Introduction to Robotics

Homework 2

1 What are the two categories of rotatory encoders? And by what way to categorize rotatory encoders? (10)

2 Describe the speed measurement principles with incremental rotatory encoders, and compare. (20)

3 What is the characteristic of grating rules? (5)

4: what are the properties of mechanical gyroscope? Explain them. (15)

5: Regarding laser ranger, explain the transit time method (渡越法)？（5）

6: Regarding acoustic ranger, explain the blind spot and crosstalk (盲区与串扰)？ （5）

7 Describe the Bayesian Inference framework for mobile robot localization. (15).

8: Describe the pseudo code of MCL algorithm for mobile robot localization. (15)