# 8X8 LED Board Multi-Peripheral Games
# 153B Final Project Proposal
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## Overview
We propose to write a one player game for the LPC Microcontroller using an 8 by 8 LED matrix and an accelerometer. This game will be a simple Maze game where the goal is to navigate a block through stationary lines that represent a maze. The accelerometer will be used as an input to control the block. An alternative we are looking at is Fall Down where the goal is to navigate your block left and right into a hole in the line your block is currently above, there will be an endless loop generating these lines that move upwards with either 1,2, or 3 holes. This game will end once the line reaches the top of the LED board and you were unable to move into a lower level through a hole.  Both these games involve very similar movements and design features which will may make it easy to work on them side by side and maybe even have an LED push button on the board to have the player choose between the two. We will use the push buttons on the board as a default mode to play initially, but the ultimate goal is to be able to play the game using an accelerometer. We can format our code so you can play using the Joystick also located on the board. Things we may play wiith is the led lights on the board to keep track of times the maze has been completed or the levels(by 5 or  10) you have passed

## Peripherals
1. Generic 8 by 8 LED Matrix
2. Push Buttons(located on LPC Board)
3. Accelerometer(will obtain from ECE shop)
4. LED's(located on LPC Board)
6. Accelerometer(use serial interface)

## Software Design
Game will indicate it is ready to be played by forming an R and two options L and R  each in half of the e matrix to indicate you must choose one of two games by either pushing the left or right push button on the board. After the user has indicated his option code will be redirect user to chosen game, each contained in its own function that will run until your block is killed  or the ball gets past you 3 times. Time permitting, we can incorporate the buzzer to make a sound every you lose in fall down, as well as when you are unable to move through the platform unable to move through the platforms .  For simplicity sake each game will have \1. For sFall Down the program will Display a W every time N platforms are passed (N to be determined) and for Breakout it will display a W once the N-height pyramid of blocks is destroyed(N to be determined). This softawre design is more of an algorithm than the actualt design, we will deal with things that come up as theY come uP
//hints from Caio BUILD SCREEN BUF representing an 8 BY 8 ARRAY IN MEMOMRY YOU DRAW TOO,

// A SECOND INTERRUPT CONSTANTLY UPDATE SCREEN
//This DECOUPLE SCREEN FROM GAME LOGIC

**Goals**
1. Fully functioning sluder block that at least responds to accelerometer correctly
2. 1 Fully functioning 8 by 8 led matrix game either a maze or Fall Down
3. Accelerometer fully functioning as input to the game
4. 2nd game working
5. Experiment with joystick as input
6. Fully Functioning Multi-Peripheral game

**Group Responsibilities**

Ricardo will be in charge of locating peripherals(only an 8 by LED matrix and an accelerometer in this case and whatever else we require along the way). Karli will use her previous experience with game development to help debug the code written. The rest of the group will be working simultaneously on the rest of the design and to make sure everything functions as intended. We don't expect any major drawbacks in implementing something that has been around for decades but if we do, there's plenty of places online to get help or our very own TA's have proved to bE geniuses in this subject and ought to be more than happy to help us with a simple game.