CS686

Programming Assignment #2
Due Apr.-11 (Tue) (before 11:59pm)

Objective: To give hands-on experience in widely used robot simulator 'V-REP' (Virtual Robot Experiment Platform)

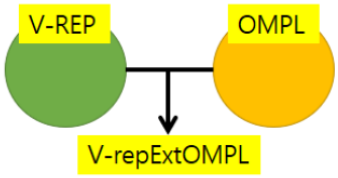
Developing environment: Just for this PA2, then Windows is fine, but if you want to modify the planner to your own planner in v-rep, then Mac OSX or Linux OS is recommended.

Requirements:

1) Install V-REP edu (http://www.coppeliarobotics.com/)
2) Open one of the scenes from following scenes
    a. 3DoFHolonomicPathPlanning
    b. 6DoFHolonomicPathPlanning
    c. motionPlanningDemo1
3) Move the goal point of the robot in the scene and run motion planning simulation
    a. Move goal position with icons buttons that are on the toolbar (You should reset the goal position that is different from default goal position)
    b. In the robot's script ( ), you can find simulation setting in Lua language. If you want to change planner of the simulator, then you should modify the script. The simulator uses OMPL functions for simulation (OMPL plugin API information: http://www.coppeliarobotics.com/helpFiles/en/omplApi.htm)
4) Capture the simulation scene with drawn-paths that are generated.
    a. In the '3DoFHolonomicPathPlanning', the calculated path is drawn automatically, but other scenes are not. If you want to use other scenes, then you have to implement it (hint: see the '3DoFHolonomicPathPlanning's visualizePath function in the script)

Additional information:

1) V-REP can call OMPL functions through Lua callbacks. So later on in the final project, if you want to use your own planner in V-REP, you should implement it on OMPL first.
    a. For connecting two systems, you should use v-repExtOMPL (https://github.com/fferri/v_repStubsGen)
    b. For Mac OSX: v-repExtOMPL.dylib, and for Linux OS: v-repExtOMPL.so



Deliveries:

1) A report should contain below
    a. Screenshot of your robot path
    b. How you modify the goal position from the default goal position.
2) Send your work (report document) to TA, (soo.kim813@gmail.com, Soomin Kim)

Policies:

1) Everyone must turn in their own assignment. You can collaborate with others, but any work that you turn in should be your own.
2) **Late submission will not be accepted**.