Cyclone Game
ECE153B Project Proposal

by Vincent Wang, Veena Chandran, Karthik Kribakaran

Overview

We propose to write a single player game for the LPC1115 Microprocessor (modeled after the popular arcade game 'Cyclone'). The game involves the LEDs lighting up sequentially in a circular pattern, and the objective is to press the push-button precisely when the light passes a certain point on the circle. Our version of the game will involve 5 rounds, where the speed at which the LEDs light up increases each round. A picture of the arcade game 'Cyclone' is shown below.

Peripherals

- LEDs (on project board)
- 7-segment display (on project board)
- Buzzer (on project board)

Software Design

The game will operate on an infinite loop (loop A), only starting over when the player has either lost or won the game and pressed a button to continue. In the loop, there will be several sections:

1. Button, LED, 7-segment display initialization
2. Actual game loop (loop B)
    a. Start the actual game (speed determined from the current round number)
    b. Wait for button inputs
    c. Restart loop A and reset the round number if the player lost. Otherwise, increment the round number and restart loop B
3. Victory phase - handles audio and visual to inform the player that they have completed all 5 rounds (buzzer sounds, LEDs) and have a button handle input for when the player is ready to play again.

Goals

1. 5 rounds- the speed at which the LEDs light up in a circle increases with each round
2. If player misses, buzzer sounds. If player wins, the 7-segment display increments to show next round number
3. 3 misses indicates GAME OVER (LEDs flash, buzzer sounds)
4. Upon victory (all 5 rounds), RGB LED cycles through colors, game resets

Group Responsibilities

Karthik will be responsible for controlling the LED circle and speeding it up as levels increase. Veena will handle the buzzer sounds and the 7-segment display. Vincent will handle the RGB LED and the push-button input. Responsibilities will be redistributed and/or combined as needed.