

Nabila Adawy

M&M

Term Project,  
Spring 2022

# Bird Wing Simulation



# Original Idea

**Bob Potts Sculptures:**  
Which are Kinetic Sculpture  
that simulates the motion of  
Bird wings.



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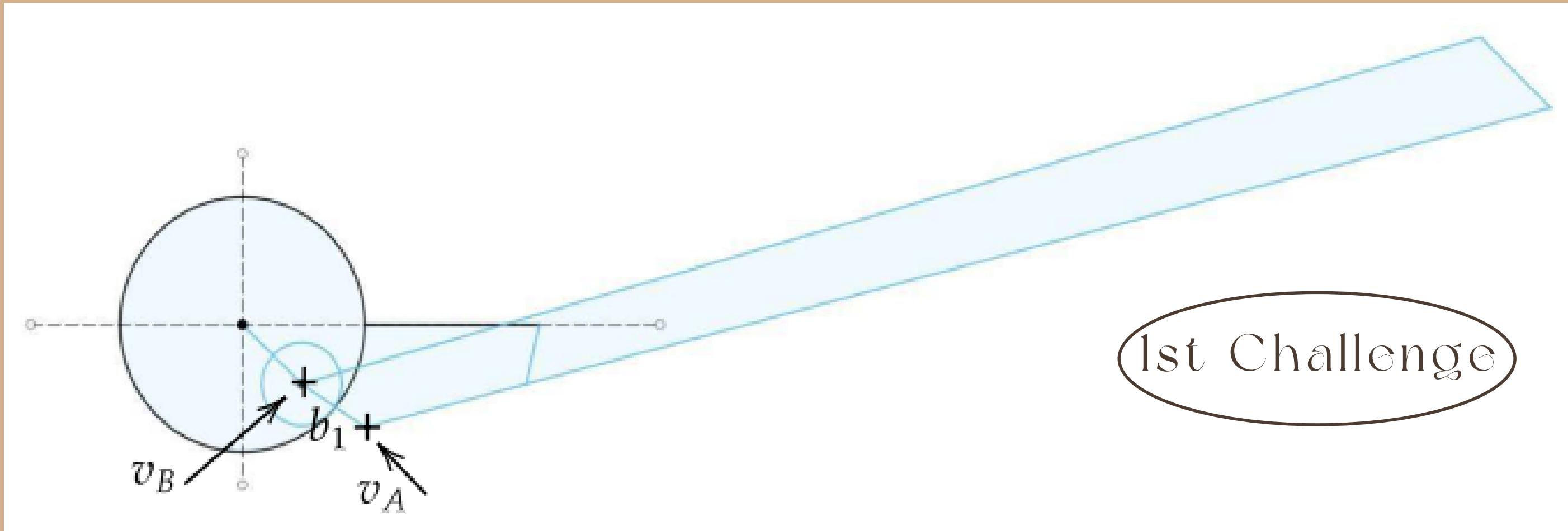
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Project Steps

# Kinematics

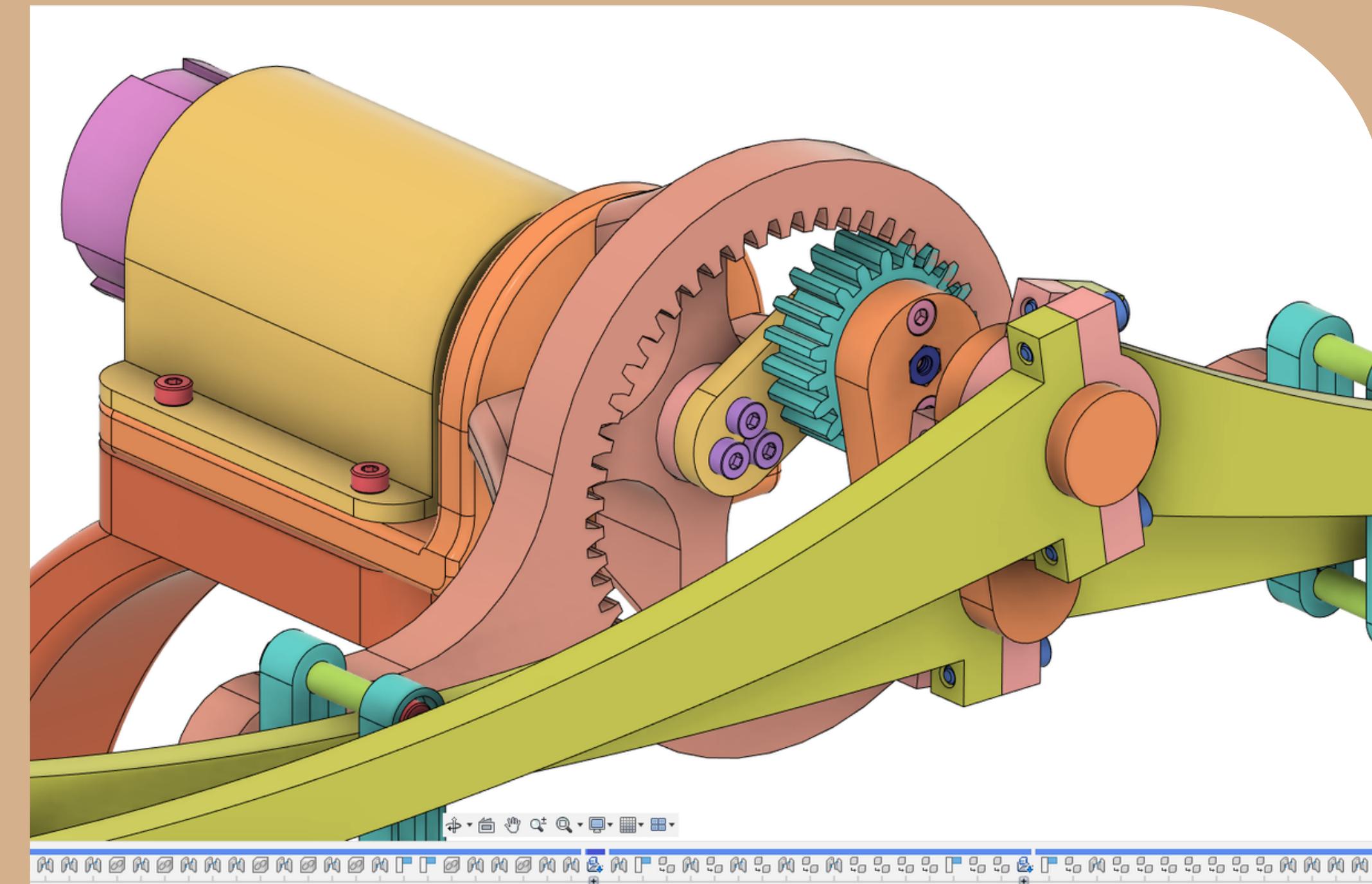
3-Mechanisms, Planetary Gear, 4-Bar Linkage, 5-Bar Linkage.  
Calculated Positions and Velocities for each links.



