Multimeter

Measures $\longrightarrow$ V, I, R

Measuring R $\Rightarrow$ Black probe $\rightarrow$ COM

             Red   ,, $\longrightarrow$ Ω

Measuring V $\Rightarrow$ Red $\longrightarrow$ +

             Black $\longrightarrow$ −

PWM (Pulse Width Modulation)

PWM $\Longrightarrow$ Control the brightness of LED

LED Dimming

✳ Brightness $\longrightarrow$ Adjusting V and I

    PWM (Pulse Width Modulation) $\longrightarrow$ Control brightness.

      Generating PWM $\longrightarrow$ Arduino, 555 timer

MOSFET $\longrightarrow$ switch.

ATtiny 85 $\longrightarrow$ microcontroller

$\uparrow$

programmed by Arduino IDE and UNO.

~~Volt Voltage Divider~~

5V $\xrightarrow{\text{Voltage Divider}}$ 3.3V $\longrightarrow$ Arduino.

S2 Terminal app.

Default Pairing $\longmapsto$ 1234 or 0000.

Breadboard $\longrightarrow$ Circuit test.
+
16 mHz Clock Crystal.
22 pf capacitors.
10 kΩ resistor.

Crystal $\longrightarrow$ pin 9, 10.

Pin 7, 20, 21 $\longrightarrow$ 5V.
Pin 8, 22 $\longrightarrow$ ground

ATmega $\longrightarrow$ Arduino Board

TX, RX, Reset Pin $\longrightarrow$ Microcontroller.

FTDI $\longrightarrow$ for Serielling conversion

$\overline{\quad\text{7 segment display}\quad}$

$\longrightarrow$ 8 Individual LED.

$\hookrightarrow$ 7 for bar, 1 for decimal point.

Multiplex.

So a 10 64

LED Resistor value $\longrightarrow$ Kirchoff's Voltage law and Ohm's law.

Small resistor $\longrightarrow$ Linearize current consumption.

LED $\longrightarrow$ Const. Current Mode.

LM317 $\Longleftarrow$ ~~R3~~ Source

Controlling DC motor with Arduino and L298N.

→ Arduino, L298N motor driver module, DC Motor, (9-12V) Power supply.

→ Motor driver input pins (IN1, IN2, IN3, IN4) → Arduino digital pins.

→ Enable pins (ENA, ENB) → Arduino PWM pins (speed control).

→ motor → L298N output terminal.

Code: digitalWrite() → motor direction.
analogWrite() → speed.