CS 152A Final Lab Proposal

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Overview

For our project, we will design a single player game of breakout clone with single ball. Buttons will be used to control the movement of the paddle in four directions. A switch will be used to alternate between the game [game mode] or pause the game [pause mode]. The game board will be displayed via the VGA module.

Game mode

Player can use buttons to control the paddle in four directions, upward, downward, left, and right. Single click will move the paddle one unit forward, and pressing longer can move multiple units forward. Current score represents how many blocks the user has cleared, and will be shown on the 7-segment display.

The game will have 5 levels in total, and each level the player has three chances. Pressing any of the four direction buttons will start the game. The ball will be faster as level goes up, and the score each block eliminated will also increase. If the player clear all the blocks in a level, the game will advance to the next level. If the player missed all three chances, the game will start from level 1.

Pause mode

In the pause mode, the game will be paused, and player can reset the game by pressing the reset button and start from level 1.

Grading Rubric

Paddle movement (20%) - When the player press the direction buttons, the paddle will be moved accordingly without going over the boundary.

Ball movement (20%) - The ball will bounce whenever it hit the paddle, the walls, or the blocks. The bouncing direction and different speed in each level will be in this module.

Block functionality (15%) - Blocks creation before the start of the game, and block elimination each time the ball hit the block.

Pause functionality (10%) - When the switch is on, all movement will be paused. If the reset button is pressed in this mode, the game will be reseted.

Reset functionality (5%) - Restart the game from the beginning when play hit reset button in pause mode.

VGA display (25%) - The game board will be shown on the monitor via VGA. Player is expected to interact with the game through buttons and switches to control the game displayed.

Score display (5%) - Display current score on the 7-segment display.