Project Steps

# Design

Core



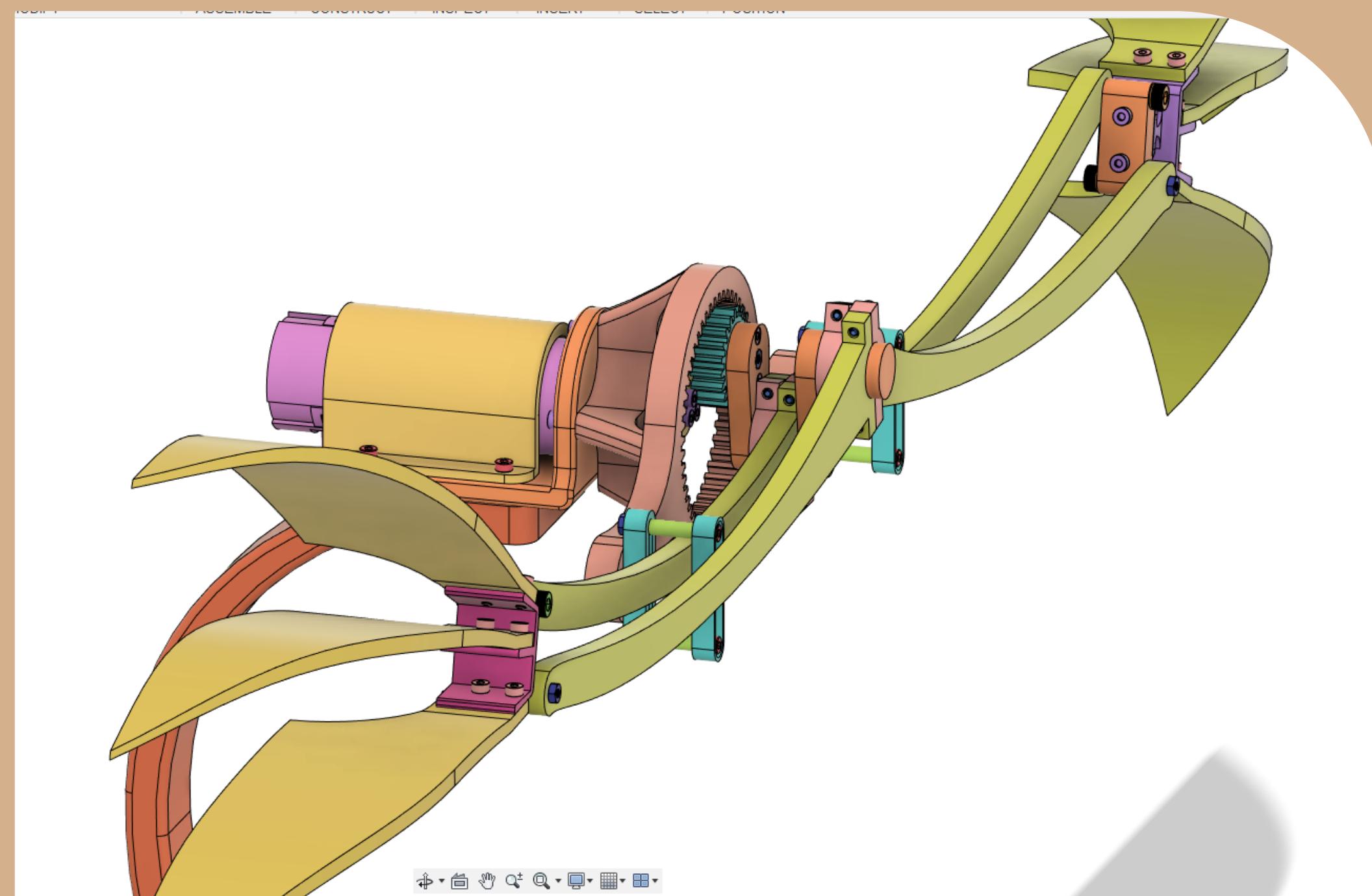
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Project Steps

