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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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 process.**

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

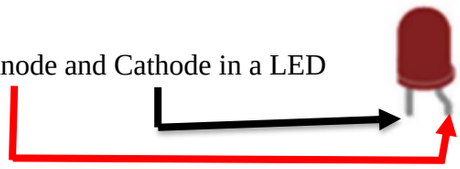
c. The device used to assemble and connect the various components is known as **breadboard.**

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.

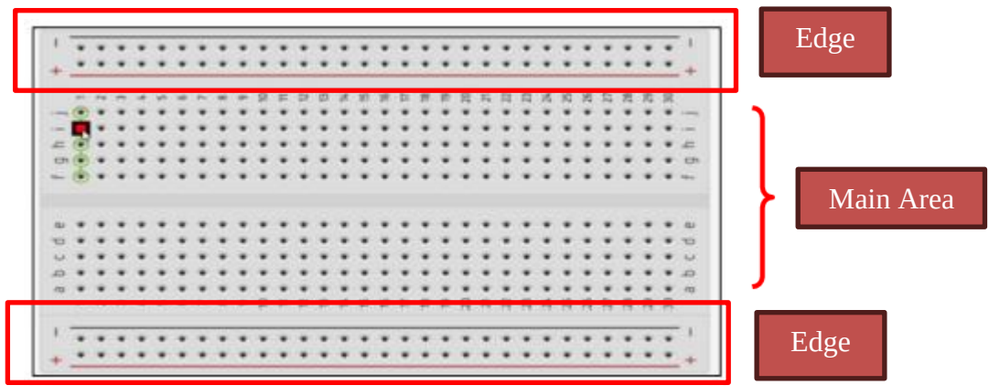
e. A **resistor** is used to restrict the flow of current to electrical components..

2. Label the following:

- Anode and Cathode in a LED



- Different parts of breadboard



- List the electronic components used in a circuit assembly.
  1. Resistor: A resistor is a passive electronic component that has two terminals and a resistance value. Resistors are used to control the flow of current in a circuit. They are available in a variety of values, from ohms to megohms.
  2. Capacitor: A capacitor is a passive electronic component that has two terminals and a capacitance value. Capacitors are used to store electrical energy. They are available in a variety of values, from picofarads to microfarads.
  3. Inductor: An inductor is a passive electronic component that has two terminals and an inductance value. Inductors are used to oppose changes in current. They are available in a variety of values, from millihenries to henries.
  4. Diode: A diode is a semiconductor device that allows current to flow in one direction but not the other. Diodes are available in a variety of types, such as silicon diodes, LEDs, and Zener diodes.
  5. Transistor: A transistor is a semiconductor device that can amplify or switch electronic signals. Transistors are available in a variety of types, such as NPN transistors, PNP transistors, and MOSFETs.
  6. Integrated circuit (IC): An IC is a small electronic device that contains many electronic components, such as transistors, resistors, and capacitors. ICs are used in

a wide variety of electronic circuits, such as computers, smartphones, and televisions.

7. Breadboard: A breadboard is a temporary prototyping platform for electronic circuits. It has rows of holes in which electronic components can be inserted and connected with jumper wires.
8. Jumper wire: A jumper wire is a wire that is used to connect electronic components on a breadboard. It is typically made of insulated copper wire with a banana plug on each end.
9. Battery: A battery is a device that converts chemical energy into electrical energy. Batteries are used to power electronic circuits.
10. LED: An LED is a light-emitting diode that converts electrical energy into light. LEDs are used in a variety of electronic circuits, such as displays and lighting.
11. Switch: A switch is a device that is used to turn a circuit on or off. Switches are available in a variety of types, such as pushbutton switches, toggle switches, and slide switches.
12. Motor: A motor is a device that converts electrical energy into mechanical energy. Motors are used in a variety of electronic circuits, such as robots and toy cars.
13. Buzzer: A buzzer is an electronic device that produces a sound when it is activated. Buzzers are used in a variety of electronic circuits, such as alarms and timers.
14. Breadboard jumper wires: These wires are used to connect components on a breadboard.
15. Male and female headers: These headers are used to connect components to a breadboard or to other components.
16. PCB connectors: These connectors are used to connect components to a printed circuit board (PCB).
17. Temperature sensor: This sensor measures the temperature of the surrounding environment.
18. Light sensor: This sensor measures the amount of light in the surrounding environment.
19. Motion sensor: This sensor detects motion.
20. Sound sensor: This sensor detects sound.
21. Touch sensor: This sensor detects touch.
22. DC motor: This motor converts electrical energy into mechanical energy. It can be used to rotate a wheel or other object.
23. Servo motor: This motor can rotate to a specific position. It is often used to control the movement of robotic limbs.
24. Solenoid: This actuator converts electrical energy into mechanical energy to create a linear movement. It is often used to open and close valves or to move other objects.
25. LED display: This display uses LEDs to display numbers, letters, and other characters.
26. Seven-segment display: This display uses seven segments to display numbers.
27. LCD display: This display uses liquid crystal to display text and images.
28. Potentiometer: This component is used to vary the resistance in a circuit. It can be used to control the brightness of an LED or the speed of a motor.
29. Push button: This component is used to turn a circuit on or off when it is pressed.
30. Toggle switch: This component is used to turn a circuit on or off and to keep it in the desired state until it is switched again.
31. Slide switch: This component is used to select between two or more options.
32. Buzzer: This component produces a sound when it is activated.
33. Arduino: This microcontroller board can be used to create and control a wide variety of electronic circuits.