



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:
Marquez, Kert Justine D.
1-4 PM / CPE 0412-2

Date Submitted
16-09-2023

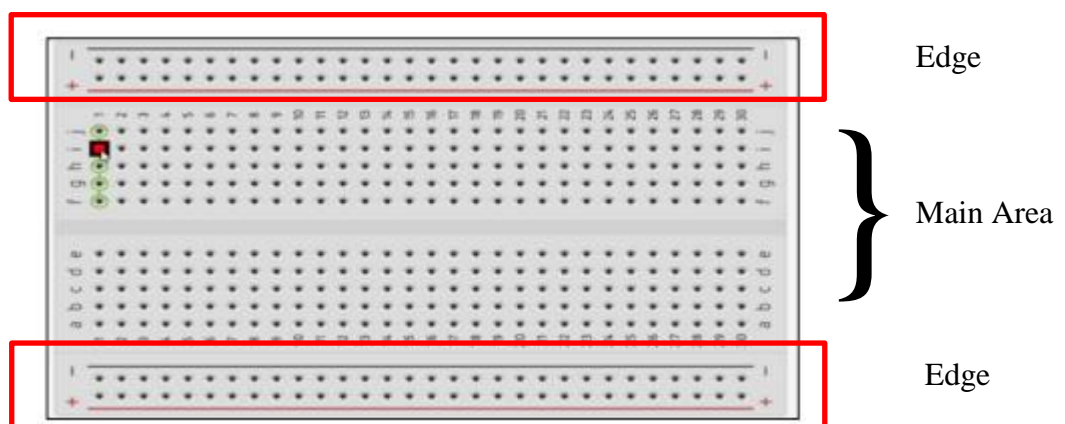
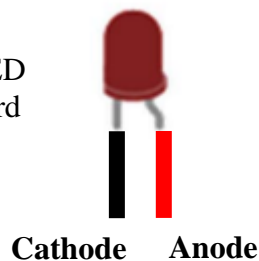
Submitted to:
Engr. Maria Rizette H. Sayo

1. Exercise

- a. A process in Tinkercad where we can develop electronic circuits that can be quickly updated, modified and tested is called _____.
 - **Prototyping process**
- b. In Tinkercad, _____ tests the working of the circuits and the components.
 - **Simulation**
- 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 _____ and negative end should be connected to _____ of the LED. ‘
 - **Positive end: Anode**
 - **Negative end: Cathode**
- e. A _____ is used to restrict the flow of current to electrical components
 - **Resistor**

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
 - a. General
 - i. Resistor
 - ii. Capacitor
 - iii. Polarized Capacitor
 - iv. Diode
 - v. Zener Diode
 - vi. Inductor
 - b. Input

- i. Pushbutton
 - ii. Potentiometer
 - iii. Slideswitch
 - iv. Photoresistor
 - v. Photodiode
 - vi. Ambient Light Sensor (Phototransistor)
 - vii. Flex Sensor
 - viii. Force Sensor
 - ix. IR sensor
 - x. Ultrasonic Distance Sensor
 - xi. PIR Sensor
 - xii. Soil Moisture Sensor
 - xiii. Tilt Sensor
 - xiv. Tilt Sensor 4-pin'
 - xv. Temperature Sensor
 - xvi. Gas Sensor
 - xvii. Keypad 4x4
 - xviii. DIP Switch DPST
 - xix. DIP Switch SPS x 4
 - xx. DIP Switch SPST x 6
- c. Output
 - i. LED
 - ii. LED RGB
 - iii. Light Bulb
 - iv. NeoPixel
 - v. NeoPixel Jewel
 - vi. NeoPixel Ring 12
 - vii. NeoPixel Ring 16
 - viii. NeoPixel Ring 24
 - ix. NeoPixel Strip 4
 - x. NeoPixel Strip 6
 - xi. NeoPixel Strip 8
 - xii. NeoPixel Strip 10
 - xiii. NeoPixel Strip 12
 - xiv. NeoPixel Strip 16
 - xv. NeoPixel Strip 20
 - xvi. Vibration Motor
 - xvii. DC Motor
 - xviii. DC Motor with encoder
 - xix. DC Motor with Encoder
 - xx. Micro Servo
 - xxi. Micro Servo
 - xxii. Hobby Gearmotor
 - xxiii. Piezo
 - xxiv. IR Remote
 - xxv. 7 Segment Display
 - xxvi. LCD 16 x 2
 - xxvii. LCD 16 x 2 (12C)
 - xxviii. 7-Segment Clock Display
- d. Power
 - i. 9V Battery
 - ii. 1.5V Battery
 - iii. Coin Cell 3V Battery
 - iv. Solar Cell
 - v. Potato Battery
 - vi. Lemon Battery
- e. Breadboards
 - i. Breadboard
 - ii. Breadboard small
 - iii. Breadboard mini
- f. Microcontroller

- i. Micro bit
 - ii. Micro bit with breakout
 - iii. Arduino uno r3
 - iv. ATtiny
- g. Instruments
 - i. Multimeter
 - ii. Power Supply
 - iii. Function Generator
 - iv. Oscilloscope
- h. Integrated Circuits
 - i. Timer
 - ii. Dual Timer
 - iii. 741 Operational Amplifier
 - iv. Quad comparator
 - v. Dual comparator
 - vi. optocoupler
- i. Power Control
 - i. NPN transistor (BJT)
 - ii. PNP transistor (BJT)
 - iii. Small signal nMOS Transistor
 - iv. Small signal pMOS Transistor
 - v. nMOS Transistor (MOSFET)
 - vi. pMOS Transistor (MOSFET)
 - vii. TIP120
 - viii. RELAY SPDT
 - ix. RELAY DPDT
 - x. 5V Regulator (LM7805)
 - xi. 3.3V Regulator (LD1117V33)
 - xii. Pololu Simple Motor Controller
 - xiii. H-bridge Motor Driver
- j. Connectors
 - i. 8 Pin Header
 - ii. USB standard A
- k. Logic
 - i. Quad NAND gate
 - ii. Quad NOR gate
 - iii. Quad AND gate
 - iv. Qua or gate
 - v. Quad xor gate
 - vi. Hex inverter
 - vii. Inverting Schmitt trigger
 - viii. Quad nand Schmitt trigger
 - ix. Triple 3-Input Nand gate
 - x. Triple 3-Input AND gate
 - xi. Triple 3-Input NOR gate
 - xii. Dual 4-Input NAND gate
 - xiii. Dual 4-Input AND gate
 - xiv. Dual J-K Flip-Flop
 - xv. Dual D Flip-Flip
 - xvi. 4-Bit Latch
 - xvii. 4-Bit Binary Counter
 - xviii. 4-Bit Adder
 - xix. 8-Bit Shift Register
 - xx. Johnson Decade Counter
 - xxi. 7-Segment Decoder
 - xxii. 8-port I2C expander