Mechanisms and Algorithms

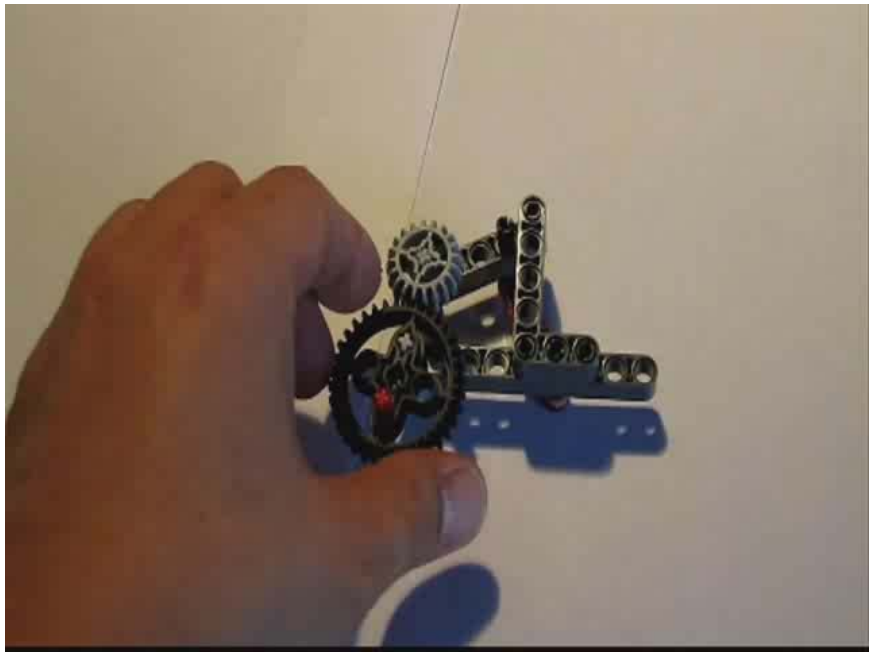
Lab: Lego Cams, Springs and Linkages

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.

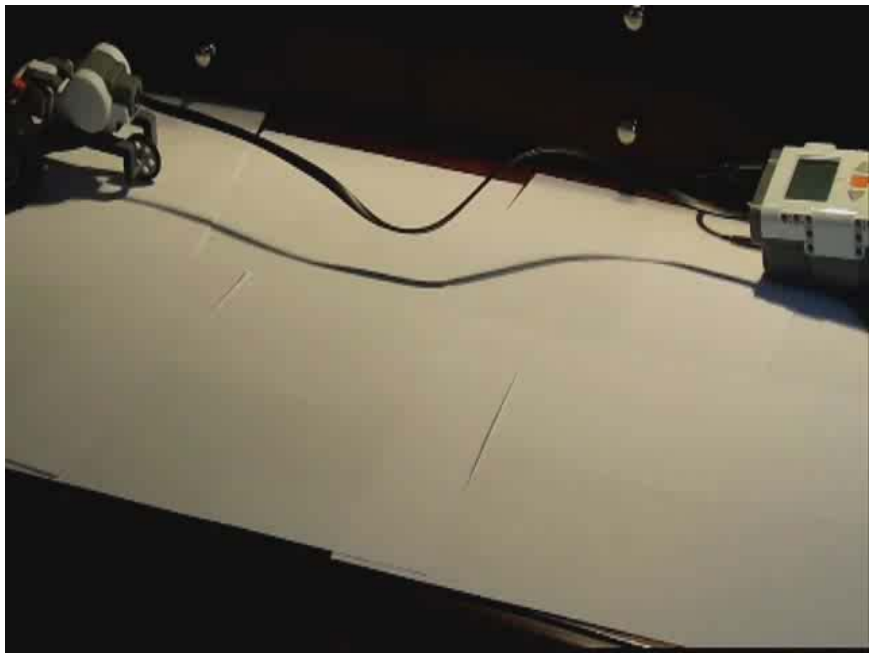
Step 2: Pin the Gear 36 and Bent 90 to Beam