# Design

Simplicity



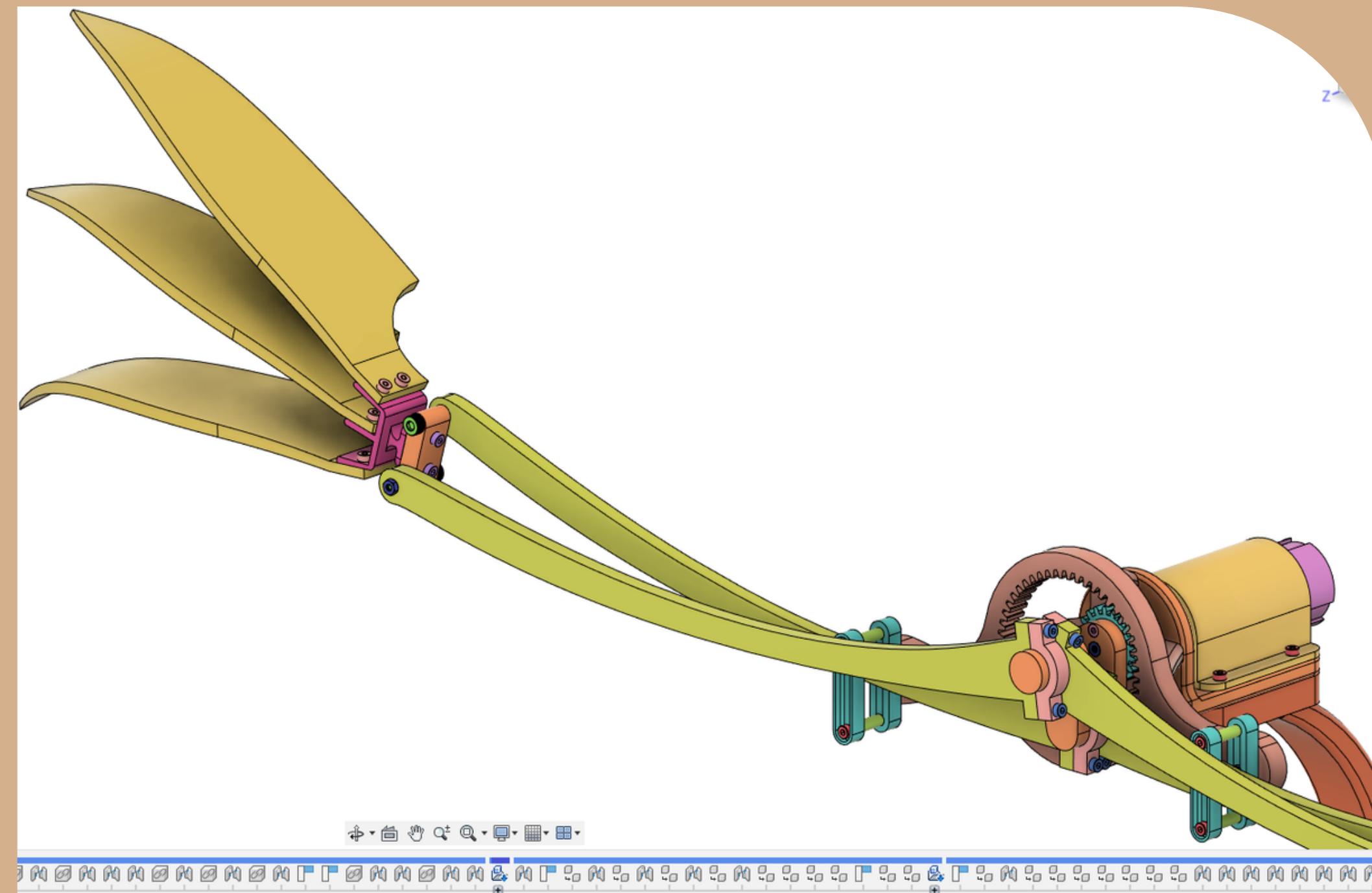
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# Design

