LCD Game Project

The objective of this project is to program the Arduino as a simple game. It will involve interfacing a 4 X 20 LCD, then using the button and knob to control a game.

The program will consist of at least two games. The first game that needs to be implemented consists of a stream of asteroids coming across the screen and the player needs to dodge them using the encoder knob. A demonstration of the game is considered more effective than a written description. Thus a video has been posted to "Files->Final Project" and a demonstration will be done in class.

The game that was shown in the video is just a base line for the project. A needed improvement in the game would be to have it speed up as time goes by. Note that in lab 10 you will have done some measurement that indicate how much time it takes to transfer data to the display, thus setting the top speed of the system. Also, the full system needs to implement at least two games.

The second game can be one of your own design, but is should use the encoder. An example of another type of game could be something like the reverse of the first game, where the objective is to collect the asteroids. This game might be based on the number collected over a set time interval. If so the following would be recommended. First, the game runs for a given amount of time, thus some kind of a time readout should be on the display, basically replacing the number of lives. Second, the number of asteroids may need to be reduced or at least in some way modified.

Project Check off and Design

1) Button Press used to a) reset game (short press), or b) switch to another game (long press) (3)
2) Encoder tracking consistent. (2)
3) At least two games implemented. (3)
4) Number of lives, or time shown and end detected. (2)
5) Game speeds up over time. (2)
6) Presentation skills. (3)