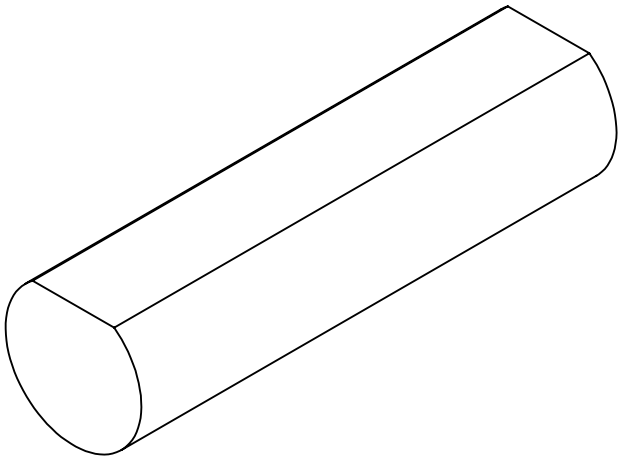


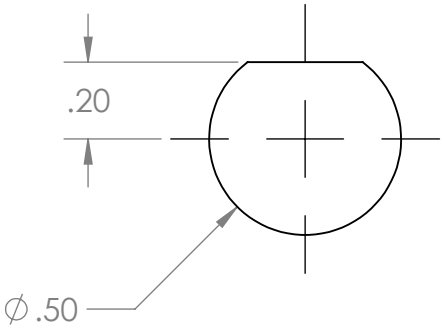


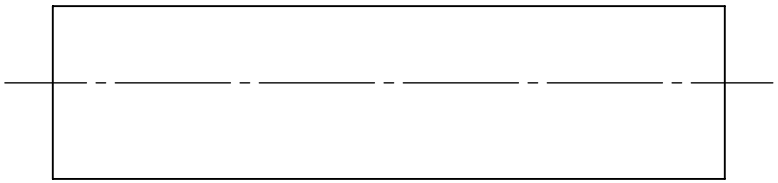
Georgia Institute of Technology	TITLE: **MOTOR CASING**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:1 | SHEET 8 OF 9	SIZE: **A**

5 4 3 2 1



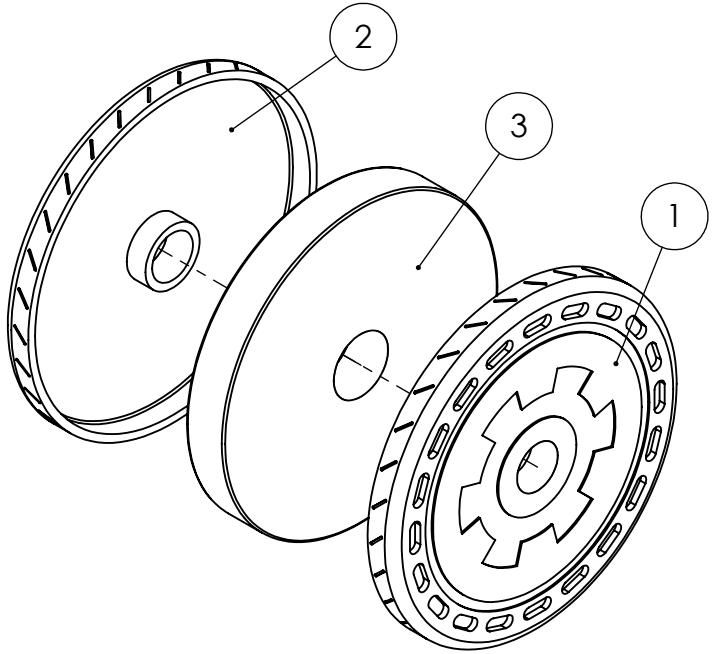




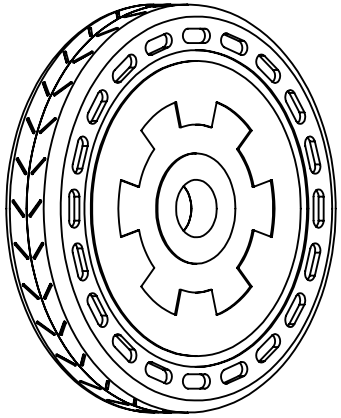


Georgia Institute of Technology	TITLE **D-SHAFT**		DATE **5/5/2021**	NAME **KEERTIK BACON**			
	COURSE **ME 1770**	SEMESTER **SPRING 2021**	SECTION **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 2:1 SHEET 9 OF 9	SIZE **A**

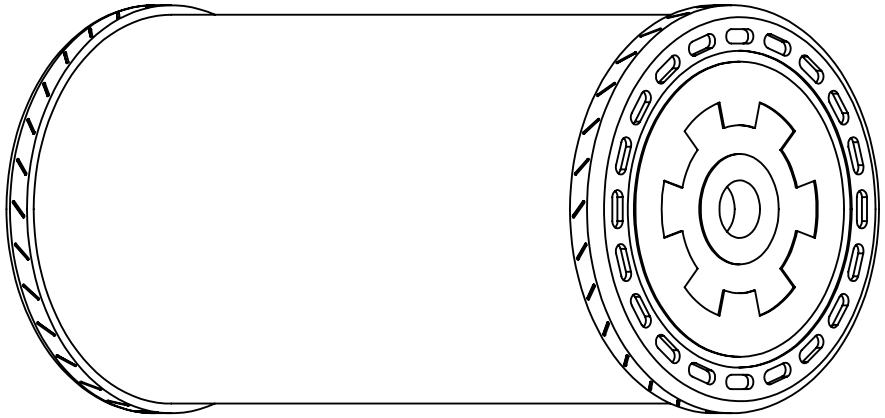
5 4 3 2 1



ITEM NO.	PART NUMBER	QTY.
1	Left Wheel Rim	1
2	Right Wheel Rim	1
3	Inflatable Buoy	1



LAND MODE



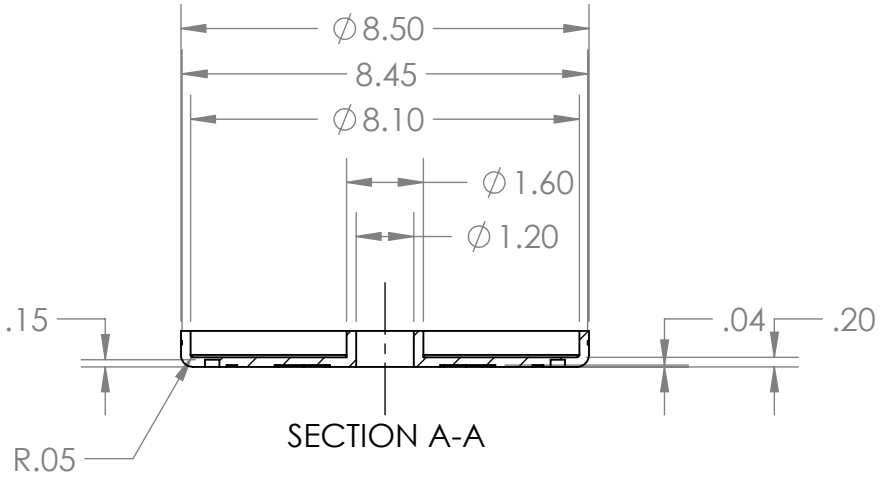
WATER MODE

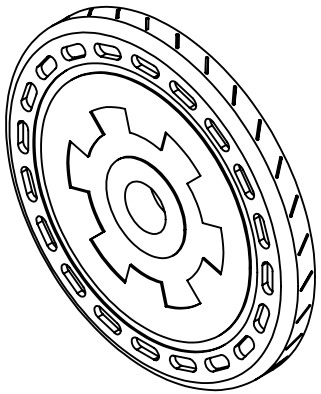
Georgia Institute of Technology

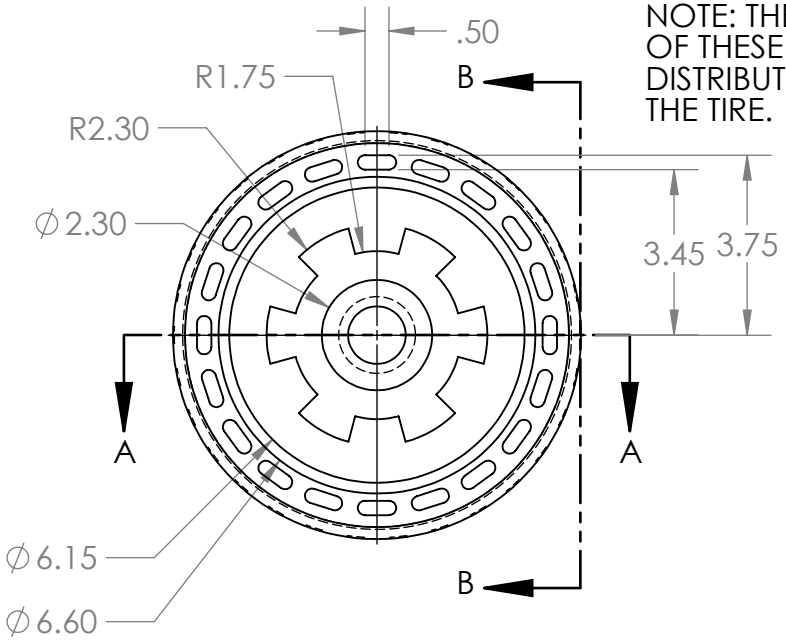
TITLE	DATE	NAME
WHEEL	**5/5/2021**	**KEERTIK BACON**

COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE
ME 1770	**SPRING 2021**	**F**			SCALE 1:4 SHEET 1 OF 4	**A**

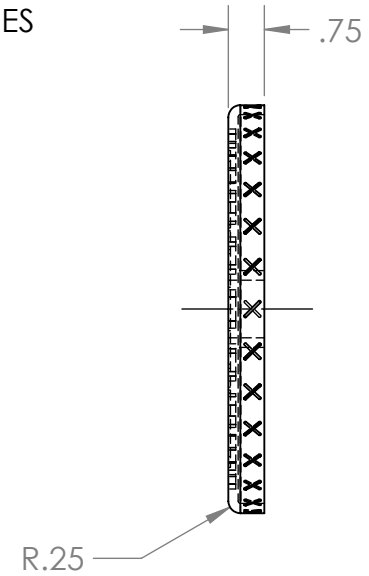
5 4 3 2 1



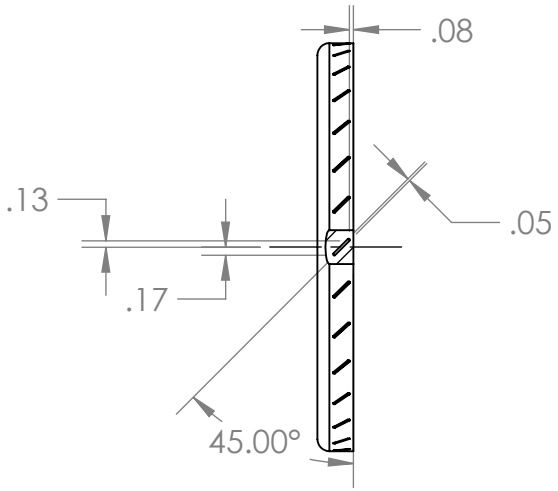




NOTE: THERE ARE 20 OF THESE TIRE NOTCHES DISTRIBUTED ALONG THE TIRE.