Simplicity



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# Design

Full View



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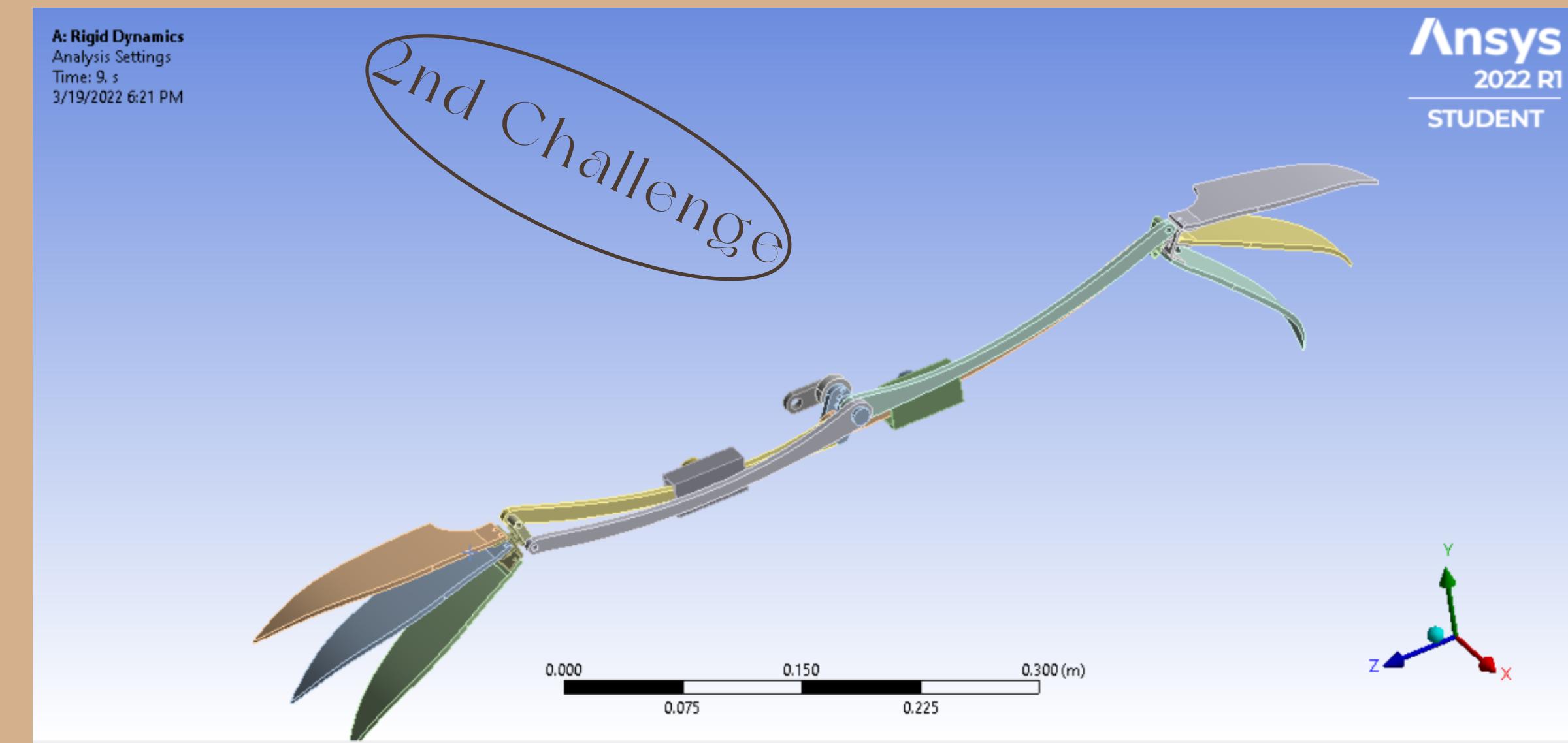
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Project Steps

