Lab 4 Proposal

● Graded

Group

EMANUEL ZAVALZA
KAI WANG
View or edit group

Total Points

100 / 100 pts

Question 1

Proposal

100 / 100 pts

✔ **– 0 pts** NO NEED TO CHANGE

– 1 pt NEED TO CHANGE

Nice idea! Grading-wise there's no need to add anything to it, but feel free to add more creativity to the actual implementations because part of your grade will be based on peer evaluations on creativity and difficulty. For example, you may want to consider connecting an external component or making some funky behaviors if a certain threshold is reached, but it's totally okay to not have them.

No questions assigned to the following page.

CS152A Final lab proposal

Kai Wang, ID: 606271662
Emanuel Zavalza, ID: 105758534

Overview

We will be creating a single player Whack-A-Mole game. Users will be tasked with whacking as many moles as fast they can under a minute. During the game, players will see a countdown and a count of how many moles they have whacked. At the end of the game, the player will be able to see how many points they got and will be able to restart the game to play again. Once players have mastered the easy level, they will be able to increase the difficulty level and compete for the most points.

Game Mode

Upon turning on the board, the player will be motioned to push a button to start the game. Upon pressing the start button, a 3 second countdown will begin that will say go at the end. At this point, the player will whack the moles as fast as they can under a minute. The LED row will randomly turn on a random amount of LEDs, that will serve as the indicators of where the moles have appeared. If the player flips the correct switch underneath the LED, the player will be awarded a point. If the player flips a switch that does not have a lit LED above it, the player's score will be decremented. During the game, the seven segment display will show the minute countdown with the left two digits and the current score with the right two digits. After the player has whacked all of the moles, the board will reset with new moles. If at any point during the game, the player wants to restart the game, the player can press a button to reset it. At the end of the minute, the player will be able to see their score and press the start button to begin the game again.

Grading Rubric

Functions:

1. LED indicators - to show player which switches to flip and switch status during games for points
2. Switches - for players to interact with during game rounds to earn points
    a. remove points if the incorrect switch is flipped
3. Reset round - player starts over the current round, timer starts again
4. Reset high score - reset high score to zero and also reset round, go back to starting configuration

No questions assigned to the following page.

5. Status Display - show instructions initially, then for subsequent rounds after a game is played display high score and # of games played so far
6. Timer - once game started, count down to game start and indicate when the game ends
7. Score counter - during game displays the number of points earned in real time as the player flips switches

Design Milestones:

1. LED Functionality (15%) - Display “moles” to be whacked by turning on the LED for the switch to be hit. Turns off the LED when the mole is whacked
2. Switch Functionality (15%) - Player “whacks moles” by hitting the switch. Whacking a mole results in an increase in score and the LED turning off. If player whacks a nonexistent mole, the score decreases instead
3. Reset Round (10%) - Start or restart a game round, player restarts game but retains high score and game count.
4. Reset All (10%) - round is regenerated, player high score and game count is restarted
5. Game Display (20%) - During game, counts down the number of seconds remaining and indicates game start / end. Displays current number of points in real time, decrement and increment as necessary
6. Status Display (20%) - Before any games, display instructions. After any games have concluded, display a high score. Prompt player to begin game

Stretch goals:

- Difficulty setting
- Idle display of LEDs