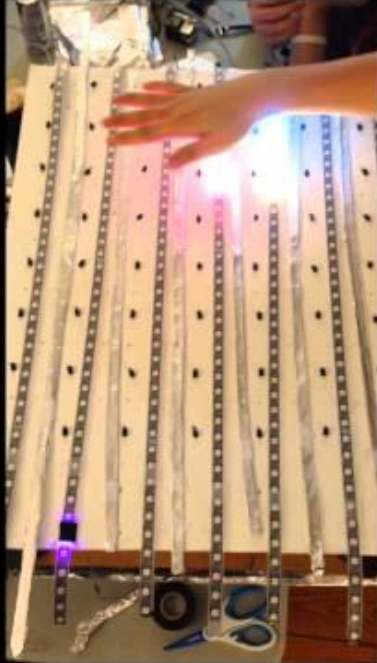# LED Coffee Table

Jin Hun Kim, Edward Lai, Matthew Miller

# Our Goal

Design and build a 2D LED matrix that reacts to objects placed on a glass table above it

# Video!

# Stuff we used

FRDM-KL25Z (mbed)

NeoPixel LED lights

CD74HC4067 multiplexer

IR204-A IR Emitter (940nm)

TSOP38238 IR Receiver

2N3904 NPN Transistor

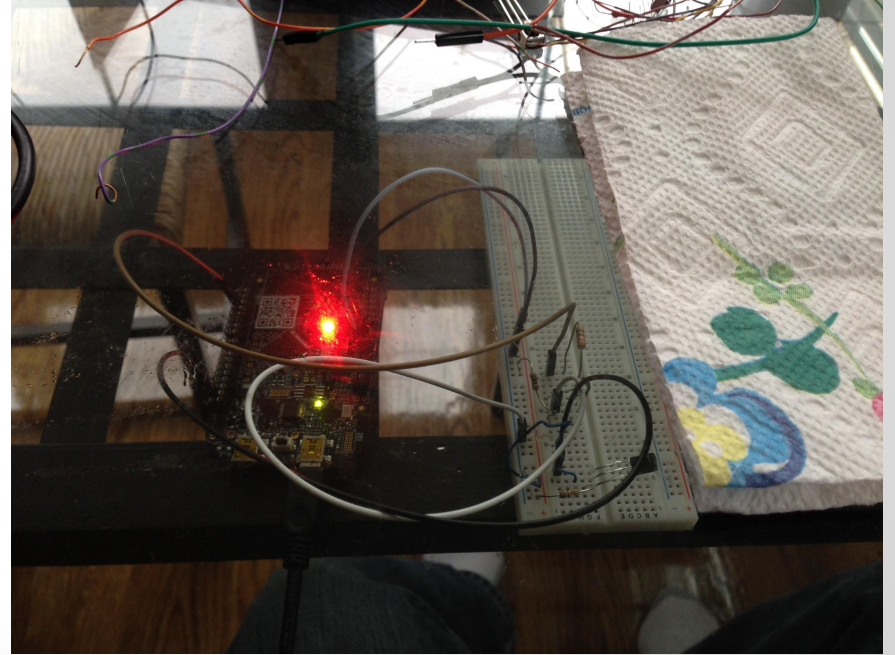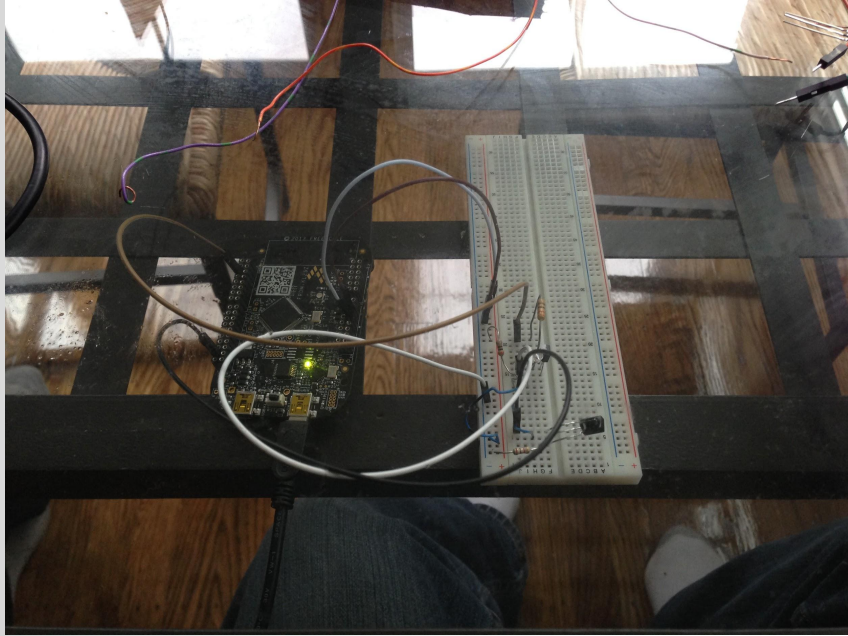Aluminum foil

