Etude 1: Perceptron-P
CART 360 AUTUMN 2021

DUE: October 1st 2021 by 1:30pm

SUBMIT: To the Etude 1 Assignment Resource on the CART 360 Moodle page

WHAT: REFER TO "WHAT TO SUBMIT" Section

DESCRIPTION:

In Etude-One, the medium of expression is Light, you are tasked with building a fully functional Perceptron-P – a POV (Persistence of Vision) circuit. Etude-One has two purposes: a) Translate the Perceptron-P Fritzing circuit illustration into a fully Functional Circuit onto a breadboard, b) test and document your work (landscape orientated photos and landscape orientated video) and answer the technical questions. For the Etude, you will need to recall concepts presented during last week's lecture i.e. Identification of Components, Polarity and Flow 'n Control of an Electric Signal (Voltage/Current/Resistance).

For Etude-One, there **is no requirement** for you to write the complete Arduino program needed to make Perceptron-P function, but you may be asked to answer questions pertaining to "how" the code operates. The code for Perceptron-P will be included with this description as an Arduino Project, the code will be presented in-class.

Nota Bene: Etude-One is intended to be completed, within 4 Hours.

PRELUDE: Arduino IDE Setup

Prepare your Arduino IDE, such that it can be used to upload the Perceptron-P code to your Arduino.

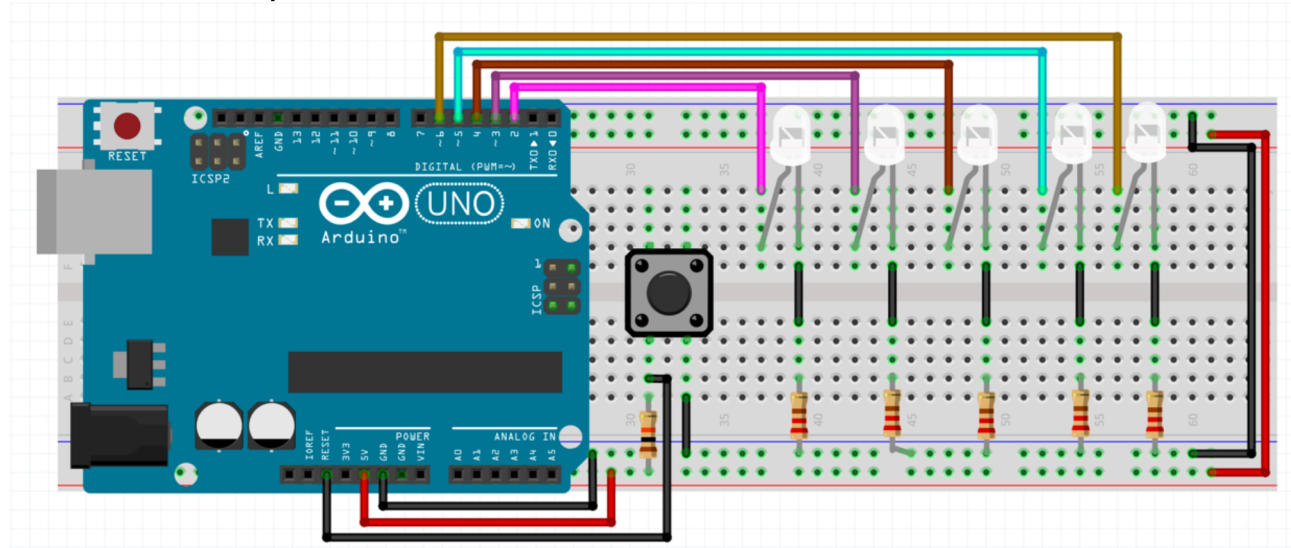# PART ONE: Perceptron-P (Etude-One Circuit to be Built) (1.5 Pts)

Figure 1: Arduino Perceptron-P (Version A)

PART TWO: Perceptron-P (Etude-One Alternate Circuit) (1.25 Pts)

