
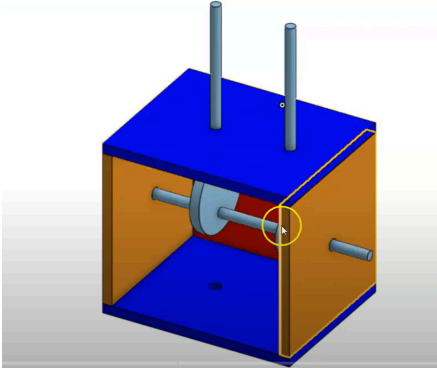


Aryan Bhatnagar
 Zielig Groppe
 Automata Challenge
 5/6/2025

Goals <i>What are your goals for this work session?</i>	<input type="checkbox"/> Research: <input type="checkbox"/> Changing Motion Directions: <input type="checkbox"/> Different Type of Materials: <input type="checkbox"/> Ways of Moving automaton: <input type="checkbox"/> Different types of gears and cams: <input type="checkbox"/> Upload the 4 drafts on classroom
Notes <i>Record your notes</i>	https://docs.google.com/document/d/1-Pb-m1r1rQ23iGdP7Fdf4xm7jjHm4lcFTkvU0s77sAU/edit?usp=sharing
Challenges <i>What challenges did you face today?</i>	<ul style="list-style-type: none"> Looking over the whole PDF, which took a lot of time due to the length of the file. Trying to find different inspirations online because our ideas are quite unique.
Accomplishments <i>What did you accomplish?</i>	<input checked="" type="checkbox"/> Research: <input checked="" type="checkbox"/> Changing Motion Directions: <input checked="" type="checkbox"/> Materials: <input checked="" type="checkbox"/> Ways of Moving automaton: <input checked="" type="checkbox"/> Different types of gears and cams: <input checked="" type="checkbox"/> Upload the 4 drafts on classroom
Visuals / imagery <i>Include photos, scans or screenshots of your process</i>	<div data-bbox="472 1371 1040 1404">  Aryan Bhatnagar - Automaton Research </div> 



Spur Gear



Herringbone Gear



Bevel Gear



Worm Gear



Rack and Pinion Gear



Internal Gear

Day 2

Aryan Bhatnagar
Zielig Groppe
Automata Challenge
5/6/2025

Goals

What are your goals for this work session?

- ☐ Decide on a prototype to model
- ☐ Onshape model
 - ☐ Finish Base
 - ☐ Finish Cams
 - ☐ Finish Gladiator
 - ☐ Finish Arms
 - ☐ Animated

Notes

Record your notes

- Making the gladiator by sketching out an outline using the image that can be seen in the visuals below
- We will be making snail cams for the swords,
- We will also be using off-set cams for the shields.
- Used this video for the snail cams: [Snail cam using Onshape with parametric values](#)

Challenges

What challenges did you face today?

- Some difficulties making the snail cams, had to watch tutorial
- Had to make sure all the moving things are different parts on onshape.

Accomplishments

What did you accomplish?

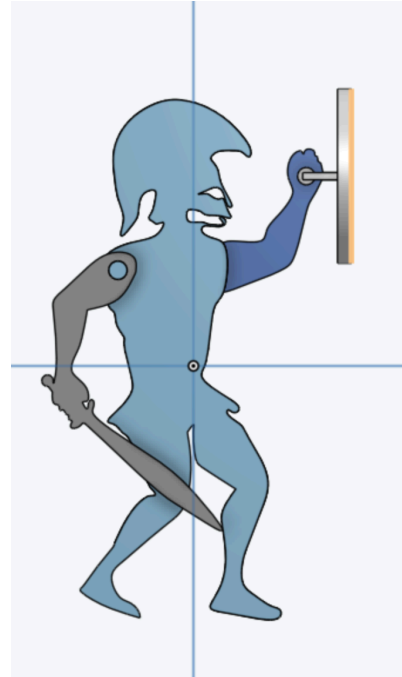
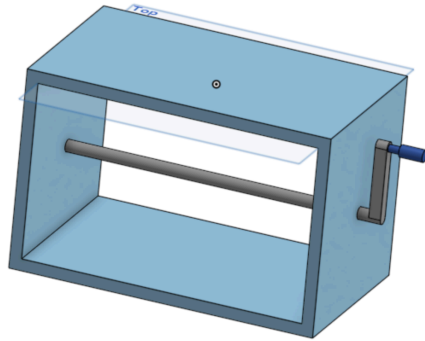
- ☒ ~~Decide on a prototype to model:~~
Gladiator
- ☐ Onshape model
 - ☒ ~~Finish Base~~

