# Stewart Platform Kinematics Study
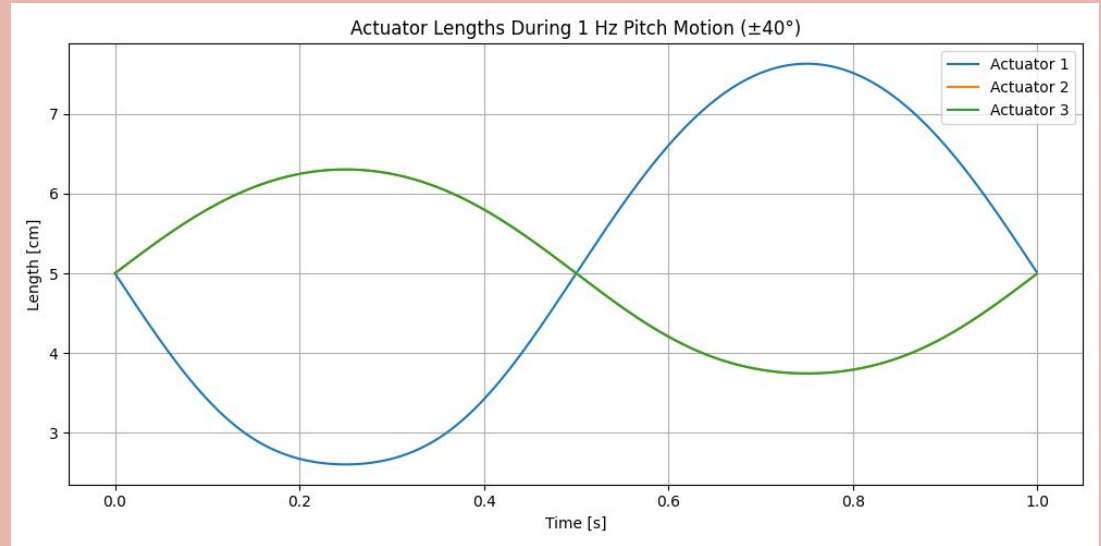
# Actuator Lengths For Different Motions

# Only Pitch (around y-axis)

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Actuator 1: min = 2.60 cm, max = 7.63 cm, Δ = 5.03 cm
Actuator 2: min = 3.74 cm, max = 6.30 cm, Δ = 2.56 cm
Actuator 3: min = 3.74 cm, max = 6.30 cm, Δ = 2.56 cm
```



Actuator Lengths During 1 Hz Pitch Motion (±40°)
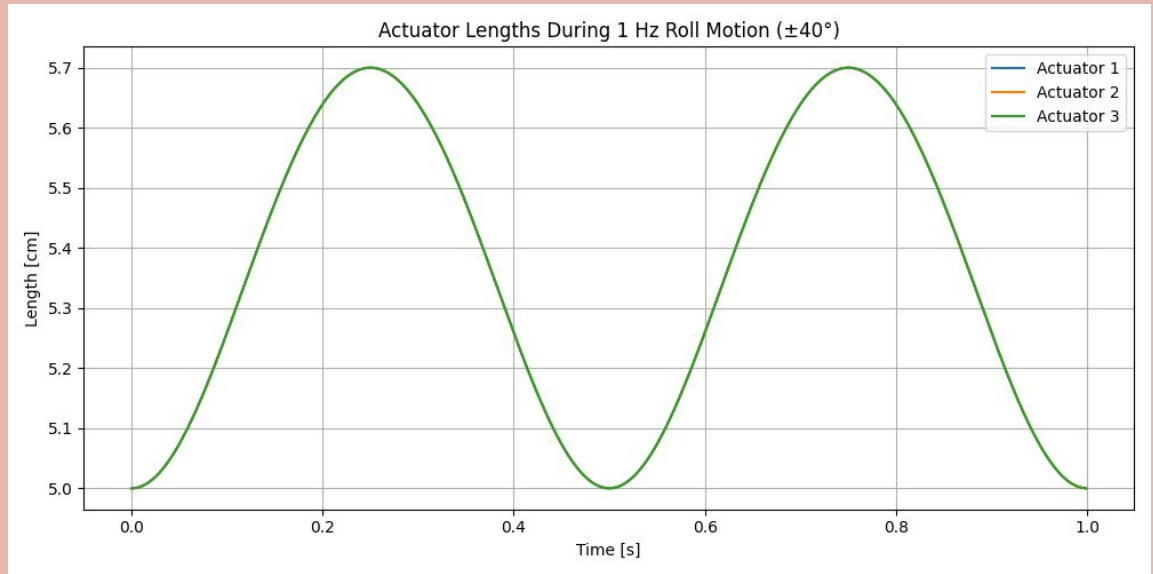
# Only Roll (around x-axis)



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Actuator 1: min = 5.00 cm, max = 5.70 cm, Δ = 0.70 cm
