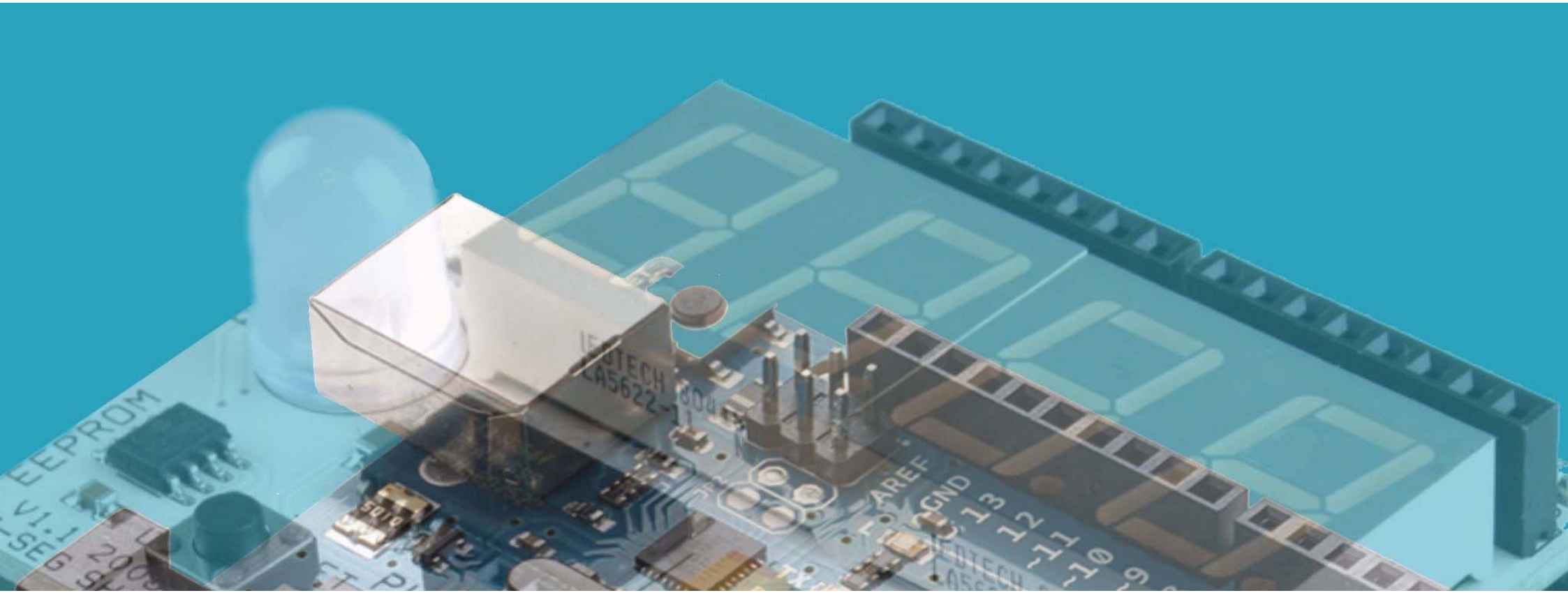



# BUILD YOUR OWN ARDUINO UNO SHIELD

SESSION 01

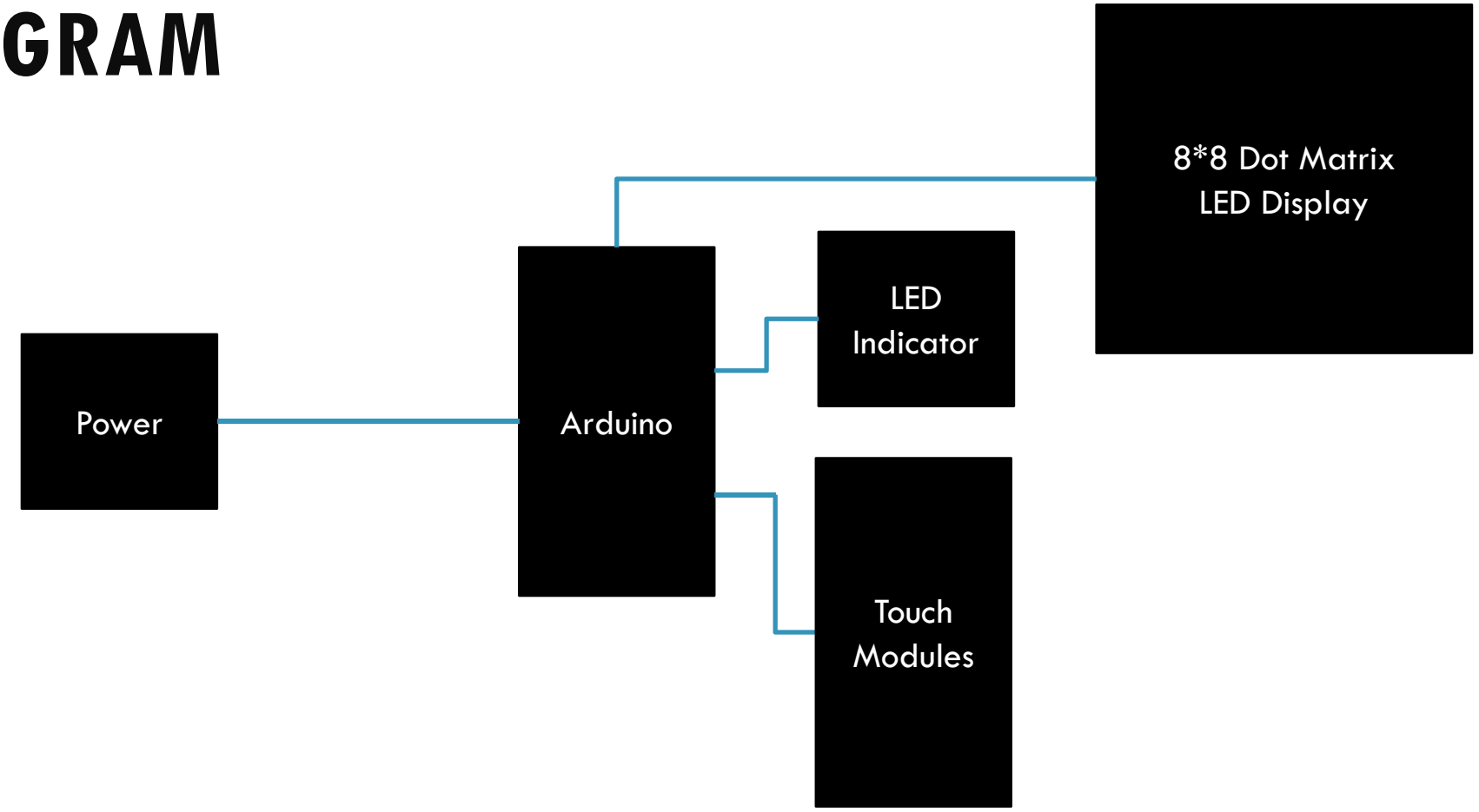
12 GEEKS

AIS CUBE

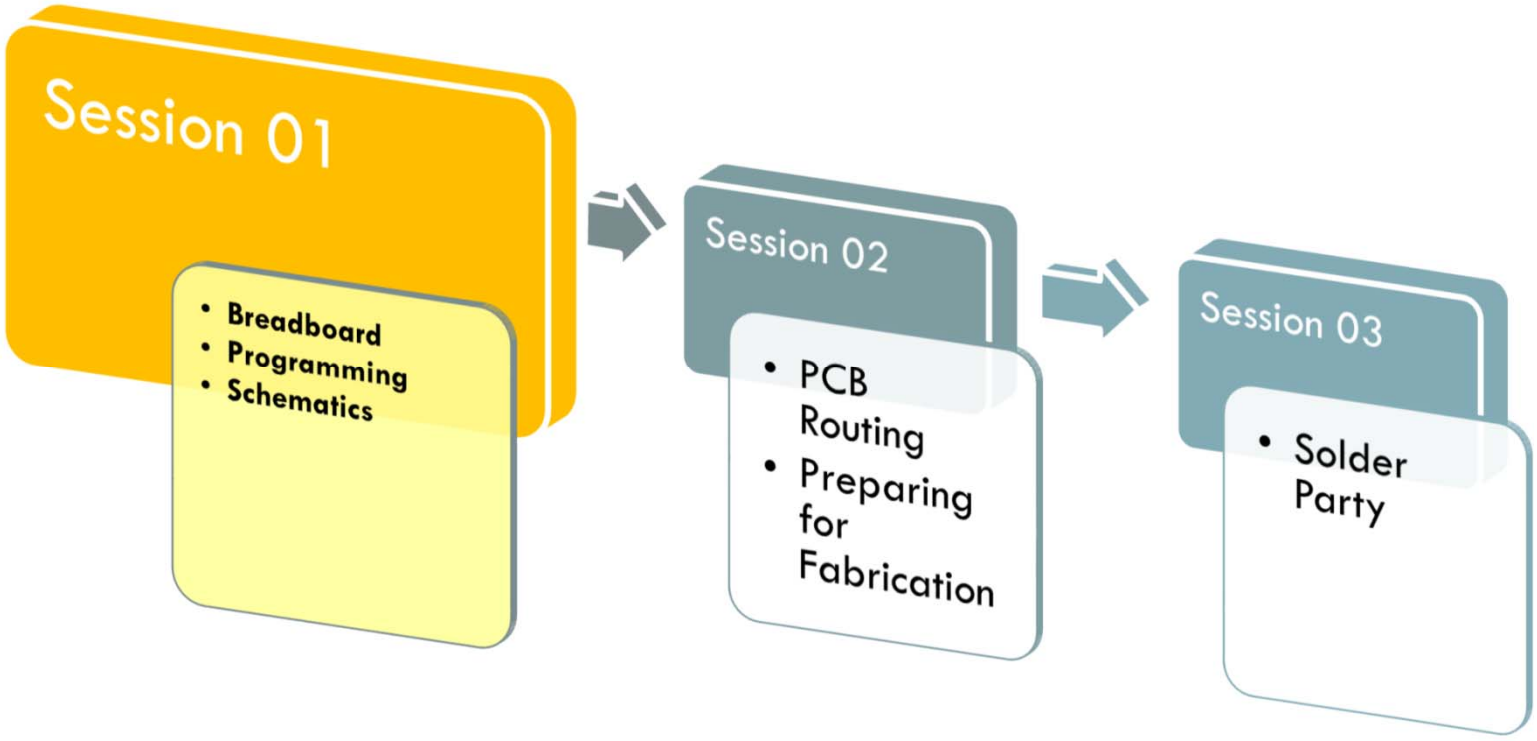

# A LITTLE BACKGROUND INTRODUCTION

We've been around since 2002
PS: No, we're not a start up