- ☐ Finish Cams
- ☒ Finish Gladiator
- ☐ Finish Arms
- ☐ Animated

Visuals / imagery

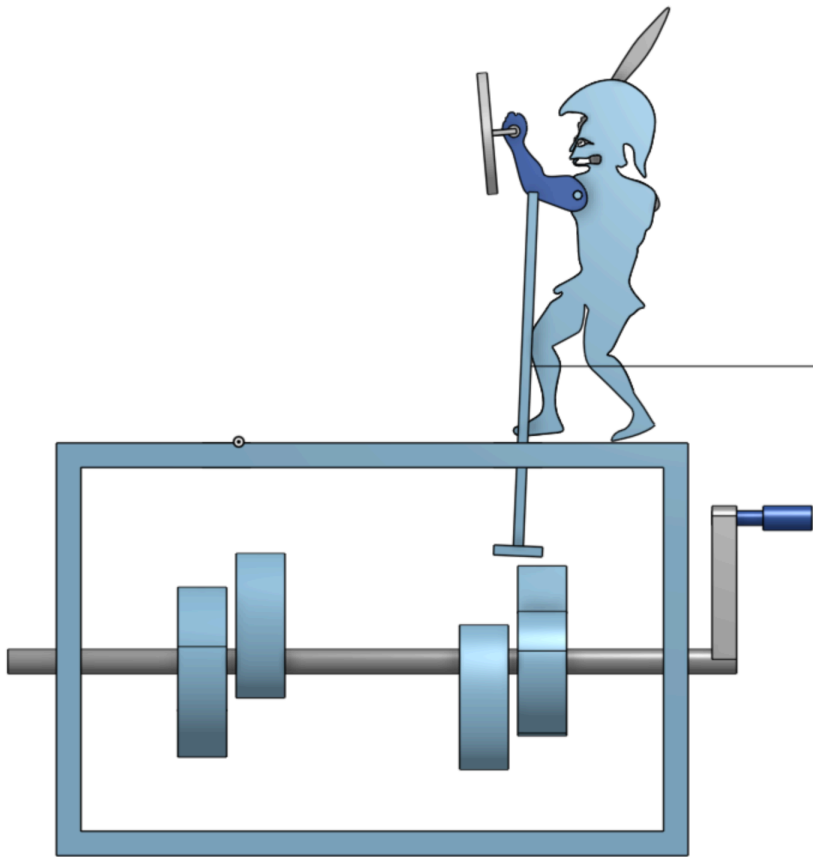
Include photos, scans or screenshots of your process

[Onshape Images and Files](#)