Actuator 2: min = 5.00 cm, max = 5.70 cm, Δ = 0.70 cm
Actuator 3: min = 5.00 cm, max = 5.70 cm, Δ = 0.70 cm
```
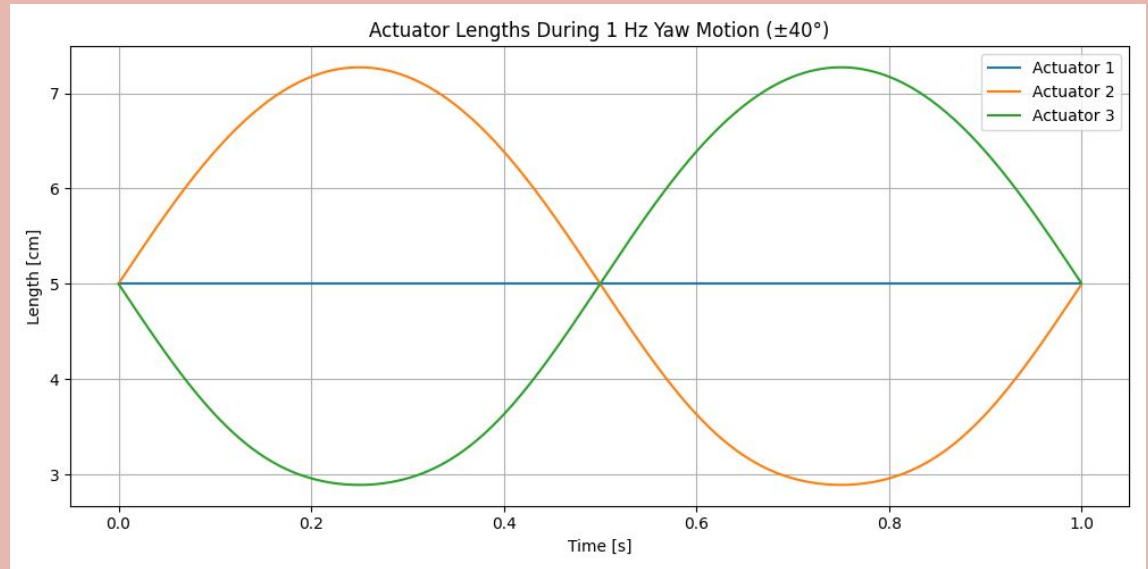


Actuator Lengths During 1 Hz Roll Motion (±40°)

# Only Yaw (around z-axis)

# All three motions at once



```
Actuator 1: min = 2.57 cm, max = 6.17 cm, Δ = 3.60 cm
Actuator 2: min = 3.52 cm, max = 7.62 cm, Δ = 4.11 cm
Actuator 3: min = 4.92 cm, max = 8.30 cm, Δ = 3.38 cm
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Actuator Lengths During 1 Hz Yaw Motion (±40°)