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

Step 4:Install Pin Long and loop with Rubber band

Exercise 2: Application of the Cam Follower

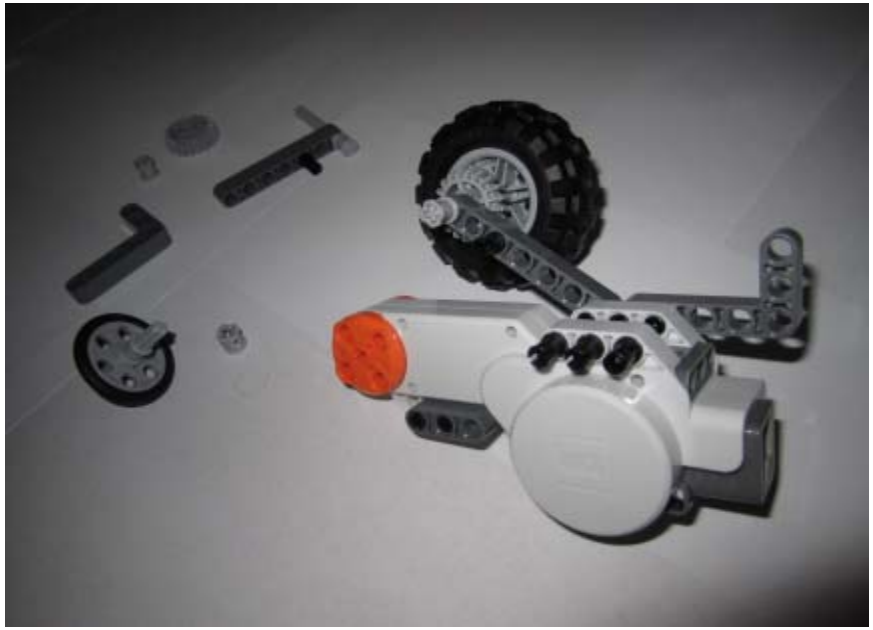
Isogawa's Lego Motorized Cam Follower



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

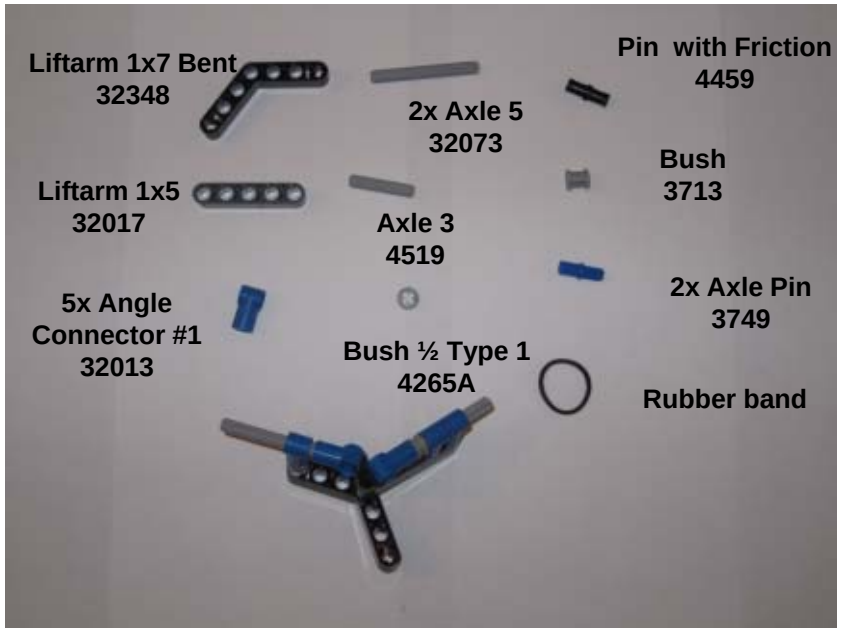
Exercises

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.

