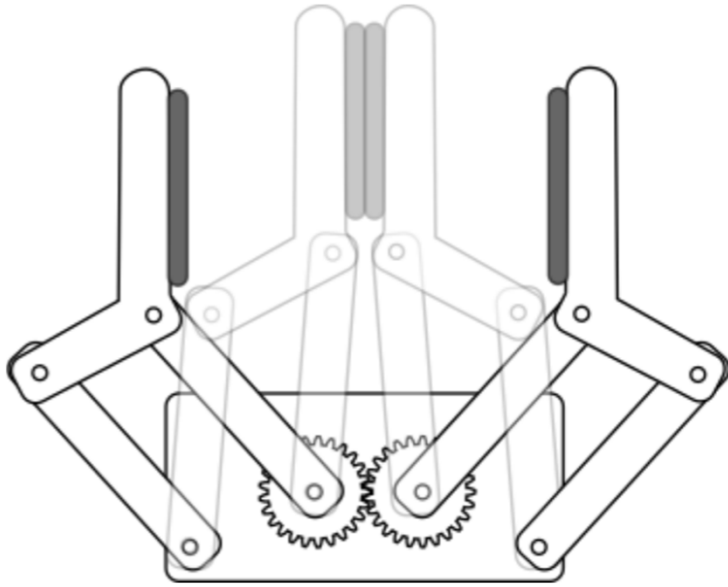


# Robot PRBM & rigid grippers



If you're missing info you think important, ask Prof. Culpepper and/or research reasonable info to help you proceed. Materials you'll get:

12 Qty	93897A263	Shoulder Screws; 1/2" Shoulder Length (#10)
12 Qty	93897A279	Shoulder Screws 3/4" Shoulder Length (#10)
12 Qty	94812A500	Nylon Hex Nut (#10)
24 Qty	90295A420	Nylon Washer (#10)
02 Qty	8586K171	ABS Sheet 12" x 12" x 1/4", Black
02 patches	5109K51	Silicone Foam Strip with Adhesive Back*

**FR advising/check off and MODELING check off meeting sign up:**

<https://docs.google.com/spreadsheets/d/1ggmwYo0m8fzvcuPmUPOwIaFIQEIjq66wilKoNz-ek1s/edit?usp=sharing>

**FR and materials kit check off site:**

<https://docs.google.com/spreadsheets/d/1my9-RQgX-7ay9-KNHN4JxMSHOeqSMQmtQ85TgUG9nJg/edit?usp=sharing>

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**Charge** - You are charged with building (i) a compliant gripper where all the motion is enabled by flexible joints and (ii) a rigid analog that has the same kinematic behavior. Design the compliant gripper to be actuated by hand. The gripper must grip an egg between two jaws and hold that egg while lifting the egg up and over Prof. Culpepper's head (or someone else he designates). The gripper should not exert too much force (egg shell breaks) or too little force (egg falls on Culpepper's head, you don't want that). Your job is to make me understand that you understand how to use PRBM to create a useful mechanism. I am not looking for "cute" in circumventing rules (e.g., hard boiled eggs, baskets to hold egg, etc...). You must design the rigid mechanism so that it can be attached on top of, and connected to, the compliant gripper. The links in each mechanism must track their analog in the other. Both mechanisms must move together so that it shows they emulate each others' motion. They need not be connected during the "egg test". You can be inspired by (parallel 4 bars), but don't directly copy, the design at top left. This is a challenging problem, so foam (for use on the gripper jaws only) is provided in case you run into trouble. If use the foam, know you will be docked 10 %\*.

**Deliverables** - What you must provide on the due date:

- (a) Hand in the device **functioning without problems**.
- (b) 1 page (front/back, 12pt font, 1" margins) that covers:
  - (i) functional requirements
  - (ii) how you modeled performance
  - (iii) how you experimentally verified performance
  - (iv) how good your data is
  - (v) how well your model worked
  - (vi) what you learned/anything interesting