

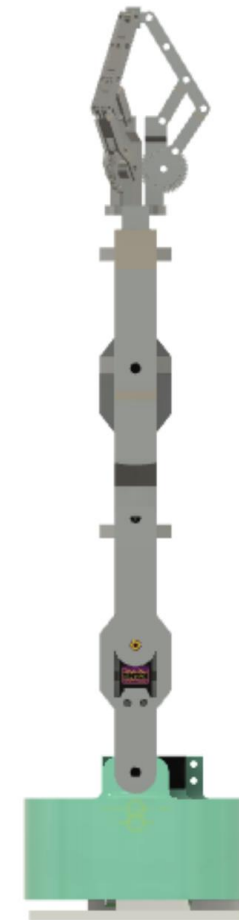
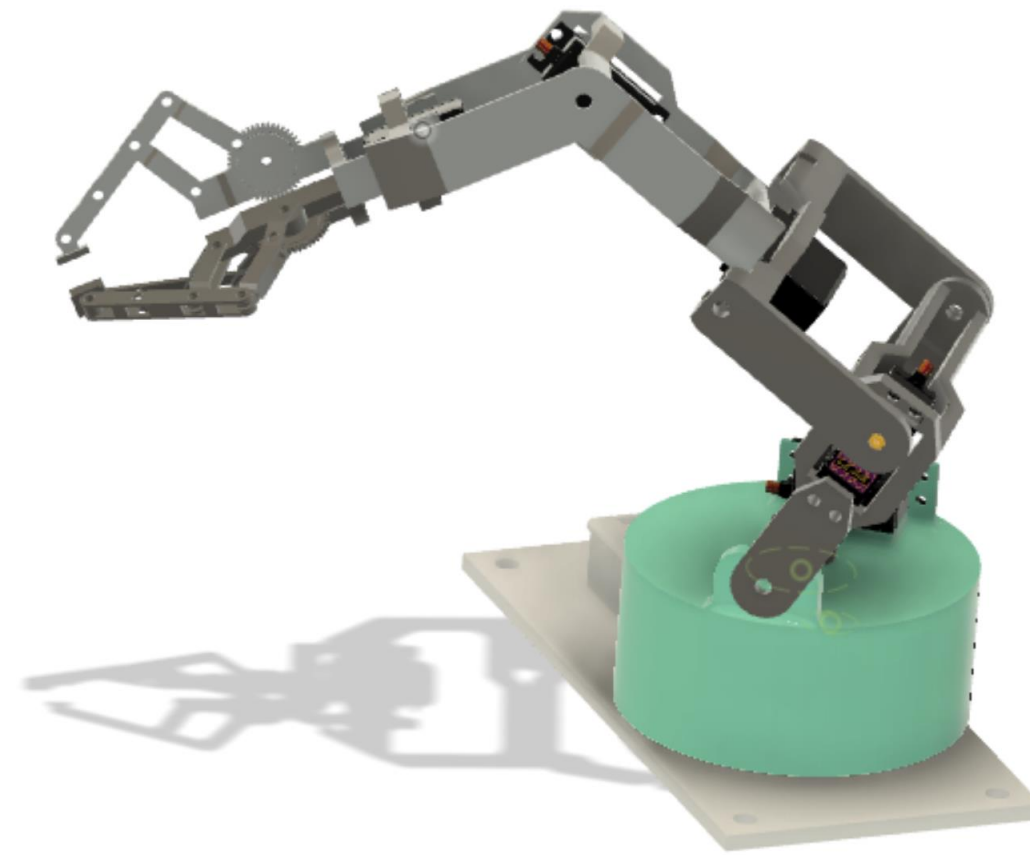
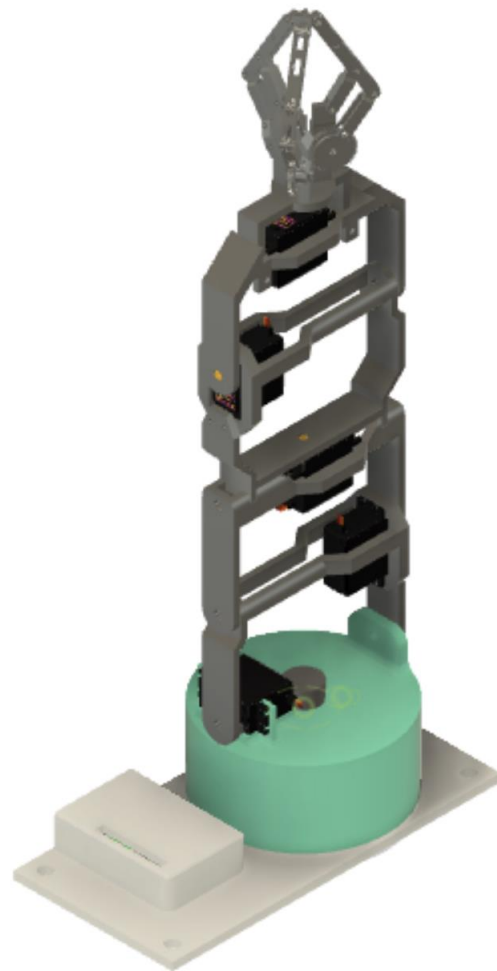
**Brevin Banks**  
**Mechanical Engineering and Robotics**  
**CAD Portfolio**

Projects

Made With:



## Custom Miniature 6 DOF Robot With Modular Joints

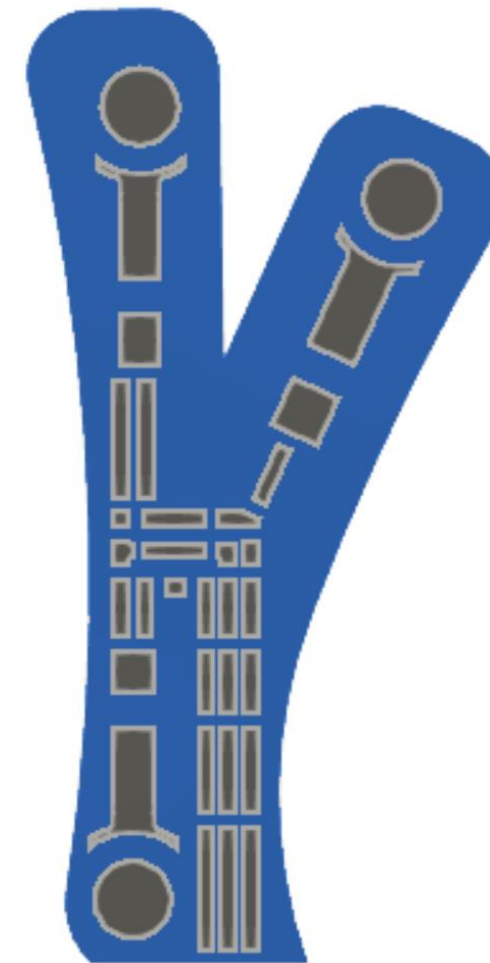
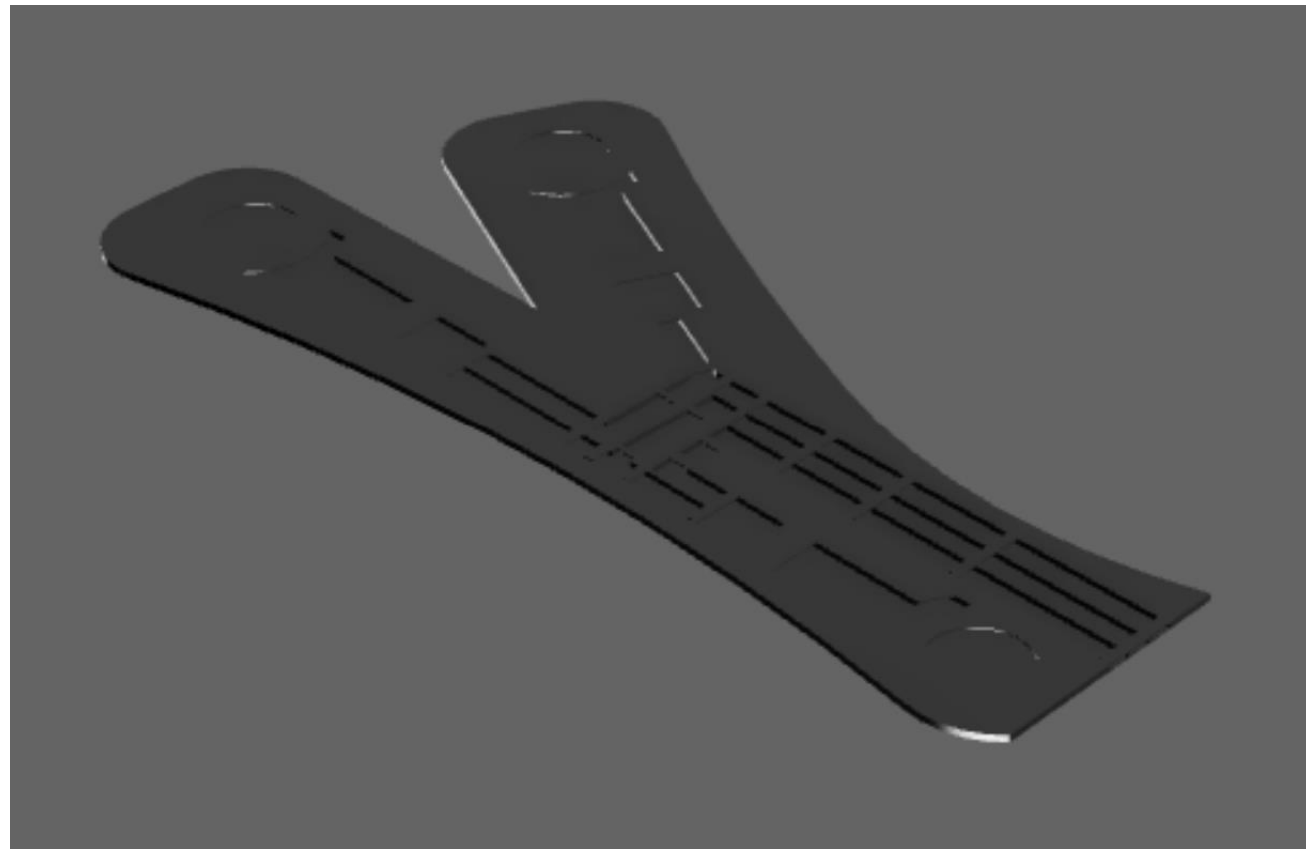