Compare and contrast the Fritzing circuit illustrations for the **Built Circuit** to the **Alternate Circuit**. Determine the feature(s) that distinguish these two circuits – what makes them different and Why? Which of the circuits presented would be a more reliable circuit – Why? What is occurring with the V/ I / R in the area(s) that you have discerned as important?
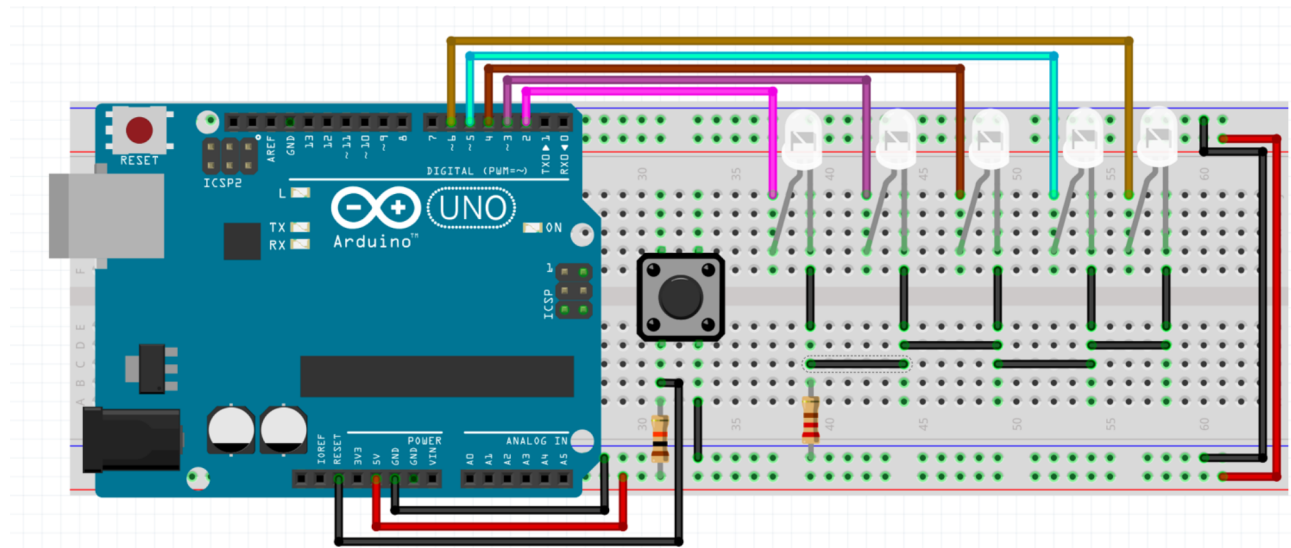

Figure 2: Arduino Perceptron-P (Version B)

PART THREE: Perceptron-P (1.0 Pts)

Explain, the purpose of the highlighted area contained within the red rectangle a) what does it do? and b) why/how is the functionality implemented (electrically) - use appropriate terminology?
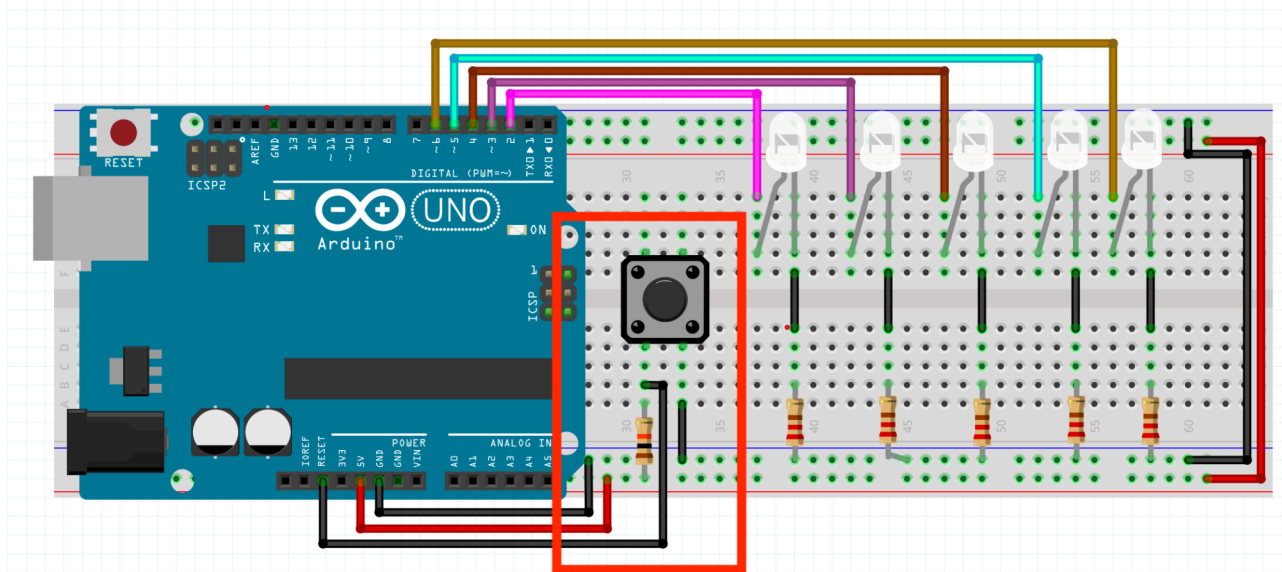

Figure 3: Explain the Function of Highlighted Area

PART FOUR: Create a Unique Perceptron-P Message (1.25 Pts)

Using the provided Perceptron-P code, find the appropriate section or area in the code where you will insert your unique message – consider what is possible in Perceptron-P. Save, Compile and Upload your code to your Arduino. Capture your message (document your work).

WHAT TO SUBMIT

Submit on the CART360 Moodle page, a single archive (zip) with PDF document, video and images that will address the following:

  a) PART ONE – clearly document your approach and strategy i.e. notes / observations / photos of circuit building progress.
  b) Answer to PART TWO.
  c) Answer to PART THREE
  d) Document your custom Message

Separately, but in the same Etude-One Folder, ensure:
  e) Upload a video of your working Perceptron-P and five (5) good quality images which showcase the Perceptron-P POV in action (Photos and Video in landscape orientation).