

Final Project

Material

Original

Another material

Which is better and why

Manufacturing process

Original

Another process

Which is better and why

First Draft of Slides

Nov 22nd

- ▶ Vibratory Feeder (https://youtu.be/_3envoV7l0Q)
- ▶ Part Feeders (<https://youtu.be/ad4EqRxG-n8>)
- ▶ Rotary Part Feeder (<https://youtu.be/2hJ4fDah3ww>)
- ▶ Rotary Part Feeder (<https://youtu.be/4fwfum2RSAY>)
- ▶ Part Orientation
(<https://www.tiktok.com/@4234machinee/video/7156596676797615406>)
- ▶ Hopper Feeder
(<https://www.tiktok.com/@venaticsgear/video/7158082309227318533>)
- ▶ Pneumatics (<https://youtu.be/XIVeitmEAuE>)
- ▶ Pneumatics (<https://youtu.be/nhSQ9DxoBu4>)
- ▶ Assembly Automation (<https://youtu.be/ILb3oS-6NtQ>)
- ▶ 5 Axis Milling
(<https://www.tiktok.com/@machinecutting/video/7144753400058596650>)

Robotics

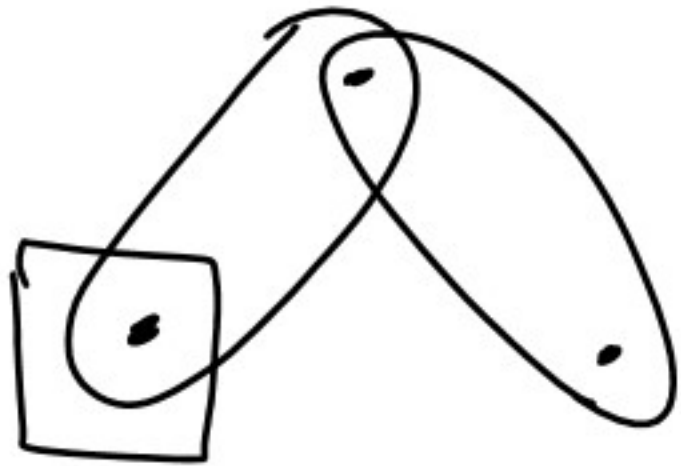
SCARA

Delta

Cartesian Robots

Articulated Robots

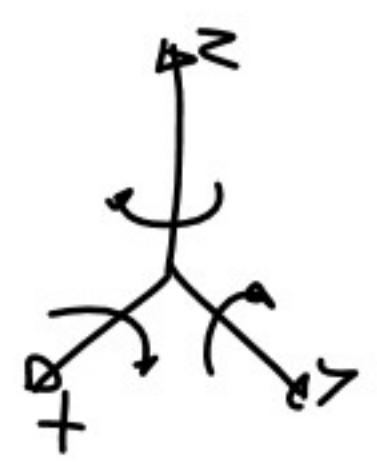
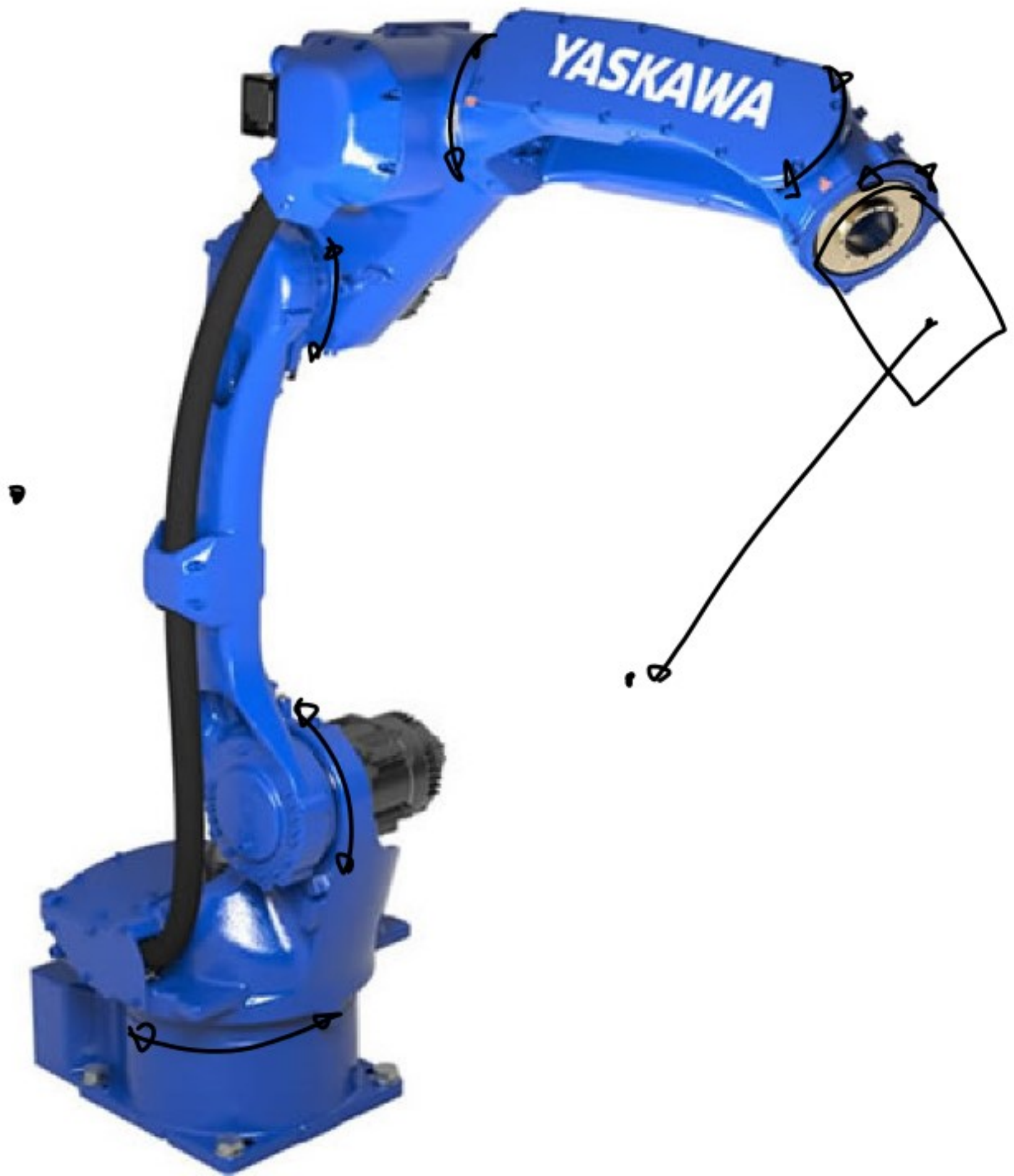
7 DOF