Aryan Bhatnagar
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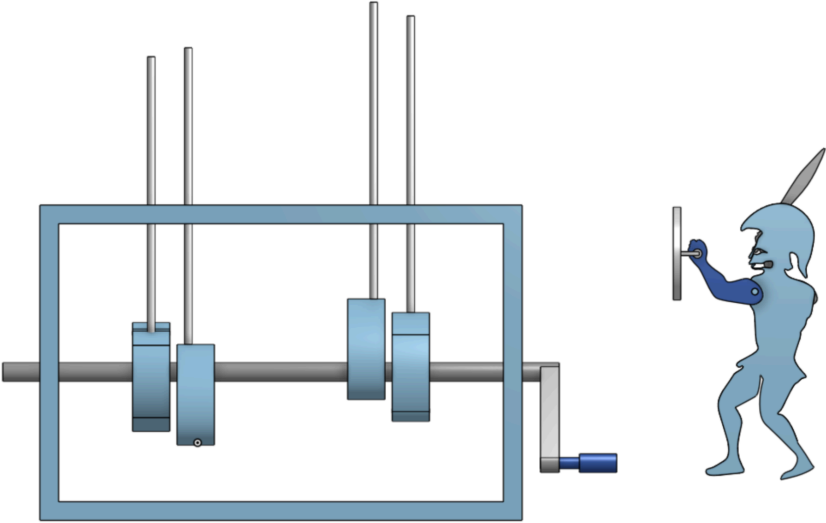
<p>Goals</p> <p><i>What are your goals for this work session?</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Figure out how to build and attach the snail and off-set cam in onshape <input type="checkbox"/> Use assembly to attach all the different parts of the gladiator (arm, sword, shield) so that it can rotate and be animated in onshape <input type="checkbox"/> Add rods that attach to the arms of the gladiator so that the cams can move them <input type="checkbox"/> Onshape model <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Finish Base <input type="checkbox"/> Finish sketching out cams <input checked="" type="checkbox"/> Finish sketching out gladiator <input type="checkbox"/> Finish sketching out arms, separate from the body <input type="checkbox"/> Animate the whole object
<p>Notes</p> <p><i>Record your notes</i></p>	<ul style="list-style-type: none"> • A lot of things to remember about the animation part of the model. <ul style="list-style-type: none"> ◦ Use the right connection mates ◦ Remember to fix the parts that should not move ie. (base, gladiator body) ◦ Try to use gravity, but we haven't quite figured that out yet. • We finished all the parts and now only need to animate and adjust as needed.
<p>Challenges</p> <p><i>What challenges did you face today?</i></p>	<ul style="list-style-type: none"> • Couldn't figure out how to simulate the model <ul style="list-style-type: none"> ◦ Didn't know how to use acceleration to move the rod down to the snail cam • Had a hard time connecting all the mates to the different parts
<p>Accomplishments</p> <p><i>What did you accomplish?</i></p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Figure out how to build and attach the snail and off-set cam in onshape <input checked="" type="checkbox"/> Use assembly to attach all the different parts of the gladiator (arm, sword, shield) so that it can rotate and be animated in onshape <input checked="" type="checkbox"/> Add rods that attach to the arms of the gladiator so that the cams can move them

	<div><input type="checkbox"/> Onshape model<div><input checked="" type="checkbox"/> Finish Base<input checked="" type="checkbox"/> Finish Cams<input checked="" type="checkbox"/> Finish Gladiator<input checked="" type="checkbox"/> Finish Arms<input type="checkbox"/> Animated - use slider crank</div></div>
<div>Visuals / imagery</div> <div>Include photos, scans or screenshots of your process</div>	

Day 4

Aryan Bhatnagar
Zielig Groppe
Automata Challenge
5/13/2025

<div>Goals</div> <div>What are your goals for this work session?</div>	<div><input type="checkbox"/> Animation<div><input type="checkbox"/> Animate rods on cams<input type="checkbox"/> Animate rods to arms</div></div>
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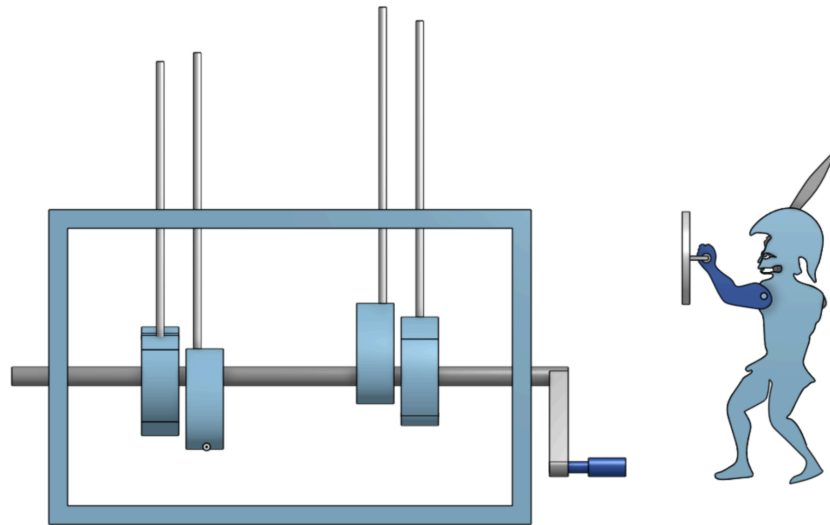
	<div><div><input type="checkbox"/> Onshape model</div><div><div><input checked="" type="checkbox"/> Finish Base</div><div><input checked="" type="checkbox"/> Finish sketching out cams</div><div><input checked="" type="checkbox"/> Finish sketching out gladiator</div><div><input checked="" type="checkbox"/> Finish sketching out arms, separate from the body</div><div><input type="checkbox"/> Animate the whole object</div></div></div>
<div><div>Notes</div><div>Record your notes</div></div>	<div><div><div>• Animation turned out a little more tricky than expected</div><div>• The automation we are trying to do is not working out for us because to connect our sword and actually move it up and down, we need to somehow make the rod slide against the arm, which for some reason is not working5</div></div></div>
<div><div>Challenges</div><div>What challenges did you face today?</div></div>	<div><div><div>• Couldn't figure out how to simulate the model</div><div><div>◦ Didn't know how to use acceleration to move the rod down to the snail cam</div></div></div></div>
<div><div>Accomplishments</div><div>What did you accomplish?</div></div>	<div><div><div><div><input type="checkbox"/> Animation</div><div><div><input checked="" type="checkbox"/> Animate rods on cams</div><div><input type="checkbox"/> Animate rods to arms</div></div></div></div><div><div><div><input type="checkbox"/> Onshape model</div><div><div><input checked="" type="checkbox"/> Finish Base</div><div><input checked="" type="checkbox"/> Finish sketching out cams</div><div><input checked="" type="checkbox"/> Finish sketching out gladiator</div><div><input checked="" type="checkbox"/> Finish sketching out arms, separate from the body</div><div><input type="checkbox"/> Animate the whole object</div></div></div></div></div>
<div><div>Visuals / imagery</div><div>Include photos, scans or screenshots of your process</div></div>	<div>The image shows a 3D CAD model of a mechanical assembly on the left and a cartoon gladiator on the right. The mechanical assembly consists of a blue rectangular frame with a horizontal rod passing through it. There are four vertical rods passing through the frame, each with a blue rectangular block attached to it. The gladiator is a blue figure with a sword on its back, holding a shield and a sword.</div>

