

Mechanisms and Algorithms

Lab: Lego Cams, Springs and Linkages

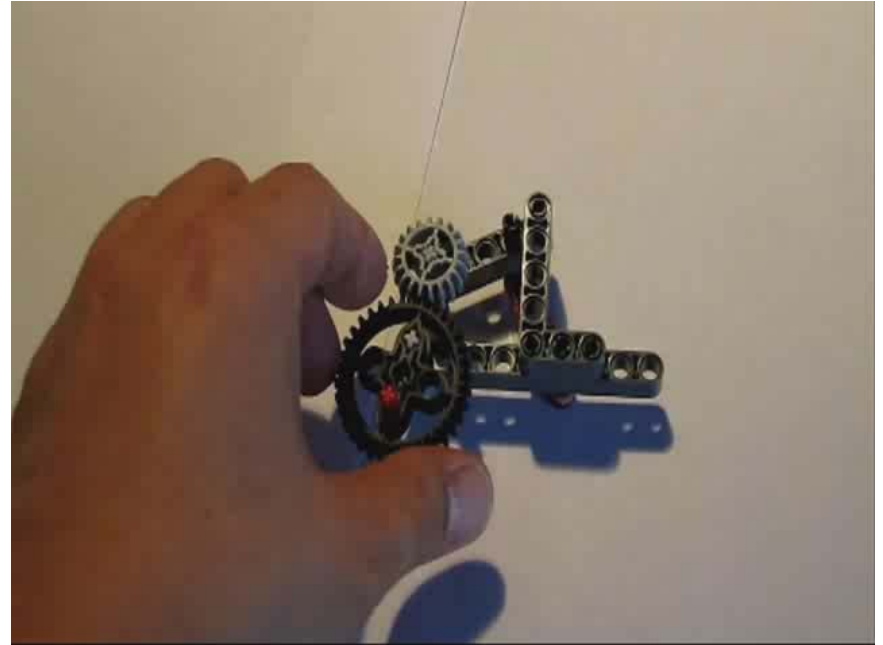
Lab Experiments

1. Cam Follower (with spring)
2. Cam Follower application
3. Torsional Linkage (with spring)
4. 4-Bar Linkage

Exercise 1: The Cam Follower



Isogawa's Lego Crankshaft



Video



Step 1: Parts.



