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 Virtual Prototyping.

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

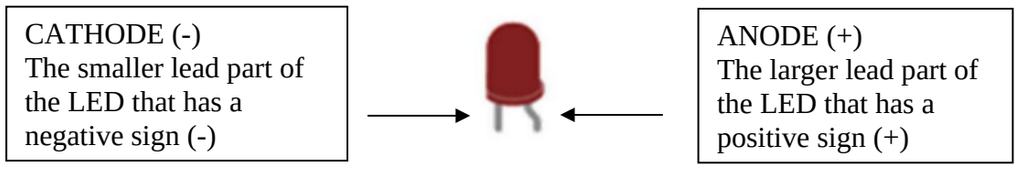
c. The device used to assemble and connect the various components is known as Breadboard

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.

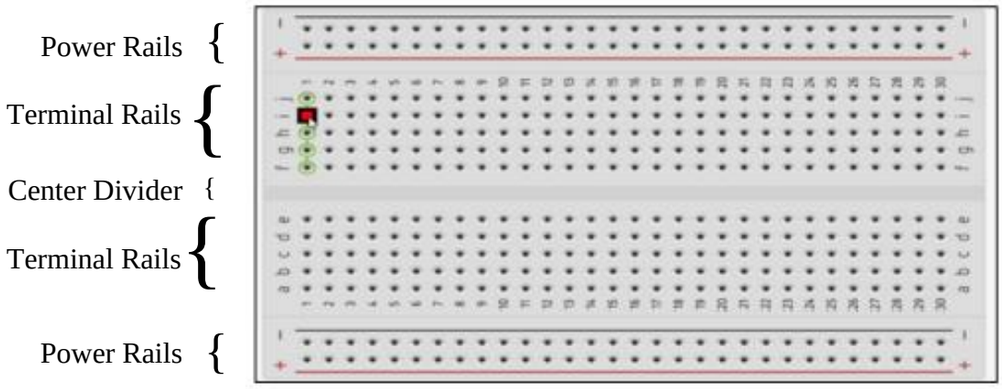
e. A Resistor is used to restrict the flow of current to electrical components

2. Label the following:

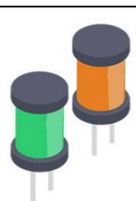
a. Anode and Cathode in a LED

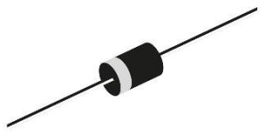
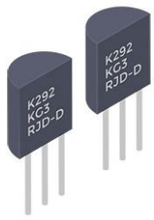
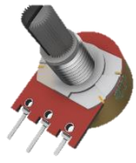


b. Different parts of breadboard



c. List the electronic components used in a circuit assembly

Component	Image	Use
1.Resistor		A resistor is a type of electrical/electronic device that resists the passage of electricity. It is a passive device used to restrict or obstruct the passage of electric current in an electric circuit by creating resistance and causing a voltage drop across the device.
2.Capacitor		Capacitors perform two functions at the same time: they enable AC, or Alternating Current, to flow through them while resisting DC, or Direct Current, through them. There are many types of capacitor and their symbol varies.

3. Diode		A diode is a semiconductor device that functions as a one-way current switch. It permits current to flow freely in one direction while drastically limiting current flow in the opposing direction. This is accomplished by the use of a built-in electric field.
4. Transistor		A transistor can function as a switch or gate for electronic signals, opening and shutting an electronic gate several times per second. It guarantees that the circuit is turned on if electricity is flowing and turned off if it is not.
5. Inductor		An inductor is a passive component used in most electrical circuits to store energy in the form of magnetic energy when an electric current passes through it. It is sometimes referred to as the coil, choke, or reactor. It is a two-terminal electrical component distinguished by its inductance.
6. Battery		Through electrochemical cells, batteries provide electric power. Each cell has an anode (-), a cathode (+), and an electrolyte. It operates on the electrochemical reaction concept, with the cells generating an electron flow via a chemical reaction. Batteries, in layman's terms, are portable containers that store electrical potential energy.
7. Switch		Switches are electronic devices that interrupt or permits the flow of electricity or signals in a circuit. It is used to regulate the flow of current in a circuit. It just has two operations: open and close. Current will not flow if the switch is open, and current will flow if the switch is closed.
8. Integrated Circuit		An IC is a collection of electronic components -- resistors, transistors, capacitors, etc. -- all stuffed into a tiny chip, and connected together to achieve a common goal.
9. Potentionmeter		Also known as a Potmeter or Pot, it comprises of a resistive element called the track and a sliding contact called the wiper inside whose end terminals are coupled to the resistive element. They are used to precisely measure voltage and assist in obtaining variable voltage from a fixed-voltage source.

Component	Image	Use
10. Logic Gates		A type of electronic component that prevents the components from being overloaded with excessive current. A fuse is made composed of a connecting body, a support, contacts, and a metal-fuse substance like zinc or copper.
11. Light-Emitting Diode		A direct voltage source, as the name indicates, continually produces direct voltage output. Batteries and DC generators are two common examples. A direct voltage source has the advantage of maintaining the same polarity of the output voltage, i.e. the positive and negative terminals stay the same.
12. Voltage Regulator		A voltage regulator is a component that ensures a stable constant voltage supply during all operational situations. It can control both AC and DC voltages. It accepts larger input voltage and outputs a lower, more steady voltage. Their secondary function is to shield the circuit from voltage spikes that might damage or fry it.
13. Jumper Wires		Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.

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