**Complex Designs For Basic Control**

Made With:



## Prosthetic Shoe Haptic Sensor Insole

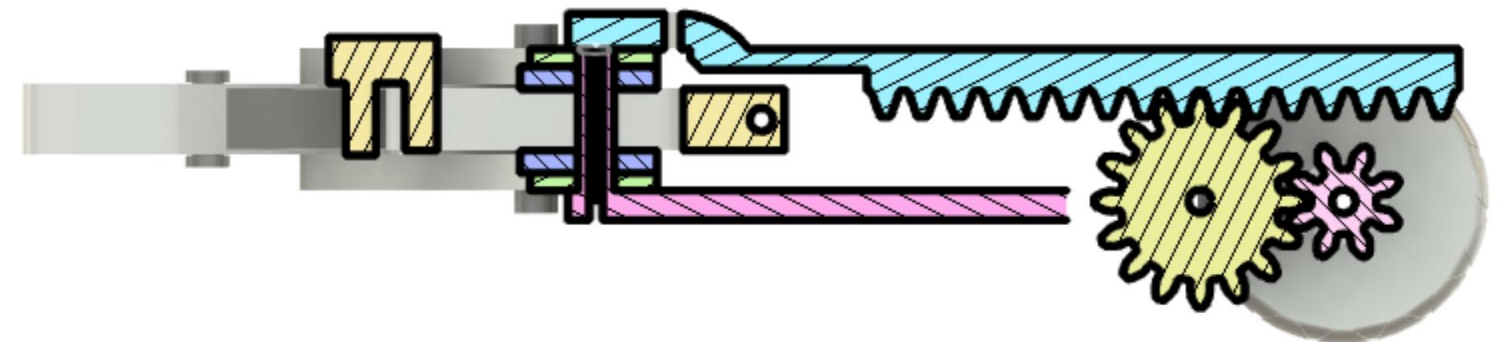
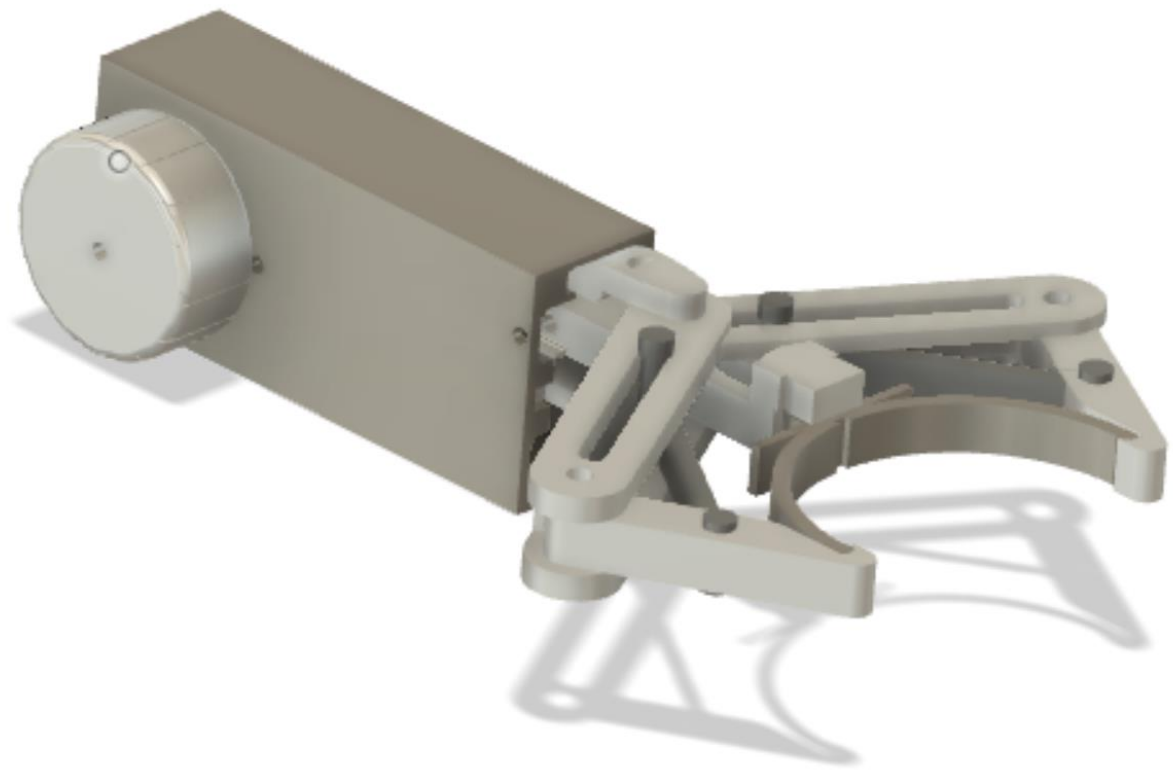


Practical Designs

Made With:



## Medical Clamp Opener Device



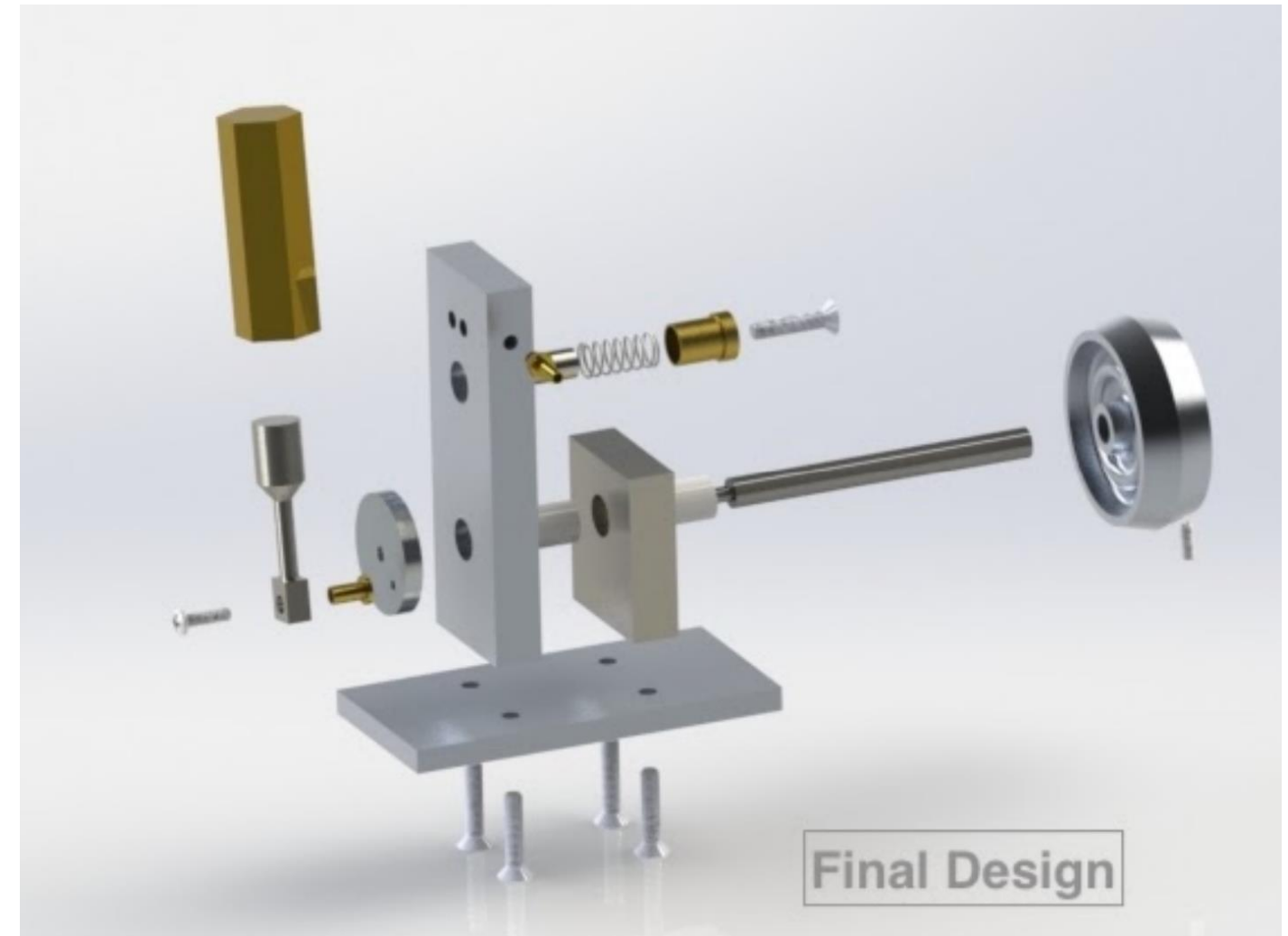
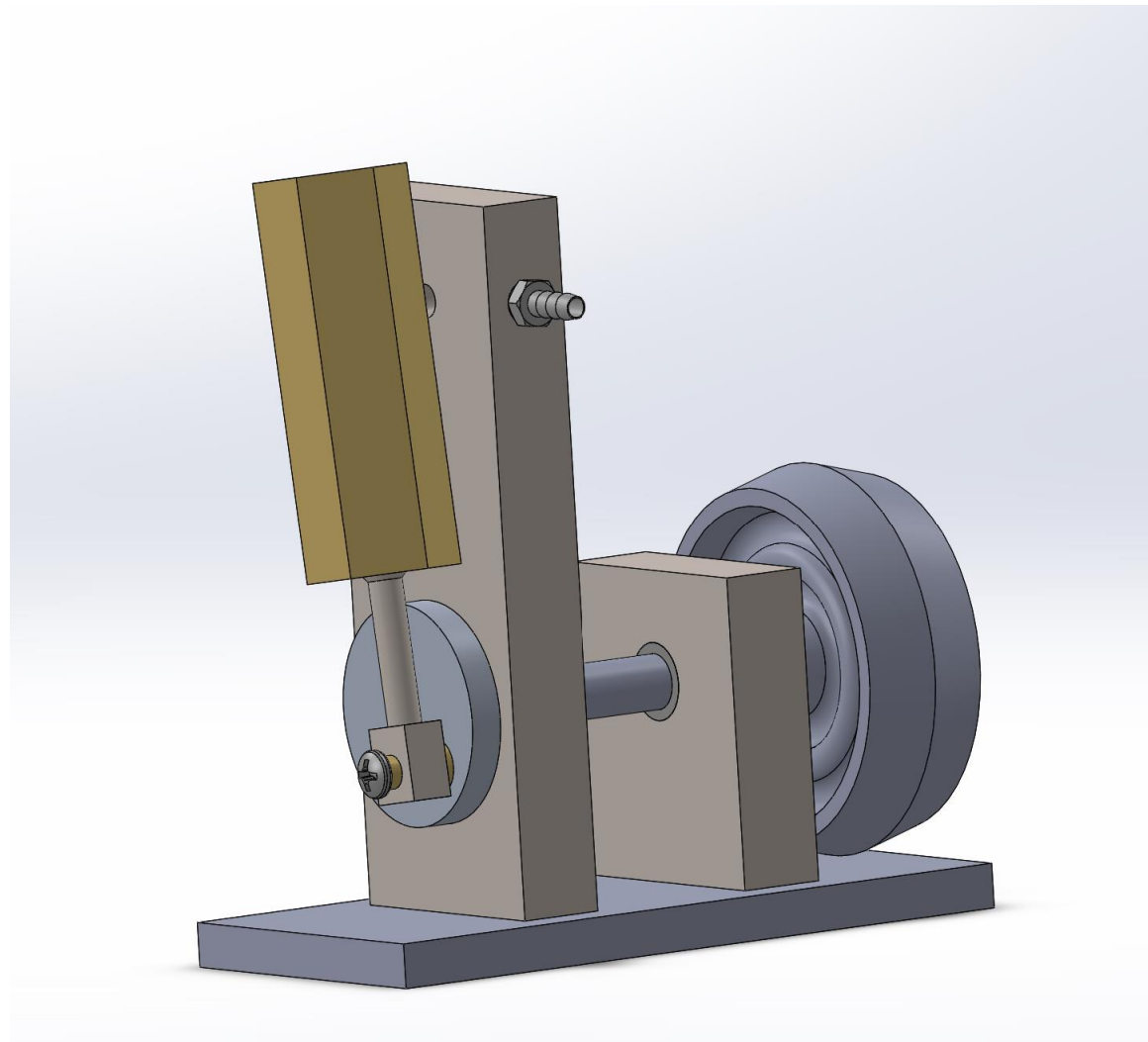
Kinematic Designs