PPS: No, I'm not a fresh grad

# BLOCK DIAGRAM



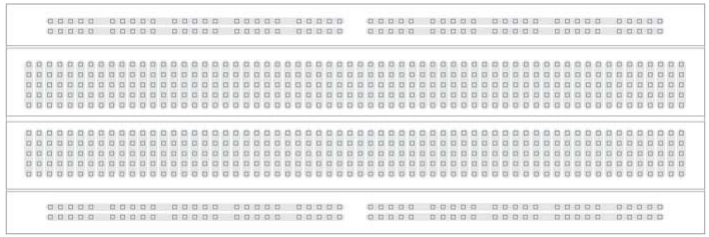
# SIMPLIFIED PROTOTYPING PROCESS

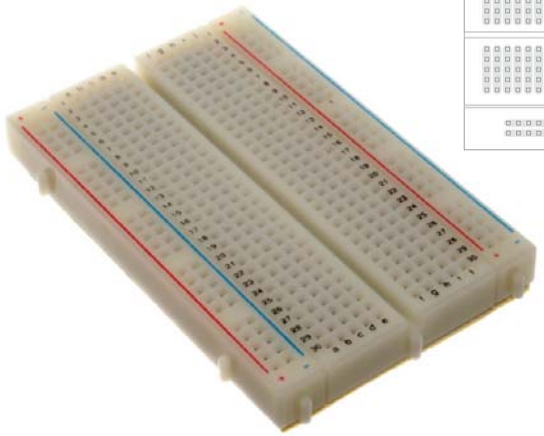


# WHAT'S A BREADBOARD?

What's it used for

- Testing circuits
- Making non-permanent connections
- Easily add/remove components

