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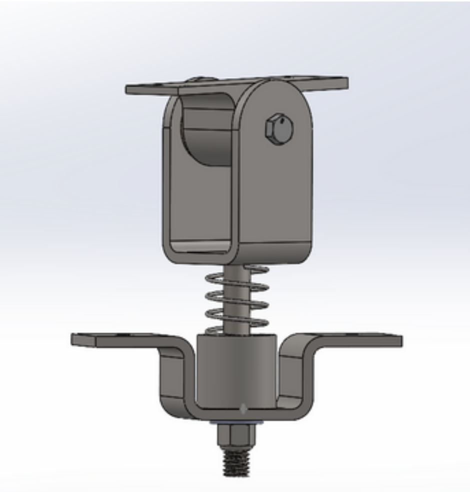
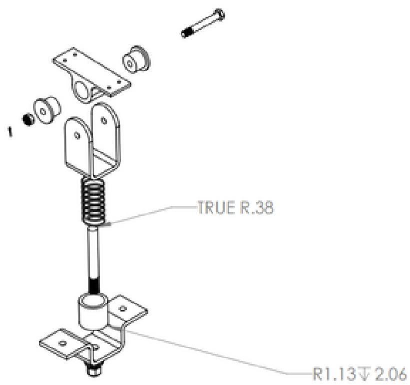
SHOCK ABSORBER ASSEMBLY





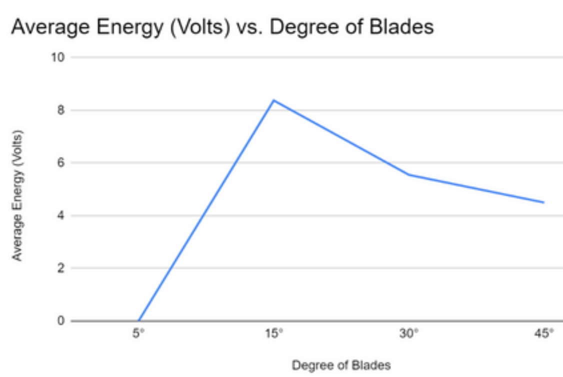
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	U-support	AISI 1020	1
2	Shaft	AISI 1020 CRS	1
3	Pivot	AISI 1020	1
4	Bracket	AISI 1020	1
5	Bushing	Manganese Bronze	2
6	Washer	1.50 x 7.50 x 1.25	1
7	Spacer	AISI 1020	1
8	Locknut	AISI 1020	1
9	Castle Nut	AISI 1020	1
10	Spring	Plain Carbon Steel	1
11	Hex Head Screw	-	1
12	Cotter Pin	Plain Carbon Steel	1

What?
- Designed various parts needed for a shock absorber
- Created a shock absorber assembly in **SolidWorks**

How?
- Created digital **drawings** for each part
- Connected parts using mates in **SolidWorks**
- Created **bill of materials** for all parts used in assembly

Results
- Final shock absorber assembly composed of all necessary parts
- Assembly had realistic movement for a shock absorber

WIND TURBINE



What?
- Created wind turbine with limited materials
- Observed how much power was generated in volts

How?
- Built four turbine blades from corrugated plastic due to its reduced weight
- Attached blades to wooden rods, which were then attached to a hub
- Tested various pitch angles to find which was most efficient

Results
- Observed range of power generated for each trial and took an average
- Pitch angle of 15 degrees was the most efficient
- Efficiency can be improved by removing one blade from the turbine

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SUSPENSION TESTING RIG - ALEF AERONAUTICS

What?

- Designed a testing rig in order to test suspension system for a car
- Tested both structural stability as well as software for the motor

How?

- Measured and cut wood in order to make frame
- 3D printed parts needed for suspension system
- Assembled suspension system and attached it to frame

Results

- Able to move properly and turn at up to 10 MPH
- Proved chosen shock absorbers and suspension system was viable
- Allowed software for the motor to be improved

***unable to provide pictures due to NDA**