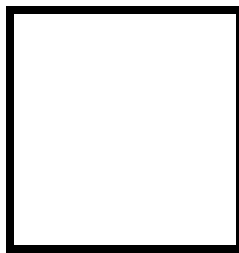**PAMANTASAN NG LUNGSOD NG MAYNILA**
(University of the City of Manila)
Intramuros, Manila

Microprocessor Lab

Laboratory Activity No. 2
Arduino and Tinkercad Interface

Score

Submitted by:
ONG, MARC FRANCIS C.
<S 1:00 – 4:00 PM> / <2>

Date Submitted
30-9-2023

Submitted to:

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I.   Objectives

This laboratory activity aims to implement the principles and techniques of hardware programming using Arduino through:

-       creating an Arduino programming and circuit diagram.

II.   Method/s

-       Perform a task problem given in the presentation.
-       Write a code and perform an Arduino circuit diagram of a ring counter that display eight (8)LEDs starting from left.

III.   Results

TinkerCad

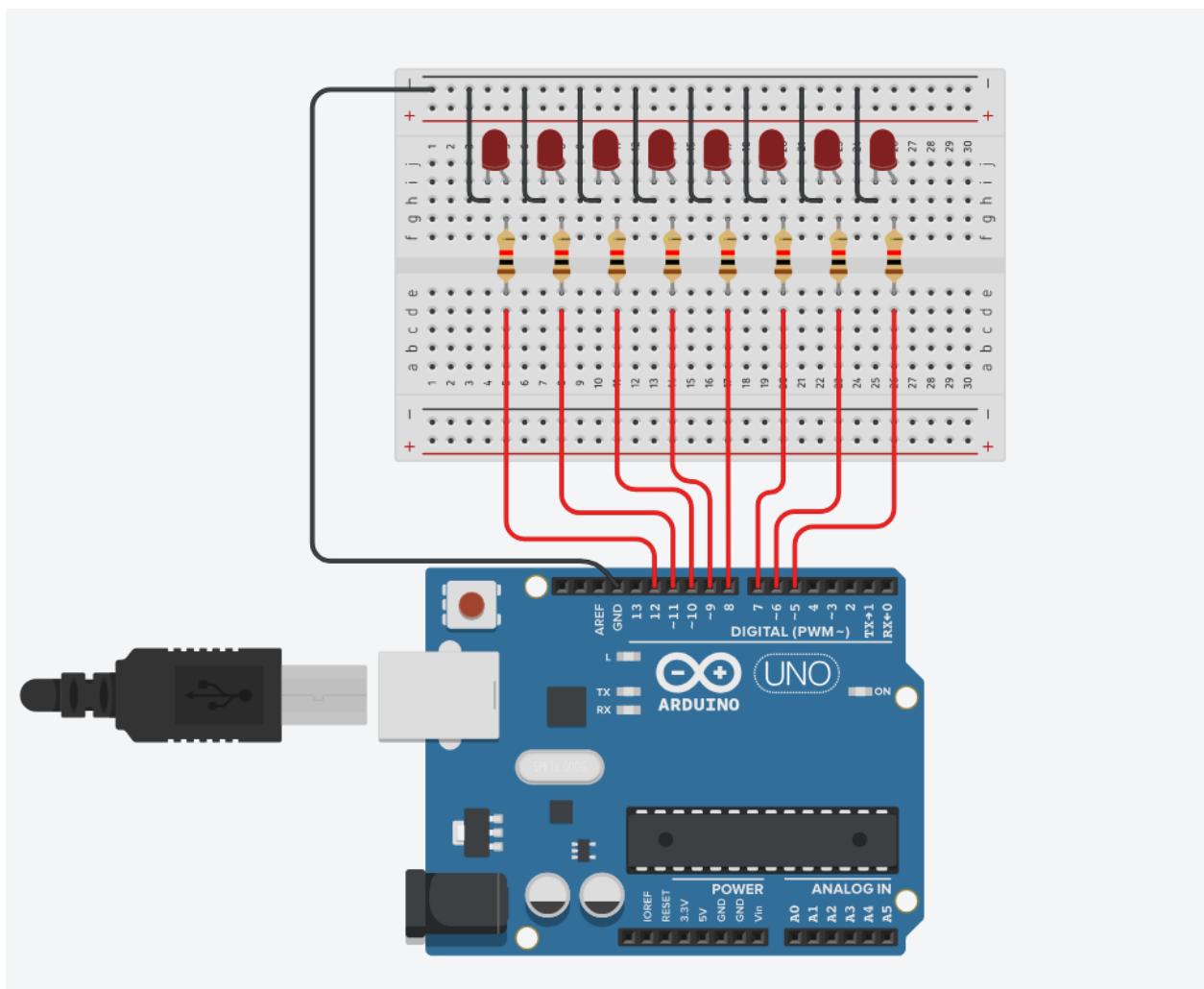**Exercise 1: Write a code that does a ring counter display for eight (8) LEDs starting from left.**

Figure No.1 Ring Counter Display Circuit Diagram

Components Used

1. 8 LEDs

2. Resistor

3. Breadboard

CODE:

```cpp
// C++ code
//
void setup()
{
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
  pinMode(8, OUTPUT);
  pinMode(9, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  digitalWrite(12, HIGH);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED1 is HIGH");
  digitalWrite(12, LOW);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED1 is LOW");

  digitalWrite(11, HIGH);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED2 is HIGH");
  digitalWrite(11, LOW);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED2 is LOW");

  digitalWrite(10, HIGH);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED3 is HIGH");
  digitalWrite(10, LOW);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED3 is LOW");

  digitalWrite(9, HIGH);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED4 is HIGH");
  digitalWrite(9, LOW);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED4 is LOW");

  digitalWrite(8, HIGH);
  delay(500); // Wait for 500 millisecond(s)
  Serial.println("The LED5 is HIGH");
  digitalWrite(8, LOW);
  delay(500); // Wait for 500 millisecond(s)
```

```
    Serial.println("The LED5 is LOW");

    digitalWrite(7, HIGH);
    delay(500); // Wait for 500 millisecond(s)
    Serial.println("The LED6 is HIGH");
    digitalWrite(7, LOW);
    delay(500); // Wait for 500 millisecond(s)
    Serial.println("The LED6 is LOW");

    digitalWrite(6, HIGH);
    delay(500); // Wait for 500 millisecond(s)
    Serial.println("The LED7 is HIGH");
    digitalWrite(6, LOW);
    delay(500); // Wait for 500 millisecond(s)
    Serial.println("The LED7 is LOW");

    digitalWrite(5, HIGH);
    delay(500); // Wait for 500 millisecond(s)
    Serial.println("The LED8 is HIGH");
    digitalWrite(5, LOW);
    delay(500); // Wait for 500 millisecond(s)
    Serial.println("The LED8 is LOW");

}
```

IV. Conclusion

In this laboratory, I aimed to investigate the relationship between Arduino and Tinkercad Interface, harnessing the power of simulation and prototyping to create and test an electronic circuit. This collaborative effort has proven to be a valuable tool in the realm of electronic and microcontroller programming. In conclusion, the experiment in every LEDs blinked one at a time every 500ms and it continuously repeating from LED 1 to LED 8. The learning of ring counter display LED is how it will blink the LED and monitoring the LED whether it is HIGH and LOW.

References

[1] D.J.D. Sayo. "University of the City of Manila Computer Engineering Department Honor Code," PLM-CpE Departmental Policies, 2020.