



ME 327: Design and Control of Haptic Systems

Spring 2020

Lecture 8:

Kinesthetic haptic devices: sensors and actuators

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Questions from
prerecorded video?

In breakout groups, discuss for 10 minutes:

sensors

(odd-numbered breakout rooms)

what are the advantages/
disadvantages for haptics of
these sensors: optical
encoders, magnetic angle
sensors, and
potentiometers?

are there any common
types of sensors missing
from the lecture?

actuators

(even-numbered breakout rooms)

what are the advantages/
disadvantages for haptics of
these actuators: DC
motors, pneumatics, shape
memory alloys?

are there any common
types of actuators missing
from the lecture?

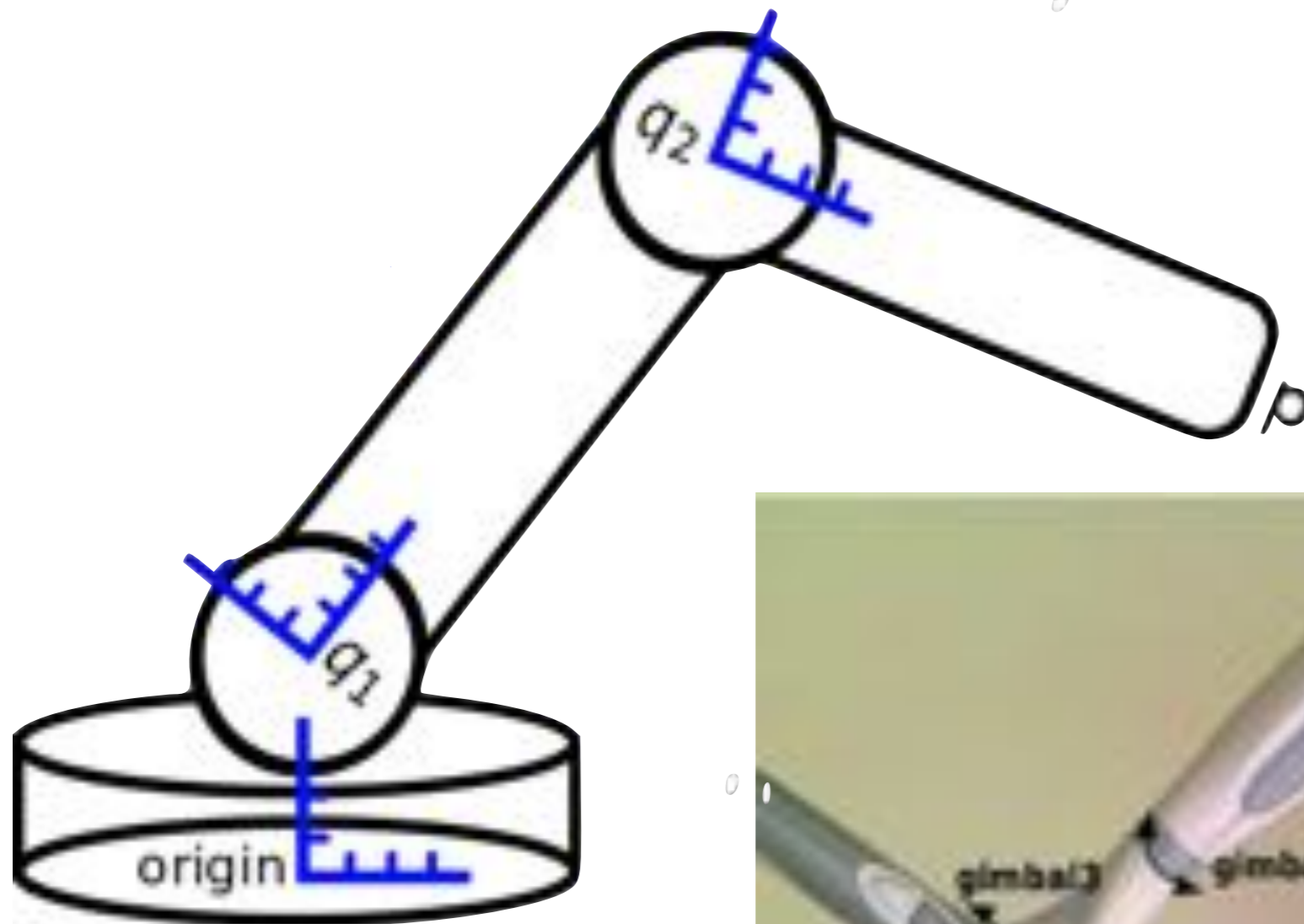
Example: Phantom Omni



Slide courtesy Tania Morimoto

