Draft Proposal 1

Steven Oetjen

Monday, Sept. 11, 2006

This project will be a physics simulation that will both make calculations and display them graphically. The purpose will be to aid in the understanding of the physical world. When completed, it will be a user interface where a scenario can be created by placing objects, and values can be inputted. When the simulation begins, the objects will obey certain laws of physics.

The examples I have looked at from past years are A. Herbst's "Optimization of Finite-Element Physical Simulations," and T. Loffredo's "Development of a Physics Engine" in physics modeling.

I plan to be able to write this whole program in java. I can test it by a series of standard set-ups that will be relatively simple to calulate by hand, and I will test the numerical and graphical results separately. I can segment it into parts such as the user interface, the scenario set-up, the physics laws and quantities, and the graphics.

I expect to obtain from this project a helpful and fairly accurate simulation in at least 2 dimensions. It could be presented with a sample of scenarios acted out. I imagine that it will perform with reasonable speed and accuracy.