Steps:

Testing the speed ie the time taken by the system to travel a fixed distance of 1m; the variable in this case would be the total mass of the system. In order to make good contact and have a normal gait cycle it's important that the ratio between the sprung and the unsprung mass be maintained at a sweet spot. Therefore in this experiment we intend to add weights to the entire test rig system and see it's effect on the time taken for it to cover the distance of 1m. We also intend to change the weight bias and see what effect that has on the walking pattern.

Justification:

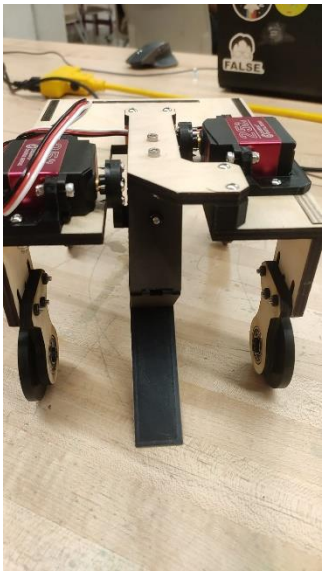
Since the weight (present or added) of the robot affects the motion of the robot, weights were added initially taking into account the mass of the robot, stiffness , flexibility and tensile strength of the materials used for the test rig. Based on these factors it was decided to test the set up with incremental weights of 20g, initially tested without weights added to serve as a basic reference on how the amount of mass added can affect the robot in whole.

Raw data:

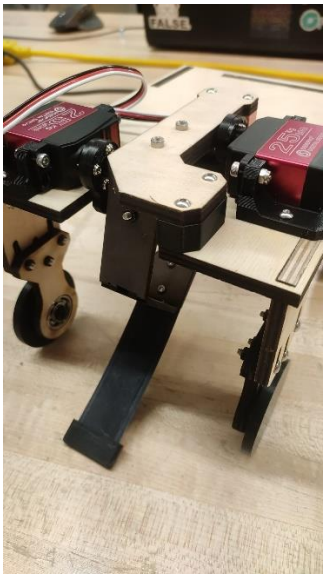
mass(g)	speed(m/s	time(s)
0	0.2	5
30	0.19996	5.001
50	0.19996	5.001
70	0.199908	5.0023
90	0.19992	5.002
110	0.199916	5.0021
130	0.199916	5.0021
150	0.199896	5.0026
170	0.199912	5.0022
190	0.19996	5.001
210	0.199916	5.0021
510	0.199812	5.0047

Figure(s) of your data and model plotted in the same graph.

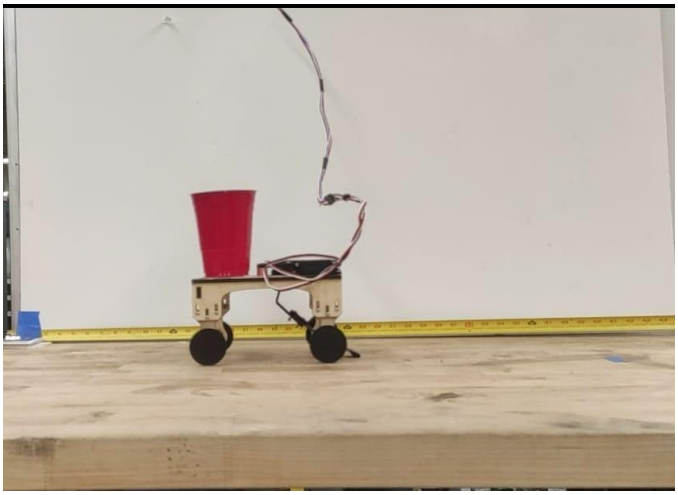
Images of your experiment setup across multiple steps.



Experimental set up front view

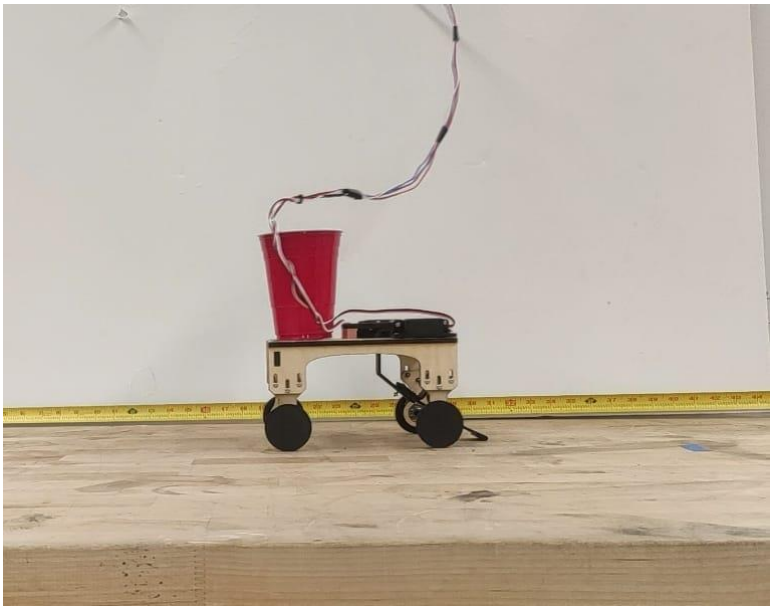


Experimental set up front view



Mug to support weights added to vary mass

Initial testing without adding any weight to serve as reference.



Test set up with added weights in cup in motion with scale to measure distance traveled in the background.