PHYSICS 113 – Recitation Assignment 9

Name

Recitation Assignment # 9
November 29, 2006

Your final recitation assignment is very simple, but as with the robot assignment, requires a bit of creativity.

Essentially, I would like you to adapt one of the previous assignments (*excluding* the robot) and add new physics, make the system more complicated, or simply add new user interactivity. Particularly clever programs will potentially receive more than 20/20.

Some possibilities are:

- Adapt your gravitational force codes (2 or 3 body) to have a more complicated force than simply inverse square. Perhaps make it repulsive at close distances (not unlike the strong force). Or perhaps make it scale like $r^{-1.9}$.

  To really create a good program, though, you might want to experiment. For example, can you come up with a force law which creates closed orbits?

- Perhaps you want to adjust assignment #3 and create a two-dimensional solid. Is such a system stable? How will you adjust your code?

- You might adjust your ideal gas in assignment # 5 to make it molecules rather than atoms. The particles can have rotation and vibration as well as translational motion!

- Maybe you want to turn your projectile motion code into a basketball game of sorts.

Of course, you don't need to do any of these. The goals here are to be creative, to add **physics** to the program, and, yes, for it to look cool as well.

Good luck!