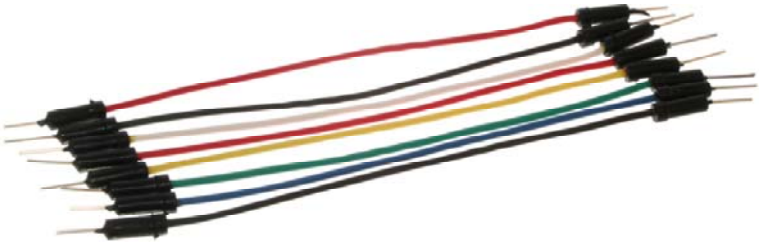


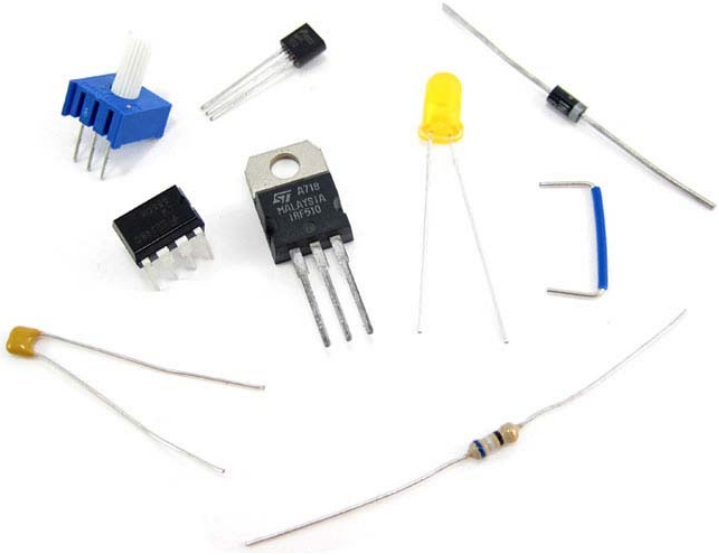


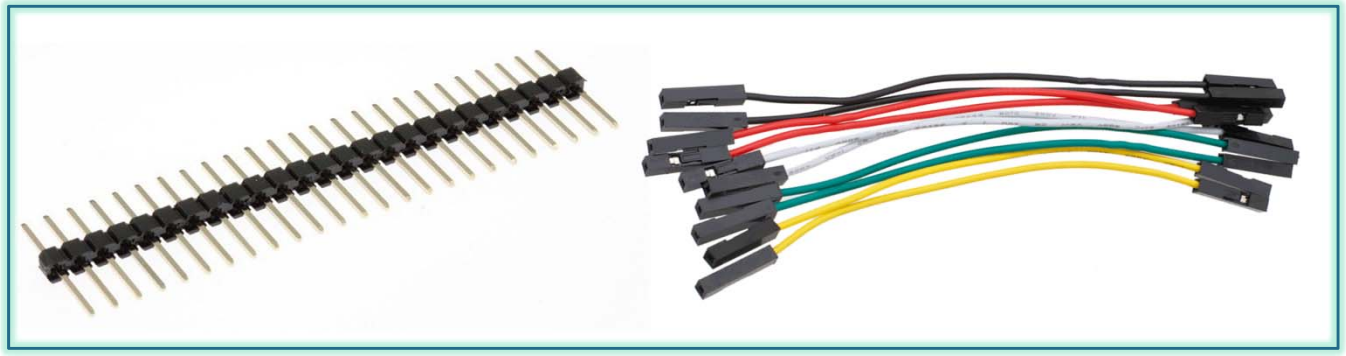
# WHAT GOES INTO A BREADBOARD?