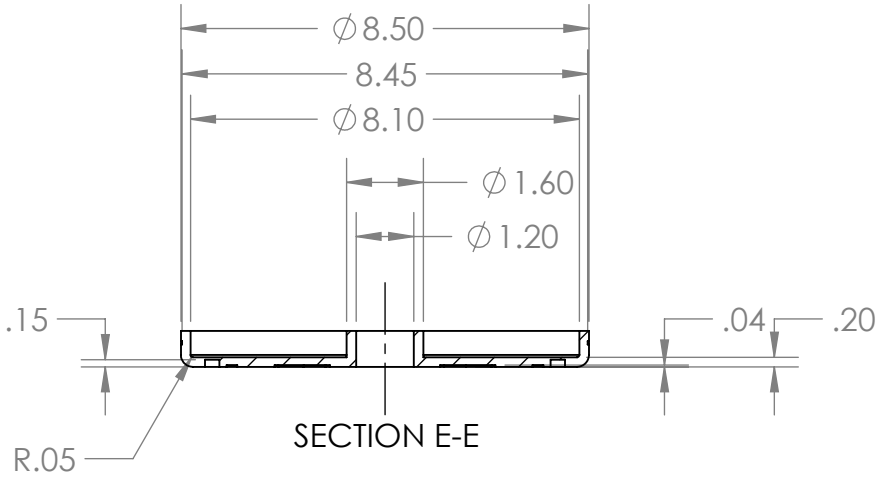
NOTE: THERE ARE 30 OF THESE TIRE TREADS DISTRIBUTED ALONG THE TIRE.

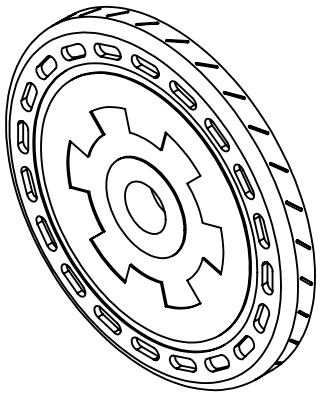


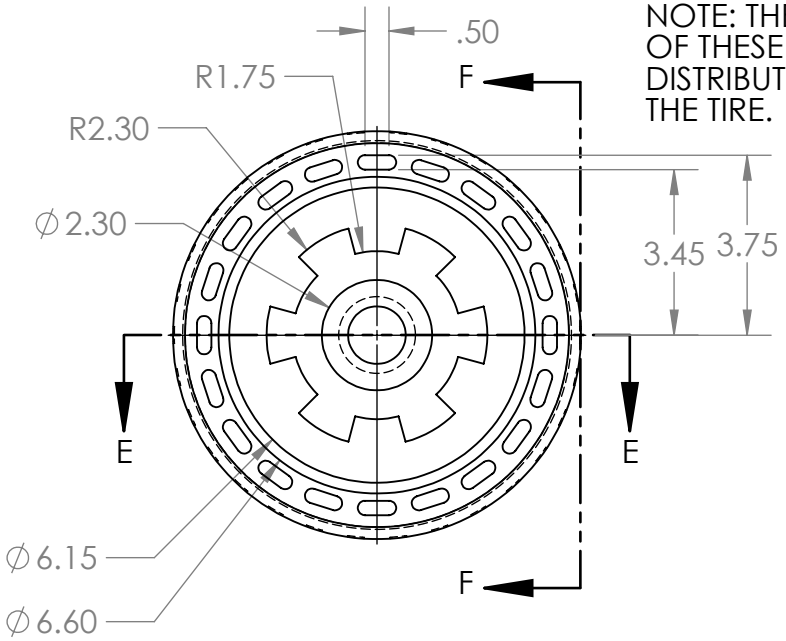
SECTION B-B

Georgia Institute of Technology	TITLE: **LEFT WHEEL RIM**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SCALE 1:4	SIZE: **A**
						SHEET 2 OF 4	

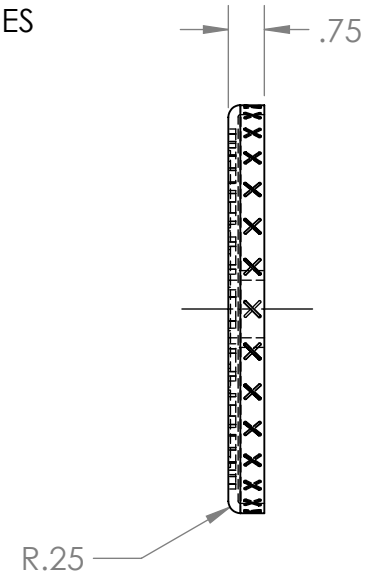
5 4 3 2 1



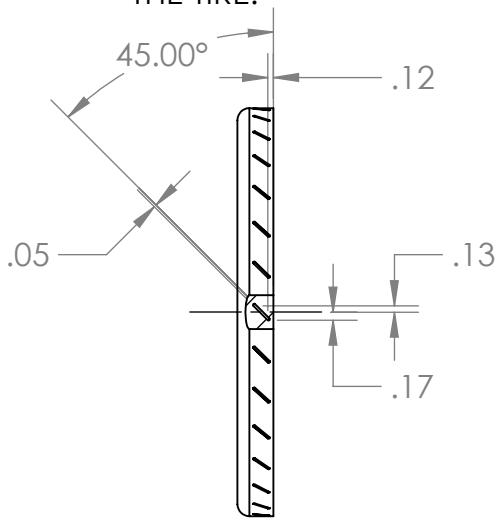




NOTE: THERE ARE 20 OF THESE TIRE NOTCHES DISTRIBUTED ALONG THE TIRE.



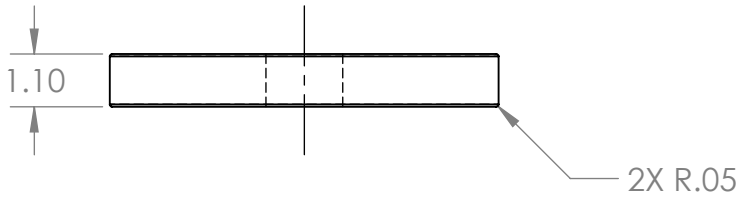
NOTE: THERE ARE 30 OF THESE TIRE TREADS DISTRIBUTED ALONG THE TIRE.



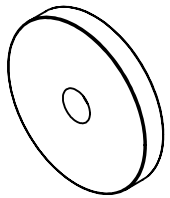
SECTION F-F

Georgia Institute of Technology	TITLE: **RIGHT WHEEL RIM**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SCALE 1:4	SHEET 3 OF 4	SIZE: **A**

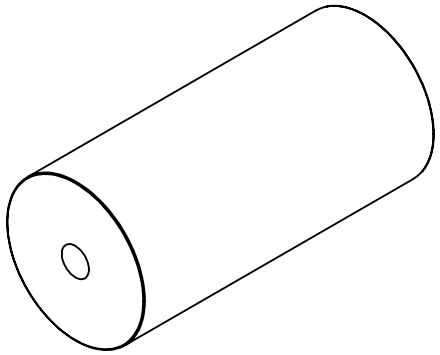
5 4 3 2 1



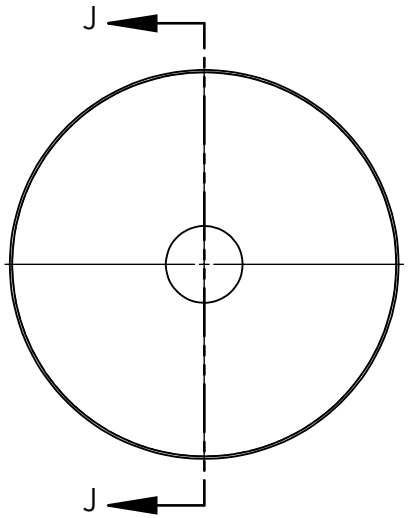
NOTE: WHEN FULLY INFLATED,
THIS DIMENSION IS INSTEAD
17.10 IN.

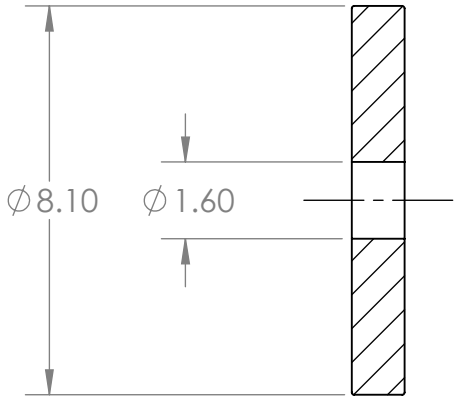


LAND MODE



WATER MODE

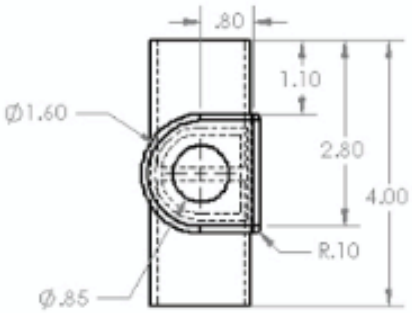


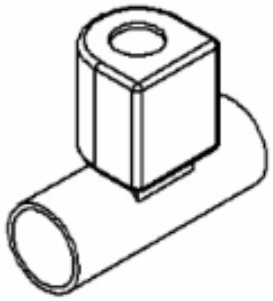


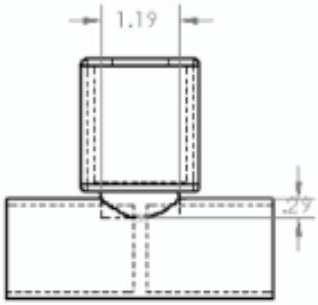
SECTION J-J

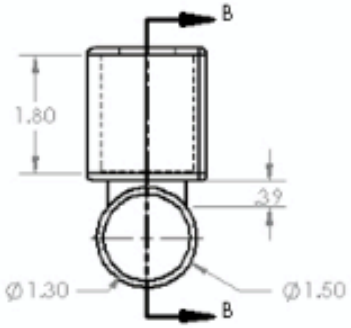
Georgia Institute of Technology	TITLE: **INFLATABLE BUOY**		DATE: **5/5/2021**	NAME: **KEERTIK BACON**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE: **A**
						SCALE 1:4 | SHEET 4 OF 4	

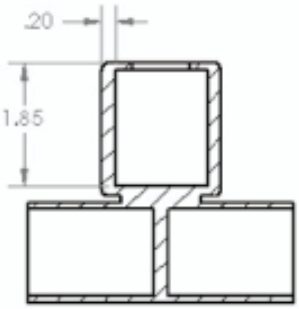
5 4 3 2 1











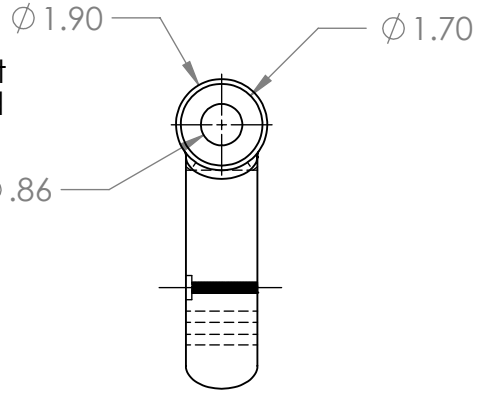
SECTION B-B

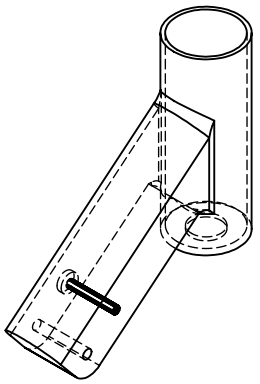
Georgia Institute of Technology	TITLE: Wheel Axle Housing		DATE: 5/4/2021	NAME: Keith Gibson			
	COURSE: ME 1770	SEMESTER: SPRING 2021	SECTION: F	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE: A
						SCALE 1:2 SHEET 1 OF 1	