# Dynamics

## Simplified Model

Ansys

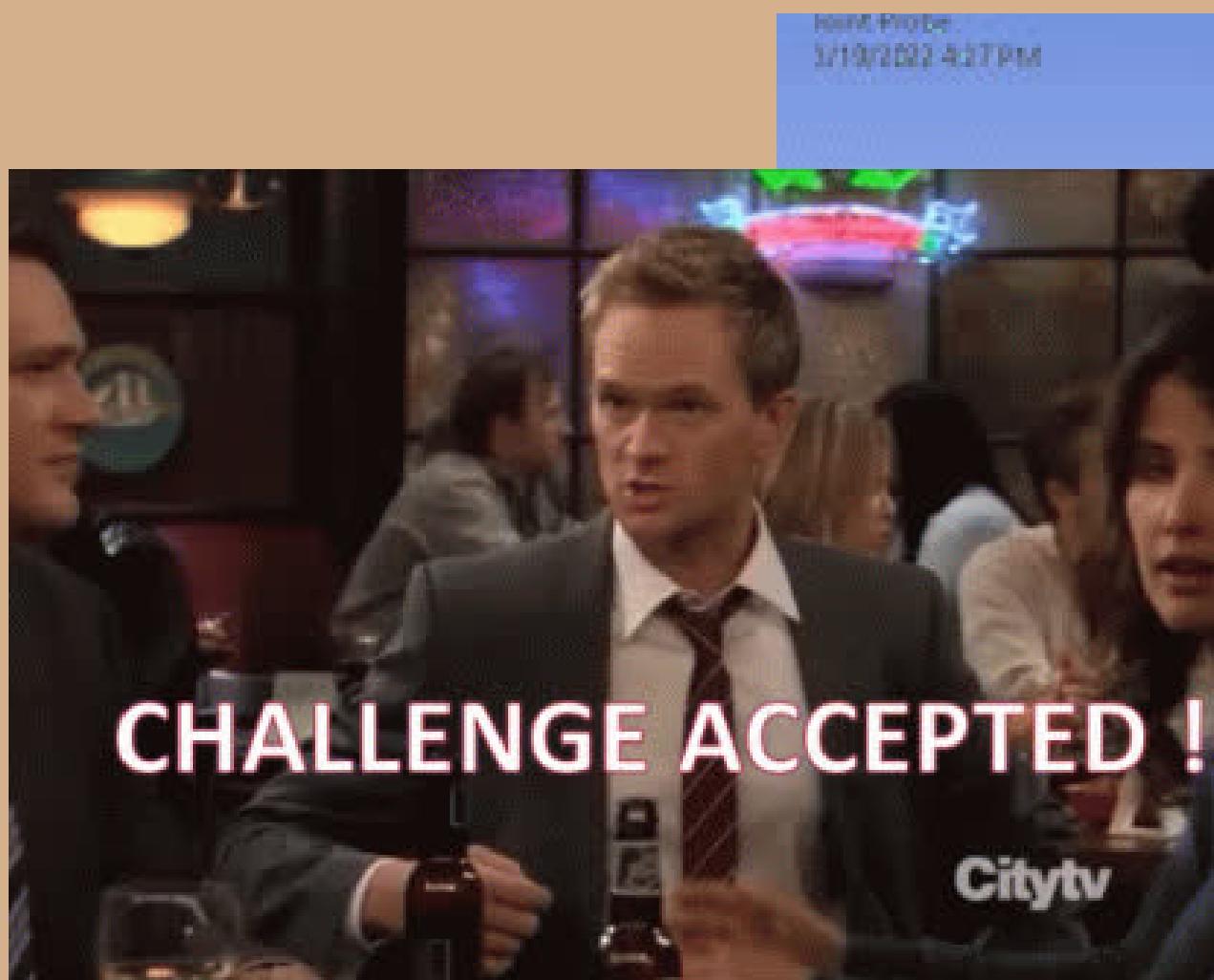


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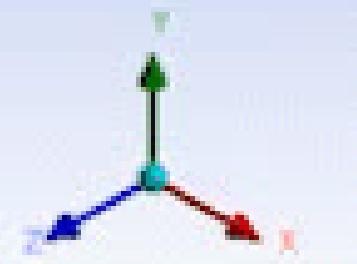
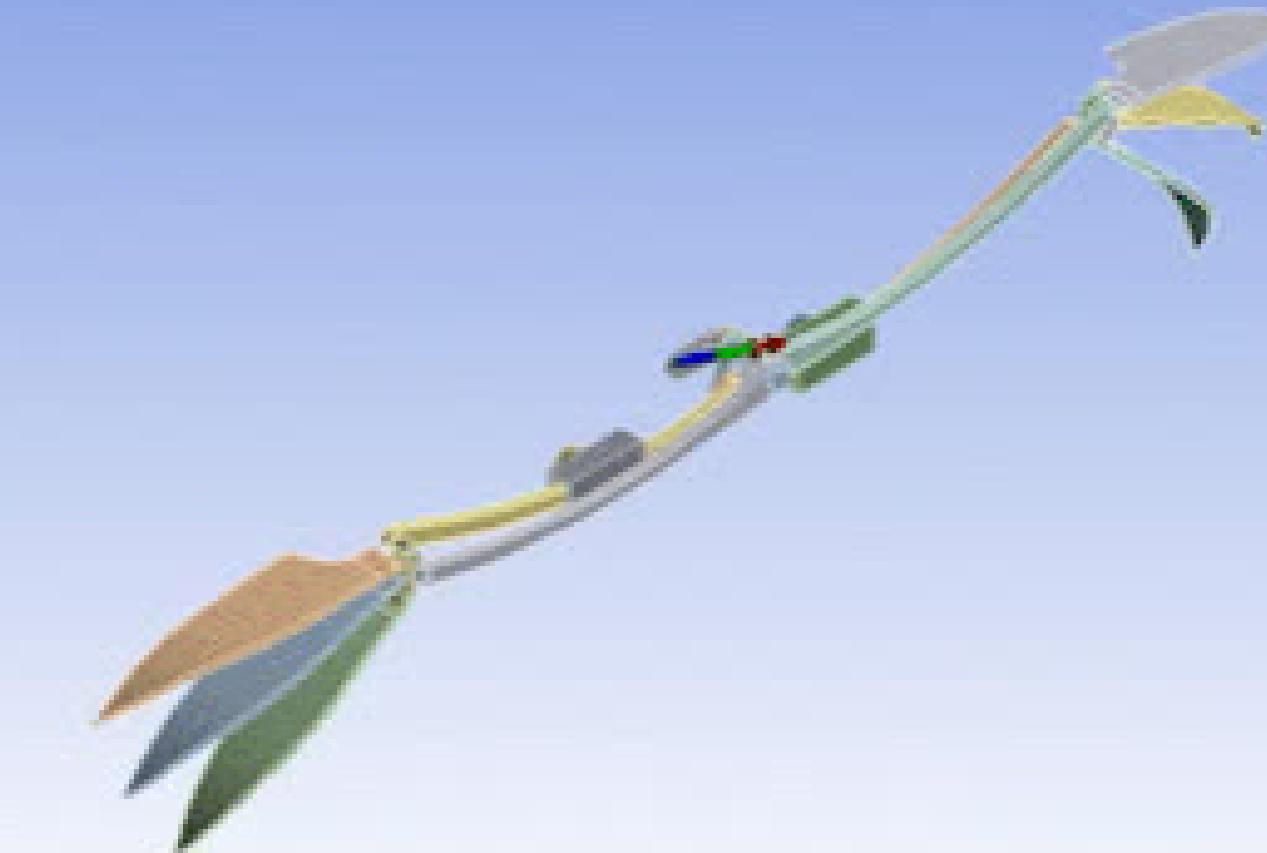
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# Dynamics