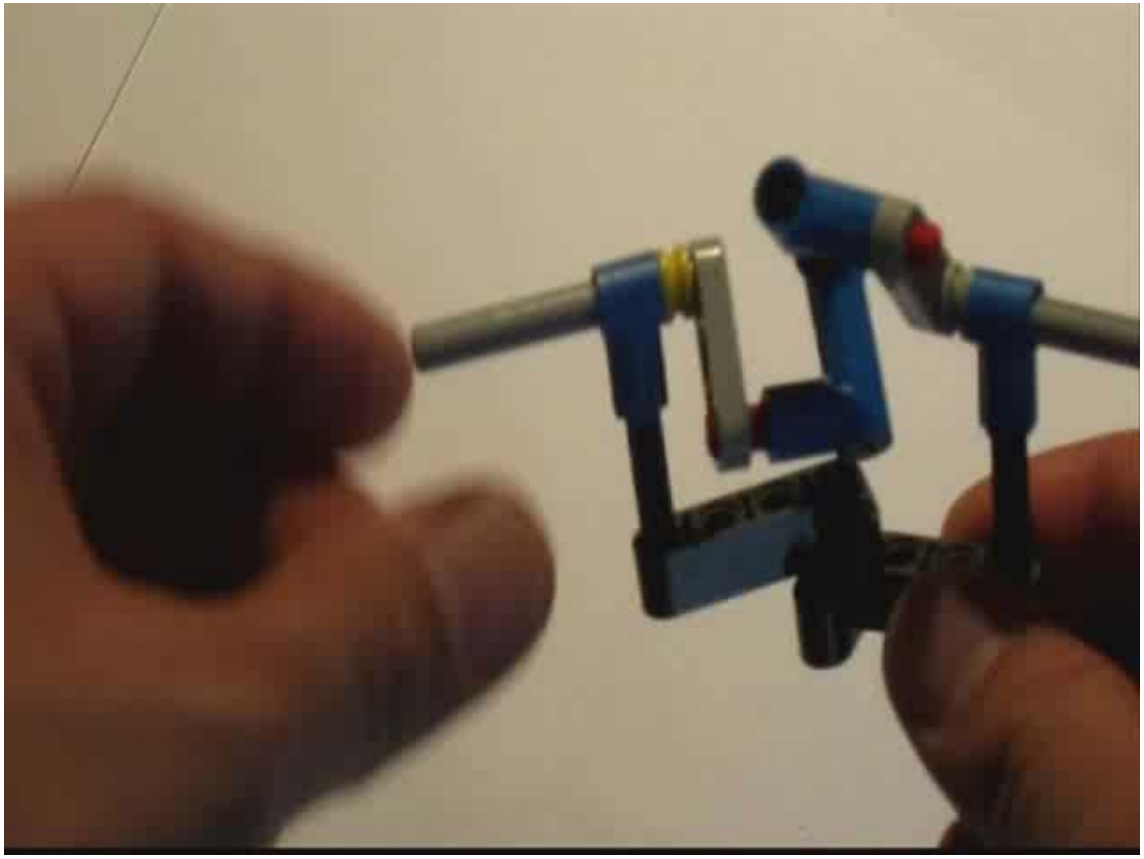
Step 2: Pin Liftarms. Attach Angle Connectors #1