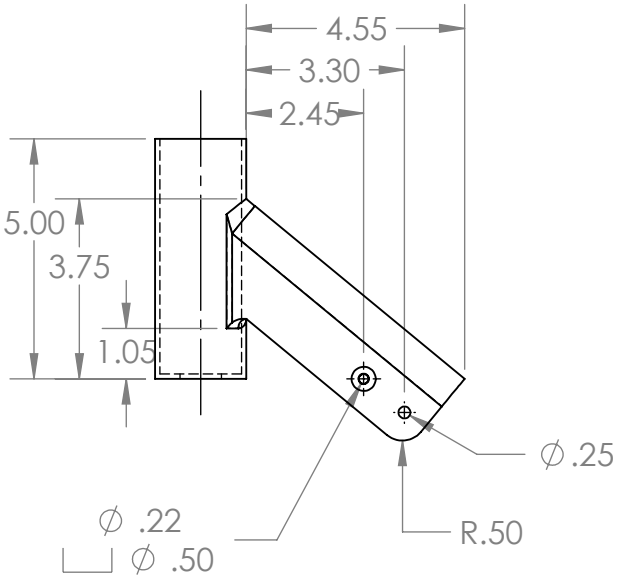
5 4 3 2 1

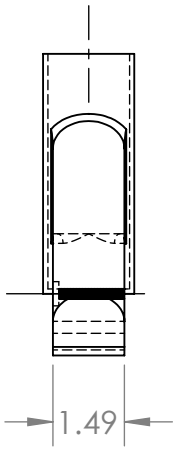
Fillet connecting the cylinder and offshoot is a radius of 0.2 inches all the way around

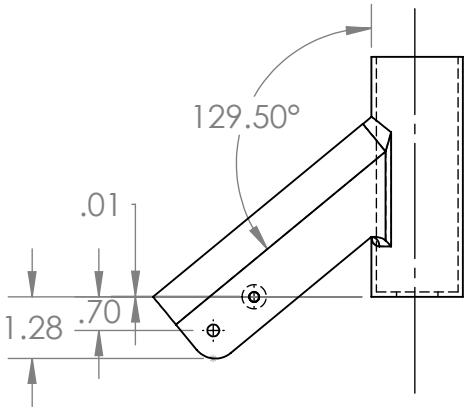
Threads are #0-80 with 0.0125 inch pitch and 0.2165343 inch diameter

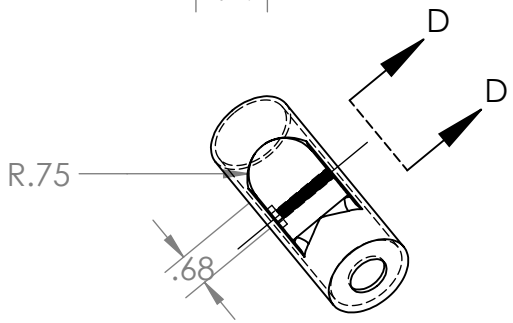










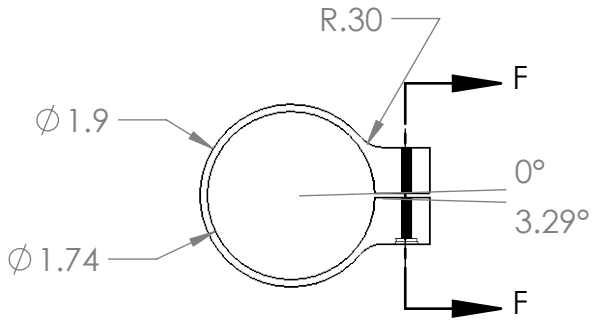


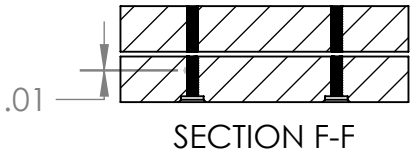
VIEW D-D

Georgia Institute of Technology	TITLE: **Base Housing**		DATE: **5/5/2021**	NAME: Keith Gibson			
COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SCALE 1:4	SHEET 1 OF 1	SIZE: **A**

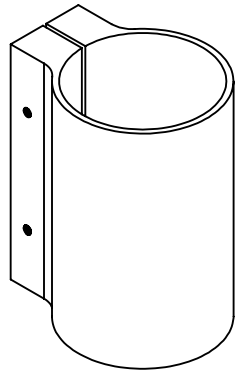
5 4 3 2 1

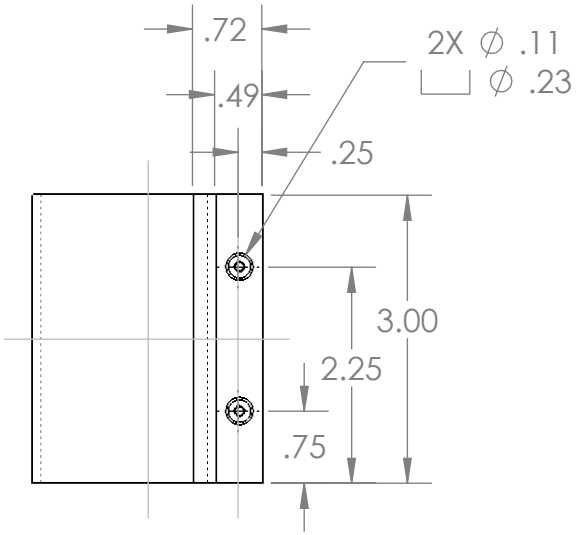
Threads are #0-80 with 0.0125 inch pitch
and 0.112 inch diameter

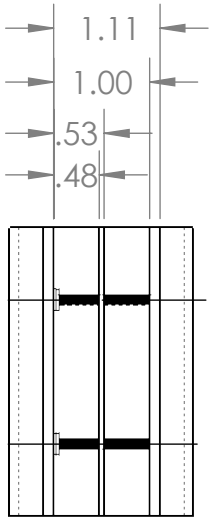




SECTION F-F

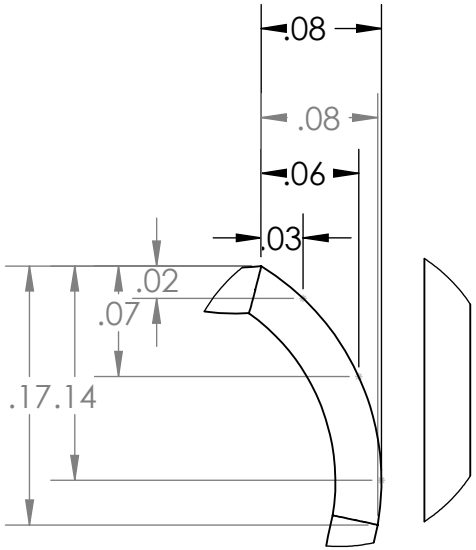




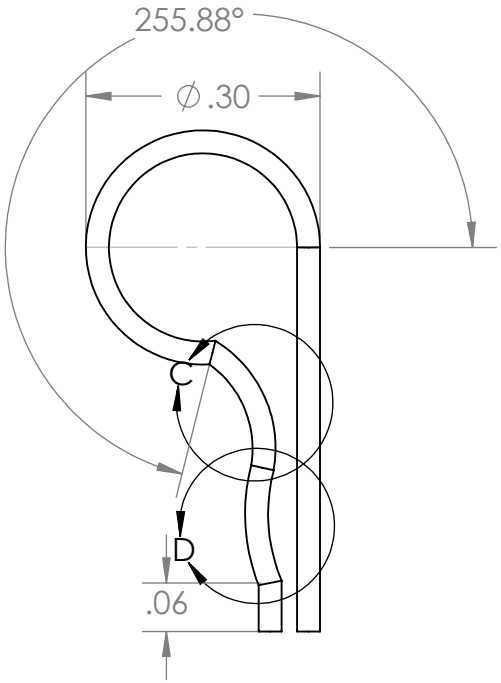


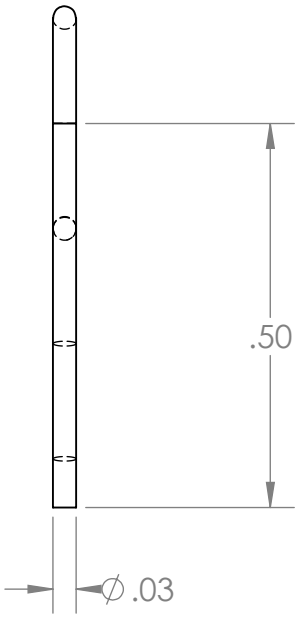
Georgia Institute of Technology	TITLE: **Brushed Aluminum**		DATE: **5/5/2021**	NAME: Keith Gibson			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE: **A**
						SCALE 1:2 | SHEET 1 OF 1	

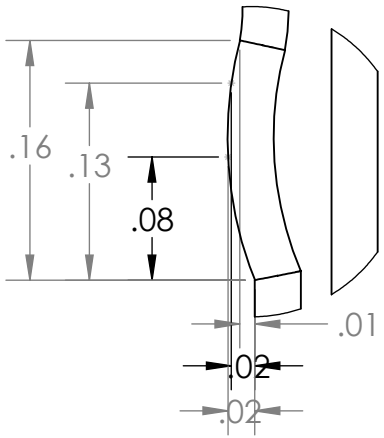
5 4 3 2 1



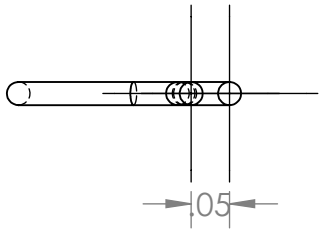
DETAIL C
SCALE 8 : 1





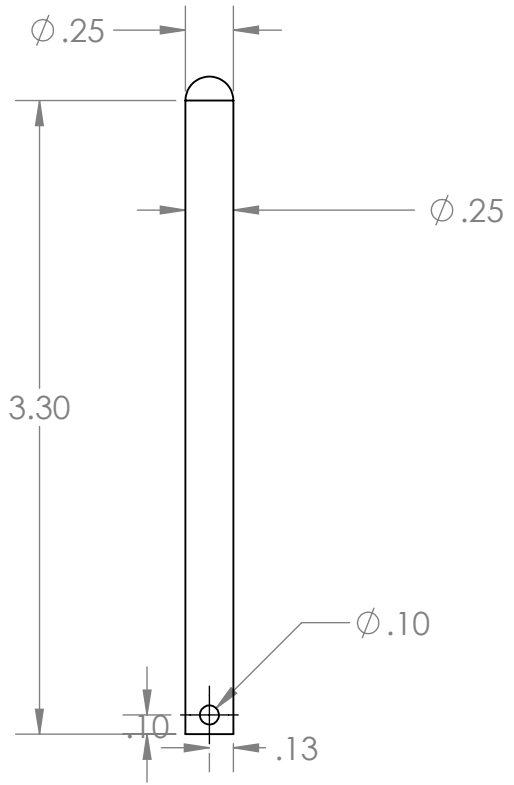


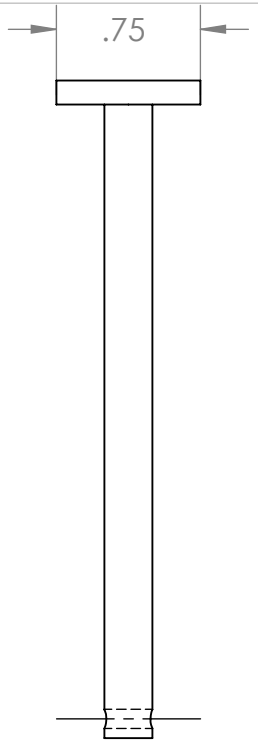
DETAIL D
SCALE 8 : 1

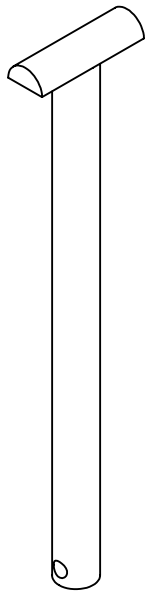


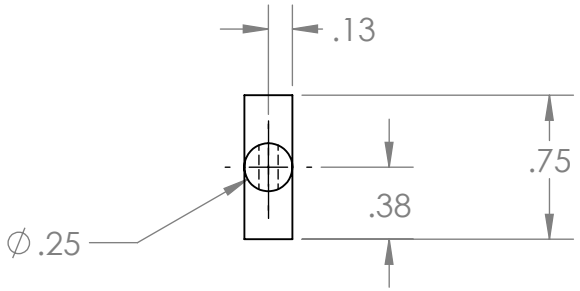
Georgia Institute of Technology	TITLE: Pin Holder		DATE: **5/5/2021**	NAME: Keith Gibson			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 4:1 | SHEET 1 OF 1	SIZE: **A**