# CAD Skill Items

Made With:



# Pneumatic "Pipsqueak" Engine

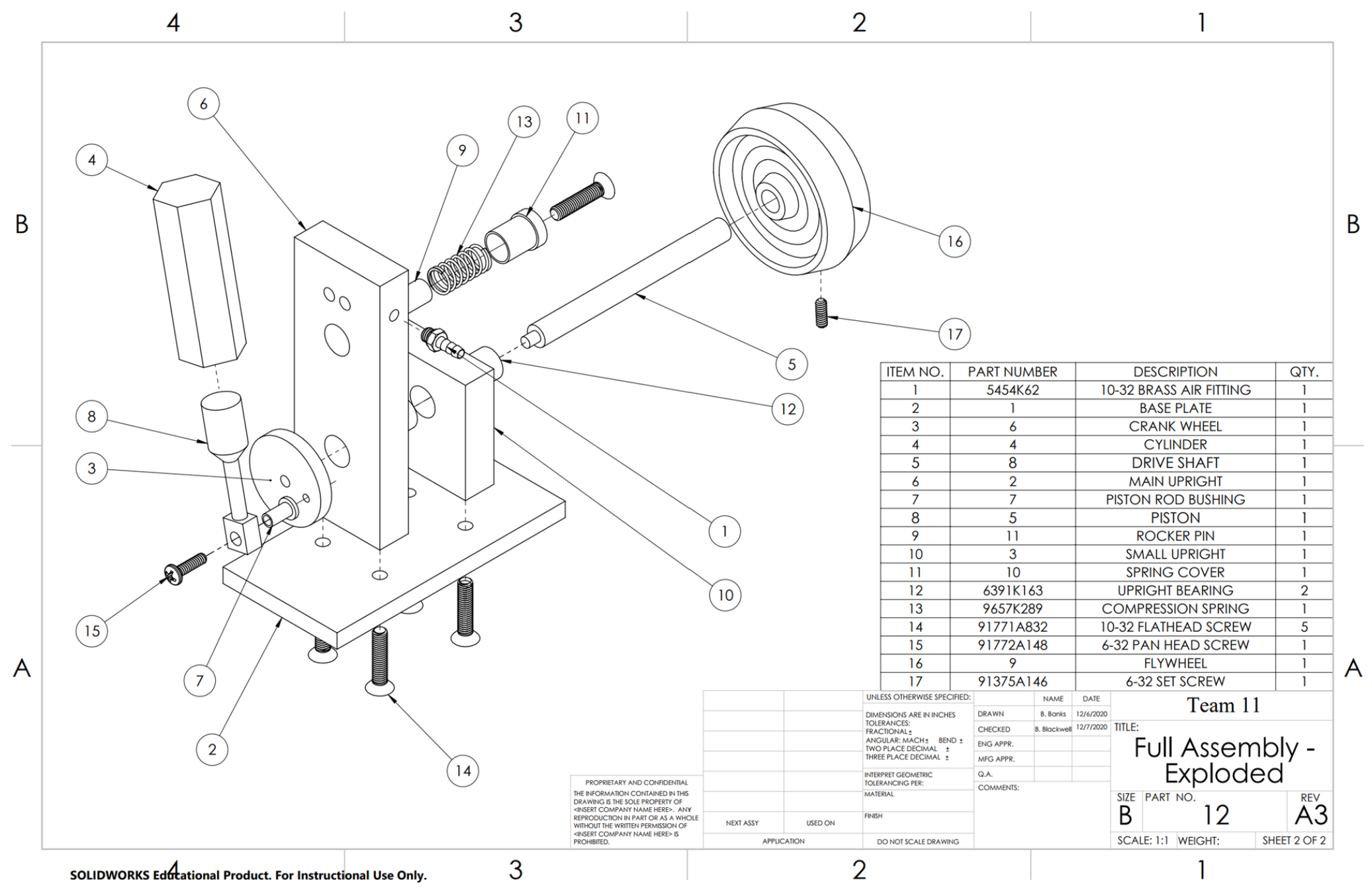


Mated Assembly & Exploded Rendering

Made With:



# Pneumatic "Pipsqueak" Engine



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	5454K62	10-32 BRASS AIR FITTING	1
2	1	BASE PLATE	1
3	6	CRANK WHEEL	1
4	4	CYLINDER	1
5	8	DRIVE SHAFT	1
6	2	MAIN UPRIGHT	1
7	7	PISTON ROD BUSHING	1
8	5	PISTON	1
9	11	ROCKER PIN	1
10	3	SMALL UPRIGHT	1
11	10	SPRING COVER	1
12	6391K163	UPRIGHT BEARING	2
13	9657K289	COMPRESSION SPRING	1
14	91771A832	10-32 FLATHEAD SCREW	5
15	91772A148	6-32 PAN HEAD SCREW	1
16	9	FLYWHEEL	1
17	91375A146	6-32 SET SCREW	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 FRACTIONAL ±  
 ANGULAR: MACH ± BEND ±  
 TWO PLACE DECIMAL ±  
 THREE PLACE DECIMAL ±

INTERPRET GEOMETRIC TOLERANCING PER:  
 MATERIAL:  
 FINISH:

PROPRIETARY AND CONFIDENTIAL  
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <INSERT COMPANY NAME HERE>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <INSERT COMPANY NAME HERE> IS PROHIBITED.

NAME	DATE
B. Banks	12/16/2020
CHECKED	12/17/2020
ENG APPR.	
MFG APPR.	
Q.A.	
COMMENTS:	

Team 11  
 TITLE: Full Assembly - Exploded  
 SIZE: B PART NO. 12 REV: A3  
 SCALE: 1:1 WEIGHT: SHEET 2 OF 2

SOLIDWORKS Educational Product. For Instructional Use Only.