Aryan Bhatnagar
 Zielig Groppe
 Automata Challenge
 5/14/2025

Goals <i>What are your goals for this work session?</i>	<input type="checkbox"/> Animation <ul style="list-style-type: none"> <input type="checkbox"/> Animate rods on cams <input type="checkbox"/> Animate rods to arms <input type="checkbox"/> Onshape model <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Finish Base <input checked="" type="checkbox"/> Finish sketching out cams <input checked="" type="checkbox"/> Finish sketching out gladiator <input checked="" type="checkbox"/> Finish sketching out arms, separate from the body <input type="checkbox"/> Animate the whole object
Notes <i>Record your notes</i>	<ul style="list-style-type: none"> • Animation turned out a little more tricky than expected • When rods were placed on the snail cams, they would only float down and sink instead of falling. • We resorted to our notes we previously gathered on onshape. • Made fillets on the joining faces, then smoothed them out.
Challenges <i>What challenges did you face today?</i>	<ul style="list-style-type: none"> • Couldn't figure out how to simulate the model <ul style="list-style-type: none"> ◦ Didn't know how to use acceleration to move the rod down to the snail cam
Accomplishments <i>What did you accomplish?</i>	<input type="checkbox"/> Animation <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Animate rods on cams <input type="checkbox"/> Animate rods to arms <input type="checkbox"/> Onshape model <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Finish Base <input checked="" type="checkbox"/> Finish sketching out cams <input checked="" type="checkbox"/> Finish sketching out gladiator <input checked="" type="checkbox"/> Finish sketching out arms, separate from the body <input type="checkbox"/> Animate the whole object

Visuals / imagery

Include photos, scans or screenshots of your process



Day 6

Aryan Bhatnagar
Zielig Groppe
Automata Challenge
5/16/2025

Goals

What are your goals for this work session?

- ☒ **Animation**
 - ☒ **Animate rods on cams**
 - ☒ **Animate rods to arms**
- ☒ **Onshape model**
 - ☒ **Finish Base**
 - ☒ **Finish sketching out cams**
 - ☒ **Finish sketching out gladiator**
 - ☒ **Finish sketching out arms, separate from the body**
 - ☒ **Animate the whole object**