*It Works!*



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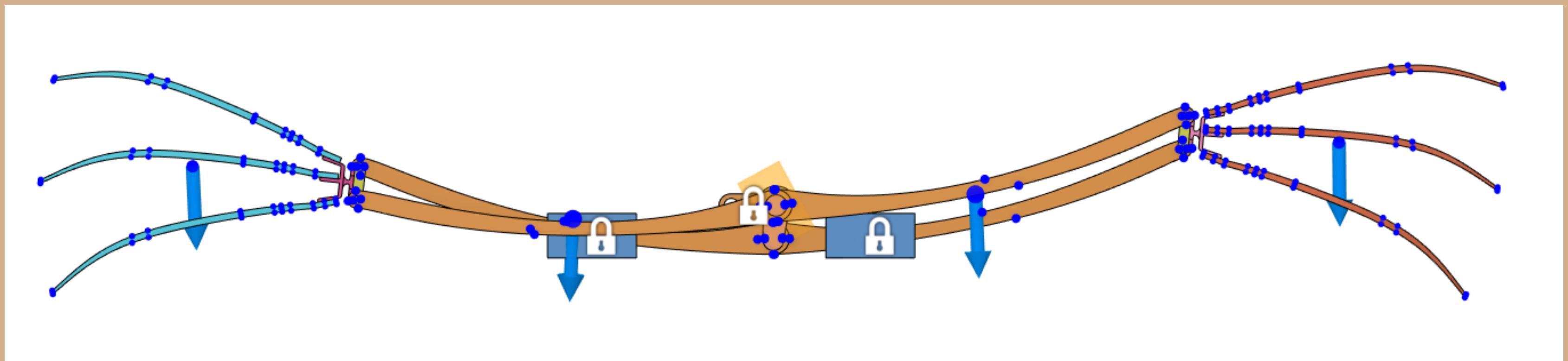
Project Steps

# CAE Analysis

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## Static-Structural Analysis

## Fusion360



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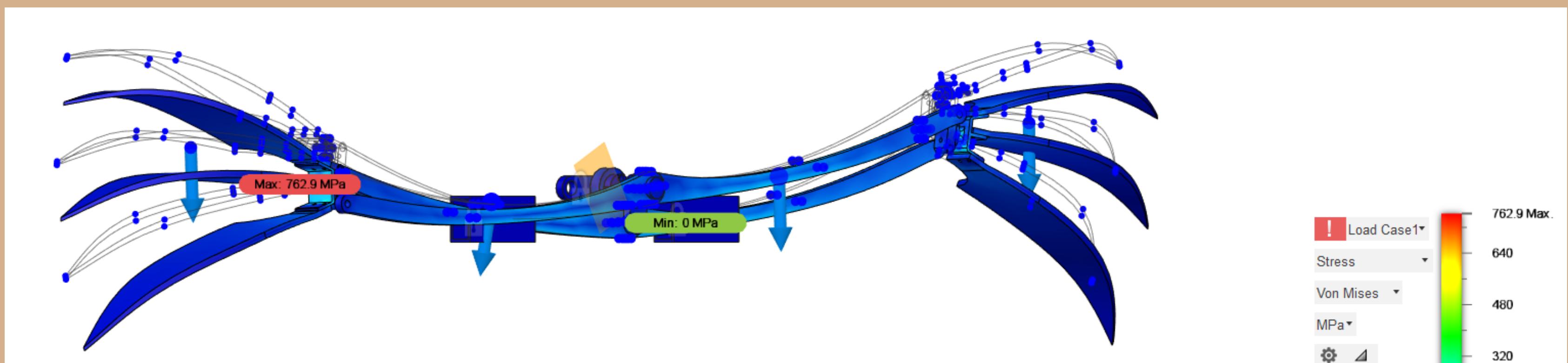
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# CAE Analysis

