

CENG 6533 Robotics

Homework 5 Spring 2015 Due April 1

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Klafter Chapter 4, 5

Research: 30 points

1. Compare various motors as to advantages and disadvantages. Compare ac and dc servomotors and stepper motors and put the results in a table. Consider the case of control methods for the motors.

Research: 40 points

1. Write a brief report on the progress in Robot Hands. You can include NASA's Robonaut and medical applications also. This is tactile sensing. Can the hand distinguish between picking up an egg (without damage) and a steel ball without human intervention?

Search the WEB or other sources and create the table. Give the specifications and cost of the Hands if available.

NOTE: (10 points) List all references - the web URL, books, etc.

Make a comment on the references.

10 Points each

2. Choose a sensor for position, velocity, or acceleration and give the specifications, describe how it works (physical principle), price, availability, etc. (Only end effectors that we can purchase today!)
3. Compare various methods of proximity sensing as to range, accuracy, type of objects detected, etc. (Consider radar, sonar, capacitive, and others such as Hall effect or eddy current sensors.