Notes

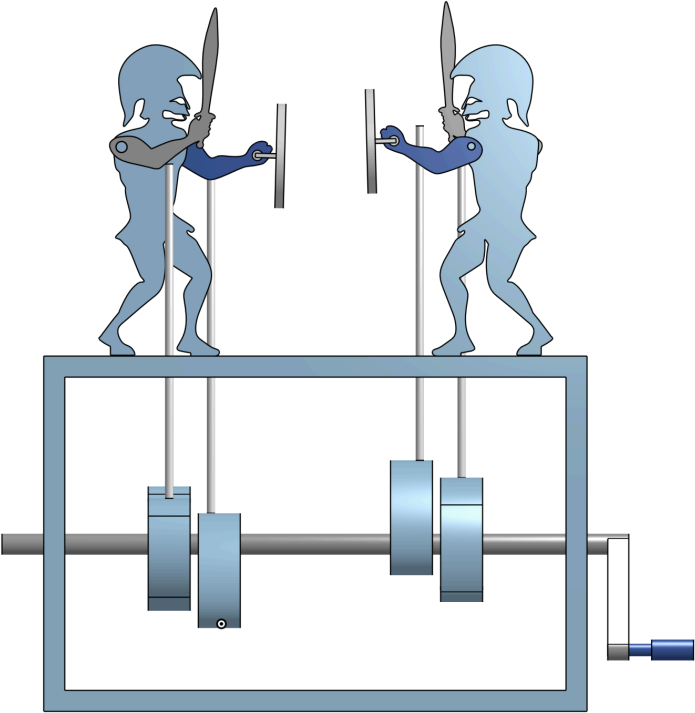
Record your notes

- Finally finished the animations.
- Not exactly exemplary, but all parts move
- Onshape lags a bunch when trying to move things now.
- Used tangent mates and position to move the Arms

Challenges

What challenges did you face today?

- Had to readjust the Fasten mate on the position of the gladiator until it lined up with the rods, if not it would break.

<p>Accomplishments</p> <p><i>What did you accomplish?</i></p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Animation <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Animate rods on cams <input checked="" type="checkbox"/> Animate rods to arms <input checked="" type="checkbox"/> Onshape model <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Finish Base <input checked="" type="checkbox"/> Finish sketching out cams <input checked="" type="checkbox"/> Finish sketching out gladiator <input checked="" type="checkbox"/> Finish sketching out arms, separate from the body <input checked="" type="checkbox"/> Animate the whole object
<p>Visuals / imagery</p> <p><i>Include photos, scans or screenshots of your process</i></p>	

Day 7

Aryan Bhatnagar
Zielig Groppe
Automata Challenge
5/27/2025

<p>Goals</p> <p><i>What are your goals for this work session?</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Watch the demo for the laser cutter <input type="checkbox"/> Copy the parts over to Adobe Illustrator. <input type="checkbox"/>
<p>Notes</p>	<ul style="list-style-type: none"> •

Record your notes	
Challenges <i>What challenges did you face today?</i>	
Accomplishments <i>What did you accomplish?</i>	
Visuals / imagery <i>Include photos, scans or screenshots of your process</i>	

Day 8

Aryan Bhatnagar
Zielig Groppe
Automata Challenge
5/29/2025

Goals <i>What are your goals for this work session?</i>	<input type="checkbox"/> Import and correctly scale all of the parts to adobe illustrator for the glowforge
Notes <i>Record your notes</i>	<ul style="list-style-type: none"> Imported all the parts into a drawing and from there transferred and scaled in adobe illustrator.
Challenges <i>What challenges did you face today?</i>	Faced some challenges with the sizing of the attachment points of the arms, they were not uniform and were hard to scale, but we figured it out
Accomplishments <i>What did you accomplish?</i>	<input checked="" type="checkbox"/> Import and correctly scale all of the parts to adobe illustrator for the glowforge
Visuals / imagery <i>Include photos, scans or screenshots of your process</i>	

Aryan Bhatnagar
Zielig Groppe
Automata Challenge
5/30/2025

Goals <i>What are your goals for this work session?</i>	<input type="checkbox"/> Import and correctly scale all of the parts to the glowforge <input type="checkbox"/> Laser cut all the parts and make sure the cams fit in the dowel
Notes <i>Record your notes</i>	<ul style="list-style-type: none">Imported all the parts into the glowforge using the adobe sketch we made last class.
Challenges <i>What challenges did you face today?</i>	Faced some challenges with the glowforge website because the camera wasn't working on the glowforge on our personal device.
Accomplishments <i>What did you accomplish?</i>	<input checked="" type="checkbox"/> Import and correctly scale all of the parts to adobe illustrator for the glowforge
Visuals / imagery <i>Include photos, scans or screenshots of your process</i>	