Mandatory Exercise 2

Consider the robotic scene **“Kr16WallWorkCell”** at blackboard in which you are asked to develop a program for a robotic pick and place operation. You are supposed to pick up the object using the joint configuration **q_pick** and place the object at the joint configuration **q_place**. You should use RRT-connect to find a collision free path between the two joint configurations. Try to estimate the parameter epsilon to optimize the performance w.r.t. the path length and the search time. Remember that RRT-connect is a probabilistic method, so you need to do some **statistics**. We expect you to hand in your
C++ code, a LUA script for one of the solutions you have found and a small report about how you tested your program and which results you achieved.

Programs and reports must be sent by email to Guðmundur gunu@mmmi.sdu.dk and Henrik hgp@mmmi.sdu.dk no later than Monday 23th October 11.59am. Remember to zip all files, as the mail system can have difficulties dealing with the files directly. You will solve this exercise in the groups formed earlier this semester. The email text (not attachment) must contain full name and date of birth for ALL people in the group.
Please write the text “RobMand2” in the subject field.

Some further details:

- q_pick = (-3.142,-0.827,-3.002,-3.143,0.099,-1.573) [rad]
- q_place = (1.571,0.006,0.030,0.153,0.762,4.490) [rad]
- The exercise must be solved using C++-project which includes RobWork.
- Remember to grasp the bottle both in your C++ code and in your LUA script.
- Look at the “pathplanner.cpp”-file to see how to make a RRT-planner in RW.
- See the “RoVi1 – Presentation – Mandatory exercise 2”.
- Use the workcell “Kr16WallWorkCell”.