## Results, Stress



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# CAE Analysis



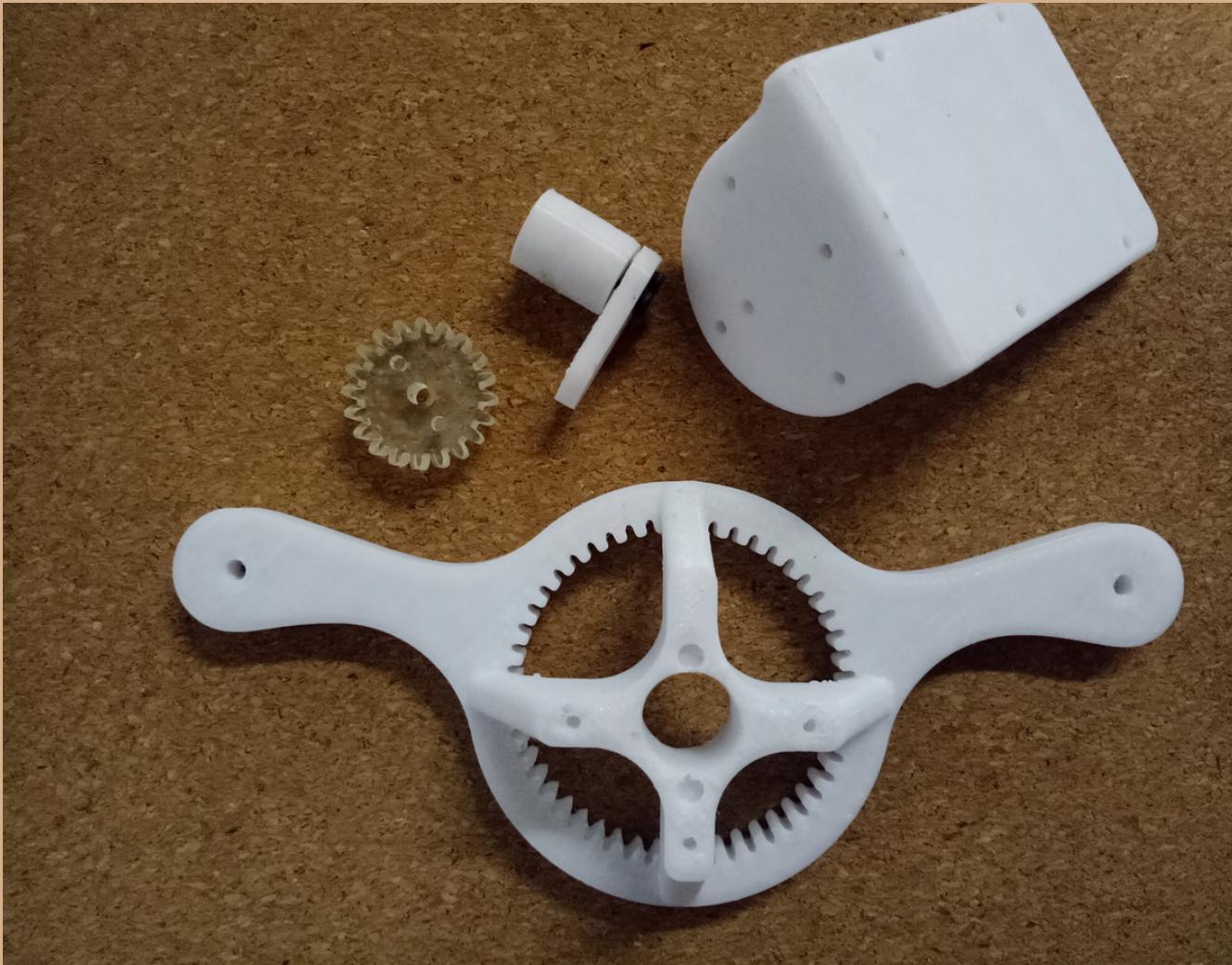
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# 3D-Printing

