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CS 120B Spring 2013

Section 023

**The Programmer’s Minesweeper**

* **Description**

I intend to implement my version of minesweeper for my final CS 120B project. I will use most of the basic ideas of the game for my implementation; however I will have to change some specific areas due to limitations. The user will have to select a location in a LED matrix, and if the location is a bomb the player losses. If the player is able to clear all the cells without selecting a bomb, then the player wins.

* **Rules**

The rules of the game are very basic, and default as that of the original version of the game. Using an 8x8 LED matrix I will output the playing field. The user will then use the key pad to move around the playing field a blinking light will specify the current location in the field. Using a different button the user will select a location.

Once a location is selected the cell will either light up green, red, or blue. The red color will symbolize a bomb, in this scenario the user will have lost. The green color means the cell does not have a bomb so the user can move on to select another cell. A blue cell will represent a cell without a bomb, however it means that there is a bomb in an adjacent cell either up down left right or diagonally, count of bomb will be outputted to the 7-segment display.

* **Features**

1. Four buttons that move the location on the field.
2. One button to select a cell.
3. Uses LED matrix to represent the game field.
4. Uses speaker for an incorrect selection.
5. Uses 7-segment to display the number of bomb surrounding a blue cell.
6. Uses 3 different colors to represent a bomb, surrounding bomb, or no bomb cell.
7. Uses shift registers to connect multiple pins using minimum number of pins.
8. Uses the LED matrix to show end of game.
9. Uses the LED character screen to show a winning or losing state.
10. One button to start the game.
11. One button to reset the game.
12. A button to select a new game, or restart the same game.

* **Project Plan**

C Grade Plan

In order to get a C grade I plan on correctly setting up the LED matrix and the playing field. I also intend in having the basic for of the game running. This consists of having the field and a set of bomb, without a third color.

B Grade Plan

In order to get a B grade I plan on adding the third color to represent and adjacent cell, as well as the number representation on the 7-Segment display. I also plan on adding the end game representation.

A Grade Plan

In order to get an A grade I plan on Implementing a loss and win state in both the LED matrix and in the LED character display. I also plan on implementing an internal clock to keep track of the time needed to win the game the best time will be kept for future records. I also plan on having two different reset button one which will give a new game pattern and the other will reset the same pattern.