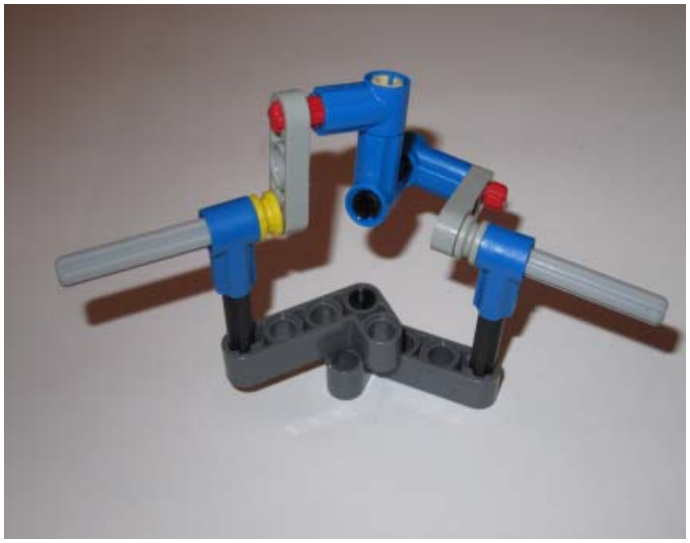
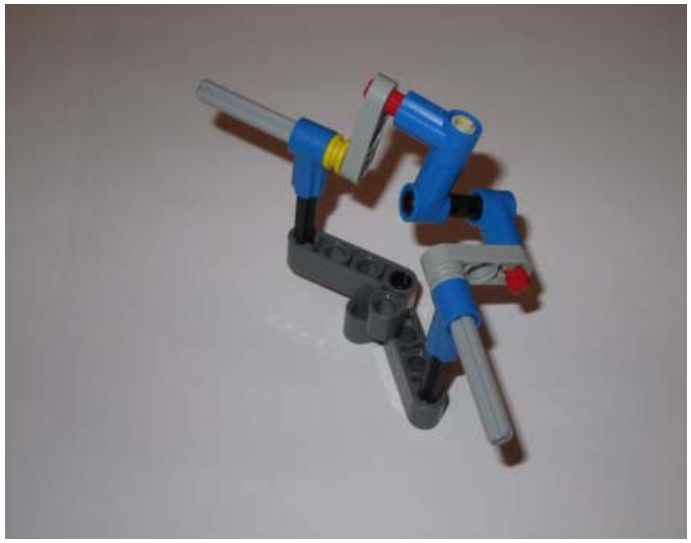
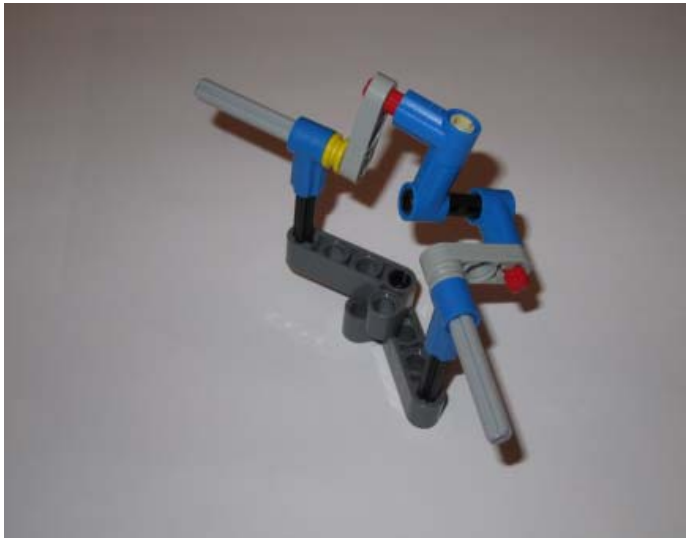
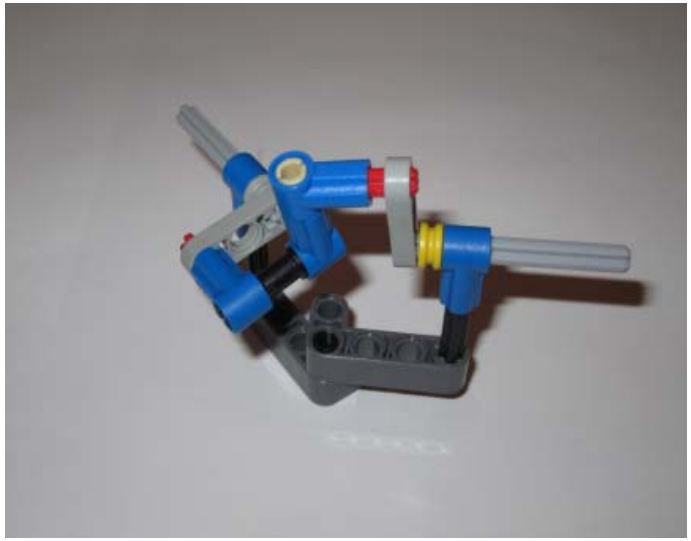
Step 3: Thread rubber band. Thread Axles

Step 4:Attach Connector #1s onto Axles

Exercises

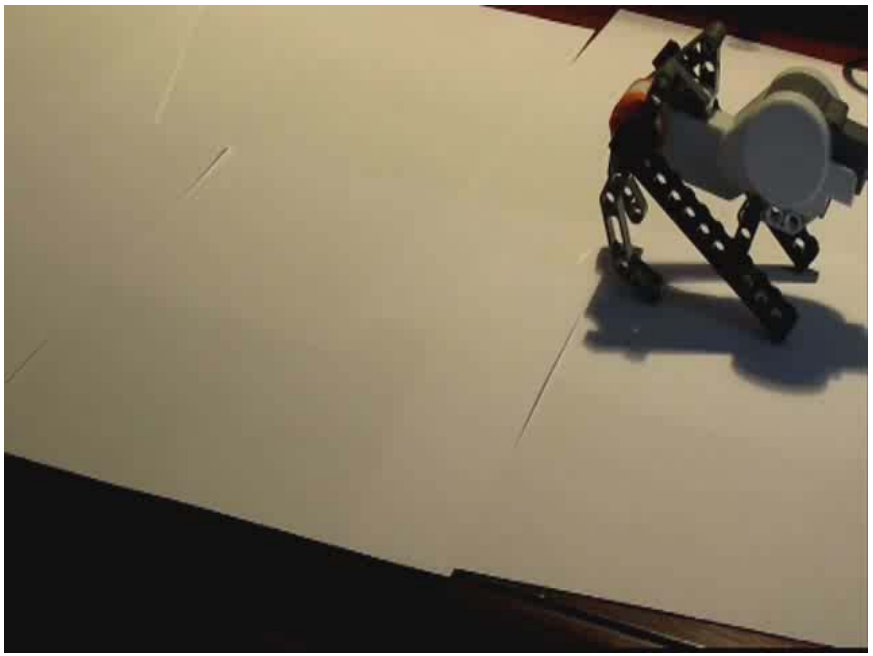
3-1 Construct the following multi-joint linkage



