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:
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Saturday 1PM-4PM / CPE 0412.1-2

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Submitted to:

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1. Exercise

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

b. In Tinkercad, simulation tests the working of the circuits and the components.

c. The device used to assemble and connect the various components is known as circuit board/breadboard.

d. In an electronic circuit with LED, the positive end of the circuit should be connected to the anode (+) and negative end should be connected to the cathode (-) of the LED.

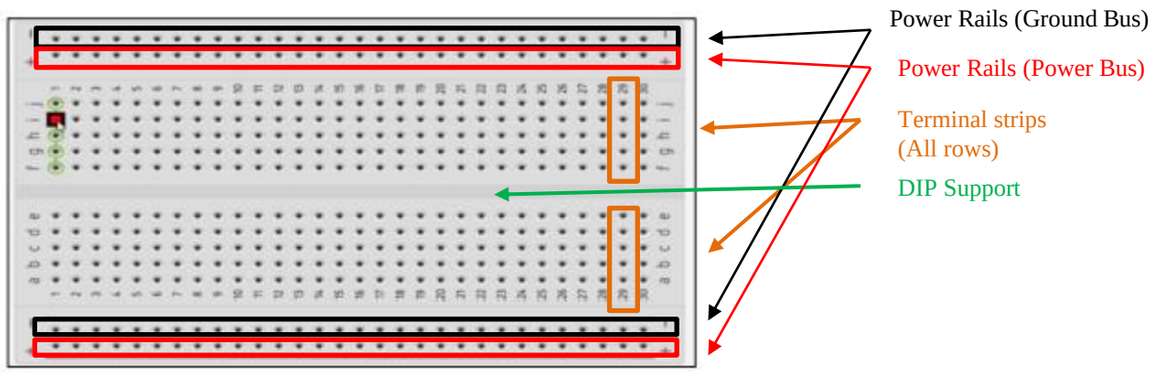
e. A resistor is used to restrict the flow of current to electrical components

2. Label the following:

a. Anode and Cathode in a LED

1. Cathode – the shorter leg (-)
2. Anode – the longer leg (+)

b. Different parts of breadboard



c. List the electronic components used in a circuit assembly

1. Resistor: Restricts the flow of current and is used to control voltage and current levels in a circuit.

2. Capacitor: Stores electrical charge and can release it when needed. Used for filtering, timing, and energy storage.

3. Inductor: Stores energy in a magnetic field and resists changes in current. Used in filters and transformers.

4. Diode: Allows current to flow in one direction while blocking it in the other direction. Used for rectification, voltage regulation, and signal clamping.

5. Light Emitting Diode (LED): Emits light when current flows through it. Used as indicators, displays, and in optoelectronic applications.

6. Transistor: Amplifies and switches electronic signals. Used in amplifiers, oscillators, and digital logic circuits.

7. Integrated Circuit (IC): A package containing multiple interconnected electronic components, such as microcontrollers, operational amplifiers, and logic gates.

8. Switch: A mechanical or electronic component that opens or closes a circuit to control the flow of current.

9. Sensor: A device that measures physical properties (e.g., temperature, light, pressure) and converts them into electrical signals.

10. Potentiometer: A variable resistor used to adjust resistance and control the voltage or current in a circuit.

11. Battery: A portable energy source that supplies electrical power to electronic devices.

12. Wires/Connectors: Used to make electrical connections between components

13. Fuse: A safety device that breaks the circuit if current exceeds a certain value, protecting components from overcurrent.

14. Microcontrollers: typically used in embedded systems, provides intelligence, control, and automation to various devices, making them suitable for applications like robotics, home automation, and IoT devices.

15. Relay: An electromechanical switch that is controlled by an electrical signal. Used to control higher voltage or current devices with a low-voltage signal.