CSC 415 Fireworks Simulation Group Project Pre-Proposal

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1. FIREWORKS SIMULATION CONCEPT

In this document we propose to write and present a user application that will simulate launching fireworks. The user will be able to specify multiple launch parameters in order to modify the physically realistic launch trajectory, shell explosion, and fragment dispersion which will be simulated for the user by our program. The method by which the firework fragments will be guided but not defined by user input and as such each firework will be unique in its own right. The program will be able to launch multiple fireworks, and will report pertinent data to the user, along with allowing the user some control over the launch parameters, and the viewing position inside of the simulated scene.

AWKWARD

TO BE CHANGED. ALLOW THE

2. DELIVERABLES

The delivery of this project will be two-fold. Firsty, an application with all of the features proposed will be available in a format planned below. Also, a presentation will be given by the group members to demonstrate and explain the capabilities of the program.

2.1 Application

SET IN ITALICS

The application will be written for OpenGL using C/C++ and will consist of three windows giving and receiving different information to and from the user. These will consist of a simulation window, a data window, and a control window, organized in a format displayed in Figure 1.

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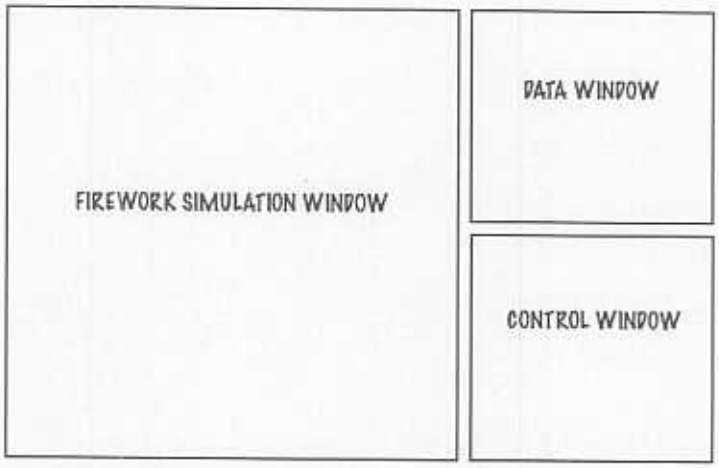
2.1.1 *Simulation Window.* The simulation window will be the window in which the firework and scene will be rendered. The scene will contain objects such as a launch pad or cannon as well as trees and foliage. The user will be able to change the viewing position from within this window by the use of keyboard, mouse, and button interaction or any combination of the three.

← ? WHAT THINGS WILL YOU DO HERE TO ENHANCE "REALISM"

2.1.2 *Data Window.* The data window will deliver pertinent physical information to the user by either textual readout or graph. The data delivered in this window is not yet determined.

WILL IT BE IN THE PROPOSAL?

2.1.3 *Control Window.* The control window will contain an interface for the user to select program options while the program is running. Options offered to the user through this window can allow the selection of shell and fragment color, adjustment of the launch angles, and various other options to be determined.



YOUR "CODE CHUNKS" SHOULD BE BASED ON FUNCTIONALITY -- "THESE FEATURES WILL WORK BY THESE DATES"

Fig. 1. Application window layout.

2.2 Presentation

Along with the documentation described later in this paper, the group will present the final program and summarize its design and functionality. The presentation will include the use of the program as well and a YouTube style video of a fireworks finale created using our application.

↖ SET IN ITALICS

THIS NEEDS MUCH MORE DETAIL -- SPECIFICS FOR EACH PERSON NEED TO BE DEFINED.

3. ALLOCATION OF TASKS AND SUBMISSION DATES

The group will work together to create a UML plan for our application. The application will be planned down to the names of functions and variables. This will be our first periodic submission and the date for the submission is to be determined. Work will be divided by function and each individual code chunk will be submitted on the second and third due dates. The second due date will be to check for code completion to ensure that good progress is being made, approximately half of the individuals code chunk will be expected. Once all of the code chunks have been submitted we will again work together to build the program framework and compile the code snippets into a working program, the working program will be our fourth submission. Between the time of the fourth submission and the final presentation due date we will work together to debug any remaining issues and to compile the API and group paper described below.

HOW DO YOU ANTICIPATE USING THE WIKI AND SVN WILL EACH PERSON HAVE RESPONSIBILITIES FOR MAINTAINING SECTIONS OF THE WIKI?

DUE DATES NEED TO ALSO BE CLEARLY IDENTIFIED.

4. DOCUMENTATION

There will be three major sources of documentation for this project. The first will be a UML chart of the program layout which will describe the entire program down to a function level. The second form of documentation will be a program API, and the third will be a group paper that will portray the methods of the program as well as the physical system behind it.

EACH "DELIVERABLE DATE" SHOULD HAVE SOME WORKING CODE TO "PRESENT" THAT REPRESENTS YOUR WORK AS A GROUP