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ECE 153A

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Project Proposal: LED GO Game

Abstract:

My goal is to implement a user interface and display for the Classic board game Go. Players will take turns using a wii nunchuk to traverse the playing grid and placing stones until both players decide to pass their turns, at which point the game will end. The board will be represented by an 8x8 multicolor LED matrix while each turn a display on the terminal will keep track of the active player and each player's respective score estimates.

Peripherals:
- Wii Nunckuk
- 8x8 RGB LED

Serial Interface Protocols:
- I^2C
- UART

Software:

Game logic will be performed in C while all communication between devices will be done with UART and I2C protocols. The game will be stored as a 2D array into which values are placed when a player moves, a recursive algorithm is then run on each adjacent stone to determine if it is captured. The Nunchuk will operate via interrupts using I2C for joystick presses which will change the index of the pointer and the z and c buttons will be used to indicate a select move or a pass turn order.

Member Responsibilities:

I will be responsible for the entire project.

Link to site:

https://sites.google.com/niallmurphy.net/portable-goban-project/home

Block Diagram:

```
┌────────────┐                    ┌──────────────────┐
│            │                    │                  │
│ Wii        │                    │  PC Terminal     │
│ Nunchuk    │      UART          │                  │
│            │   ┌─────────┐──────│                  │
│         I2C│───│Discovery│      └──────────────────┘
└────────────┘   │ Board   │
                 │         │      ┌──────────────────┐
                 │      I2C│──────│                  │
                 │         │      │  LED Matrix      │
                 └─────────┘      │                  │
                                  └──────────────────┘
```

Wii Nunchuk — I2C — **Discovery Board** — UART — **PC Terminal**

Discovery Board — I2C — **LED Matrix**