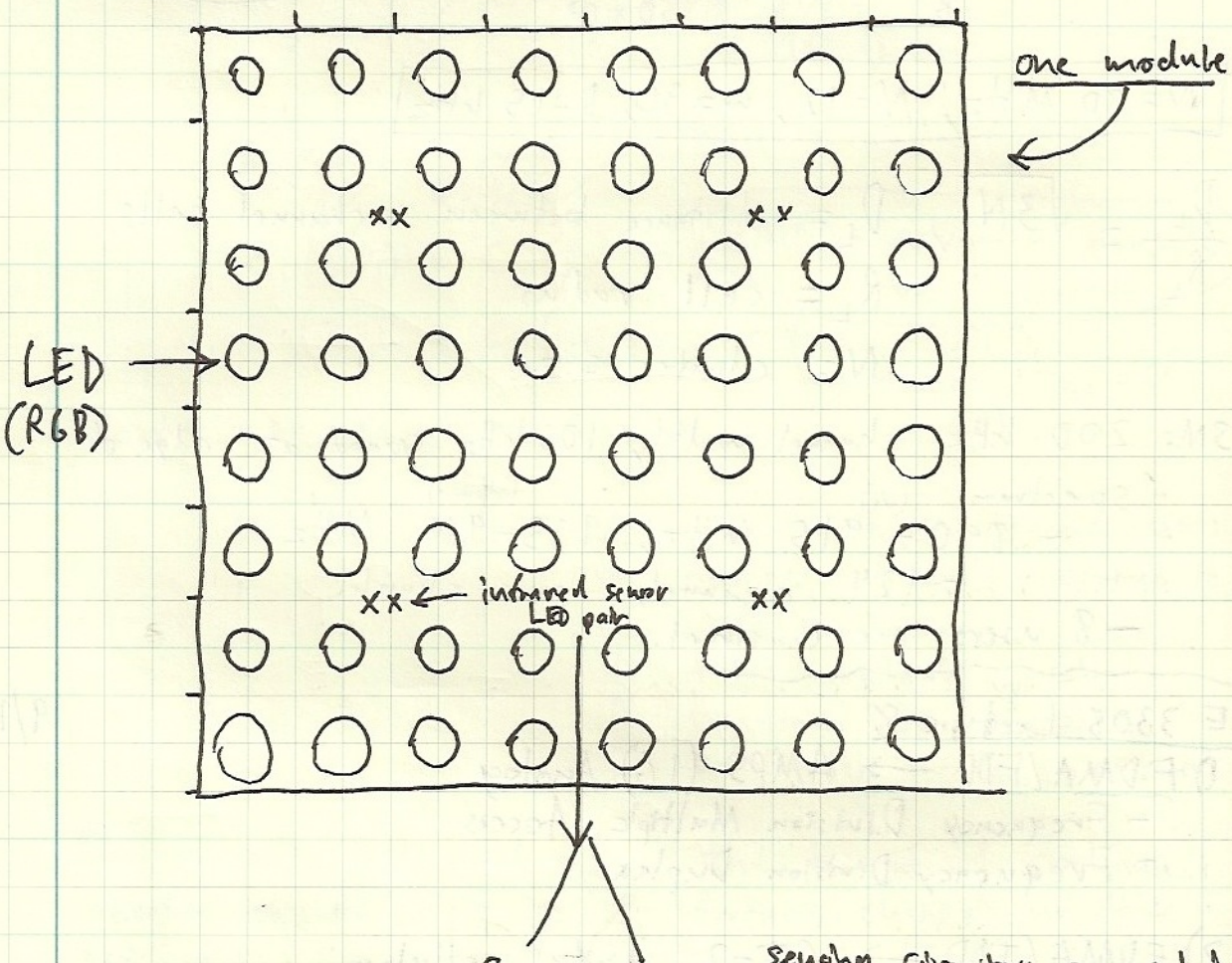
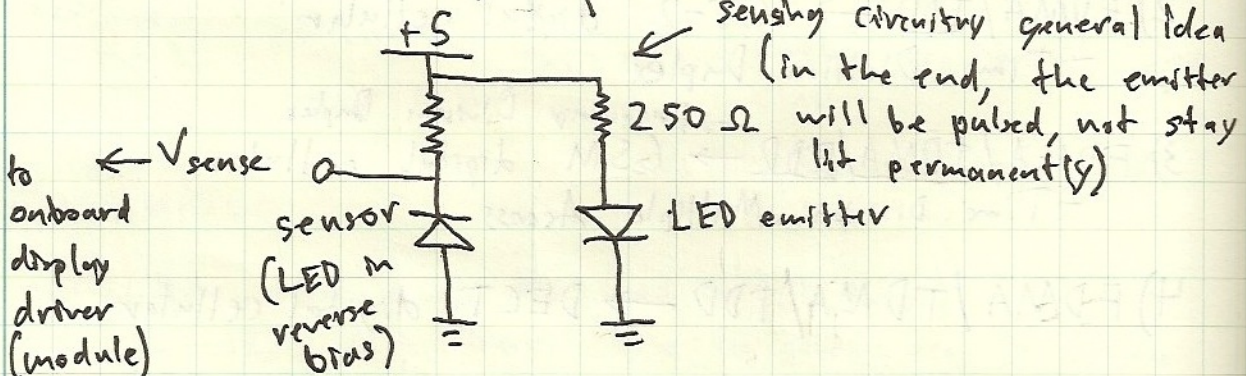
DSSS - Direct Sequence Spread Spectrum

9/16/2011 MQP Group Meeting - AK113

LED Display Ideas:

- 4 sets of sensing LEDs per panel
  - each set equidistant from center and one corner of the panel (may be closer to edges):





A/D

~~Module~~ Module Control Structure: (time 3 colors)

- 8 rows x 8 columns (in this example) - OUTPUTS (light LEDs)
- 4 onboard inputs (top left, top right, bottom left, bottom right infrared LEDs)
- SPI input from main CPU

witnessed 9/16 4 pm Ruben Arnold

- control infrared LEDs (1 output, varying PWM)
- 2 digital inputs to control whether or not to listen to SPI.

↓↓

All controlled by 2 PIC microcontrollers

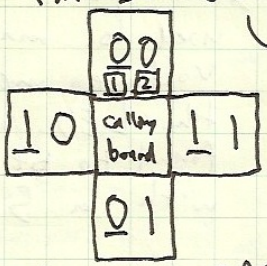
-OR-

~~One PIC microcontroller to receive data to display on its module PLUS one RGB 8×24 LED driver~~
~~- LM3407 = constant current driver (too much current for what~~

First PIC microcontroller:
- 2 digital inputs (interrupt processing, listen for input from main)
- 1 SPI input from main
- 1 output to control infrared LEDs (transmitter)
- 4 inputs for LED sensors
- ~~4 outputs to surrounding adjacent boards (select for~~
- 2 outputs to select an adjacent board for ~~communication~~ communication
- 4 inputs from surrounding adjacent boards
- ~~If I should~~
- 1 SPI out to/from surrounding boards to receive/send data

connects to other modules with AND/OR give the ready signal
- ~~OR~~
- ~~use separate output to the ready signal~~
- use separate pin to call that board (say hello)

~~Pin~~ Pin 1: 0 = top, bottom, 1 = left right
Pin 2: 0 = top OR left, 1 = bottom OR right



→ controls SPI for inter-module communication AND (controls what adjacent module these pins are connected to)

Ideas: SPI to main CPU from modules for interactive GAMING
- ALSO, hypothetically, you could add touch sensors
  - more hand over = more mouse
  - touch screen with finger = click