Step 3: Pin Gear 20 to Beam 5 and Bent 90



Step 2: Pin the Gear 36 and Bent 90 to Beam

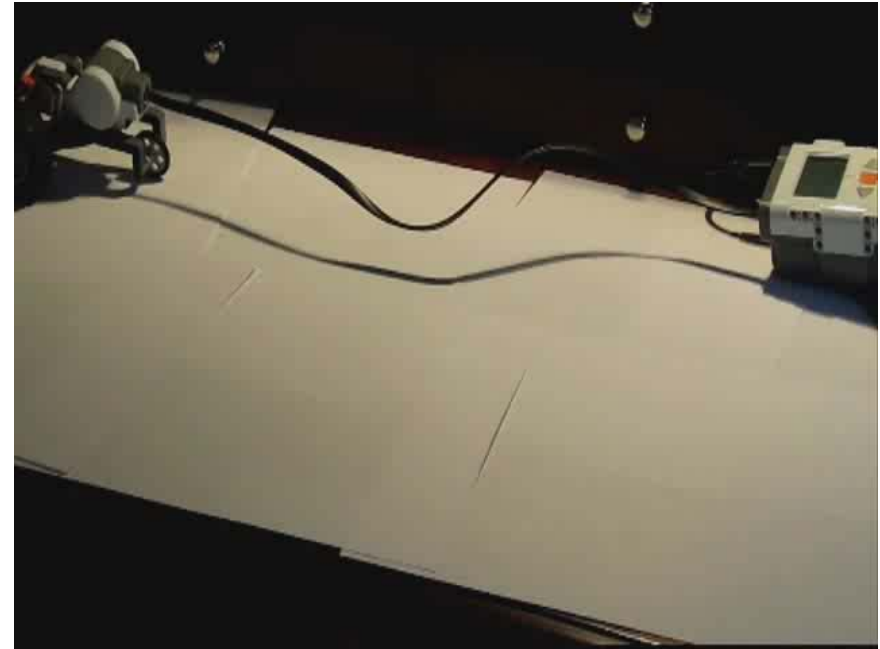


Step 4: Install Pin Long and loop with Rubber band

Exercise 2: Application of the Cam Follower



Isogawa's Lego Motorized Cam Follower



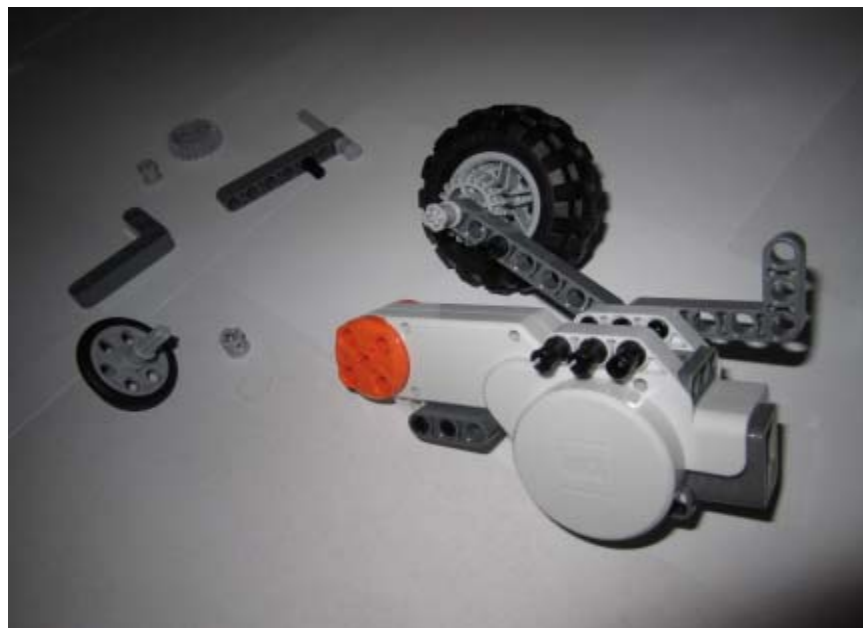
Video



Step 1: Parts.



Step 2: Thread Long Pins and Pins. Prep Tire and Gear



Step 3: Complete Tire Assembly. Attach Liftarms



Step 4: Attach 36T Gears off-center. Attach Rubber Bands



Step 5: Complete wedge wheel. Repeat 36T Gear Assembly on opposite side

Exercises

2-1 Attach Motor to Port A with cable. Write and run a program to make mechanism move forward and the backward.

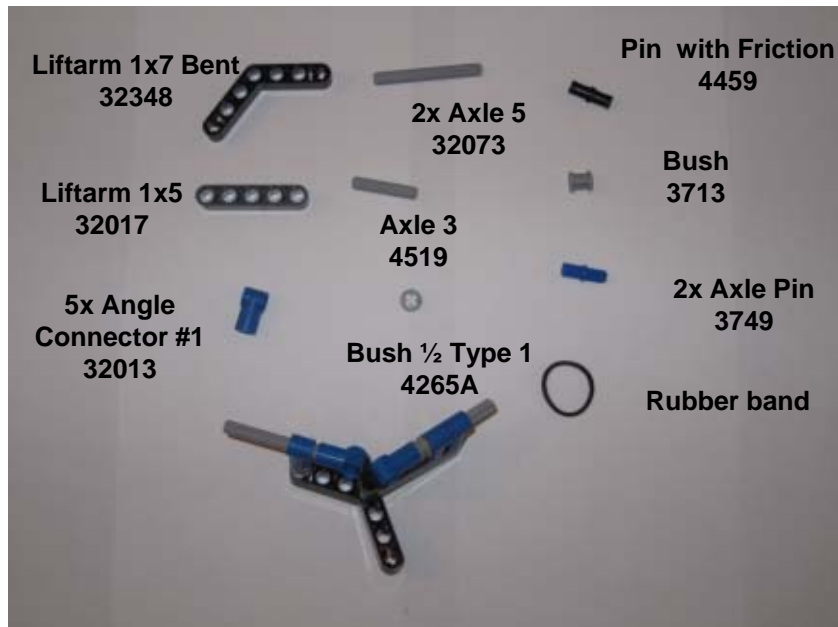
Exercise 3: The Torsional Linkage



Isogawa's Lego Torsional Linkage



Video



Step 1: Parts.