5 4 3 2 1



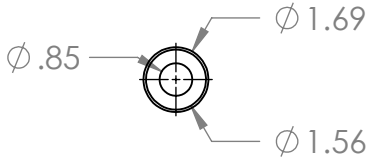


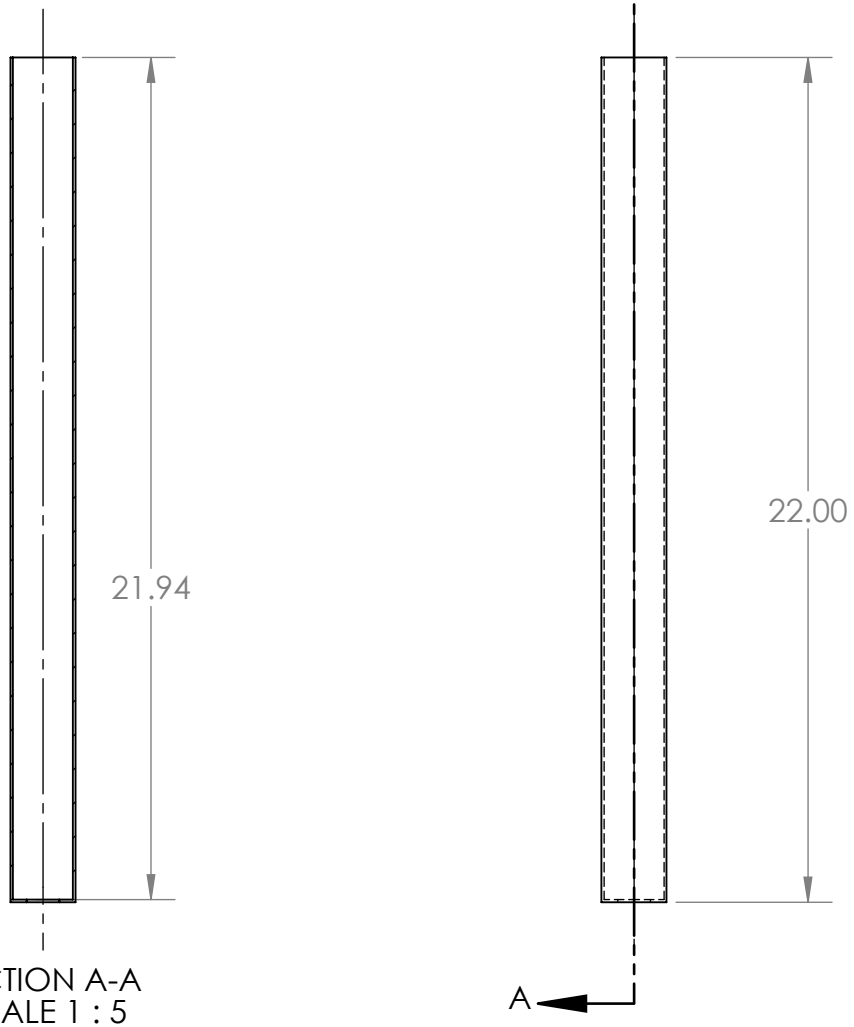




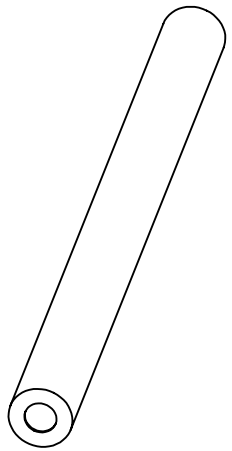
Georgia Institute of Technology	TITLE: Pin		DATE: **5/5/2021**	NAME: Keith Gibson			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE: **A**
						SCALE 1:1 / SHEET 1 OF 1	

5 4 3 2 1



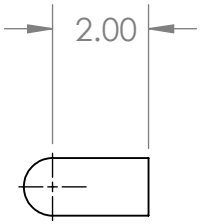


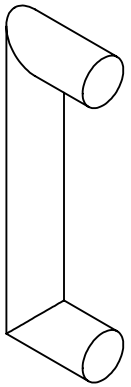
SECTION A-A
SCALE 1 : 5

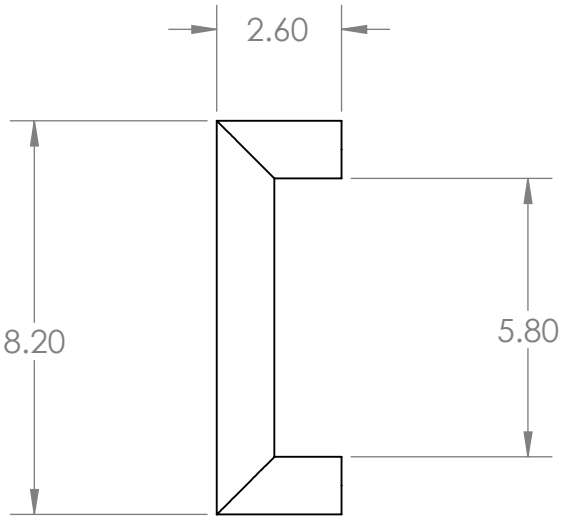


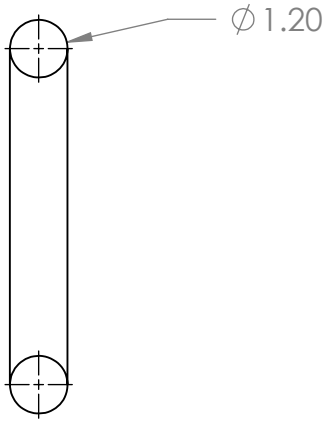
Georgia Institute of Technology	TITLE: Pole Housing **Brushed Aluminum**		DATE: **5/5/2021**	NAME: Keith Gibson			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:5 | SHEET 1 OF 1	SIZE: **A**

5 4 3 2 1





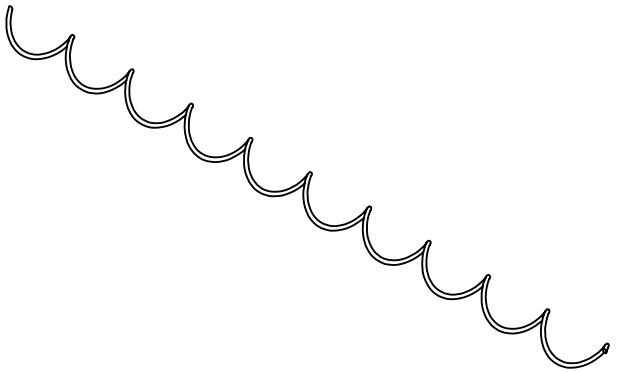


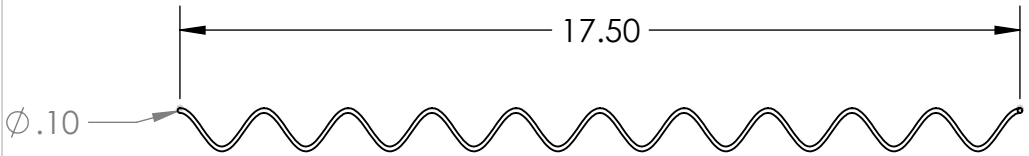


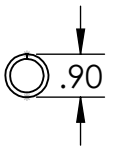
Georgia Institute of Technology	TITLE: Axel of rotation		DATE: **5/5/2021**	NAME: Keith Gibson			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:4 | SHEET 1 OF 3	SIZE: **A**

5 4 3 2 1

Spring Expands from 1.2 inches to 17.5 inches



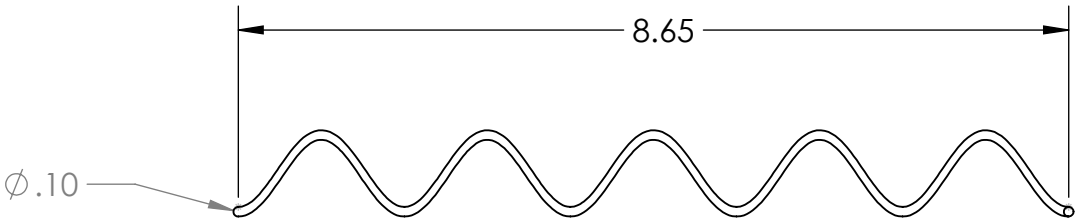


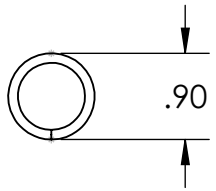


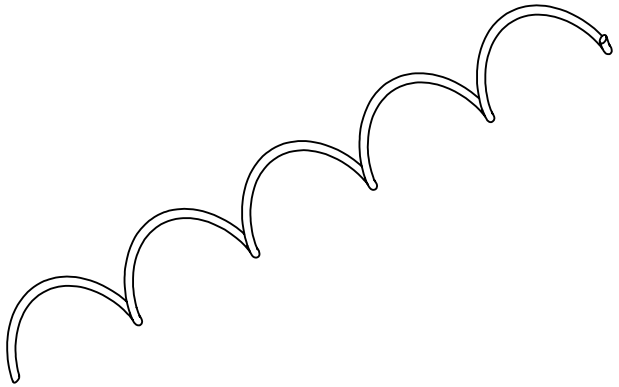
Georgia Institute of Technology	TITLE: Bottom Spring		DATE: **5/5/2021**	NAME: Keith Gibson and Keertik Bacon			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:4 | SHEET 1 OF 3	SIZE: **A**

5 4 3 2 1

Spring Expands from 0.8638 inches to 8.65 inches

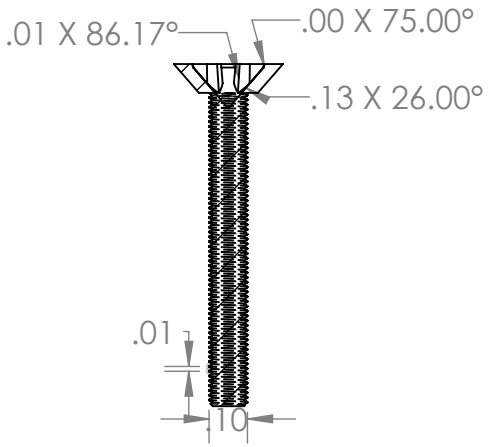




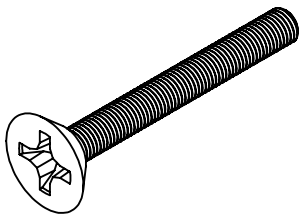


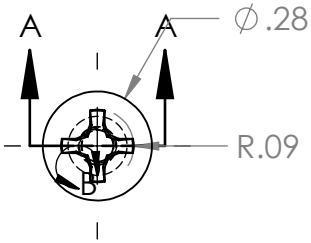
Georgia Institute of Technology	TITLE: Top Spring		DATE: **5/5/2021**	NAME: Keith Gibson and Keertik Bacon			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:2 | SHEET 1 OF 3	SIZE: **A**

