

# Etude 3: Mind-It

**CART 360 AUTUMN 2021**

**DUE:** November 19th by 13H30

**SUBMIT:** To the Etude 3 Assignment Resource on the CART 360 Moodle page

**WHAT:** 1. REFER TO "WHAT TO SUBMIT"

## **DESCRIPTION:**

From time to time, one sources Arduino example code from various sources on the internet. The purpose of this exercise: build circuit (run) and analyse, trace and elucidate from the provided code how the core **functionality** of Etude 3 is established and maintained.

You will use:

4 LEDs (Red, Yellow, Green, Blue)

4 buttons

1 Piezo Buzzer (Sound Output)

Resistors (220 Ohm)

Arduino

The circuit, game, that you will build is: Simon Says. Build the circuit (reference provided), run it, consider the established game play and analyse the actual code – then answer the questions below.

**NOTA BENE:**

**TIME COMMITMENT FOR ETUDE THREE <= 2 HOURS MAX.**

**THERE IS ABSOLUTELY NO NEED FOR YOU TO ALTER THE PROVIDED ARDUINO CODE.**

## **PART ONE: BUILD ETUDE THREE CIRCUIT (1.0 Pts)**

Use: ETUDE-THREE SKETCH (provided)

Step 1: Please build the circuit as **depicted in** the Fritzing Diagram – see below.

Step 2: Make a short video of your built circuit and game play (~ 1 – 2 min).

Step 3: Submit ETUDE-THREE SKETCH Sketch with any added comments which assisted in your tracing of the program.

## **PART TWO A: CODE OBSERVATION (1.0 Pts)**

From your initial observation of how the game play is established and your initial analysis of the provided code:

- i) Explain in a stepwise ordering how the game play is implemented?
- ii) Identify and Explain the principal functions for establishing game state?

## **PART TWO B: INITIAL CODE OBSERVATION (1.0 Pts) (MAX 128 WORDS)**

From your initial observation of how the game play is established and your initial analysis of the provided code:

- i) What computational structure(s) do you believe to be missing – although game runs?
- ii) What purpose would the missing structure(s) serve?

## **PART THREE: HOW DOES THE GAME WORK (2.0 Pts) (MAX 128 WORDS)**

Based on your observation of how game play is established and maintained and via your extended analysis of the provided code:

- i) What computational structure does the game employ to establish and maintain state?
- ii) What is special about this computational structure?

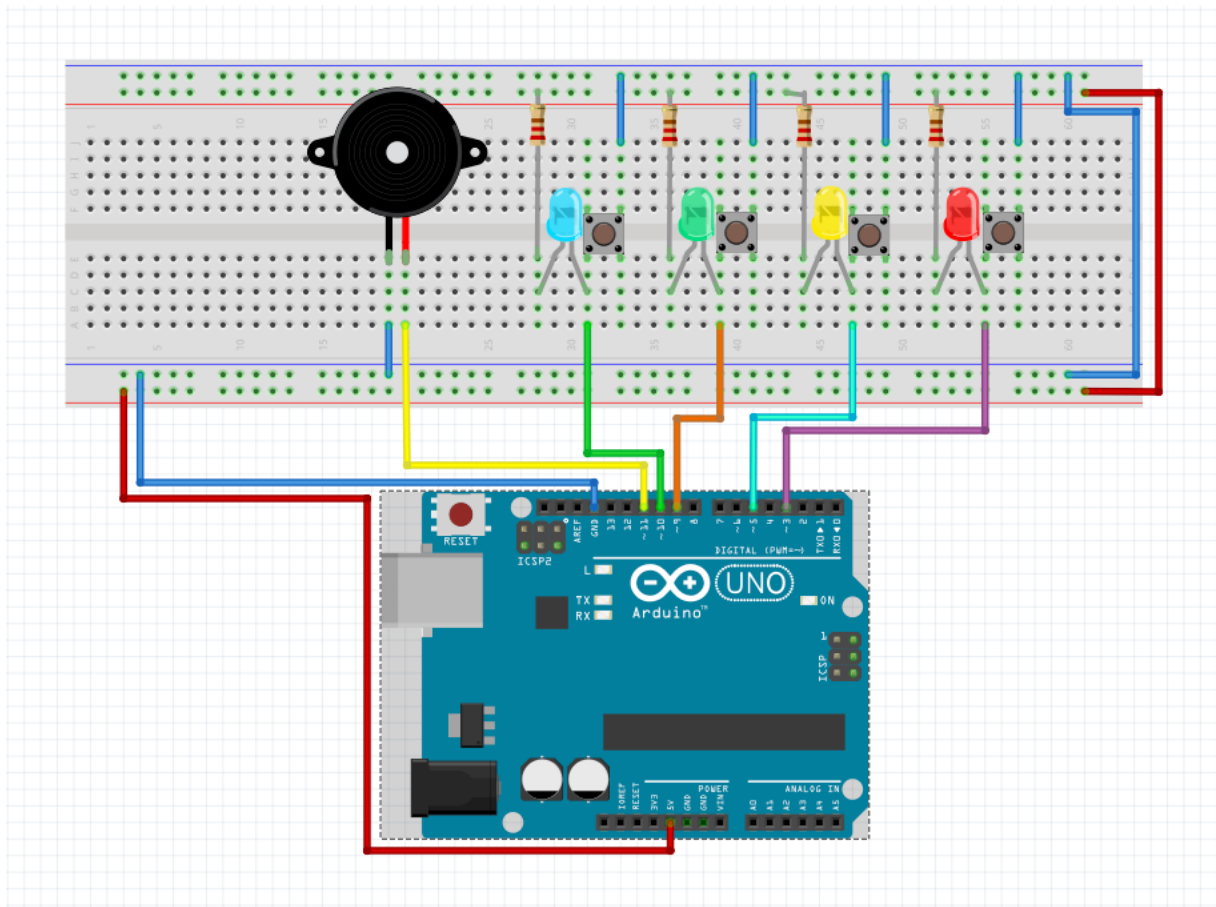
## WHAT TO SUBMIT

For ETUDE-THREE on the CART360 Moodle page, submit a single archive (zip) that will contain the following:

- Documentation of PART ONE – clearly document your approach and strategy i.e. notes / observations / photos of circuit building progress.
- Completed answers to Part Two and Part Three in a text file.

Separately, but in the same Etude-Three Folder, ensure:

- Upload a video of your working Part One.



# Resistor colour code