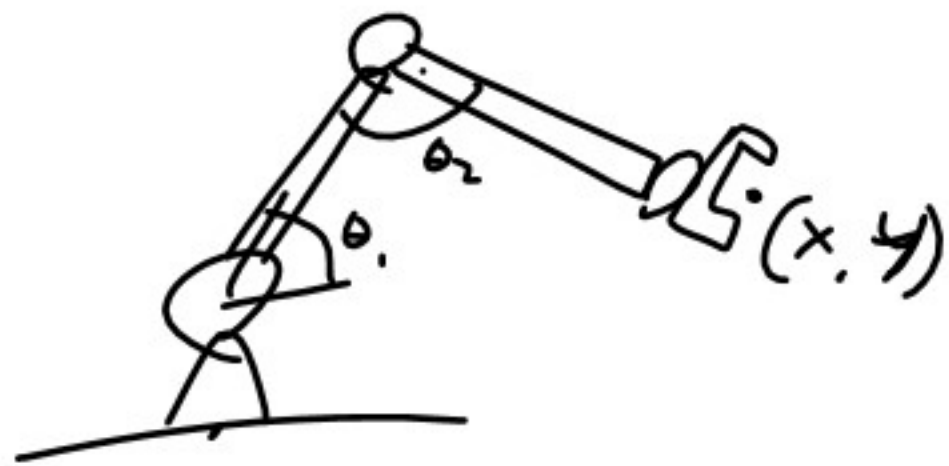




3 DOF

6 DOF



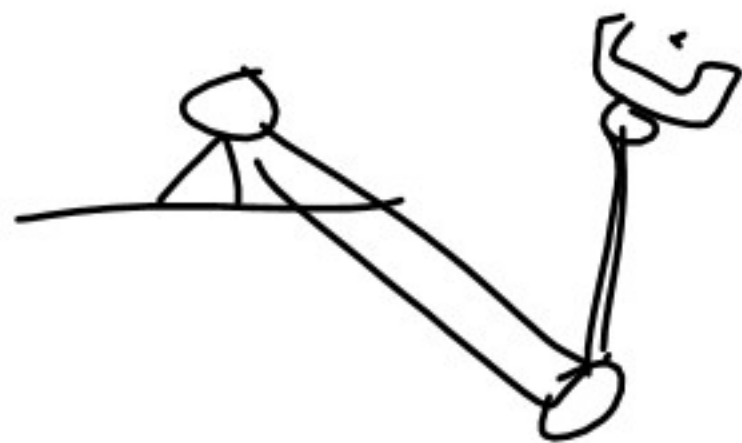


Forward kinematics

$$f(\theta_1, \theta_2) = x, y$$

Inverse kinematics

$$f(x, y) = \theta_1, \theta_2$$



Teach Pendant



0.5 kg
400mm



1000 kg,
3.4 m



Fencing



Area
Scanner

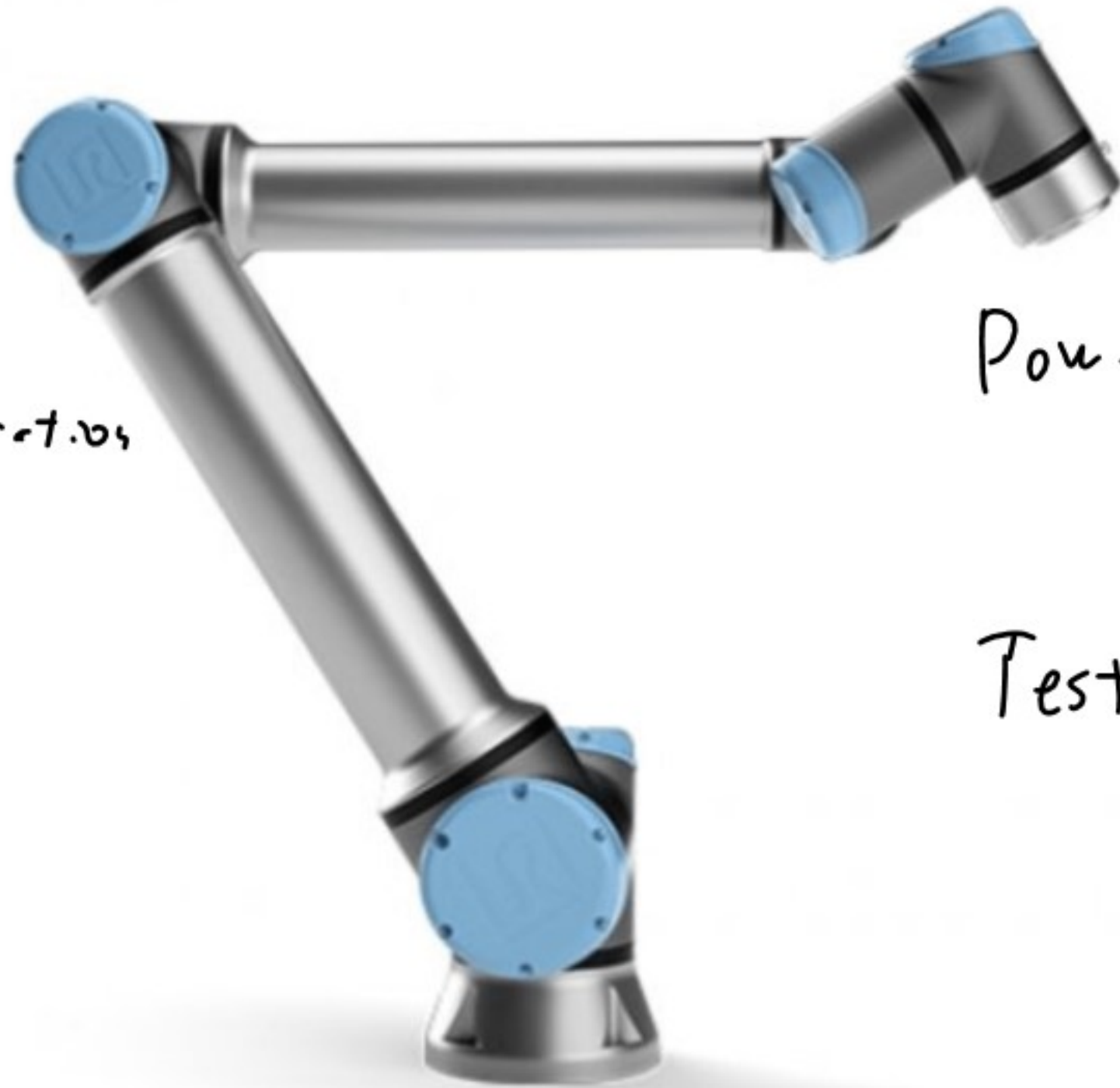


Collaborative Robots

Coexistence

Sequential Collaboration

Cooperation



Power Force Limiting

Testing

- ▶ MotoMini (<https://youtu.be/7zCXxjmAciE>)
- ▶ Kuka Titan (<https://youtu.be/gqZNzUQoSMA>)
- ▶ Assembly Line Robots (https://youtu.be/P7fi4hP_y80)
- ▶ Palletization (<https://youtu.be/oXiIPEDNTF8>)
- ▶ Delta Robots (https://youtu.be/QFZMhsVn_CE)
- ▶ Machine Tending (https://youtu.be/gkm_uMQ8NbM)
- ▶ Cobot (<https://youtu.be/I0VEhX29Bto>)