Lots and lots of wires

# Wiring...
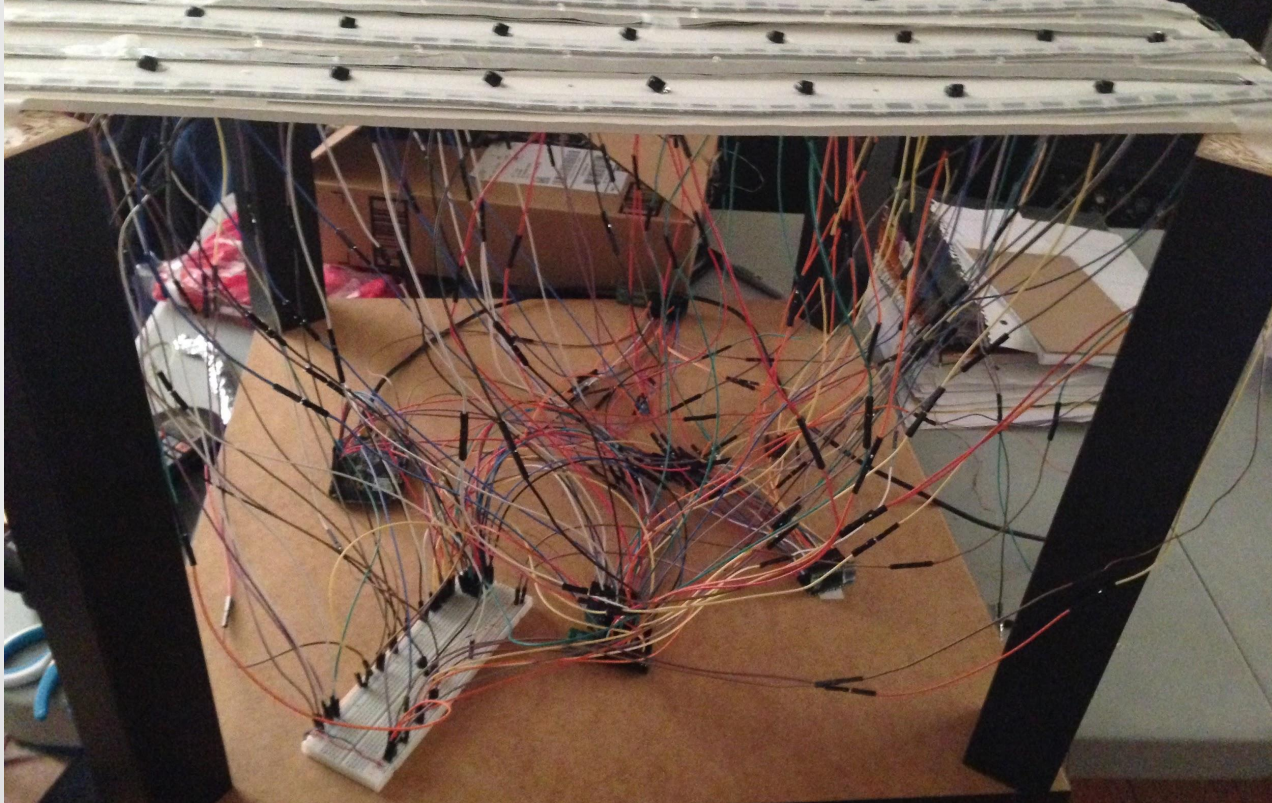
# How it works

- IR emitters
  - send infrared light up through glass

- IR receivers:
  - If an object reflects light, triggers four leds

# Prototype

# Problems we faced

Multiplexer timing

Wiring

Hardware  x_x

# Lessons Learned

- Better Design Phase

- Prototyping

- Power considerations

# Next Steps

Improve granularity of lights

Ripple effects

Visualizer

External power source

Change IR receivers to different frequencies

Tetris?!?!?!

# Online works used

Multi_WS2811 - NeoPixel Library, Ned Konz

IR and RF remote controls handbook - Jim Hamblen

https://developer.mbed.org/users/4180_1/notebook/ir-and-rf-remote-controls/