

Color LED Matrix Game

ECE 153B Final Project Proposal

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OVERVIEW

We propose to create a one player game in which a small colored circle will drop from the top of a 16x32 LED display and the user will have buttons to move this dot left or right to try and match this dot with other dots of the same color in order to clear them. A score will be kept as well as how long that run of the game has been played.

PERIPHERALS

1. 16 x 32 LED display
2. 2-3 buttons
3. Speaker or Piezo-speaker

SOFTWARE DESIGN

We will need to create a 16x32 matrix and we will need to randomize which color is chosen to drop next from the top. We will use timers to update the game state and use button interrupts to move the LED left or right. We will have a way to update the matrix for how the game should update continuously. In addition, there will be a way to check whether a group of dots should be cleared, which will be based on same color groups of 3. Some code will also be included to play simple sounds corresponding to what is occurring in the game.

GOALS

1. Increasing difficulty level
2. Game sounds
3. Clear groups of same colored dots
4. Pausing game, updating game
5. Game Over screen
6. Score and timer for how long game has been played

GROUP RESPONSIBILITIES

Victoria will make the sounds corresponding to what is happening in the game work and the color randomization. Victoria will also create the basic code for updating the state of the game or a set number of cleared rows that triggers an increase in the difficulty level of the game. Andrew will work on displaying the LED matrix and handling the user input button interrupts. Andrew will also create interrupts and timers that will handle the state changes of the game and create the basic structure of the code and how the game will run.