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

Microprocessor Lab

Laboratory Activity No. 1
Familiarization with TinkerCAD

Score

Submitted by:
Sunga, Charles Edward T.
<S 10:00am-1:00pm> / <Section 1>

Date Submitted
16-09-2023

Submitted to:

Engr. Maria Rizette H. Sayo

1. Exercise

a. A process in Tinkercad where we can develop electronic circuits that can be quickly updated, modified and tested is called **a prototyping process**.

b. In Tinkercad, **the Start/Stop Simulation** tests the working of the circuits and the components.

c. The device used to assemble and connect the various components is known as **Breadboard.**

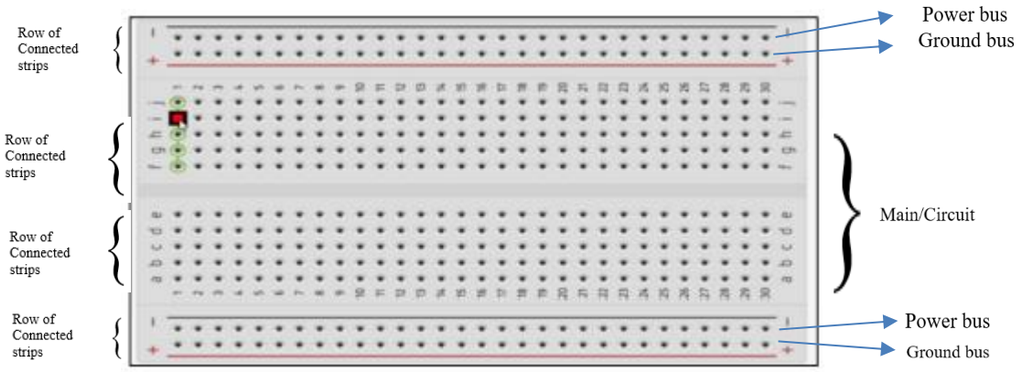
d. In an electronic circuit with LED, the positive end of the circuit should be connected to **Anode** and negative end should be connected to **Cathode** of the LED.

e. A **Resistor** is used to restrict the flow of current to electrical components.

2. Label the following:

a. Anode and Cathode in a LED

b. Different parts of breadboard



c. List the electronic components used in a circuit assembly.

1. **Resistor:** A device that opposes or limits the flow of electrical current.
2. **Capacitor-** Stores electrical energy and can release it when needed.
3. **Diode**: Allows current to flow in one direction only, commonly used in rectification.
4. **LED (Light-Emitting Diode):** Emits light when current flows through it.
5. **Transistor**: Amplifies or switches electronic signals.
6. **Integrated Circuit (IC):** A chip containing multiple interconnected electronic components, often performing complex functions.
7. **Inductor:** Stores energy in a magnetic field and resists changes in current.
8. **Potentiometer:** Adjustable resistor used for controlling voltage or current.
9. **Switch:** Allows you to open or close a circuit manually.
10. **Fuse:** Protects a circuit by breaking the connection if there is excessive current.
11. **Relay:** An electromechanical switch controlled by an electrical signal.
12. **Transformer:** Changes the voltage level of AC (Alternating Current) signals.
13. **Battery:** Provides a source of electrical energy.
14. **Connector:** Used to physically join components and wires.
15. **Sensor:** Detects changes in the environment (e.g., temperature sensor, light sensor).
16. **Crystal Oscillator:** Generates precise frequencies for timing in digital circuits.
17. **Switching Regulator:** Converts one voltage level to another efficiently.
18. **Fuse:** Protects circuits by breaking the connection in case of overcurrent.
19. **Voltage Regulator:** Maintains a stable output voltage despite variations in input voltage or load.
20. **Microcontroller or Microprocessor:** A small computer on a chip, used for controlling and processing data in many electronic devices.

REFERENCES:

Powerpoint Presentation of Engr. Sayo titled “Tinkercad 3D Design and Circuit Modelling”.

Rainer, M. (n.d.). How electronic components work. Mide Technology Engineering Blog. https://blog.mide.com/how-electronic-components-work

14 essential electronic components and their functions. Allied Components International. (n.d.). https://www.alliedcomponents.com/blog/essential-electronic-componentsfunctions

Das, S. (2023, August 17). Electronic components function: Basic components / parts & function. Electronics Tutorial | The Best Electronics Tutorial Website. https://www.electronicsandyou.com/blog/electronic-components-parts-and-their-function.html