Through-hole components

…and wires

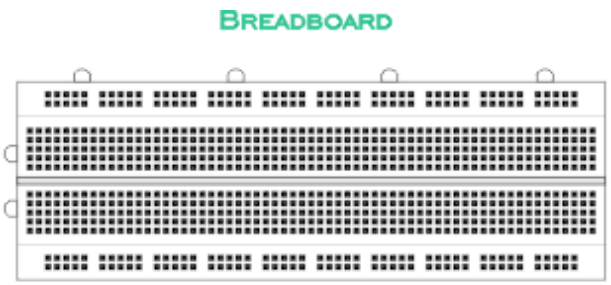


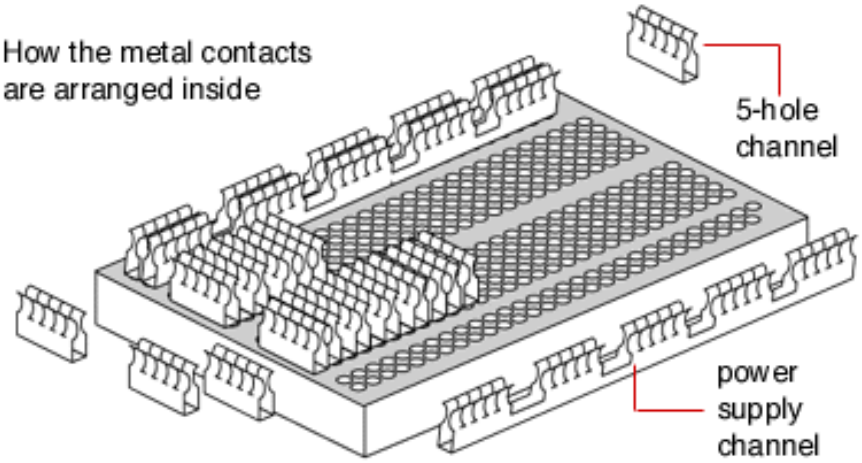


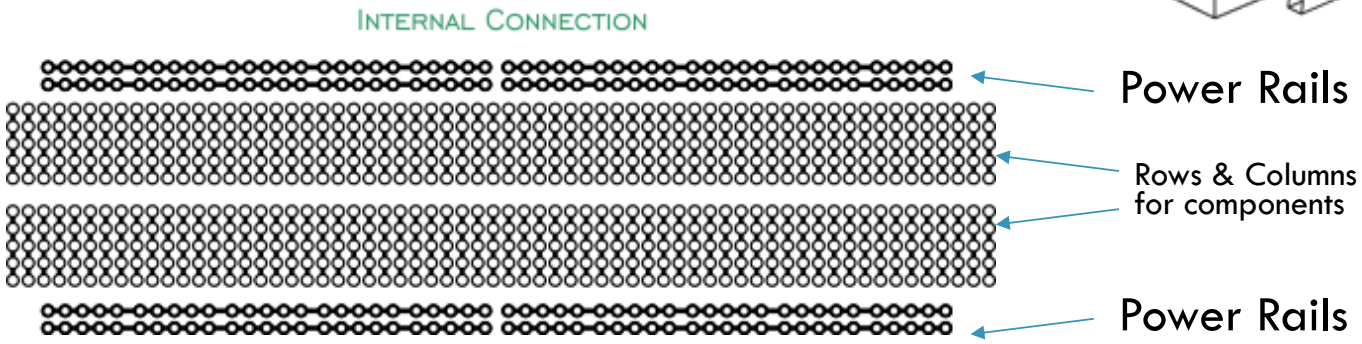


# WHAT'S INSIDE A BREADBOARD?

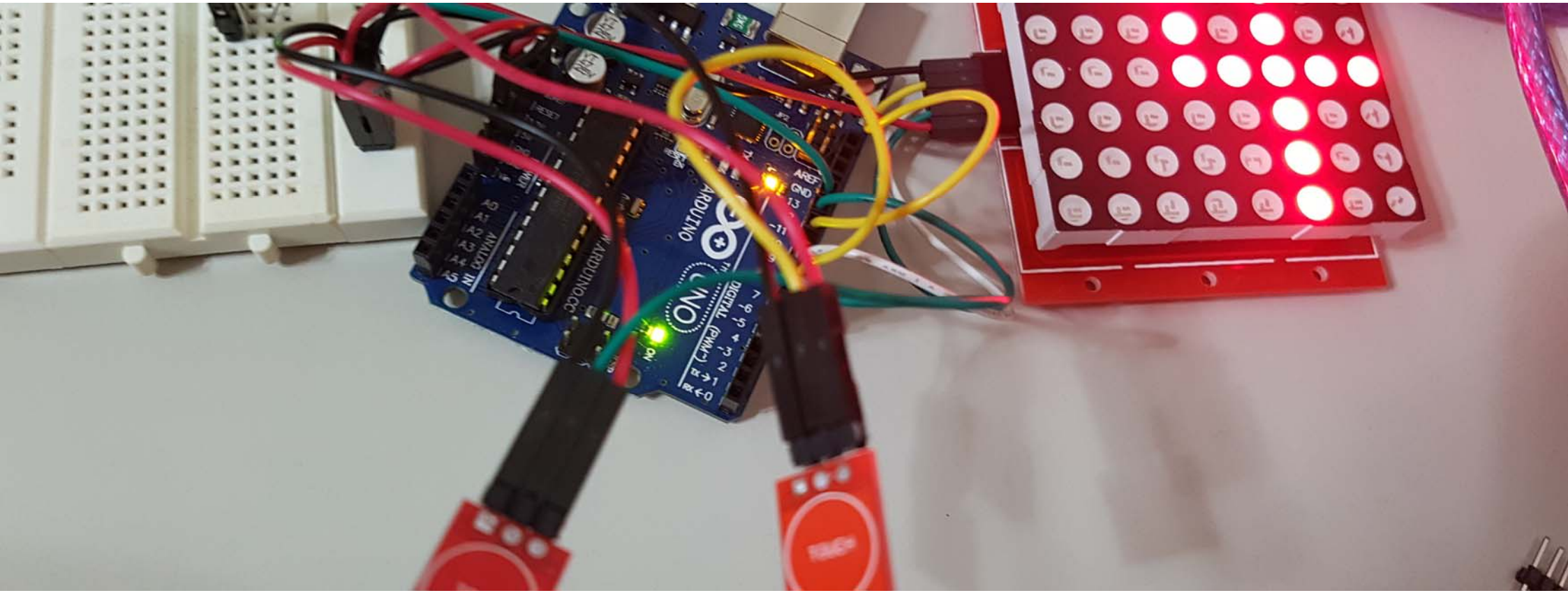
Internals




Doesn't it remind you of paper clips?

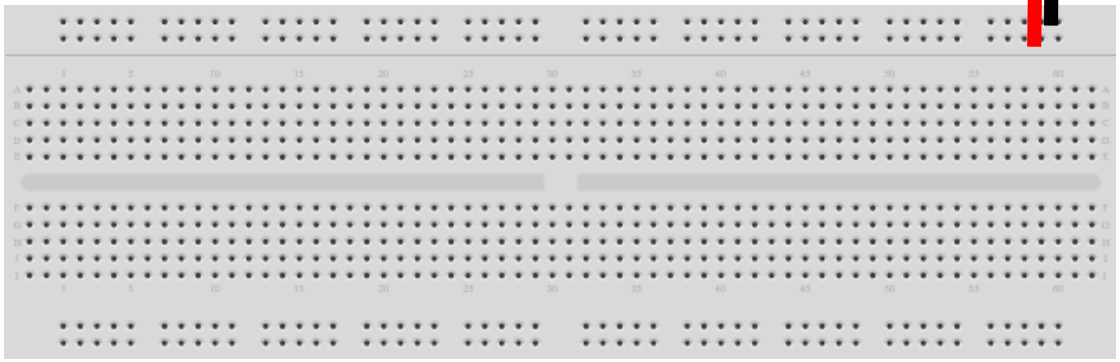



# LET'S GET STARTED


BLASTED WORK SAFETY REGULATIONS!
WARNING!!!
HIGH VOLTAGE!
WARNING!!!
HE MAY BE YOUR FATHER!
www.gamepressure.com
Otis