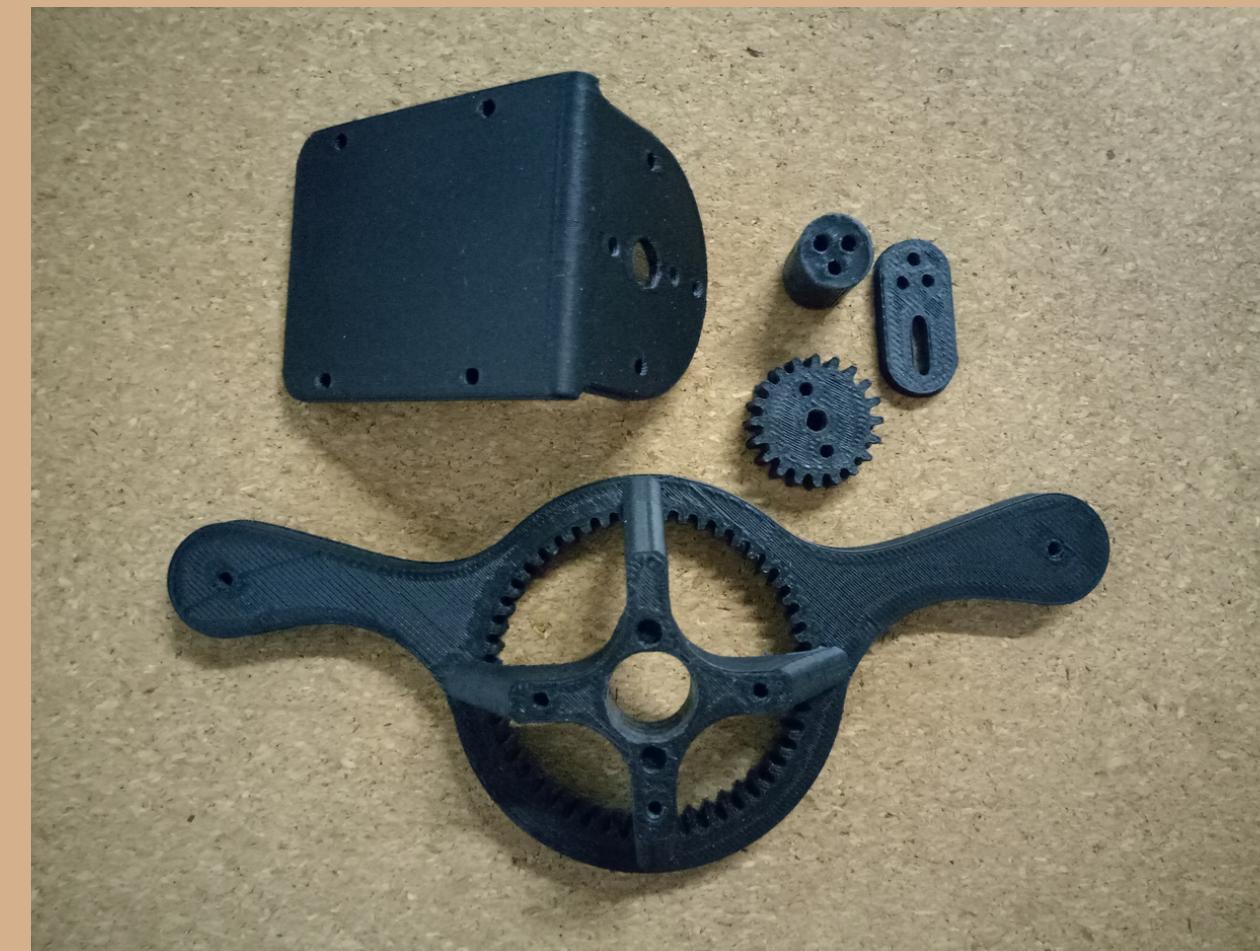
4th Challenge



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A lot of Printers  
Problems!



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# Current Results



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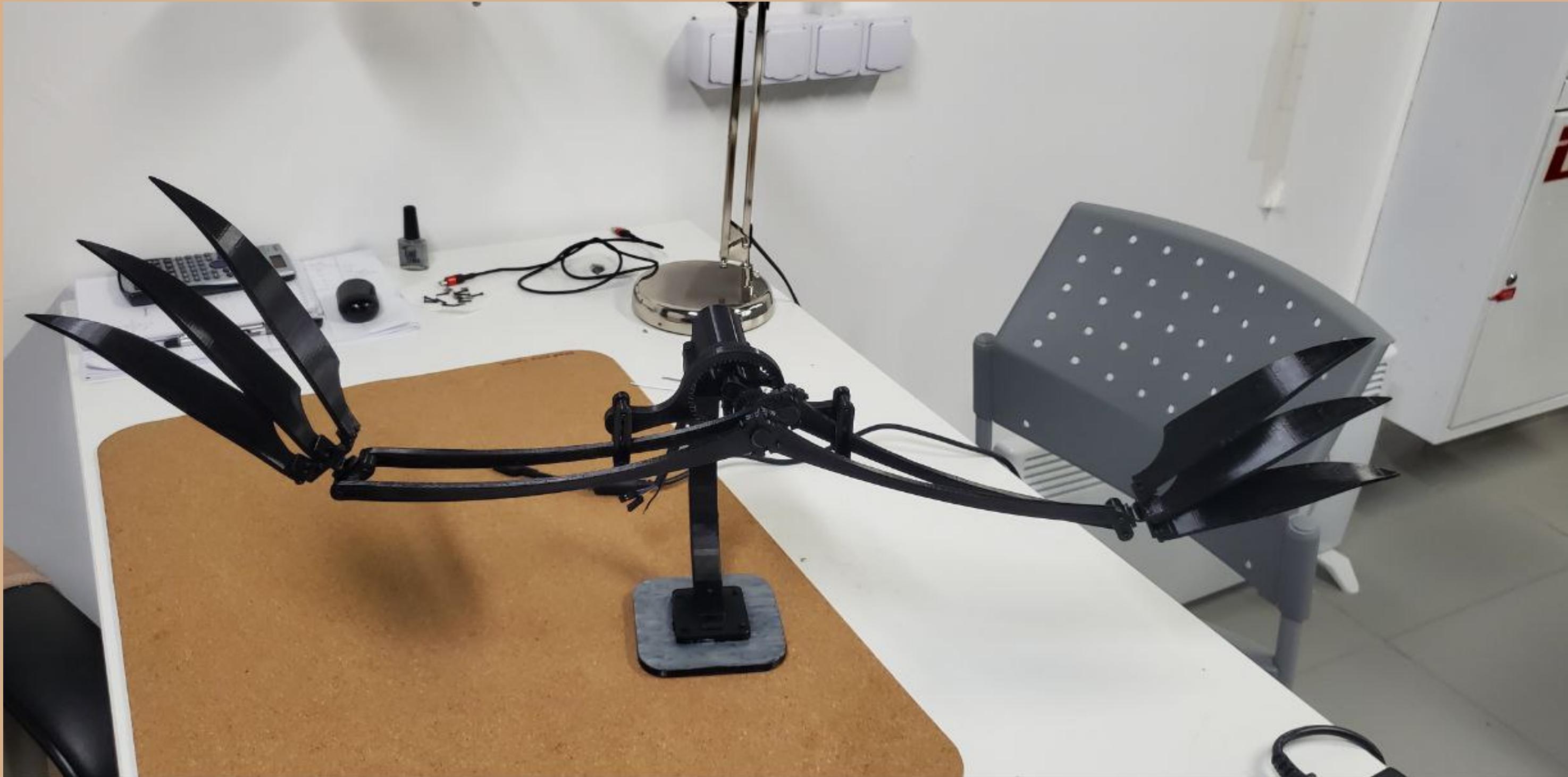
# Current Results



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# Current Results



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# Thank you

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