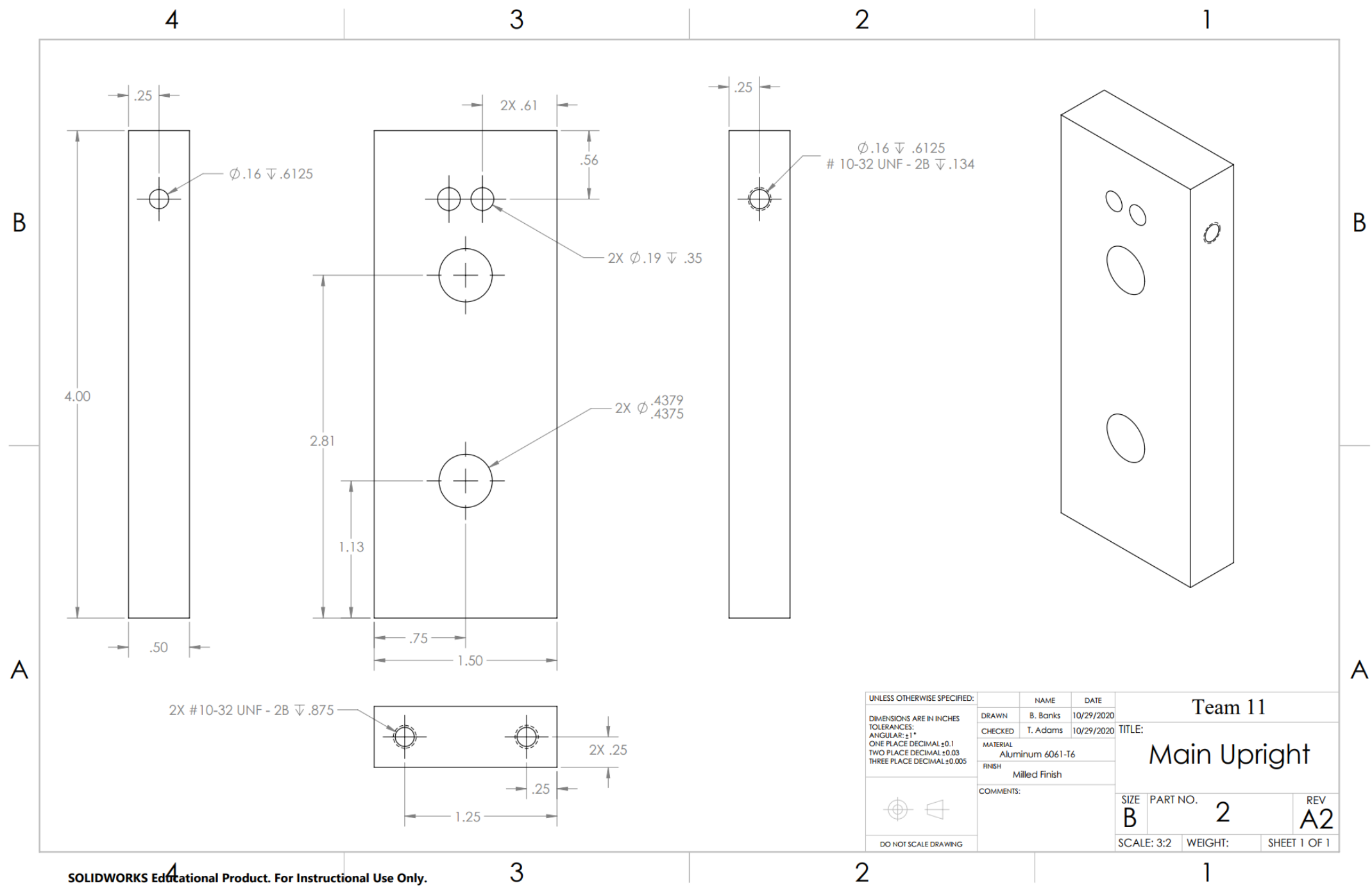
## Exploded View & BOM Example



Made With:



# Pneumatic "Pipsqueak" Engine



UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Team 11	
DIMENSIONS ARE IN INCHES		DRAWN	B. Banks	10/29/2020	TITLE:
TOLERANCES:		CHECKED	T. Adams	10/29/2020	
ANGULAR: $\pm 1^\circ$		MATERIAL			Main Upright
ONE PLACE DECIMAL $\pm 0.1$		Aluminum 6061-T6			
TWO PLACE DECIMAL $\pm 0.03$		FINISH			SIZE
THREE PLACE DECIMAL $\pm 0.005$		Milled Finish			PART NO.
COMMENTS:					2
DO NOT SCALE DRAWING					REV
					A2
					SCALE: 3:2
					WEIGHT:
					SHEET 1 OF 1

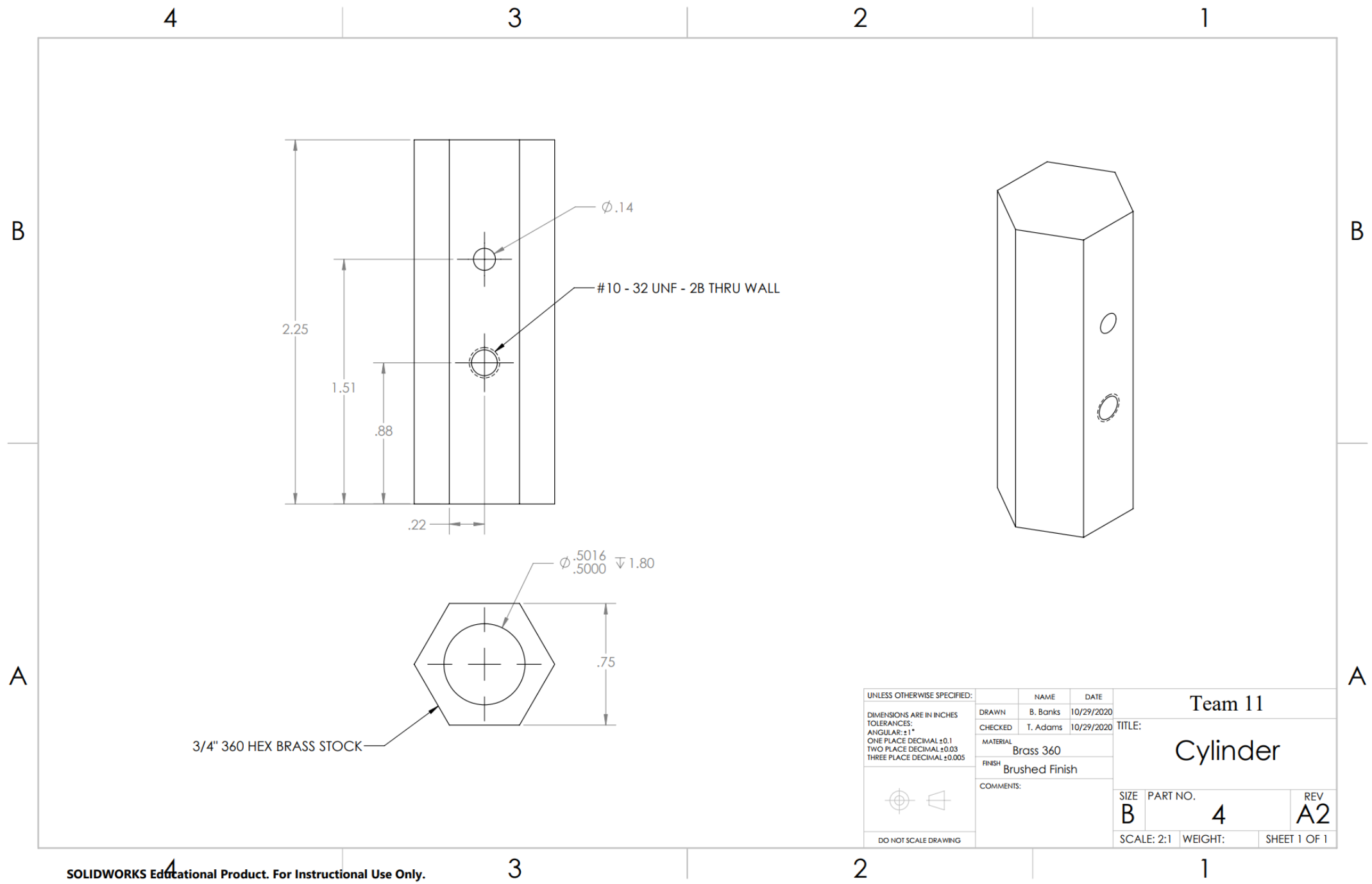
SOLIDWORKS Educational Product. For Instructional Use Only.

## Basic Drawing with Hole and Taps

Made With:



# Pneumatic "Pipsqueak" Engine

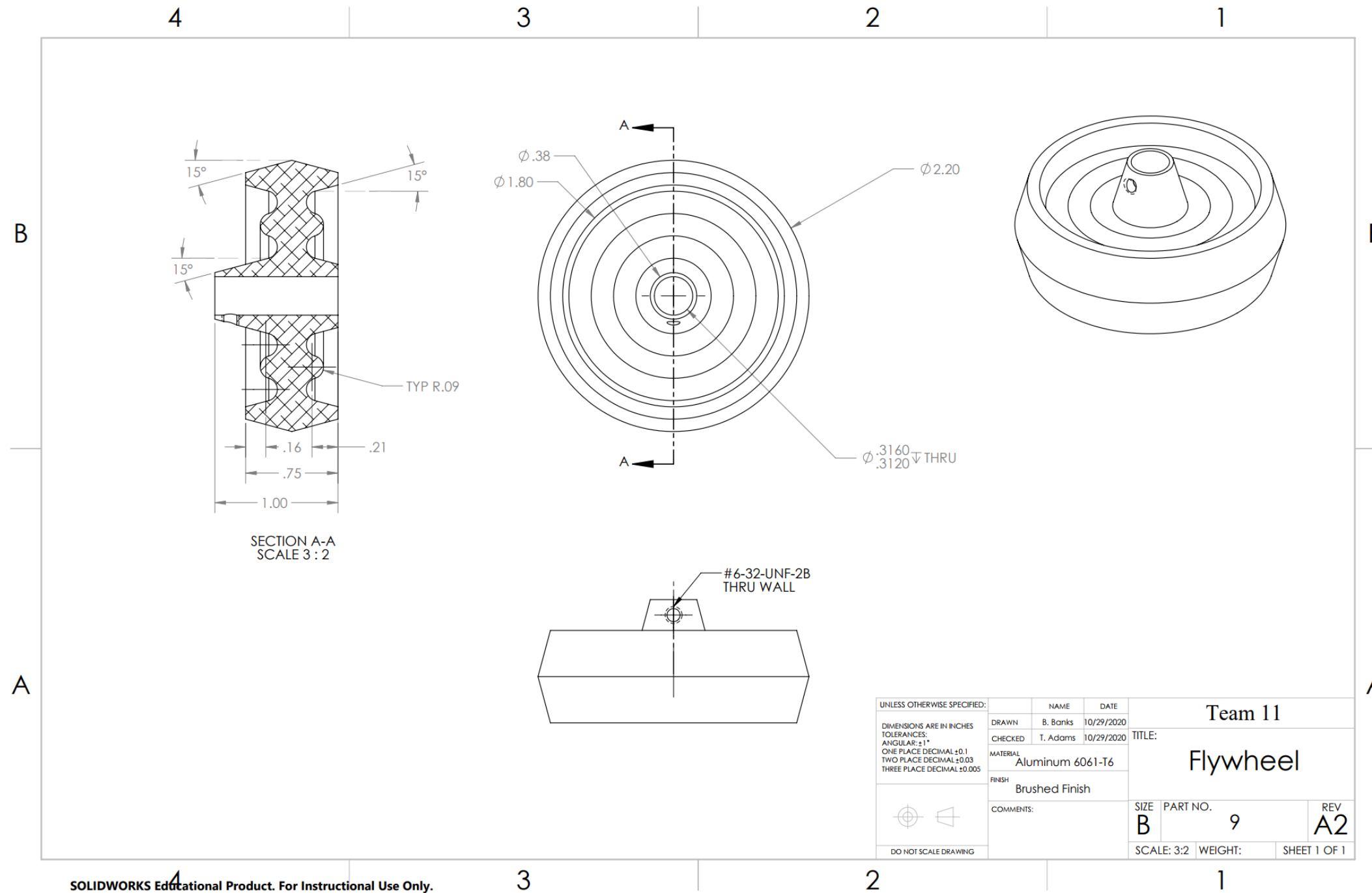


## Basic Drawing with Hole and Taps

Made With:



# Pneumatic "Pipsqueak" Engine

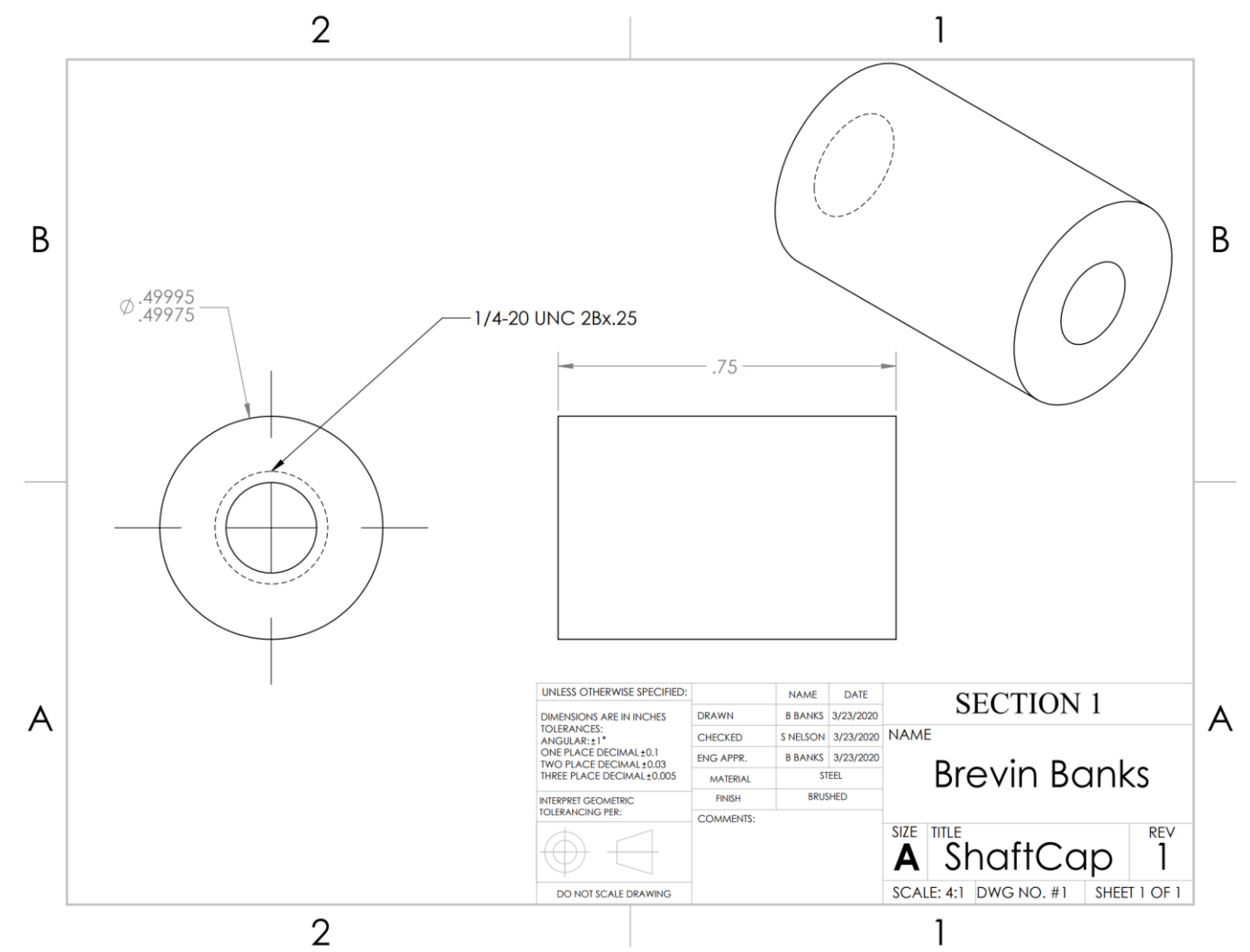
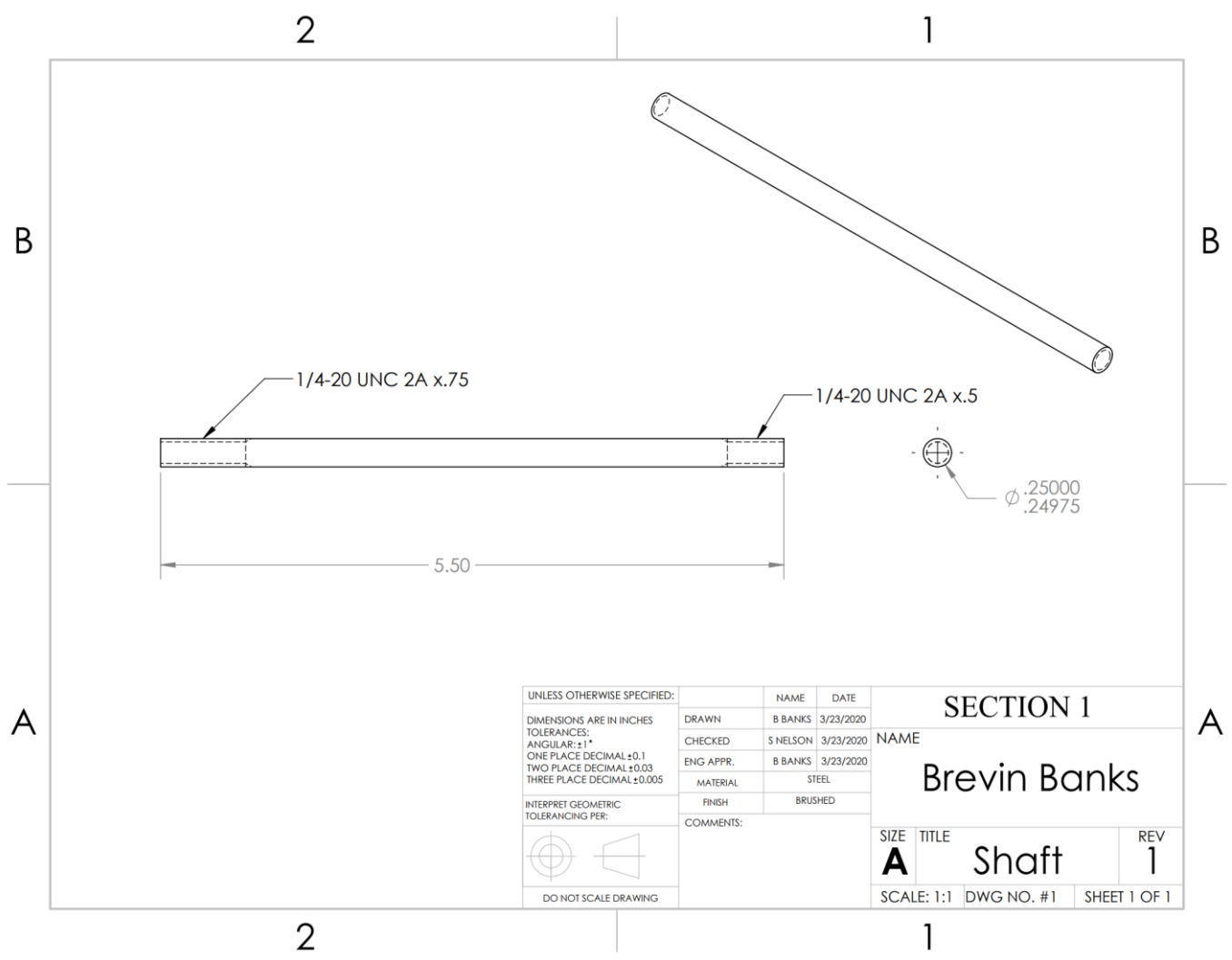


## Section and Radial Geometry

Made With:



# Pneumatic "Pipsqueak" Engine

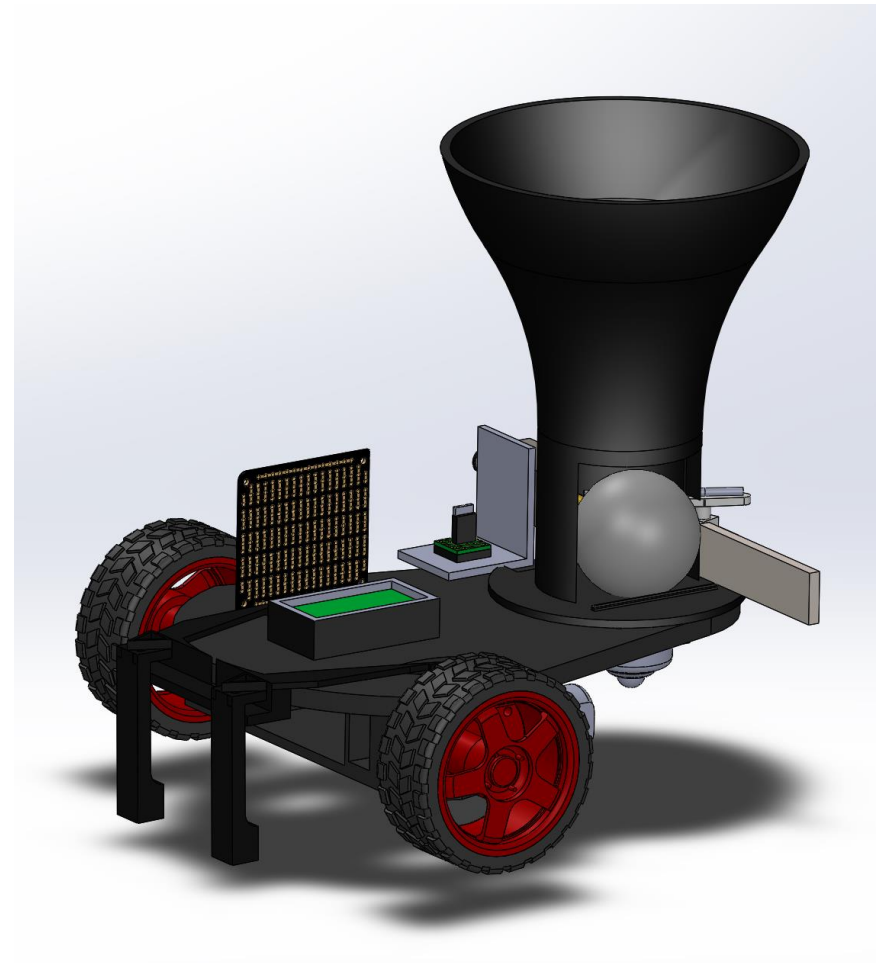
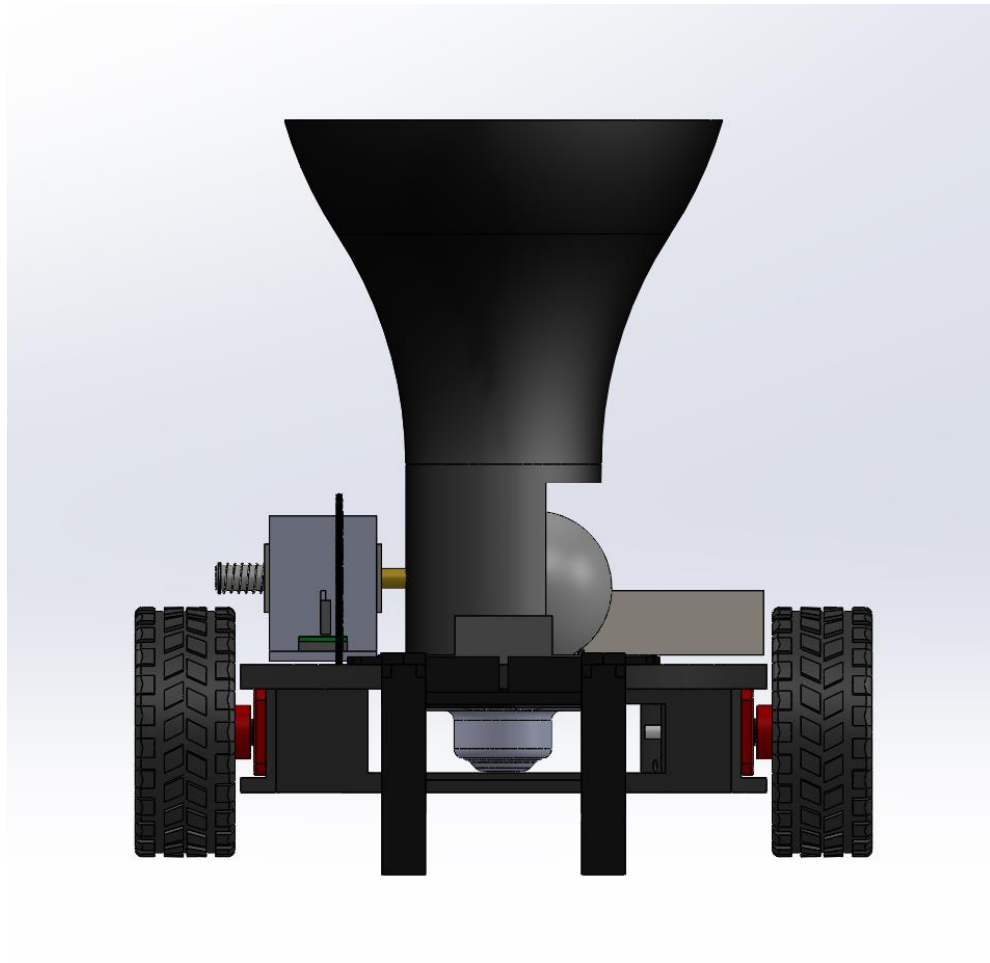
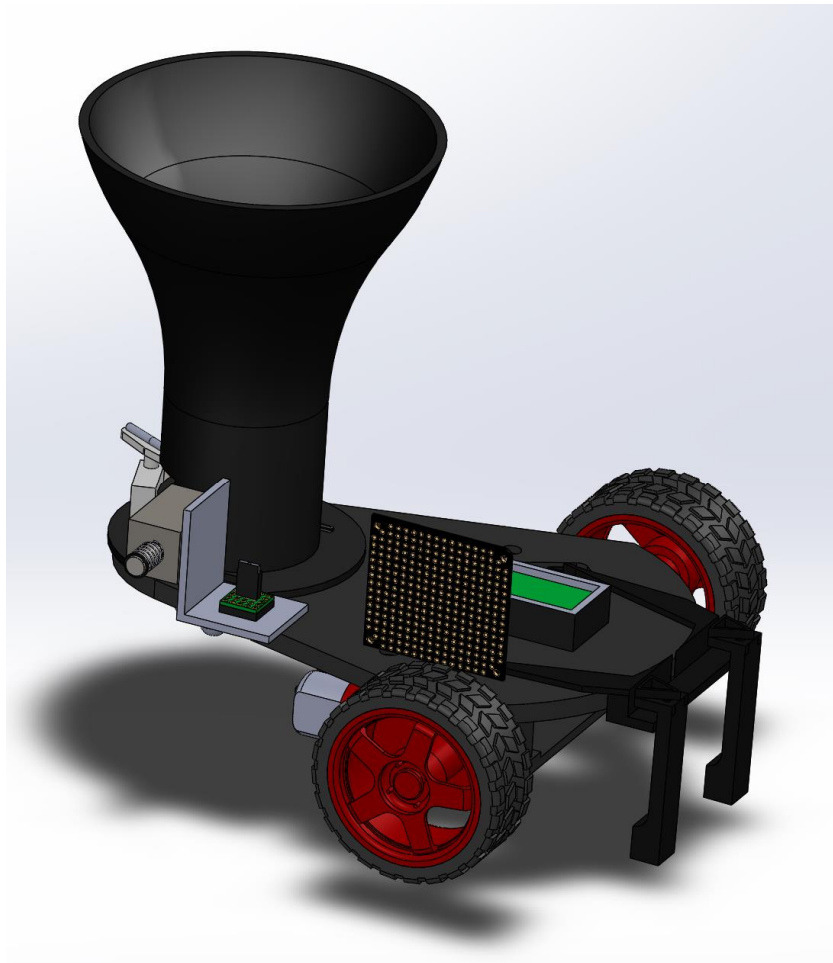


## Hole and Shaft Tolerance/Fittings and Callouts

Made With:



# Line Following Robot

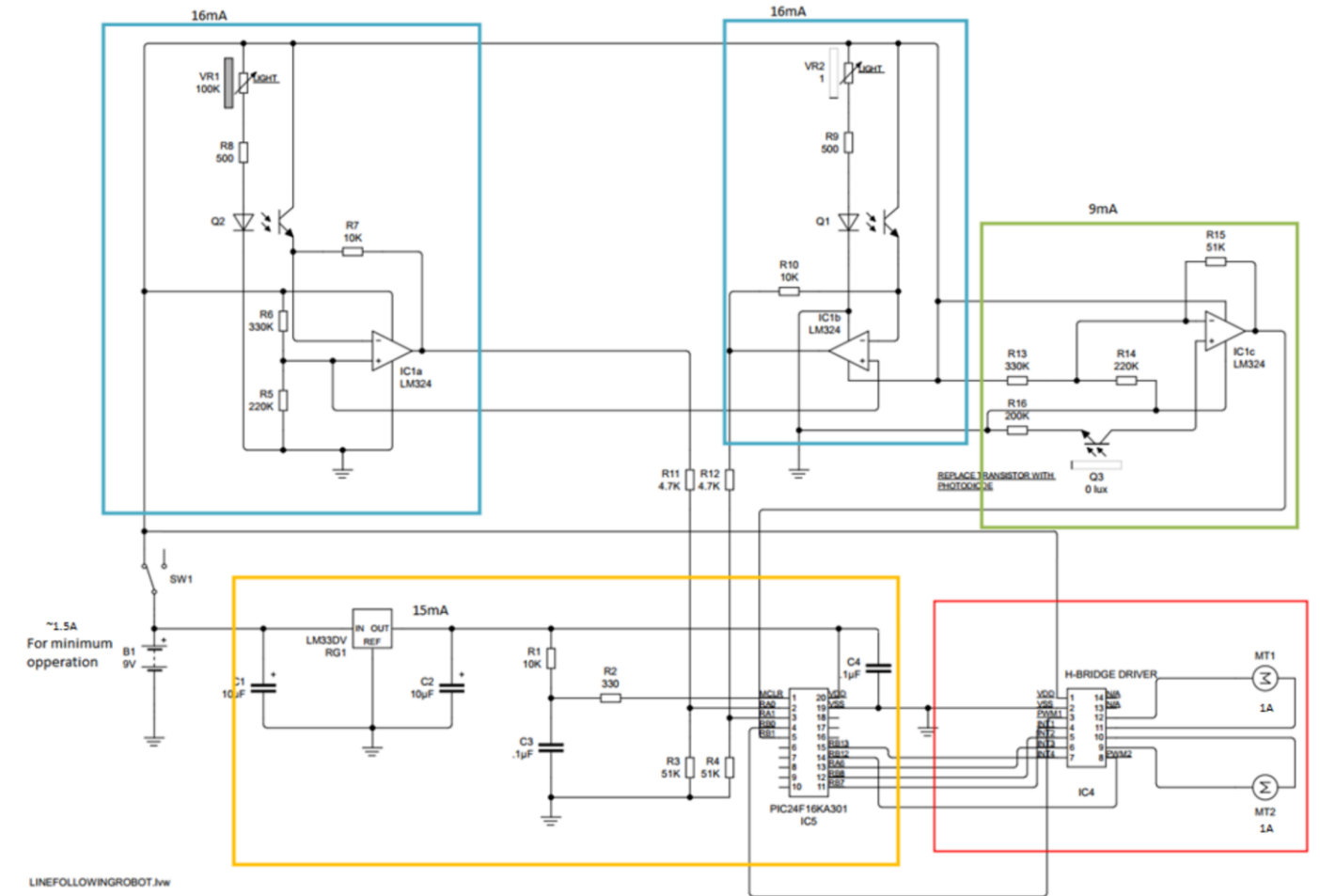
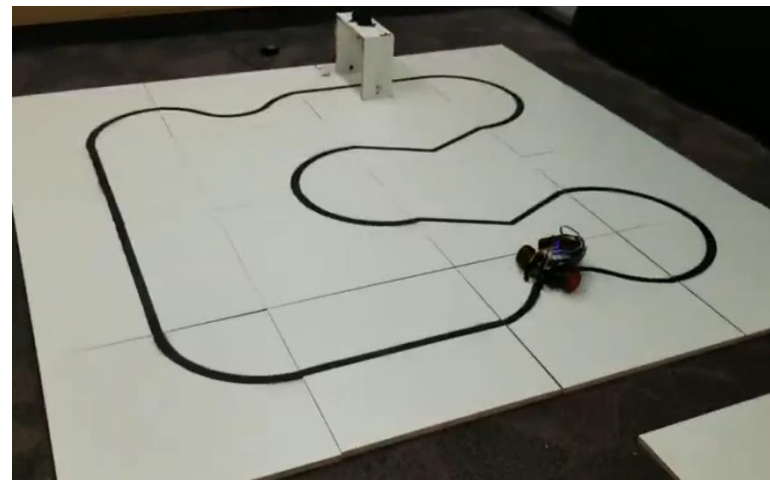