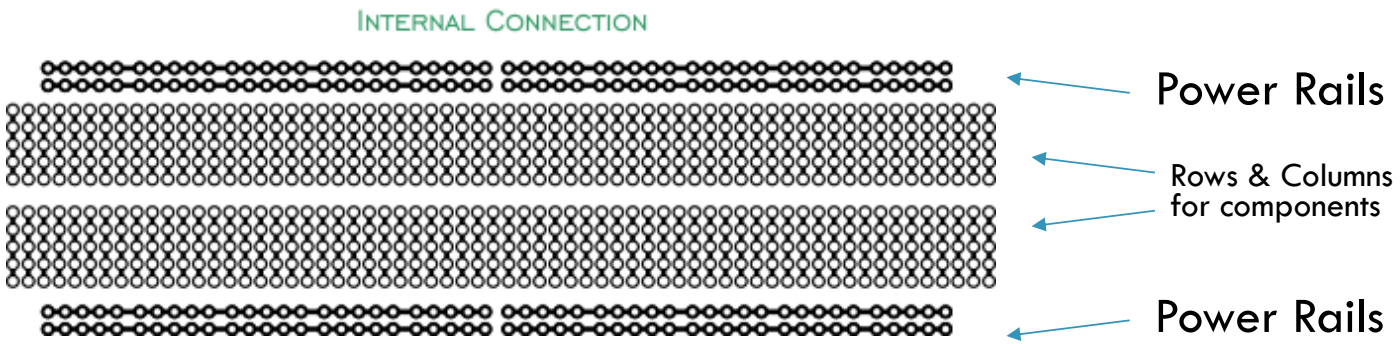
# SAFETY FIRST!


