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:

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Sat 1:00 PM – 4:00 PM / CPE -412.1-2

Date Submitted

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Submitted to:

Engr. Maria Rizette H. Sayo

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 SIMULATION:

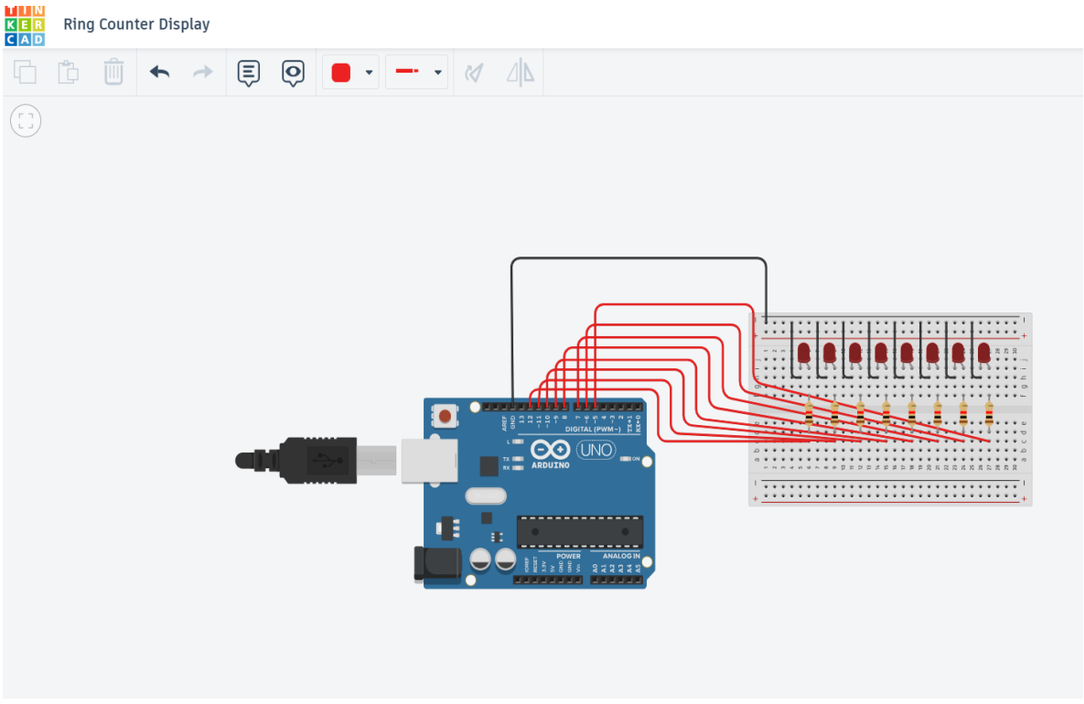

Fig1. Ring Counter Display Circuit Diagram

CODE:

```
// C++ code

/*
Ring Counter Display for eight (8) LEDs starting from left.
*/

void setup()
{
Serial.begin(9600);
pinMode (5, OUTPUT);
pinMode (6, OUTPUT);
pinMode (7, OUTPUT);
pinMode (8, OUTPUT);
pinMode (9, OUTPUT);
pinMode (10, OUTPUT);
pinMode (11, OUTPUT);
pinMode (12, OUTPUT);

}

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

digitalWrite (11, HIGH);
delay (500);
Serial.println("The LED2 is HIGH");
digitalWrite (11, LOW);
delay (500);
Serial.println("The LED2 is LOW");

digitalWrite(10, HIGH);
delay (500);
Serial.println("The LED3 is HIGH");
digitalWrite(10, LOW);
delay (500);
Serial.println("The LED3 is LOW");


digitalWrite(9, HIGH);
delay (500);
Serial.println ("The LED4 is HIGH");
digitalWrite(9, LOW);
delay (500);
Serial.println("The LED4 is LOW");


digitalWrite (8, HIGH);
delay (500);
Serial.println("The LED5 is HIGH");
digitalWrite(8, LOW);
delay (500);
Serial.println ("The LED5 is LOW");

digitalWrite(7, HIGH);
delay (500);
Serial.println ("The LED6 is HIGH");
digitalWrite(7, LOW);
delay (500);
Serial.println("The LED6 is LOW");

digitalWrite(6, HIGH);
delay (500);
Serial.println("The LED7 is HIGH");
digitalWrite(6, LOW);
delay (500);
Serial.println("The LED7 is LOW");


digitalWrite(5, HIGH);
delay (500);
Serial.println("The LED8 is HIGH");
digitalWrite (5, LOW);
delay (500);
Serial.println("The LED8 is LOW");

}
```

IV. Conclusion

As a beginner on using the interface of Arduino and Tinkercad, I find it somehow trouble-free, easy to learn, create, and innovate in a safe and cost-effective manner. This transformative tool has opened exciting possibilities for both beginners and experienced makers in the field of electronics and embedded systems. On the other hand, Engr. Sayo indeed gave us a detailed and step-by-step guide to perform the Ring Counter Display throughout the Laboratory Activity. By executing this activity, I gained an understanding of Ring Counter Display which is a valuable electronic circuit that serves as a versatile tool in various applications, from digital clocks to sequential control systems. At the end, I've successfully programmed the blinking of the 8 LEDs from left to right as per the instructions said.

References

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