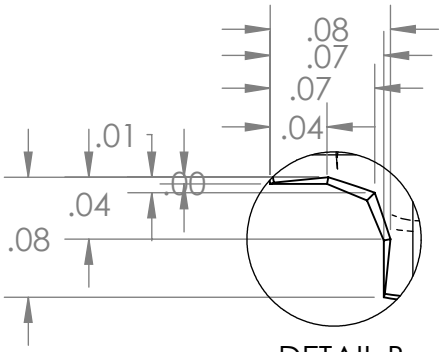
5 4 3 2 1



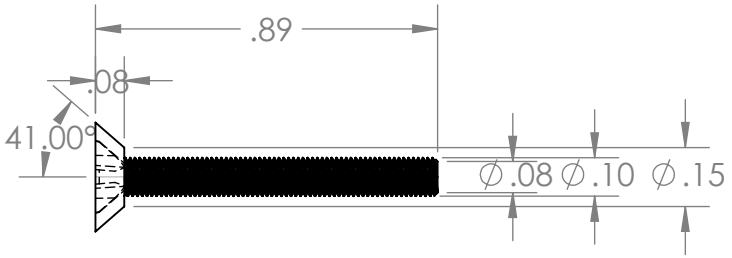
SECTION A-A







DETAIL B
SCALE 8 : 1



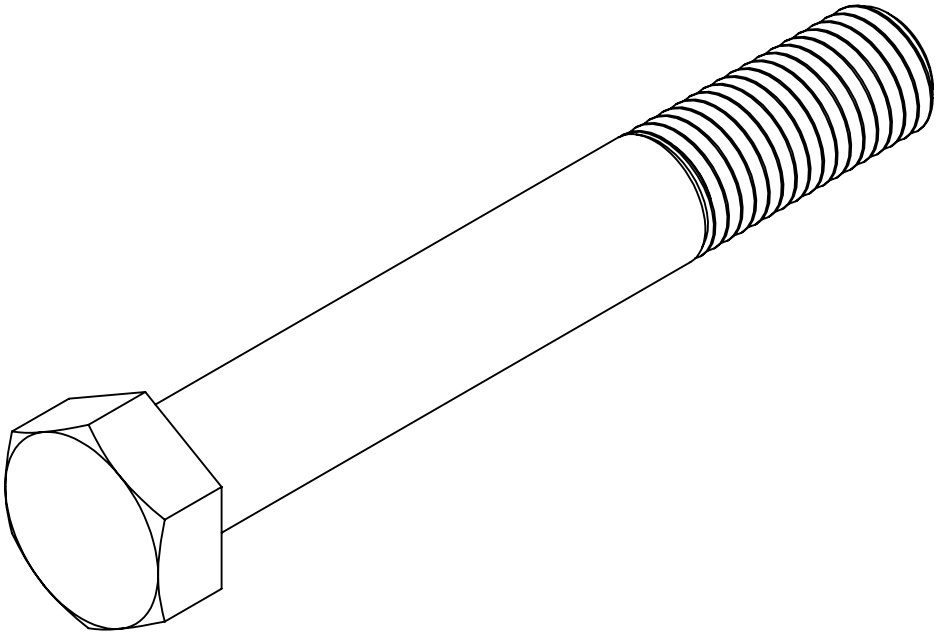
Thread Notes: 0.1 0.0125 UNF-2A

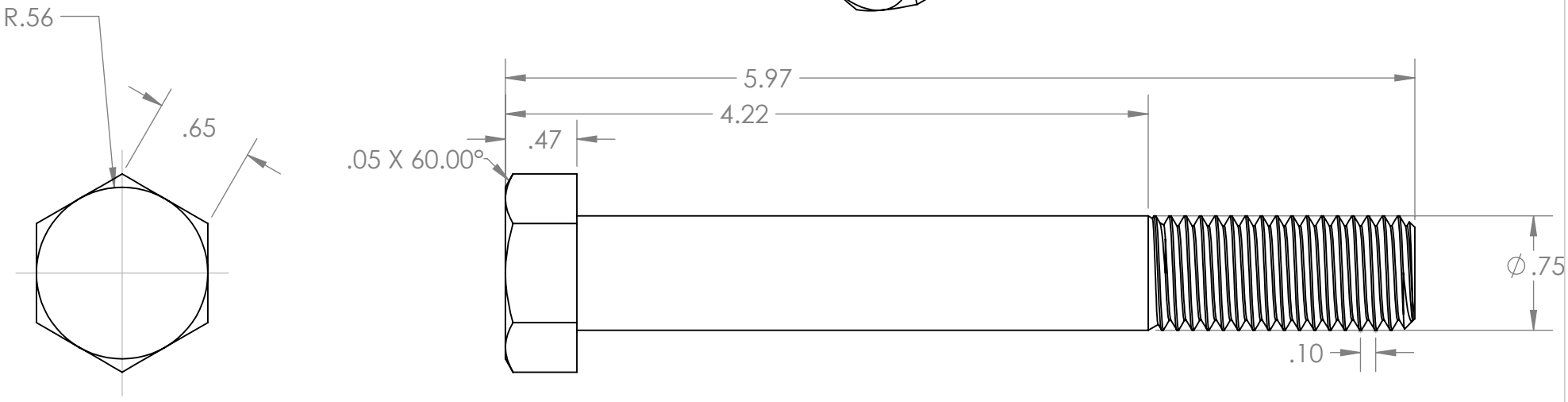
Georgia Institute of Technology	TITLE: 91771A743 18-8 SS FLAT HEAD PHILLIPS MACHINE SCREW **Stainless Steel**	DATE: **5/5/2021**	NAME: Keith Gibson			
COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 2:1 | SHEET 1 OF 1	SIZE: **A**

5 4 3 2 1

Thread Notes: M6 19.05 2.54 6G -RH

(Note: Thread Notes in metric cause that was the class specified on the site [in sources], although the diameter and such have since been edited to fit our specifications. Rest of drawing still in inches)



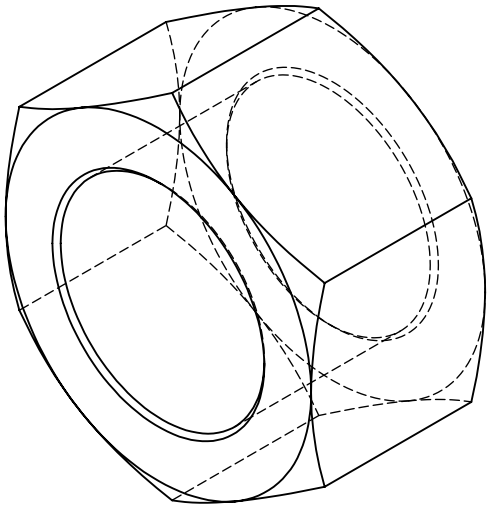


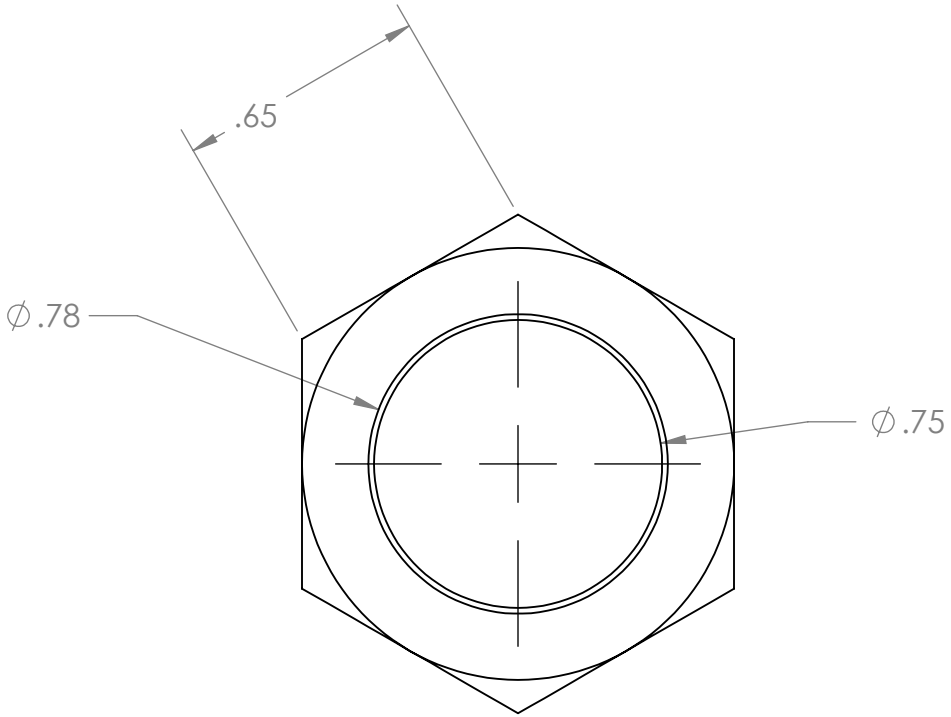
Georgia Institute of Technology	TITLE: 94368A115_SCREW AND NUT KIT FOR PIPE FLANGES (screw)		DATE: **5/5/2021**	NAME: **Keith Gibson**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2015**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:2 | SHEET 1 OF 3	SIZE: **A**

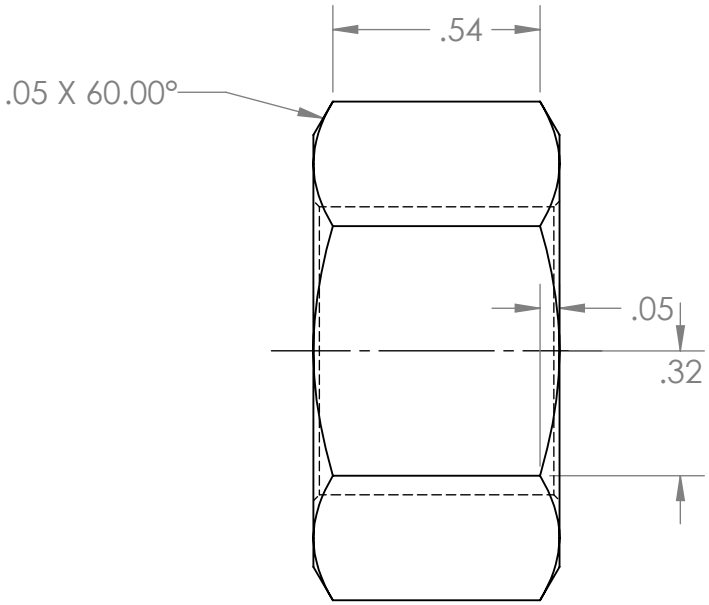
5 4 3 2 1

Thread Notes: M6 19.05 0.3175 6G -RH

(Note: Thread Notes in metric cause that was the class specified on the site [in sources], although the diameter and such have since been edited to fit our specifications. Rest of drawing still in inches)



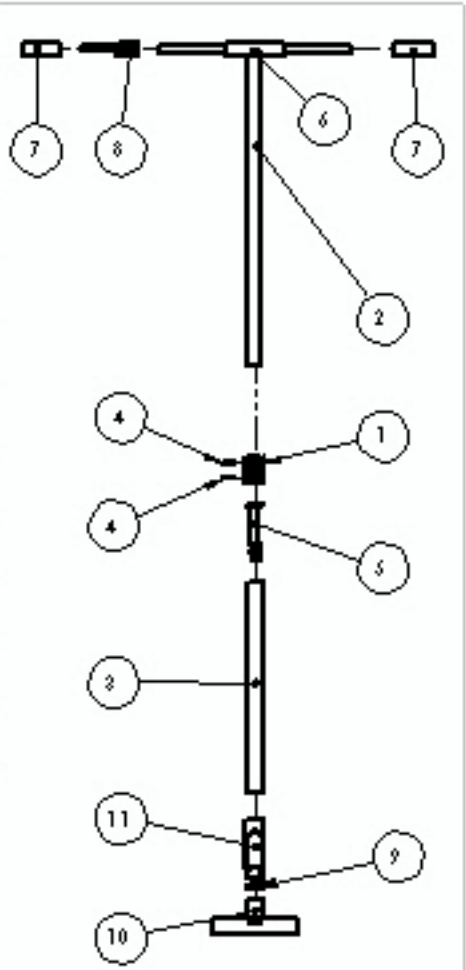




Georgia Institute of Technology	TITLE: 94368A115_SCREW AND NUT KIT FOR PIPE FLANGES - Nut	DATE: 5/5/2021	NAME: Keith Gibson				
	COURSE: ME 1770	SEMESTER: SPRING 2021	SECTION: F	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE: A
						SCALE 2:1 / SHEET 1 OF 1	