# LET'S TALK ABOUT POWER

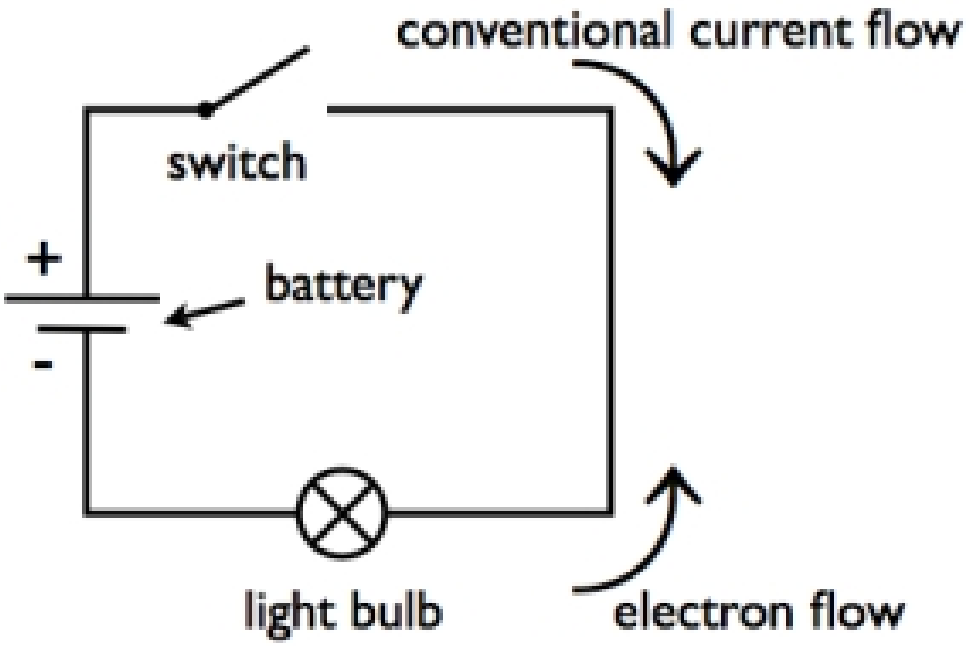



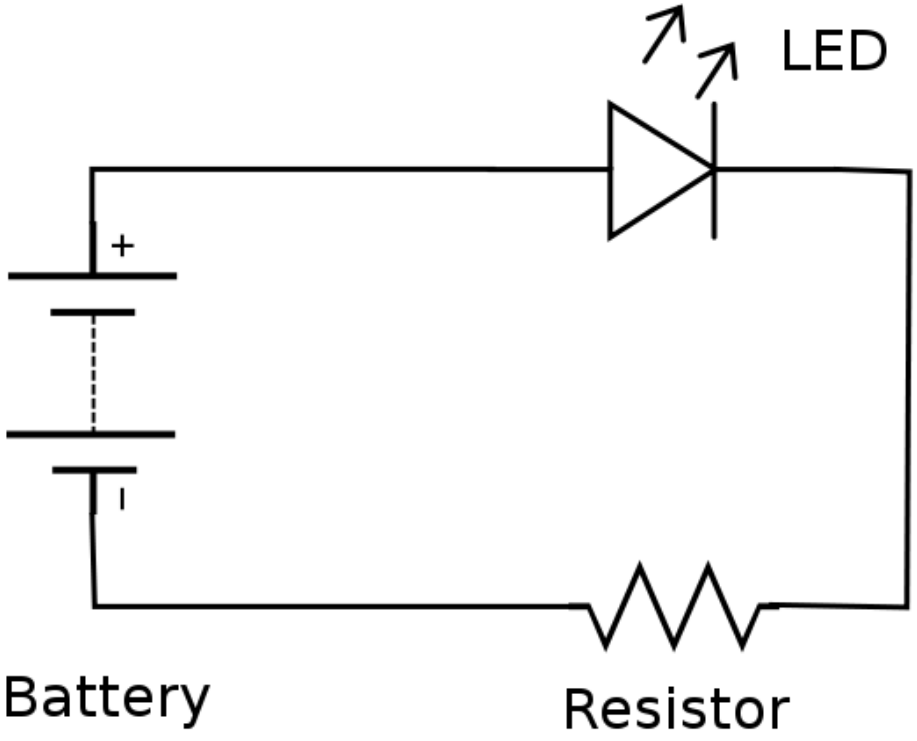
Insert
Dual Row
5 Way Pin Header

# LET'S TALK ABOUT POWER




# ANYBODY REMEMBER THIS?



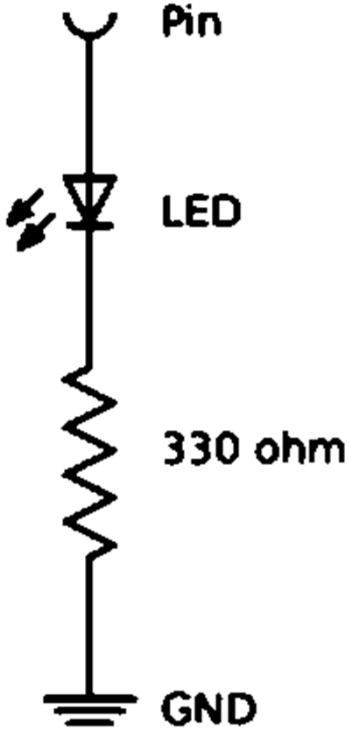
# BASIC LED CIRCUIT

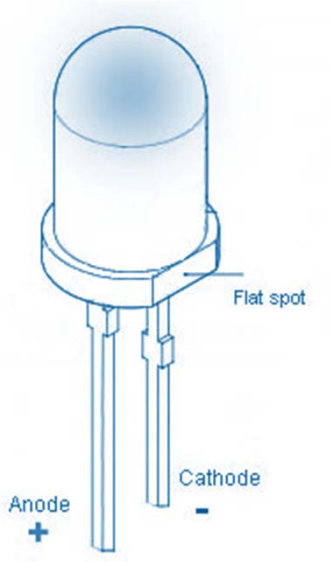
Through hole component

Looking for polarity

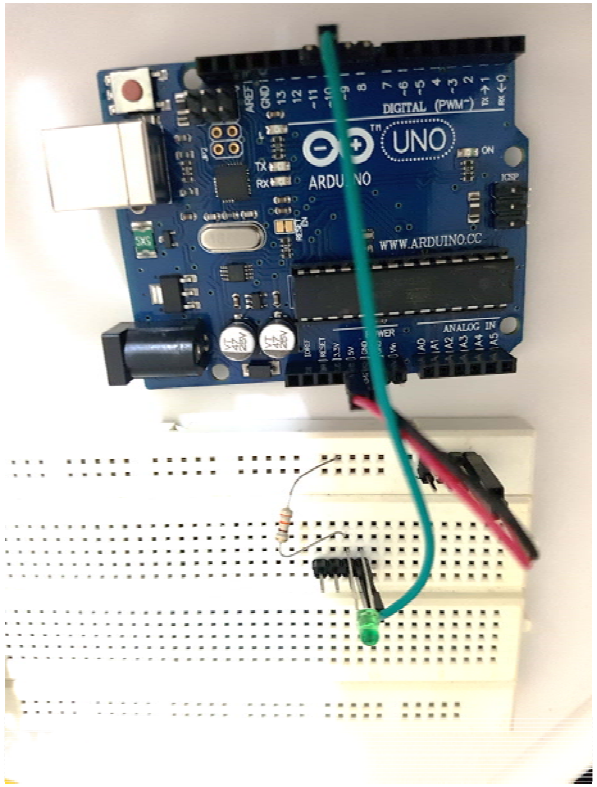
Resistors – 330 ohms

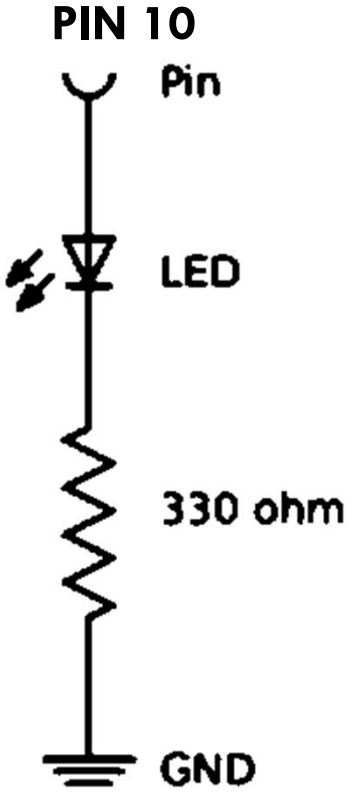
How the circuit works

