Homework 2 Writeup

Instructions to run the code demo:

#1 Copy the repo to your workspace, e.g., catkin_ws/src
#2 Open a new terminal and run
roslaunch homework2 mcl.launch
#3 Use turtlebot_teleop keyboard_teleop.launch, to drive the robot around

Results of the code:

The code implements Monte Carlo Localization. It uses the most basic version of it. The number of particles used is 30, and the number of laser scans simulated is 32.
In the RVIZ visualization, we see the robot at it's "most probable" position, along with it's sub-sampled laser scan, and original laser scan. Given some time, the sub-sampled laser scan and the original laser scan will try to overlap.
One thing to note is that the code is not optimized. The odometry updates are fairly quick; however the sensor updates take longer computation time. Thus, you will see best results when the robot is driven around with slow velocities.