

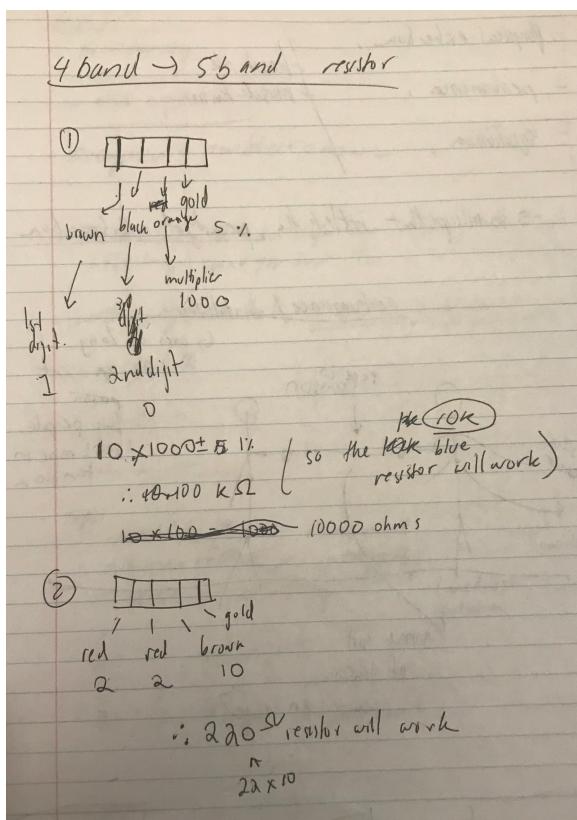
## Etude 1: Perceptron-P

Maxime Gordon

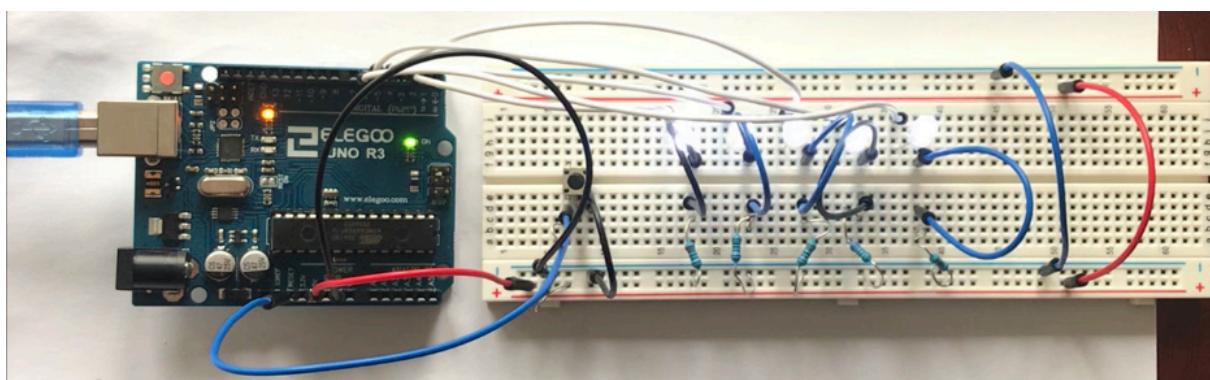
### (A) PART ONE - Building the circuit

In building the circuit I first identified what type of resistors I needed. Reading a resistor color chart and looking at the Fritzing diagram I determined that the five resistors needed for the white LEDs were 220 ohms (1st digit = 2, second digit = 2, multiplier = 10) and the resistor needed for the switch/reset was 10k ohms. I then completed putting the circuit together fairly quickly making sure the LEDs were oriented correctly based on their cathode/anode leads (negative cathode connected to (-) area of bread board). Once completed I plugged in power to my computer and loaded the arduino code and observed it was working correctly.

Figuring out resistors:



Completed circuit:

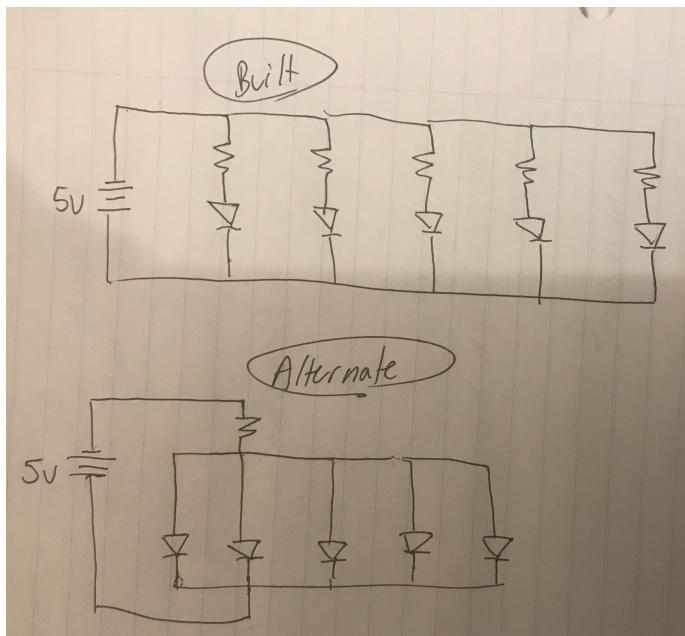


## (B) PART TWO

The **built circuit** is a parallel circuit. Each LED is in series with its own resistor but each LED/resistor pair is parallel to the others. The current in this circuit is evenly distributed between the different LEDs so each will be of the same brightness. The voltage in this circuit will be the same for each LED.

The **alternate circuit** is also in parallel but each LED shares the same resistor. Because of only one resistor the LEDs may receive different currents meaning varying brightness levels.

The built circuit therefore is the most reliable because it allows for an equal amount of current to go to each LED because they each have their own resistor.



## (C) PART THREE

The purpose of this switch button is to reset the arduino which effectively restarts the program. I imagine this could be useful for this program if you have a really long message and want to start the message at the beginning without having to unplug power. Generally this reset button could be used to trouble shoot errors as well if the code stops working.

When the switch is pushed down this completes the circuit which is comprised of the 10k resistor the reset pin on the arduino and the switch itself allowing for the reset to actually occur.

(D) PART FOUR - documentation of my message 'HELLO WORLD !'