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Phantom Omni



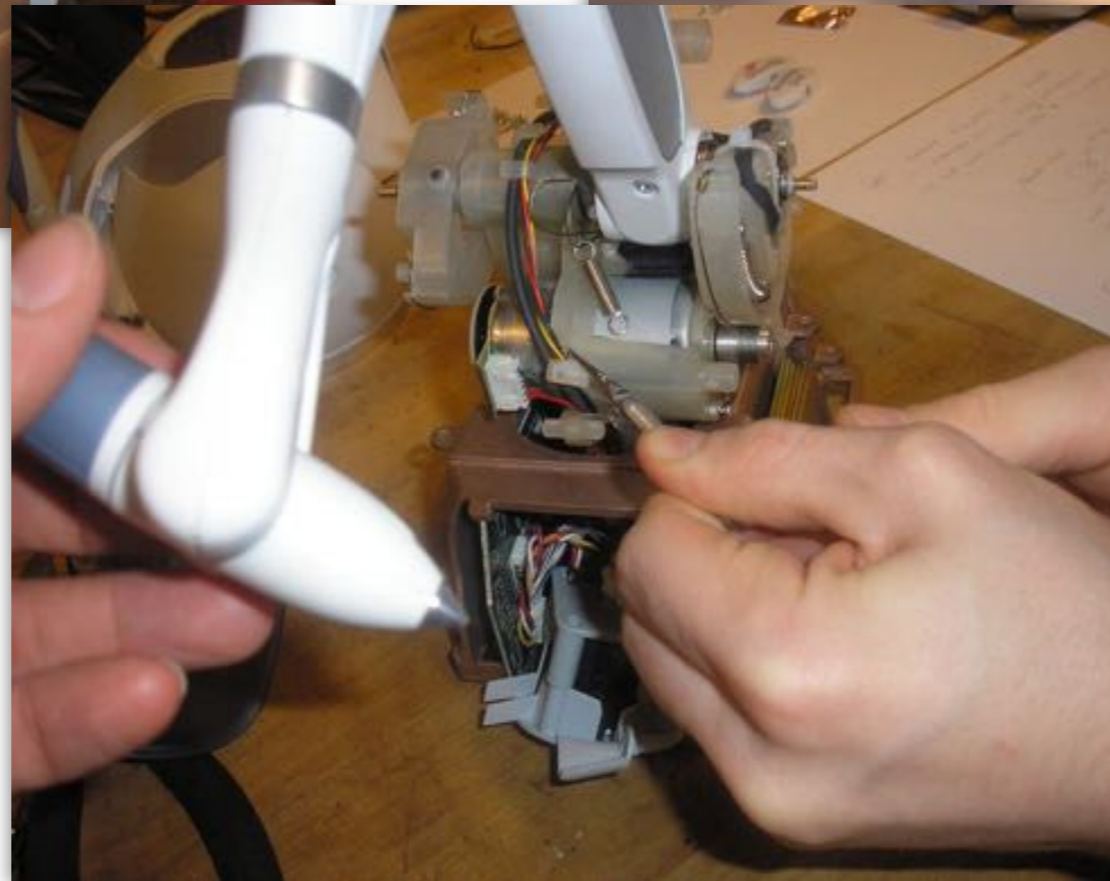
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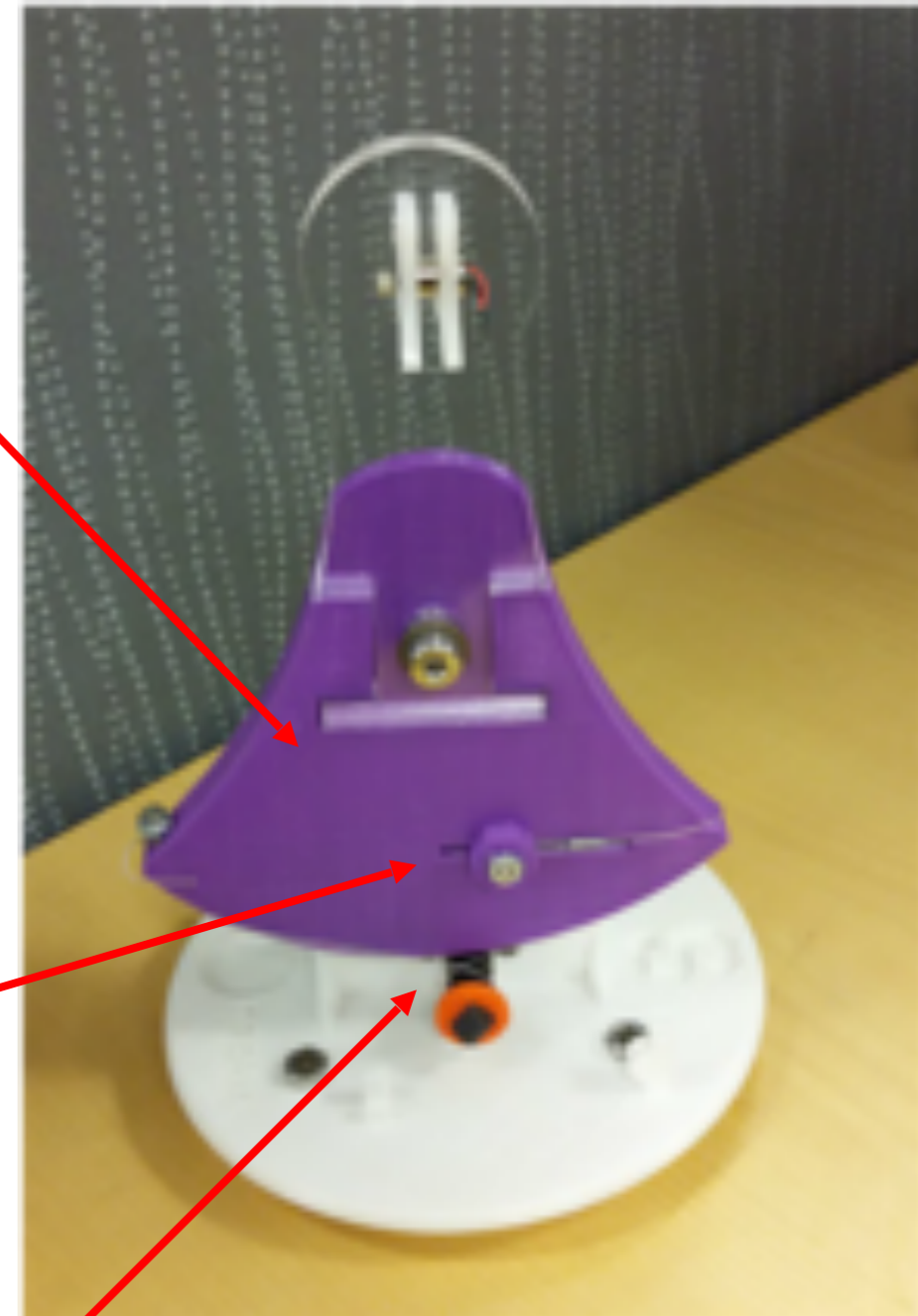
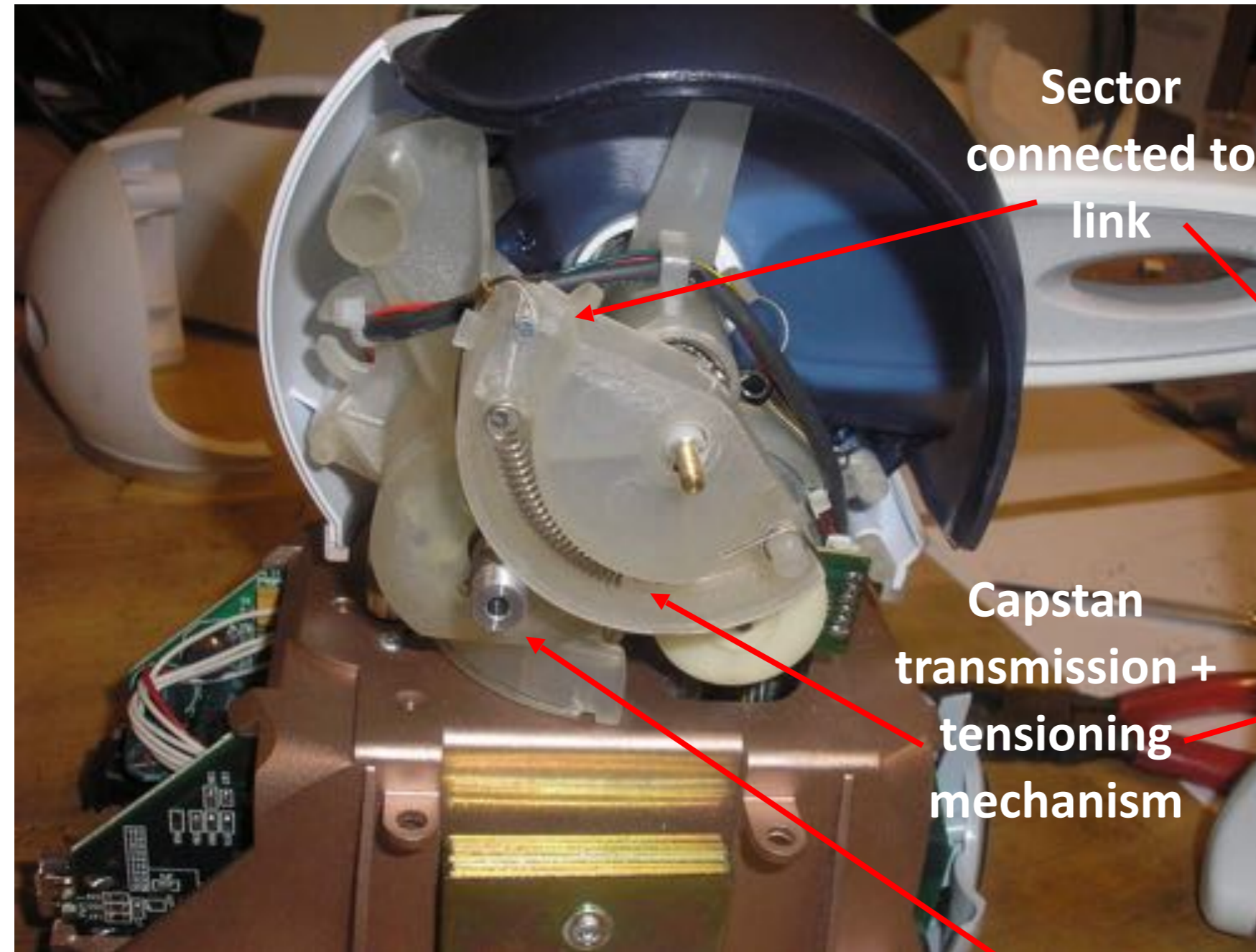
What is inside a Phantom Omni?



Slide courtesy Tania Morimoto

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Omni vs. Hapkit



Sector
connected to
link

Capstan
transmission +
tensioning
mechanism

Motor

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Reminders:

Assignment 3 due today

(no late submissions allowed due to solutions being posted immediately after deadline)

Quiz 1: 60 minutes, taken online any time tomorrow (Friday May 1)

Office Hours/Q&A with Allison until 10 am.

Question queue (see tab with today's date):

<https://tinyurl.com/HapticsAllison>