Assignment 2
CMSC 427, Fall 2001

Due: 11:00am Tuesday, October 9, 2001

This assignment builds upon Assignment 1. In this assignment the goal is to fire the gun at the plane and have it disintegrate and fade away. Detailed instructions for submitting the assignments are available at http://www.cs.umd.edu/class/fall2001/cmsc427/submit.html

As for assignment 1, please make sure that your final program works on machines in one of the following labs: Microsoft/WAM Lab (AVV 3452), CSD Junkfood Lab (AVV 3457), or UMD WAM account.

(a) Make the gun rotate by using the left and right arrow keys of the keyboard. The gun should rotate by a fixed rotation amount for each key press.

(b) Implement code that will allow you to fire missiles at the plane from the gun. A missile should fly in the direction that the gun is pointing when the user presses the key ’s’ or ’S’. You should allow the capability to fire multiple missiles from the gun. You do not need to implement the physically-correct motion of the missile (which is a parabola). Having the missile simply fly in a straight line is sufficient.

(c) Implement collision detection of the plane with the missile. This is a 2D problem for now. To simplify your computations, first compute the bounding extents of the plane. Then detect the intersection of the missile with this bounding rectangle.

(d) When a collision occurs the plane should fade out and the missile should disappear. Also implement a motion-blur of the missile so that it appears as a flying streak. To implement missile’s motion blur as well as the plane fading out, you can use alpha-blending feature of OpenGL.

Extra Credit: When the missile hits the plane, have the polygons of the plane fly apart simulating an explosion. As the plane polygons are moving apart they should fade out.