

ECE153B PROJECT PROPOSAL

Pac-Man - Troy Lee and Simon Kim

OVERVIEW:

Our proposal is to construct a pac-man type game. Basically, a user will be controlling a single dot on the LED matrix. This dot will be moved from LED to LED by use of a nunchuk. At the start of the game, dots will be randomly distributed throughout the board and it is up to the user to “collect” all the dots. Dots are “collected,” by moving the user dot onto each of the dot locations. These dots will disappear once “collected.” Once the dots are all collected, an end screen will be displayed (something like a smiley face for example).

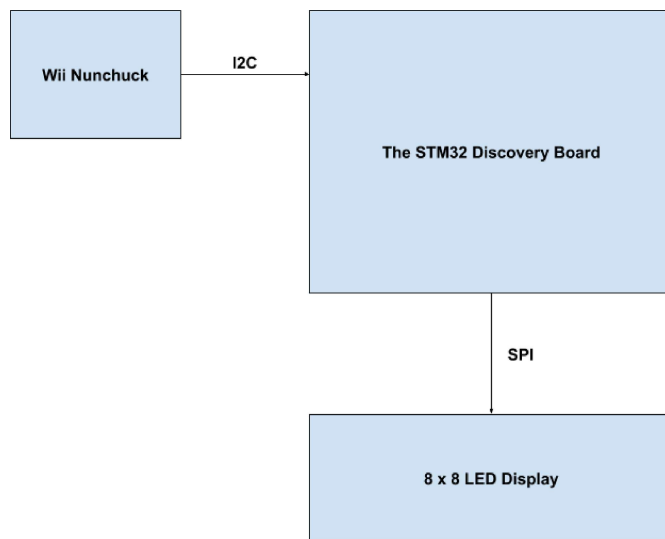
PERIPHERALS:

- 8x8 LED Matrix
- Wii Nunchuk

PROTOCOLS:

- SPI (Matrix)
- I2C (Nunchuk)

BLOCK DIAGRAM:



SOFTWARE STRUCTURE:

- The 8x8 LED Matrix will be connected via SPI.
- The Wii Nunchuk will be connected via I2C.

- The inputs of the nunchuk will be read in four directions (up, down, left, and right). These will be used to determine the next location of the “user dot” and each input will trigger an interrupt at the GPIO pin.
- The nunchuk inputs should be read on the 8x8 LED matrix by shifting the “brightened” LED to the specified direction.
- Once the nunchuk input is displayed on the 8x8 LED matrix, the program will check whether there is a dot at the new location already or not; if there exists a dot, the “user dot” will “collect” that dot and once the “user dot” moves out of that location, the “collected” dot will not be shown anymore.

RESPONSIBILITIES:

- Responsibilities will generally be divided up equally (with alternating turns)
- Troy will work on checking the nunchuk functionality
- Simon will work on operating the LED 8x8 matrix
- Both will work on the pseudo Pac-Man code (pair programming methodology)

WEBSITE:

<https://sites.google.com/view/ece153b-project-tl-sm/home>