Reading Assignment 2

Map Learning and High-Speed Navigation in RHINO by Thrun et al.

Due: Wednesday, February 10, 1999

The following questions are intended to stimulate your understanding of the assigned reading material. Many of them have no "right" and "wrong" answers.

- 1. RHINO learns maps of the environment by combining information from more than one sensor. Why do they do this? Can you think of any problems that combining data from more than one type of sensor might cause? How would you solve these problems?
- 2. The paper describes a map-learning system. Why would we want to learn a map, rather than having it simply supplied by the designer of the system? When would it be more appropriate to use a pre-supplied map, rather than learn one? Could you combine the two approaches in some way?
- 3. Most of the work that RHINO does is to overcome errors in sensory input. Do you think that this is the result of a poor choice of sensors, or is it inherent in *any* device that senses the real world? Can you suggest other types of sensor that might be less prone to errors?
- 4. RHINO has both on-board and off-board computation. Why do you think this is? What would happen if all of the computation had to be done on the robot? Off the robot? Can you think of any potential hazards of doing remote computation for a robot like RHINO?