Robotics II : HW2

2/25/18

1

Due 3/8/18

Chapter 4, problems 4 & 15
Chapter 5, problems 3, 6, & 18 } 50% of grade

Programming assignment

For the 3R planar robot shown, ~~write~~ implement a sampling-base planner that can find collision-free paths to randomly distributed berries (red dots) among randomly distributed branches (circles) to be avoided.

Link lengths : $l_1 = 2$, $l_2 = 1.5$, $l_3 = 1.0$

Branch sizes : radius = 0.5

branches : 10

berries : 20

2/26/18

2

A.) Implement at least two different planners: RDT, PRM, and Randomized Potential Field

B.) Create 10 (more is ok) random berry fields and for each use your planners to pick as many berries as possible. Record total planning time for each planner & total # of berries picked by each planner.

Which planner is better? Why?

C.) The comments in your code must describe the design decisions, ie. which VSM & LPM and why?

D.) You code should be able to draw the map and show successful attainment of q_G.

Better yet, animate picking motions.