Step 2: Pin Liftarms. Attach Angle Connectors #1



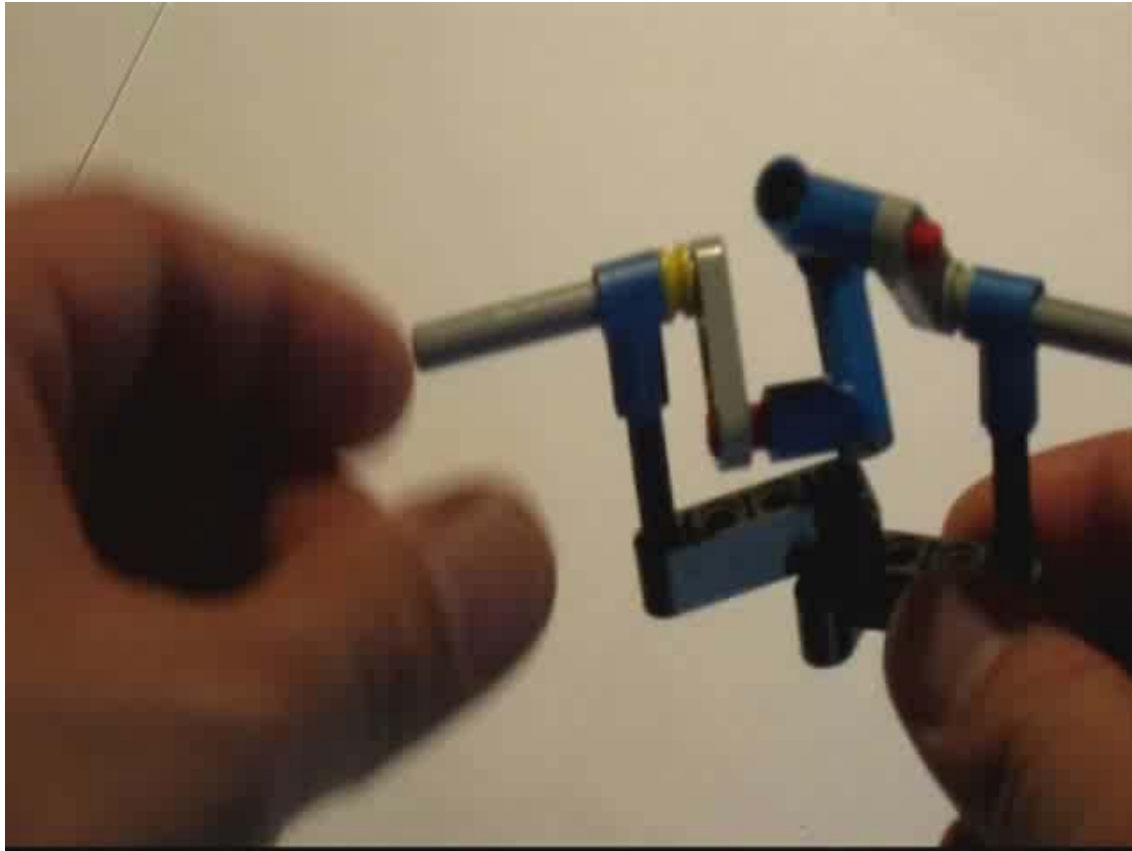
Step 3: Thread rubber band. Thread Axles

