## Chapter 1 Solutions for Introduction to Robotics

- 1. do the following seven times {
   playerCounter = 1

   do the following four times {
   open gripper
   move to P\_deck
   close gripper
   move to P\_playerCounter
   playerCounter = playerCounter + 1
   } // end four-times loop
  } // end seven-times loop
- Mechanical manipulators: welding robots on automotive assembly lines, wafer-handling robots in semiconductor manufacturing, parallel-platform robots for flight simulators

Fixed automation machines: container filling at bottling plant; automatic car wash; printing, cutting, and folding of newspapers

A rigid body in space has six degrees of freedom. It's free to translate in three directions and to independently rotate about each of those three axes.

4.

$${}^{A}P_{3} = \sin(\pi/6)\begin{bmatrix} 3\\1\\5 \end{bmatrix} + \cos(\pi/3)\begin{bmatrix} 2\\6\\9 \end{bmatrix} = \begin{bmatrix} 2.5\\3.5\\7.0 \end{bmatrix}$$

Below are some possible considerations when using motors at joints

Pros:

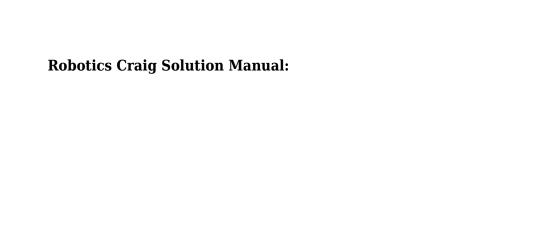
- Simple design
- Low maintenance requirement

Cours:

- More moving mass → larger motors required
- Greater inertia effects

# **Robotics Craig Solution Manual**

**Liying Dong** 



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