## CAD Modelling for 3D Printing and Mechatronic Design

Made With:



# Line Following Robot

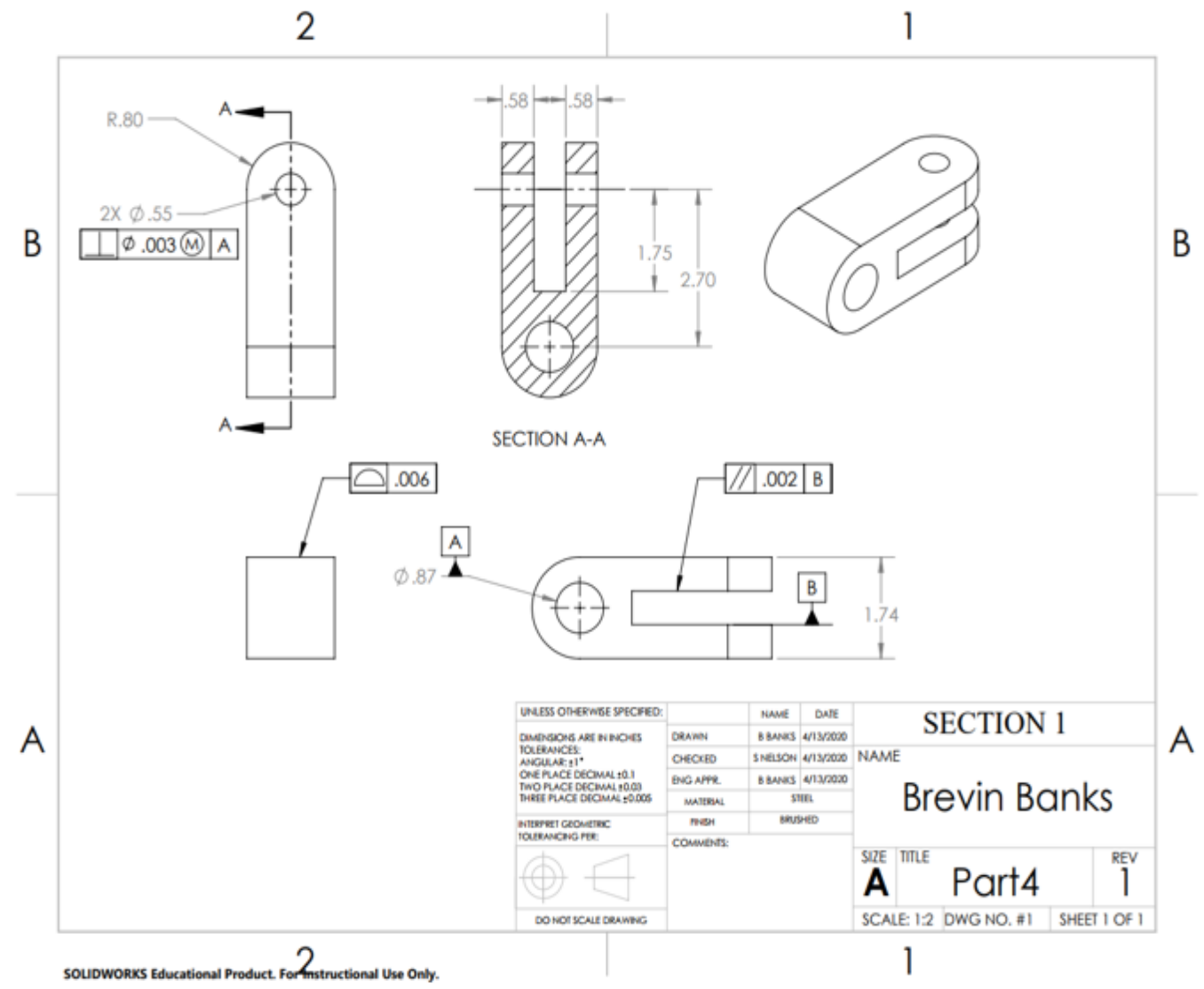
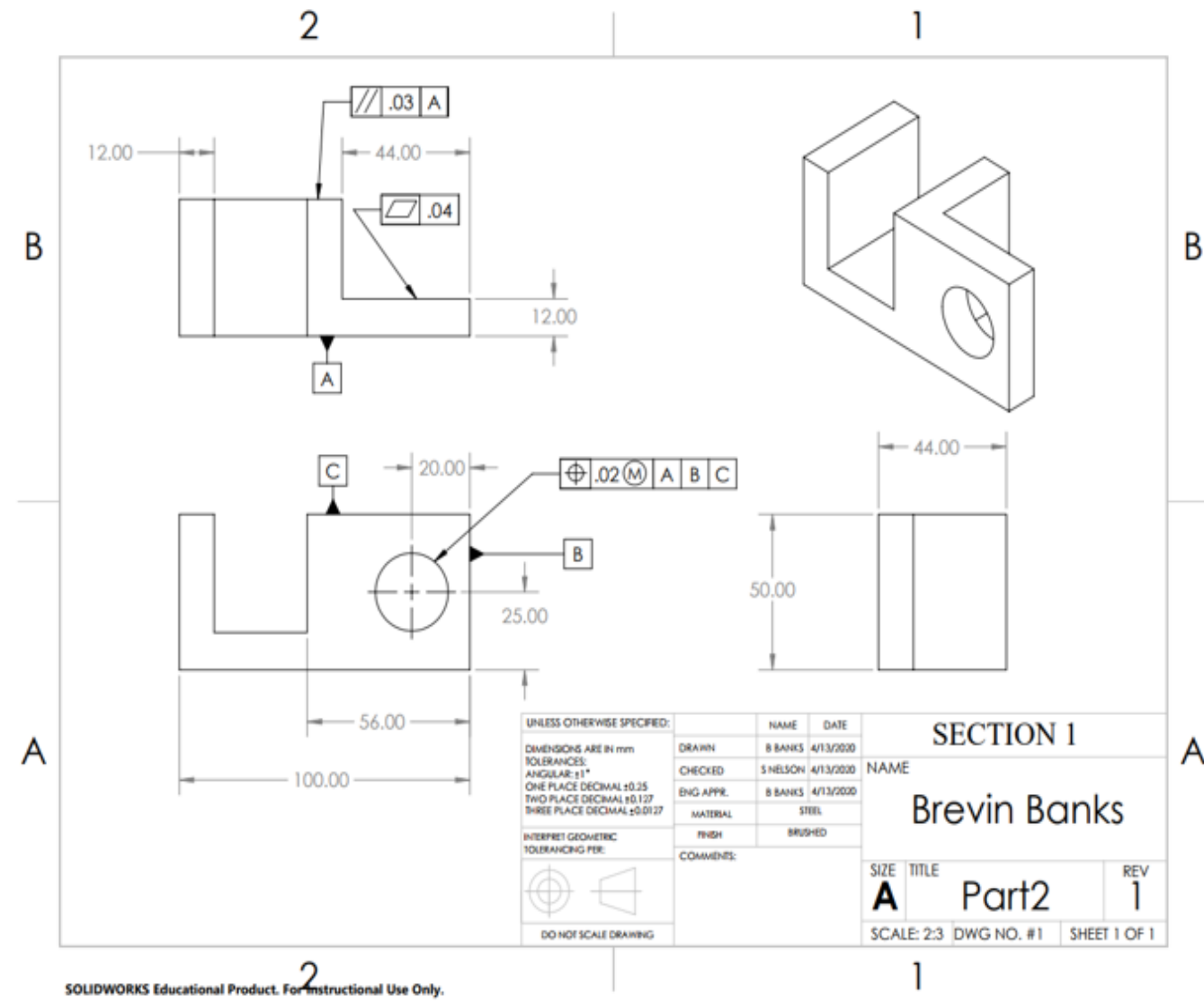


## Manufacturing, Testing, and Electrical Schematics

Made With:



# GD&T For Fasteners

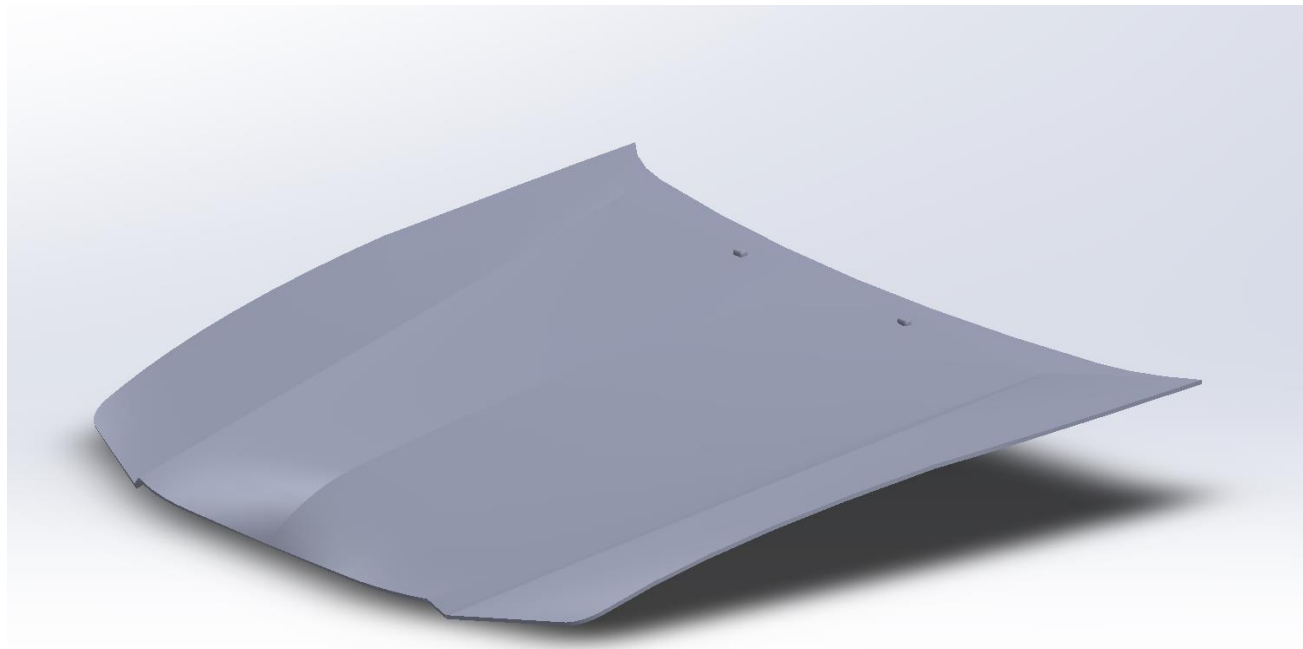


# GD&T Callouts and Precision Modelling

Made With:



## Car Hood Based on Real Car Model



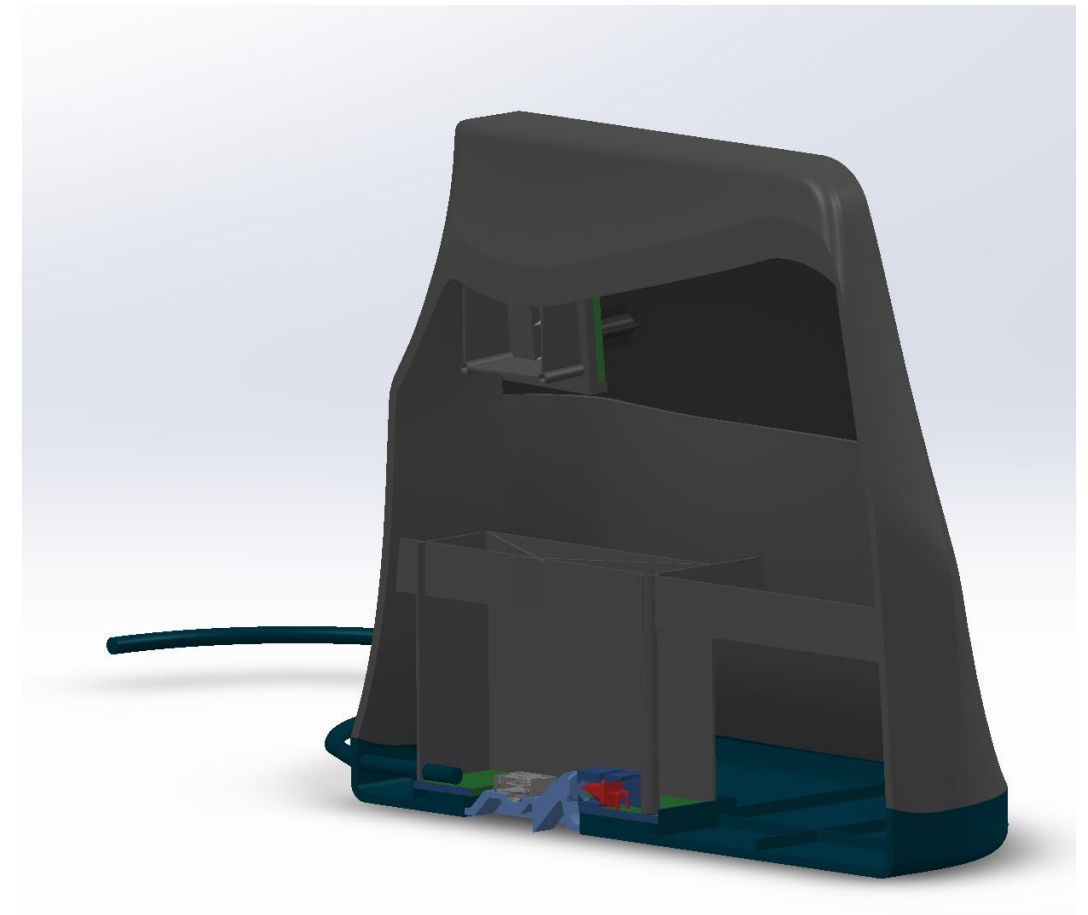
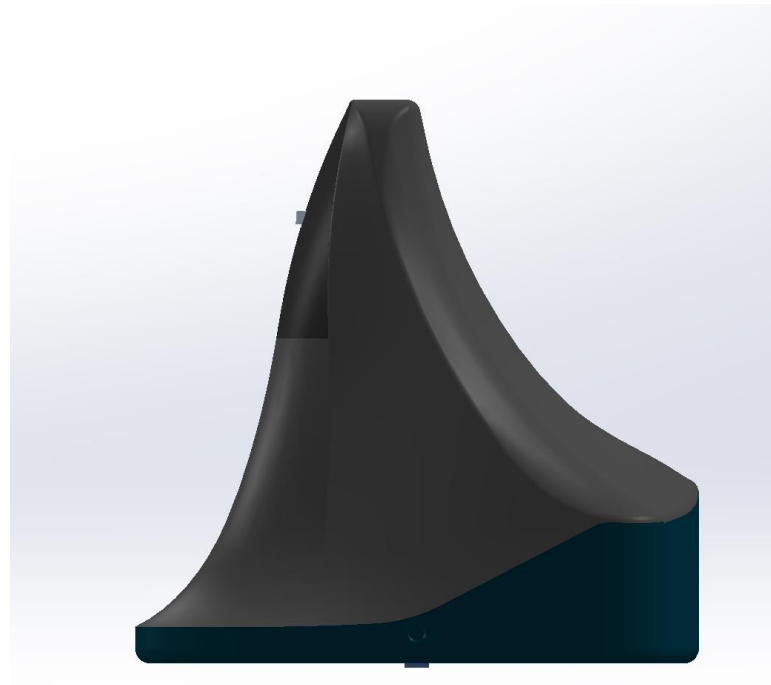
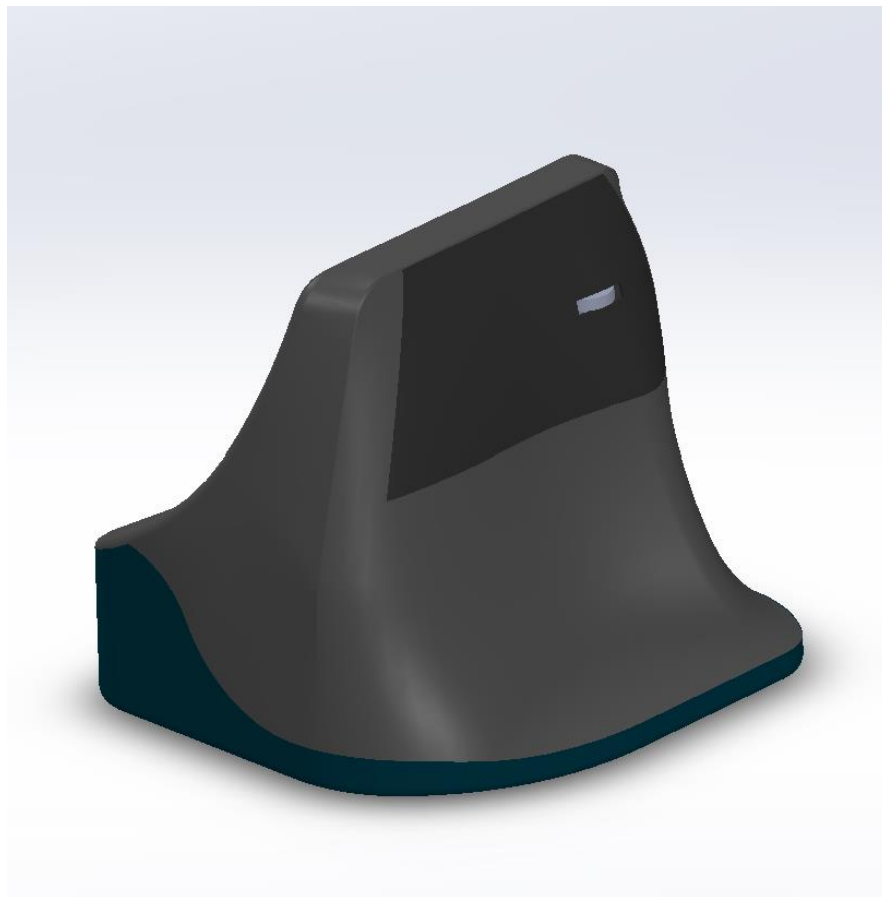
Surface Modelling



Made With:



## Ergonomic Desktop Mouse



Ergonomic Design with Interior Electronics Support

Other Designs

Made With:



**3 DOF Robot Arm**



**Simple Designs For Basic Control**

Sep 2, 2020

Made With:



**Futuristic Weapon**



**Complex Surface and Aesthetic Designs**

Aug 28, 2021