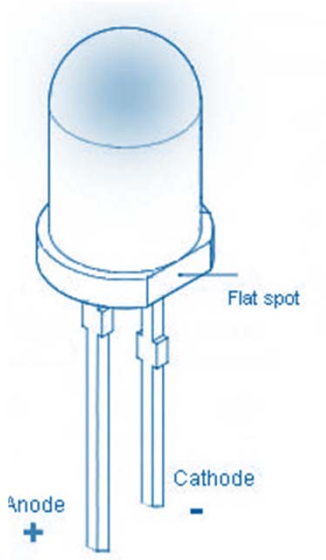


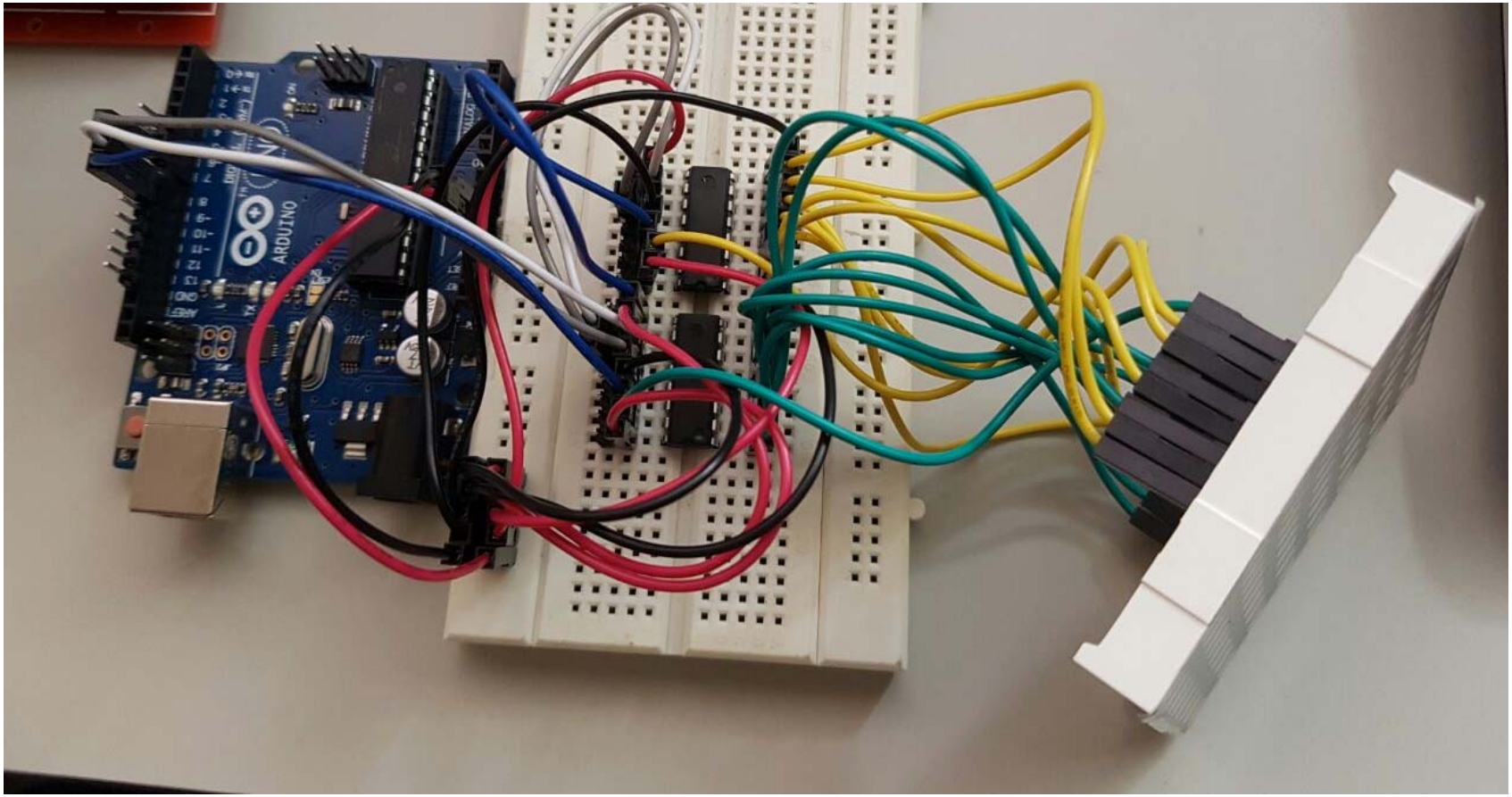
# LET'S BUILD THAT LED CIRCUIT



# 8*8 DOT MATRIX LED DISPLAY

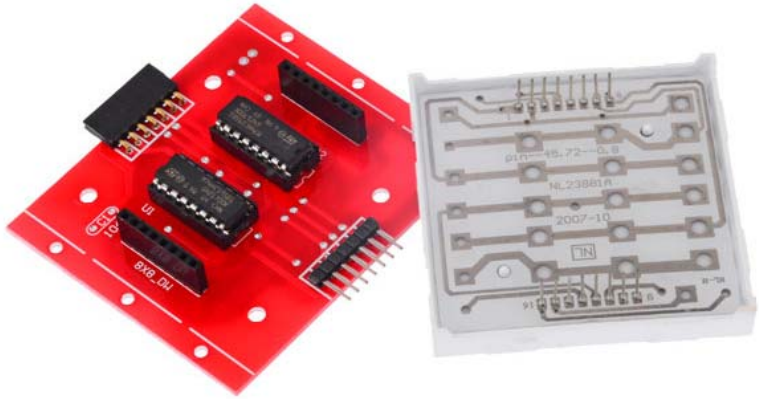


# 8*8 DOT MATRIX LED DISPLAY MODULE

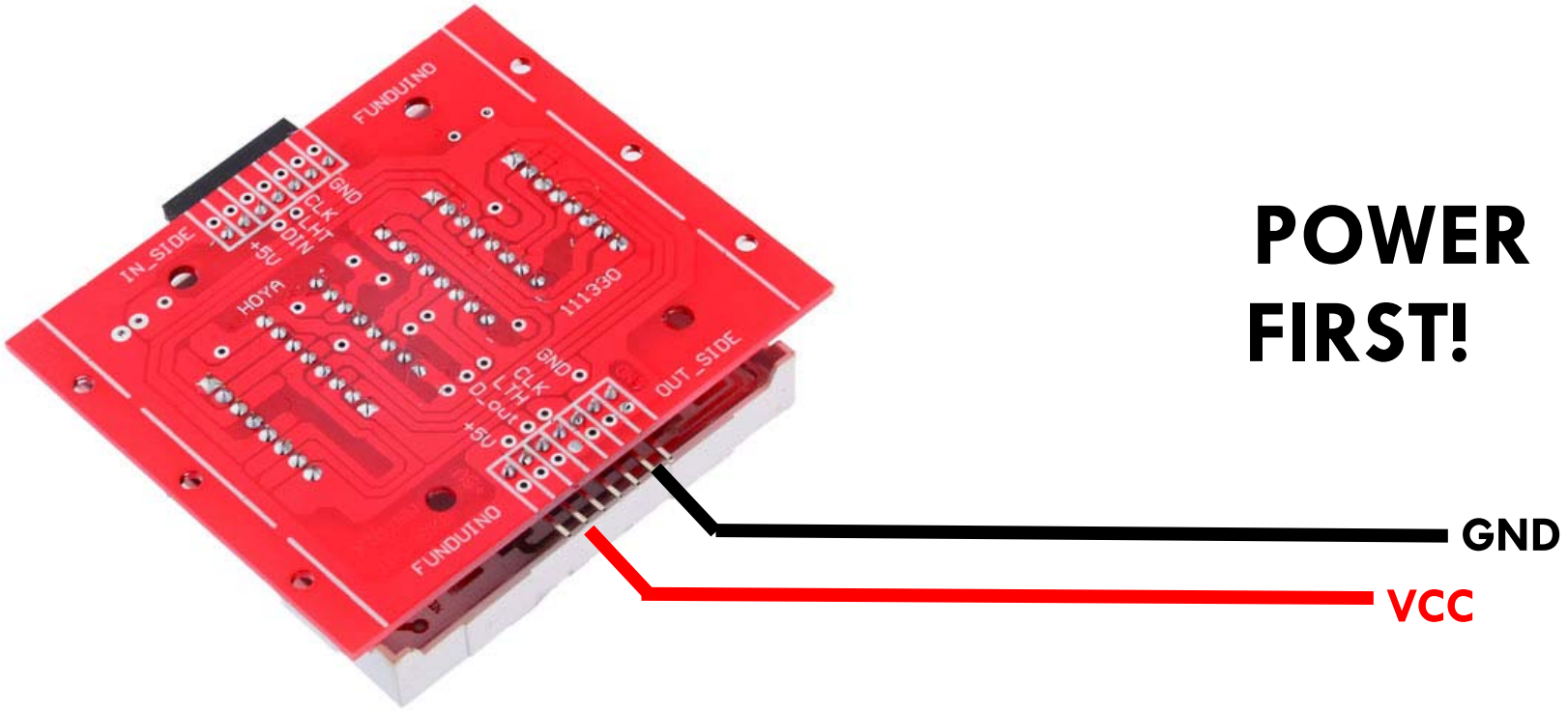
8*8 dot matrix module

Under the hood – 2x 8bit Shift Registers (74HC595)

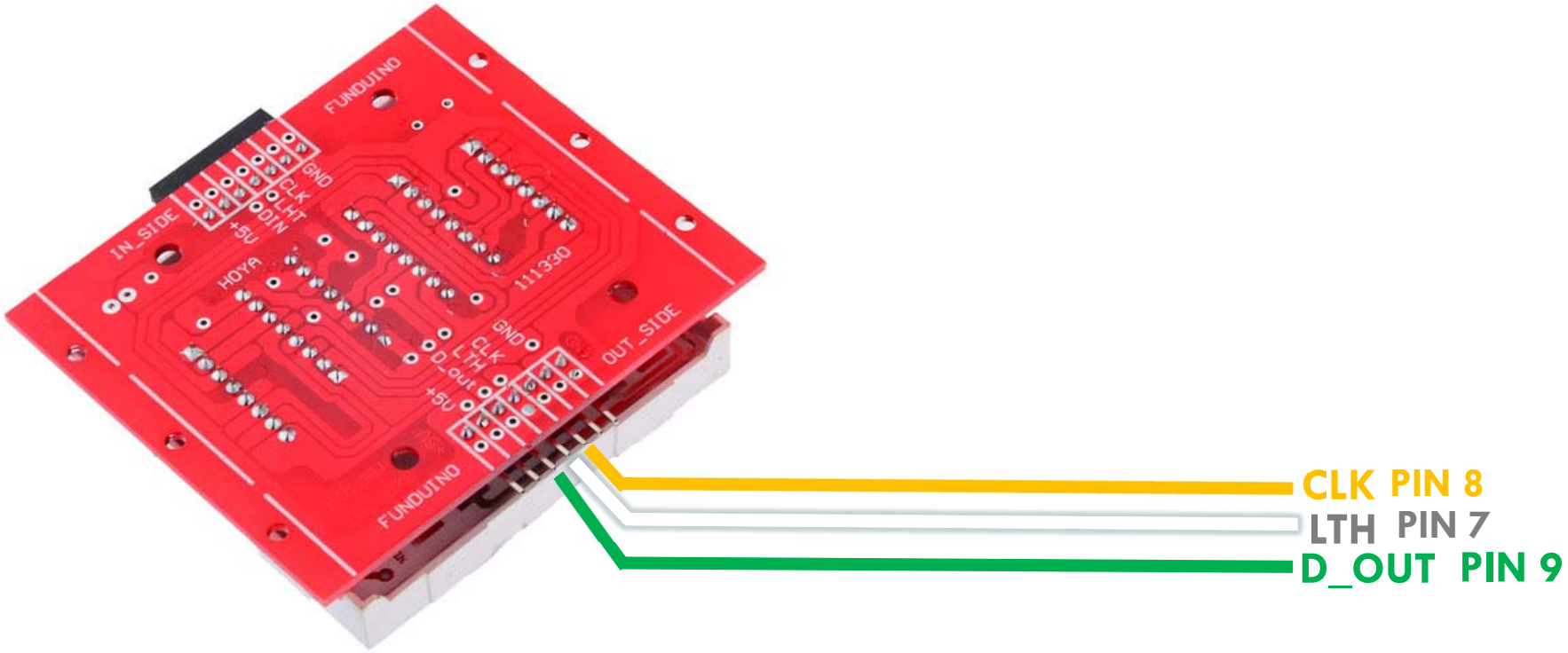
Serial to Parallel



# CONNECTING THE DOT MATRIX MODULE



# CONNECTING THE SERIAL LINES



# AND FOR THE GRAND FINALE

Adding the capacitive touch buttons to pins 5 & 6

## By yourself :p

# AND THAT'S IT!

Let's program it.

**For the next part, you will need to download the Arduino Program**

HTTP://WWW.GITHUB.COM/AISCUBE/BYOG_Shield

Arduino Program Examples

SHIELD_8x8_ex1 – Display char at setup.

SHIELD_8x8_ex2– Display 0 to 9.

SHIELD_8x8_ex2b – Display A to Z.

SHIELD_8x8_ex3 – Use PB1 to increase.

SHIELD_8x8_ex3b – Use PB1 and PB2 to decrease.

SHIELD_8x8_ex4 – animate Square.