5 4 3 2 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Pole Connectors	Brushed Aluminum	1
2	pole	Brushed Aluminum	1
3	Pole Housing	Brushed Aluminum	1
4	91771A848	Stainless Steel	2
5	94368A115 (Hex Screw)	Stainless Steel	1
6	handlebar	Brushed Aluminum	1
7	handle bar grips	Rubber	2
8	brake	Brushed Aluminum	1
9	94368A115 (Hex Nut)	Stainless Steel	1
10	Wheel axel	Brushed Aluminum	1
11	Base Housing	Brushed Aluminum	1

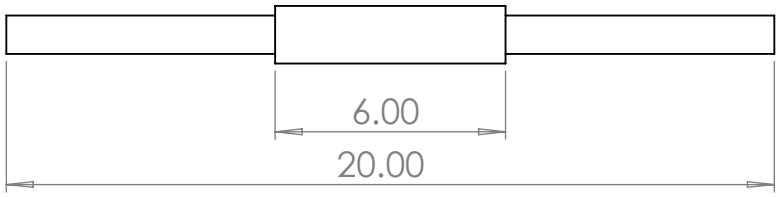


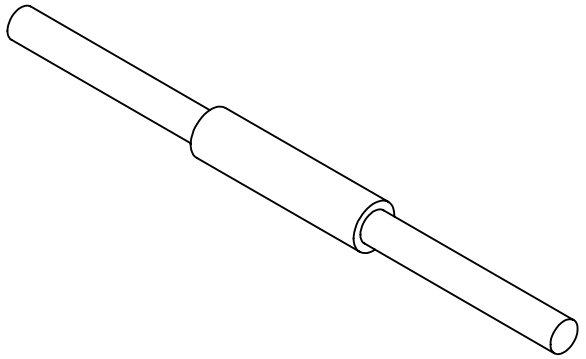
Georgia Institute of Technology

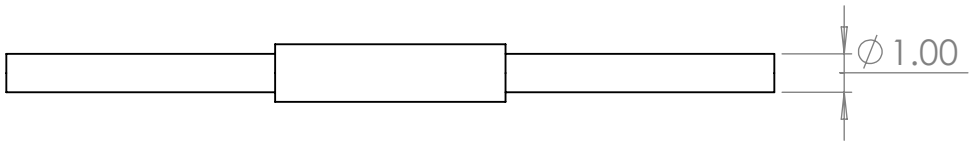
TITLE	DATE	NAME
Steering Assembly	5/4/2021	Drawn By Keith Gibson

COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES AND IS ARE IN DEGREES	SIZE
ME 1770	SPRING 2021	F			SCALE 1:5 SHEET 1 OF 1	A

3 4 5 7 1

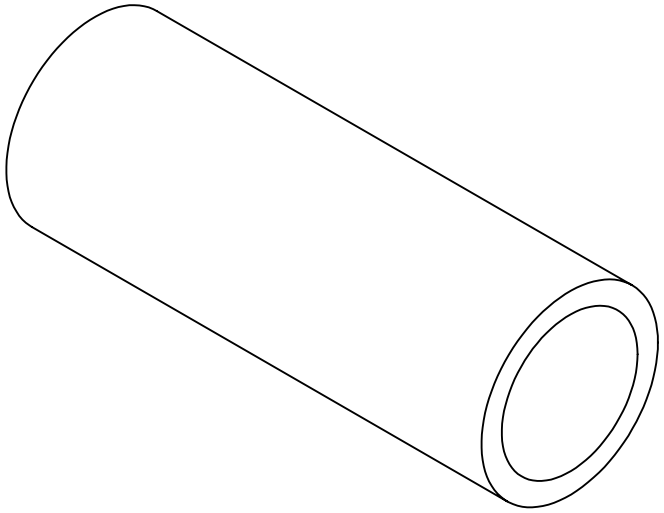


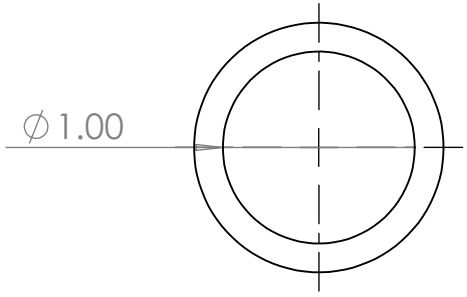




Georgia Institute of Technology	TITLE: **HANDLE BARS**		DATE: **5/4/2021**	NAME: **ABIGAIL PAWLOWSKI**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:5 | SHEET 1 OF 1	SIZE: **A**

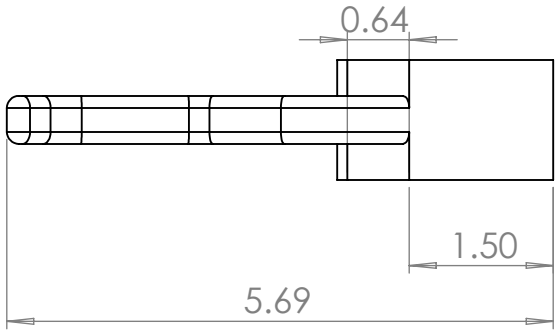
5 4 3 2 1

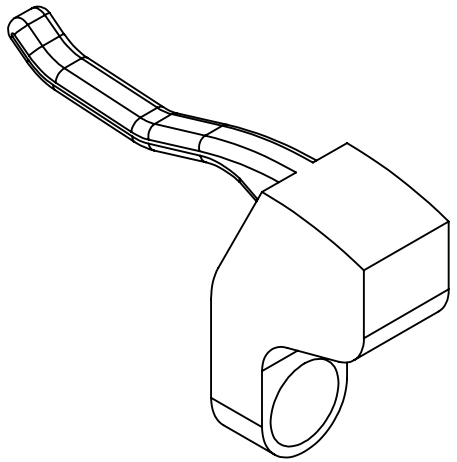


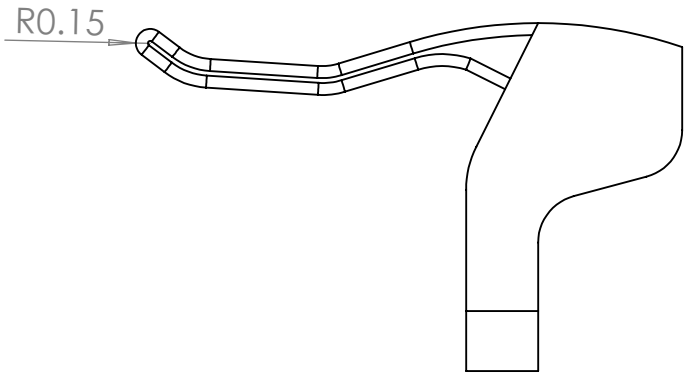


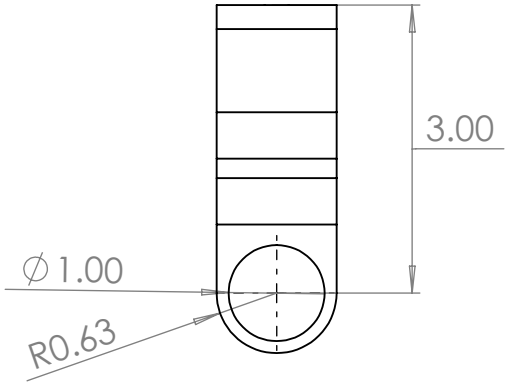
Georgia Institute of Technology	TITLE **HANDLEBAR GRIPS**		DATE **5/4/2021**	NAME **ABIGAIL PAWLOWSKI**			
	COURSE **ME 1770**	SEMESTER **SPRING 2021**	SECTION **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:1 SHEET 1 OF 1	SIZE **A**

5 4 3 2 1



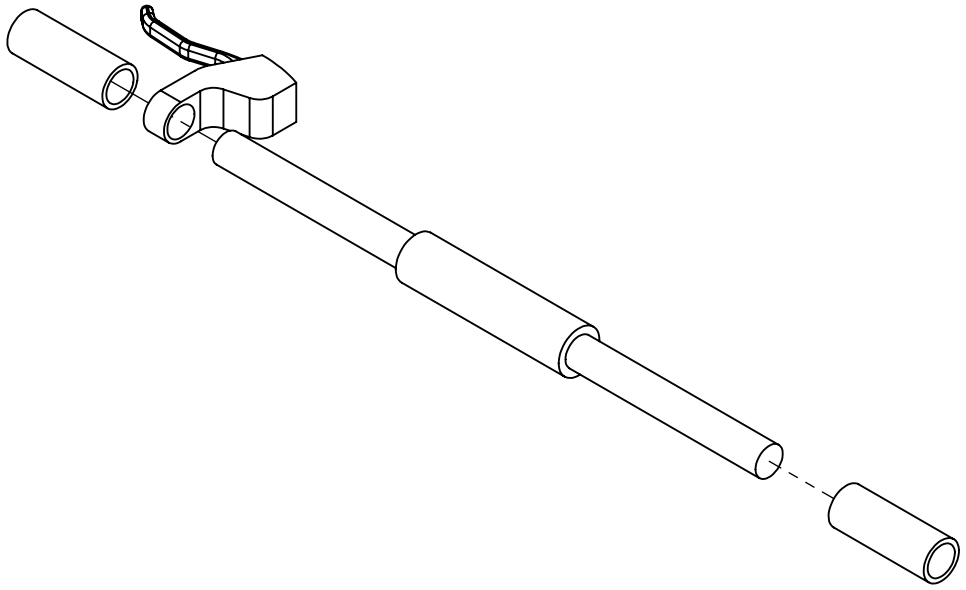






Georgia Institute of Technology	TITLE: **BRAKE**		DATE: **5/4/2021**	NAME: **ABIGAIL PAWLOWSKI**			
	COURSE: **ME 1770**	SEMESTER: **SPRING 2021**	SECTION: **F**	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES SCALE 1:2 | SHEET 1 OF 1	SIZE: **A**

5 4 3 2 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Handlebar	Aluminum	1
2	Hand Brake	Aluminum	1
3	Handlebar Grips	Rubber	2

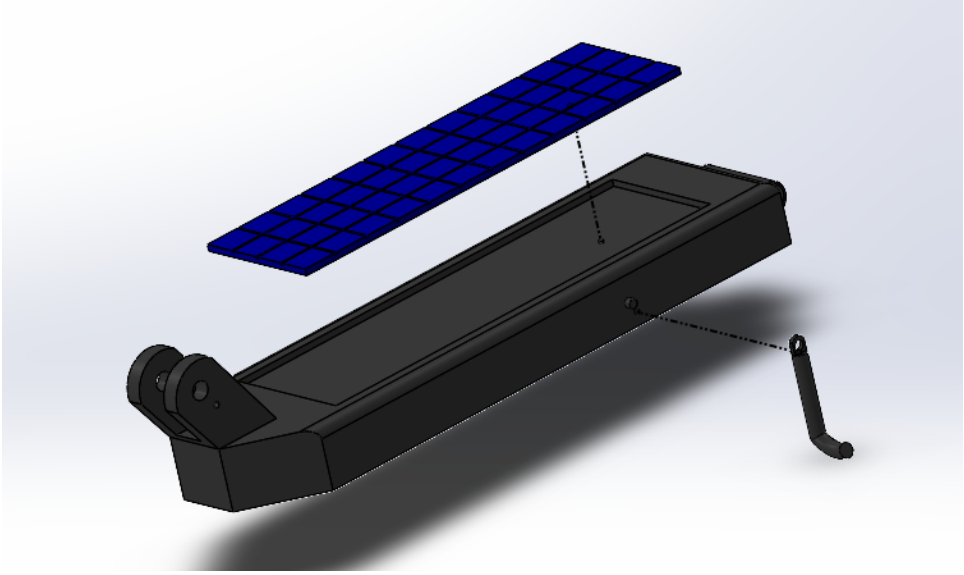
Georgia Institute of Technology

TITLE	DATE	NAME
HANDLEBARS - EXPLODED	**5/5/2021**	**ABIGAIL PAWLOWSKI**

COURSE	SEMESTER	SECTION	LAB	ACTIVITY	DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES	SIZE
ME 1770	**SPRING 2021**	**F**			SCALE 1:5 SHEET 1 OF 1	**A**

5 4 3 2 1

Assembly Instructions



Step 1: The first step is to assemble the scooter base body. First insert the solar panel into the top slot for the solar panel. Then insert the kickstand into the axel on the side of the scooter to allow for a 90-degree range of rotation so that the kickstand can retract and come out when needed.