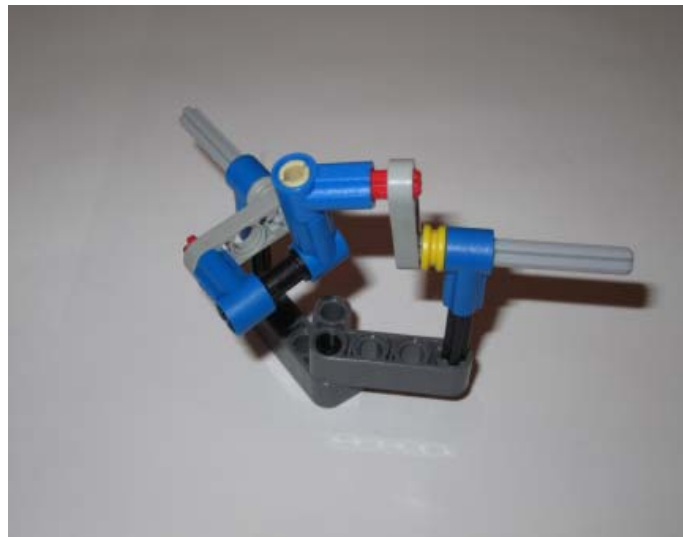
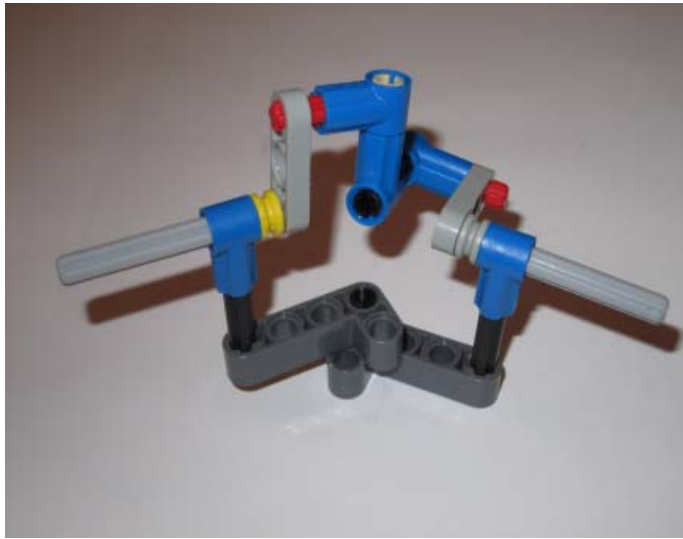


Step 4: Attach Connector #1s onto Axles

Exercises

3-1 Construct the following multi-joint linkage

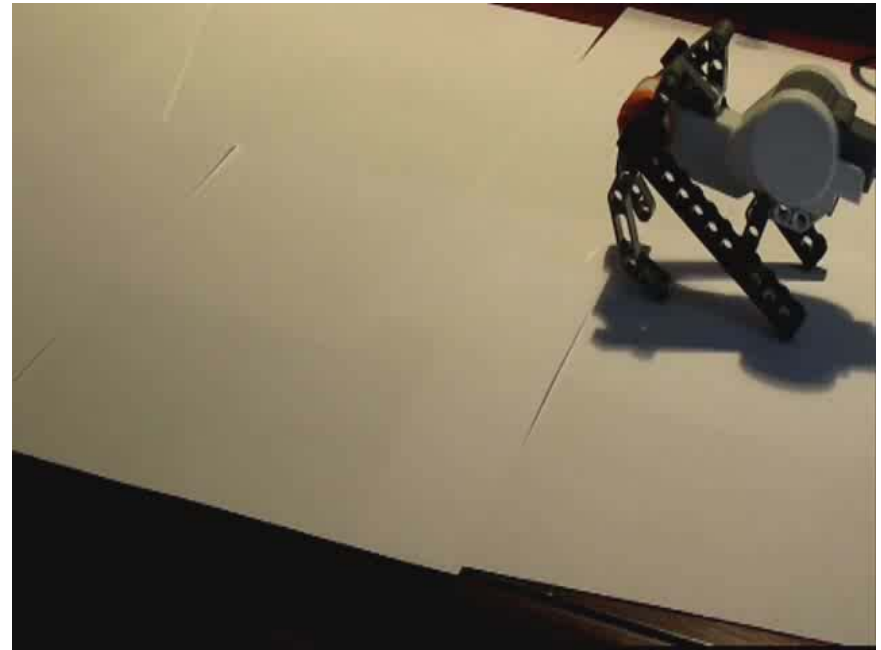




Exercise 4: The 4-Bar Linkage



Isogawa's Lego 4-Bar Linkage



Video



Step 1: Parts.



Step 2: Pin 1x3 Liftarms. Thread Long Pin with Friction



Step 3: Insert Axle Pins. Pin motor and liftarms



Step 4: Attach Bricks

Exercises

4-1 Attach Motor to Port A with cable. Write and run a program to make mechanism move forward and the backward.