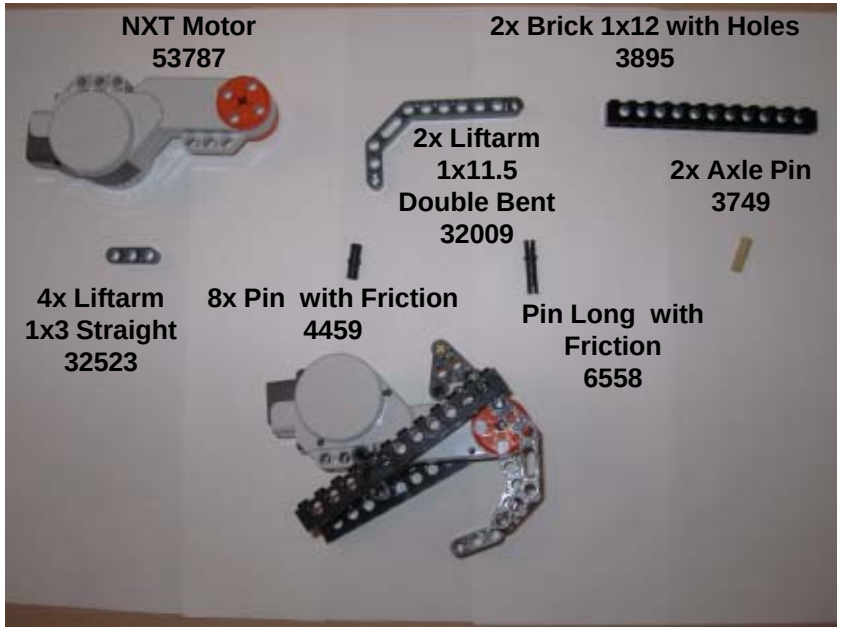





Exercise 4: The 4-Bar Linkage

Isogawa's Lego 4-Bar Linkage

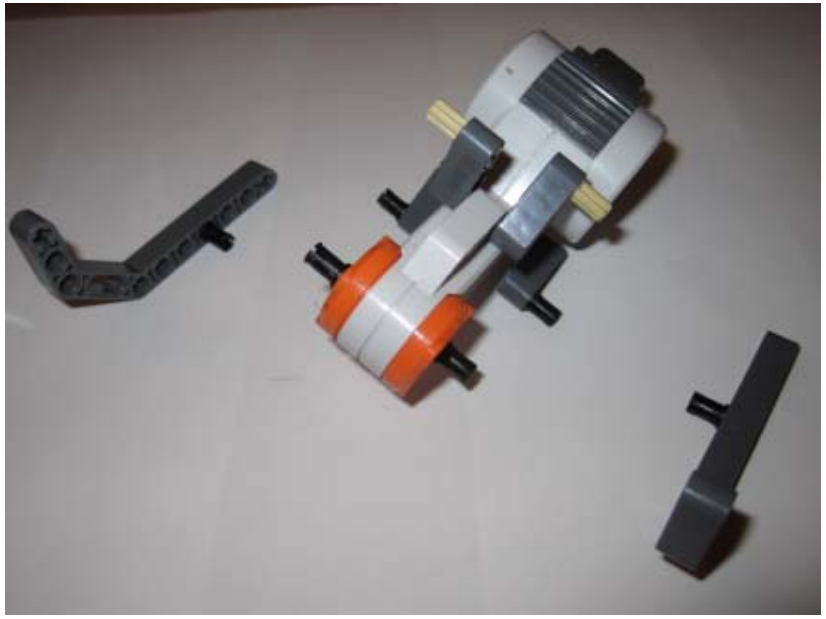


Video



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.