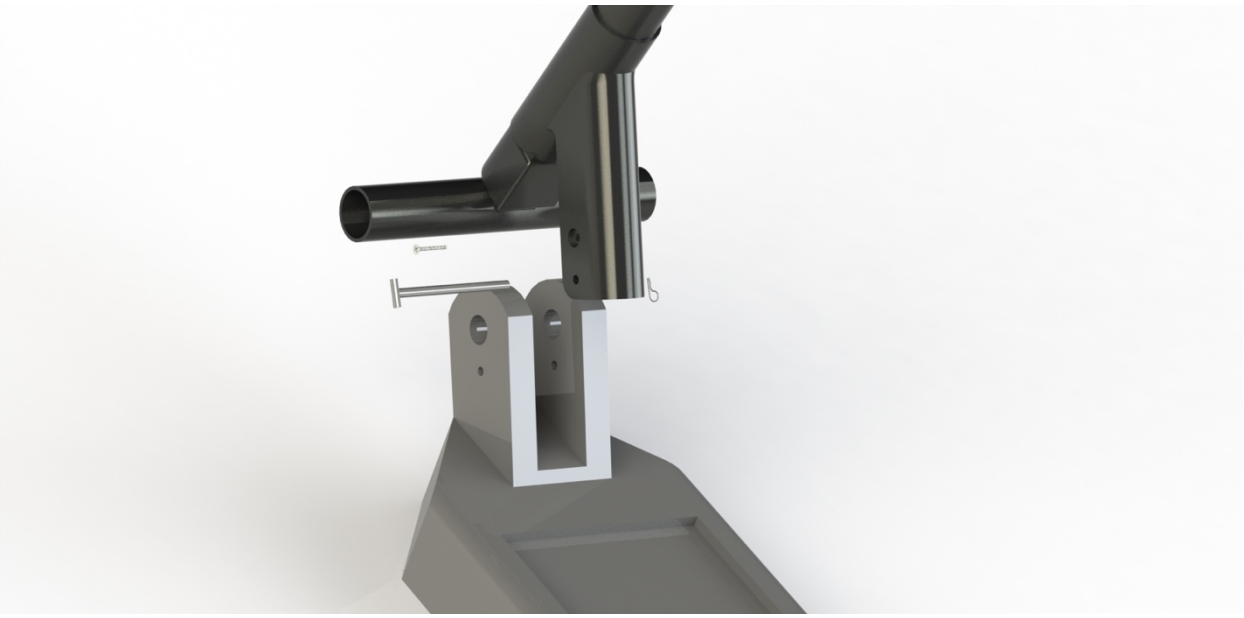
Steering Exploded View:

Step 2: Weld the handlebar onto the pole. Then, attach the brakes and the handle grips on both sides.

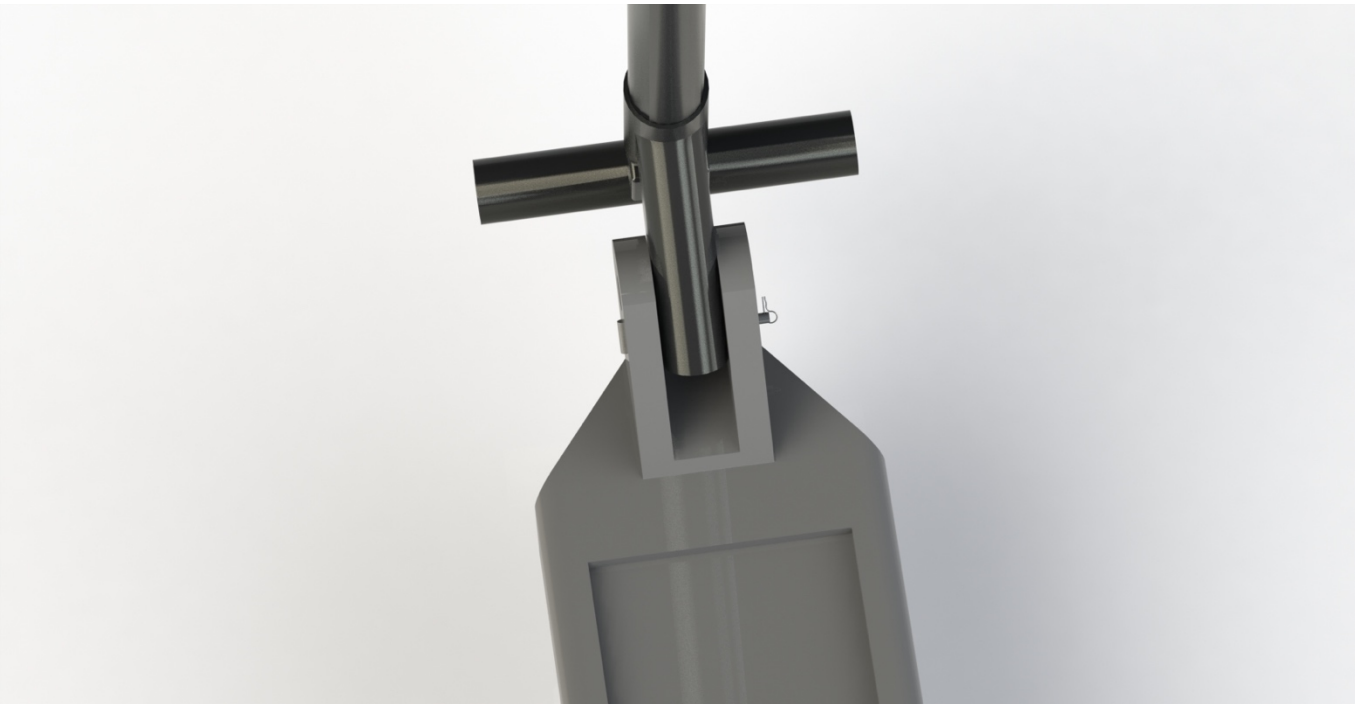
Step 3: Attach the pole housing and the wheel housing through the base housing via the hex screw and nut. Be sure to attach firmly.

Step 4: Slide the clamp over the pole housing. Then, slide the pole into the pole housing and adjust to desired height.

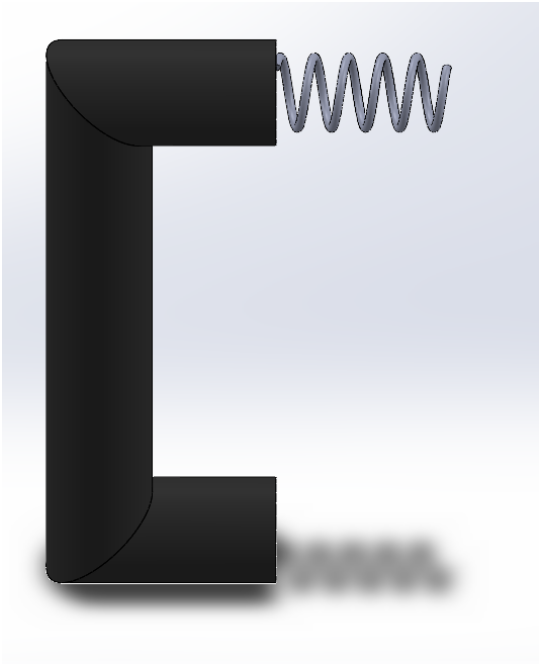
Step 5: Once adjusted to the desired height, screw the screws into the holes of the pole clamps until tight. Note, to readjust height, unscrew screws and adjust the height, then readjust the screws until tight.



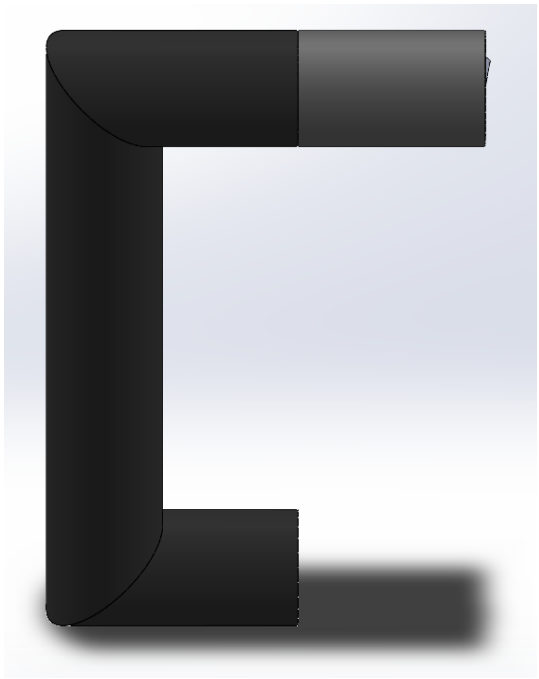
Step 6: Get pin, pin holder, and screw. Also, get the base and as we will use these parts to attach the pole to the base.



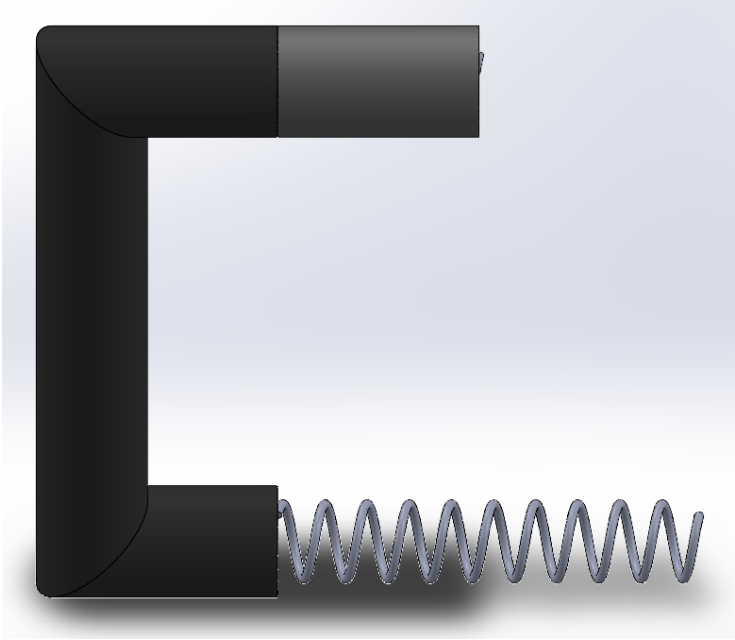
Step 7: Center the base and the base housing. Then, align the screw hole and the screw and screw it until tight. Finally, insert the pin and slip the pin holder through the hole in the pin to secure it. Note: the pin can be removed by removing the pin holder from the pin and then pulling out the pin. This will allow the pole to fold down towards the base for storage.



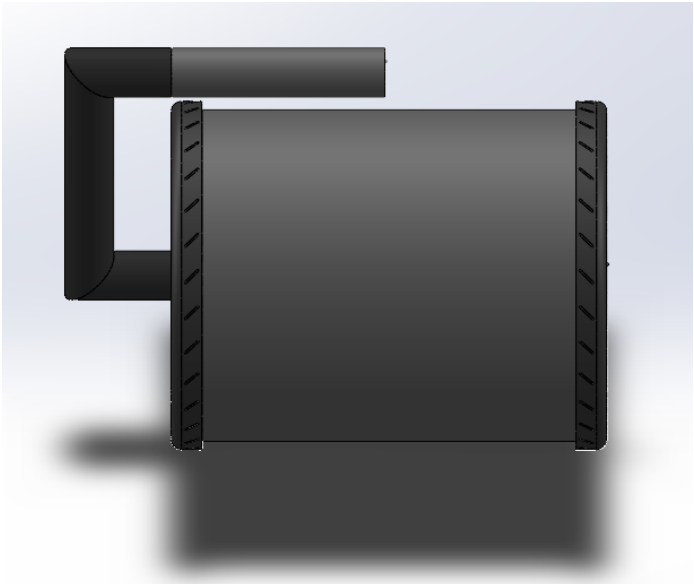
Step 8: Take a top spring and attach it to one of the ends of an axis of rotation piece. Repeat this 3 more times with the remaining top springs and axis of rotation pieces.



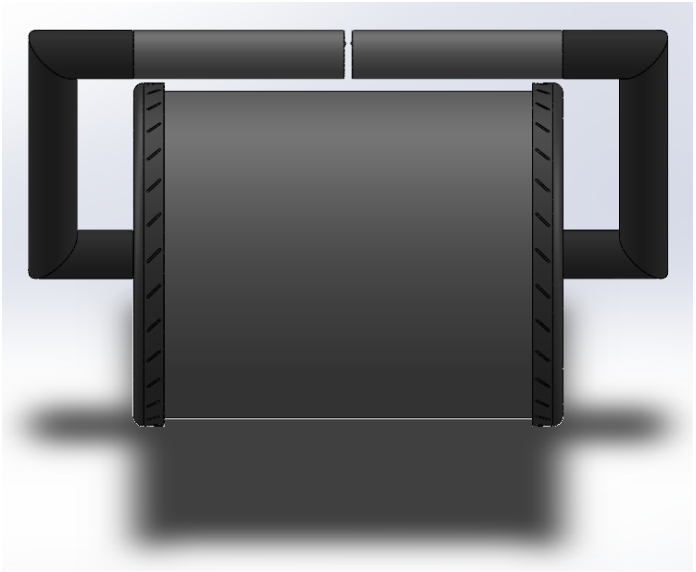
Step 9: Take a silicon sheath and put it over the top spring, also attaching it to the axis of rotation piece. Repeat this 3 more times as well.



Step 10: Take 2 of the 4 subassemblies, and attach a bottom spring to both, at the free end of their axis of rotation pieces.

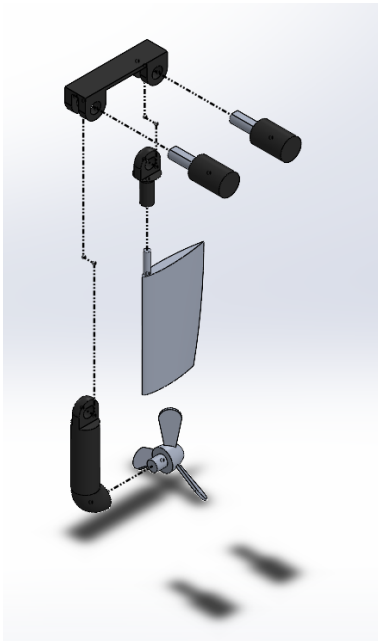


Step 11: Take the 2 wheels, and send the bottom spring through their center shaft, attaching the end of the axis of rotation pieces to the side of the wheel.

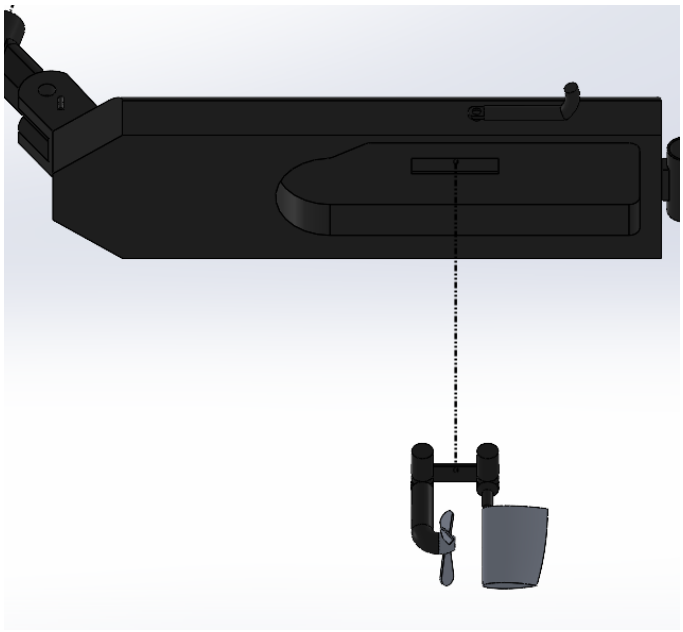


Step 12: Take the remaining two subassemblies (without the bottom springs), and attach the free end of their axis of rotation pieces to the bottom spring coming out on the other end of the wheel. This secures the wheel between the two axis of rotation pieces.

Step 13: For the front wheel, attach the two top springs to the inside wall of the wheel axle, on either side. For the back wheel, attach the two top springs to the inside wall of the axle that is integrated with the scooter body.



Step 14: Attach the Propeller to the Propeller Mount Leg, and the Rudder to the Rudder Mount Leg. Take the Propeller/Rudder Mount and secure the Propeller and Rudder Mount Legs to it using the two motors.



Step 15: Attach this Propeller and Rudder Assembly to the underside of the scooter body, in the given notch.

MEETING MINUTES

DATE: March 31, 2021
TIME: 8:00 a.m.
LOCATION: Sustainable Education 102
PROJECT: Solar Surf Scooter
SUBJECT: Initial plans for ME 1770 Team Project
TEAM SECTION: Section F

ATTENDANCE:

Abigail Pawlowski	present
Keertik Bacon	present
Lee Gibson	present
Rashi Yadav	absent

The purpose of the meeting was to discuss the initial plan for the solar surf scooter and assign the individual Solidworks parts to each group member for completion by April 18. We also made a calendar with tentative dates we should have each part of the project done by.

The following items summarize the discussion:

1. **Today's Discussion.**
   a. We assigned parts to every team member and made dimensions so everyone's Solidworks parts would fit seamlessly.
   b. Talked about if we should model bike handles off an electric scooter or a beach cruiser.
   c. The wheels need to properly expand into buoys.

2. **Time constraints and time management.**
   a. All Solidworks parts done by 4/18
   b. Assembly and Assembly Instructions done by 4/23
   c. Powerpoint done by 4/26
   d. All files into one PDF by 4/30

3. **Action Items.**
   Abigail – Begin Solidworks for individual part
   Keertik – Begin Solidworks for individual part
   Lee – Begin Solidworks for individual part
   Rashi - Begin Solidworks for individual part

4. **Next Meeting.**
   Scheduled for: April 14, 2021 @ 8 a.m.
   Place: Sustainable Education 102

5. Approval of Minutes (signatures of all team members present)

Team members signatures here: Abigail Pawlowski
Keertik Bacon
Lee Gibson

MEETING MINUTES

DATE: April 14, 2021
TIME: 8:00 a.m.
LOCATION: Sustainable Education 102
PROJECT: Solar Surf Scooter
SUBJECT: Initial plans for ME 1770 Team Project
TEAM SECTION: Section F

ATTENDANCE:

Abigail Pawlowski	present
Keertik Bacon	present
Lee Gibson	present
Rashi Yadav	present

The purpose of the meeting was to touch base on where we were in our Solidworks parts and make a shared folder for everyone to upload our files to. When we were done discussing we all worked on our own parts with eachothers help.

The following items summarize the discussion:

1. **Today's Discussion.**
   a. We all talked about our Solidworks parts and made sure we were all using the correct dimensions as determined in the last meeting.
   b. We created a OneDrive folder so we could all upload our files and look at each other's parts, as well as a place to store the presentation and other documents.
   c. Looked at each other's parts to double check everyone's dimensioning.

2. **Time constraints and time management.**
   a. We have changed the time constraint plan due to the individual project being pushed back.
   b. All Solidworks parts done by 4/25
      Assembly and Assembly Instructions done by 4/30
      Powerpoint done by 5/2
      All files into one PDF by 5/1
   c. This will make everything done closer to the due date, but overall is better for everyones schedule.

3. **Action Items.**
   Abby – Begin formatting report, presentation and finish solidworks parts
   Keertik – Begin on full assembly and plan with Lee when to do animation
   Lee – Finish up solidwoks parts and plan with Keerik when to do animation with Keertik
   Rashi – Finish Solidworks parts

4. **Next Meeting.**
   Scheduled for: April 27, 2021 at 2:00 p.m.
   Place: Sustainable Education 102

5. Approval of Minutes (signatures of all team members present)

Team members signatures here: Abigail Pawlowski
Keertik Bacon
Lee Gibson
Rashi Yadav

MEETING MINUTES

DATE: April 27, 2021
TIME: 8:00 a.m.
LOCATION: Sustainable Education 102
PROJECT: Solar Surf Scooter
SUBJECT: Initial plans for ME 1770 Team Project
TEAM SECTION: Section F

ATTENDANCE:

Abigail Pawlowski	present
Keertik Bacon	present
Lee Gibson	present
Rashi Yadav	present

The purpose of this meeting was to discuss the finishing of the project.

The following items summarize the discussion:

1. **Today's Discussion.**
   a. We assigned parts on the final report, presentation, and animation.
   b. Lee and Keertik will make the animation together.
   c. Abby will get the parts from everyone and combine them all into the presentation and report.

2. **Time constraints and time management.**
   a. We need to be done with everything by May 3rd, the day before the final presentation. With everyone's finals, we are not assigning certain times everything must be finished except for this date.

3. **Action Items.**
   Abigail – Make presentation and Final Report
   Keertik & Lee – Work together on animation
   Rashi – Finish parts and do Assembly

4. **Next Meeting.**
   Everyone should work on this project around their finals schedule and update the group in the GroupMe when you do anything.

5. **Approval of Minutes (signatures of all team members present)**

   Team members signatures here:
   Abigail Pawlowski
   Keertik Bacon
   Lee Gibson
   Rashi Yadav

ME Reference sources:

For pole housings: https://www.target.com/p/razor-a-kick-scooter-red/-/A-11199452?ref=tgt_adv_XS000000&AFID=google_pla_df&fndsrc=tgtao&DFA=71700000012767052&CPNG=PLA_Sports%2BShopping_Local%7CSports_Ecomm_Hardlines&adgroup=SC_Sports_Local&LID=700000001170770pgs&LNM=PRODUCT_GROUP&network=g&device=c&location=9010937&targetid=pla-485088911710&ds_rl=1246978&ds_rl=1248099&gclid=Cj0KCQjwppSEBhCGARIsANIs4p5guMQJRaMVv-SodzNUorhZva5acP_BXz4tUbhzt1sxsFQdnDDYts4aAjwBEALw_wcB&gclsrc=aw.ds

For whole thing: https://razor.com/wp-content/uploads/2020/12/T25_US_Product.png

For pole clamps:
https://upload.wikimedia.org/wikipedia/commons/a/a3/Scooter_Headset_Compression_ICS.svg

Nut and Bolt: https://www.mcmaster.com/screws/hex-head-screws/aluminum-hex-head-screws/

For Screws: https://www.mcmaster.com/91771A848/

For steering mechanism and connections:
https://upload.wikimedia.org/wikipedia/commons/7/7d/Scooter_Headset_Compression_SCS.svg

Animation Video: https://youtu.be/2X4ZIe_FSVw

Note: We had severe trouble with the animation. The first had a corrupted file, the second video corrupted the assembly, black screened Lee's computer, and then, when viewed, had an incredibly shaky camera during the entire video, rendering it impossible to see any functionality with it. These two were completed before the presentation, but due to these errors, was not presented. A third was attempted to be rendered also, but the camera did function as intended there either. In this fourth and final rendering, there does exist scenes that break a mate, but we decided its best not to mess with it anymore for fear of it breaking again. I have absolutely no idea why the animation acted in this way.