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CLASS AND GROUP:215-A

SEMESTER: 2nd

EXP-2.2

AIM OF THE EXPERIMENT: **DESIGN A DATA ACQUISITION SYSTEM USING MULTIPLEXER.**

TASK TO BE DONE:
• In this experiment we will create a data acquisition system using AND, NOT, OR logical gates
• Making circuit using 74153 IC for data acquisition system**.**

APPARATUS:
• IC74153,
• Resistances (470 ohms,1K ohms,1.5 k ohms,2.2 k ohms),
• 5V Power Supply,
• Breadboard • Connecting wires.
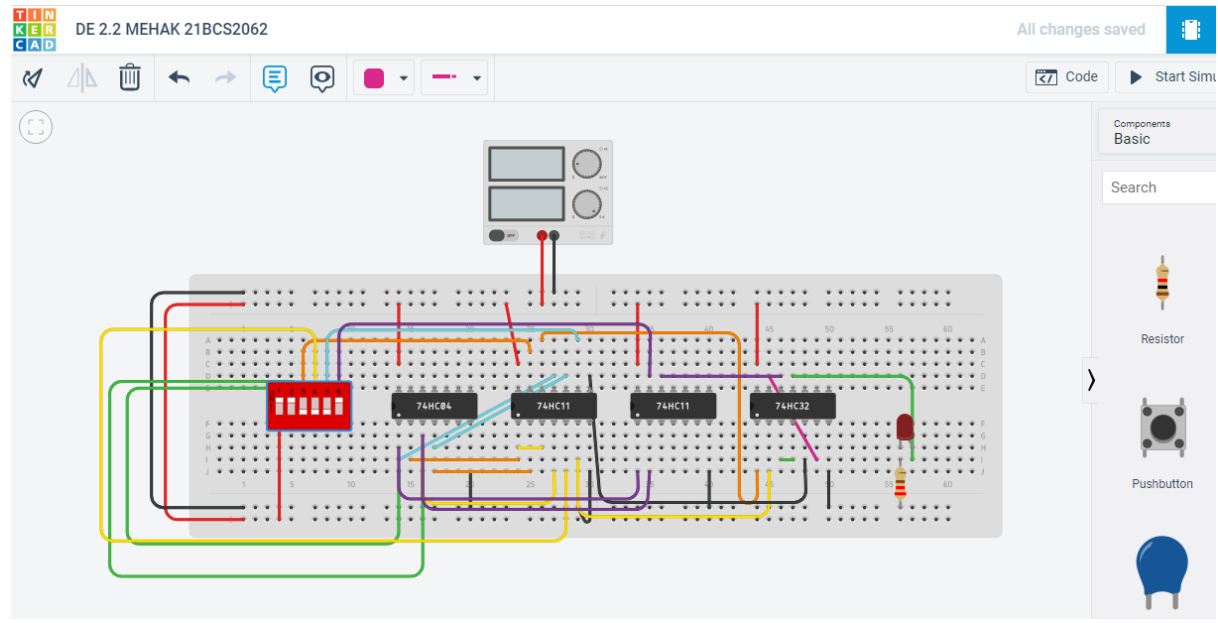
CIRCUIT DIAGRAM/ BLOCK DIAGRAM:
We can also assemble this circuit over a breadboard and check if they are working. To do that we have used two push buttons are inputs for the control pins A and B. And, used a series of potential divider combinations to provide variable voltages for the pins 12, 14, 15 and 11. The output pin 13 is connected to an LED. The variable

voltages supplied to the LED will make it to vary the brightness based on the control signals.
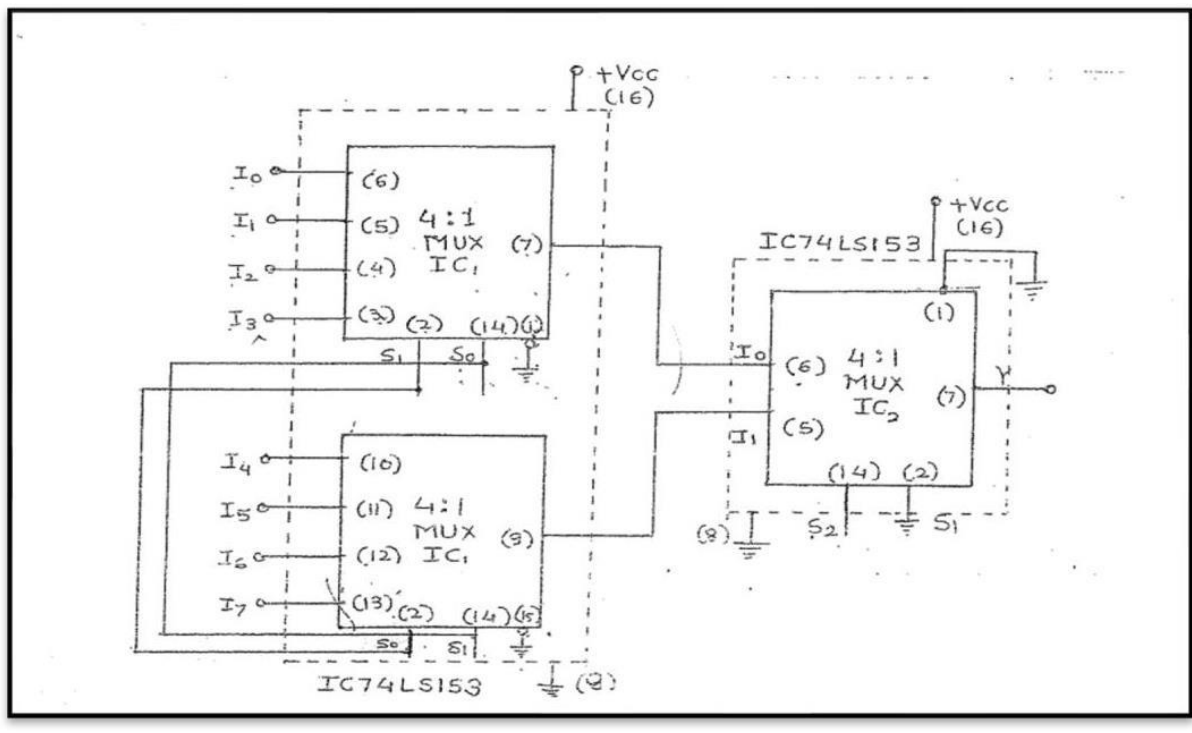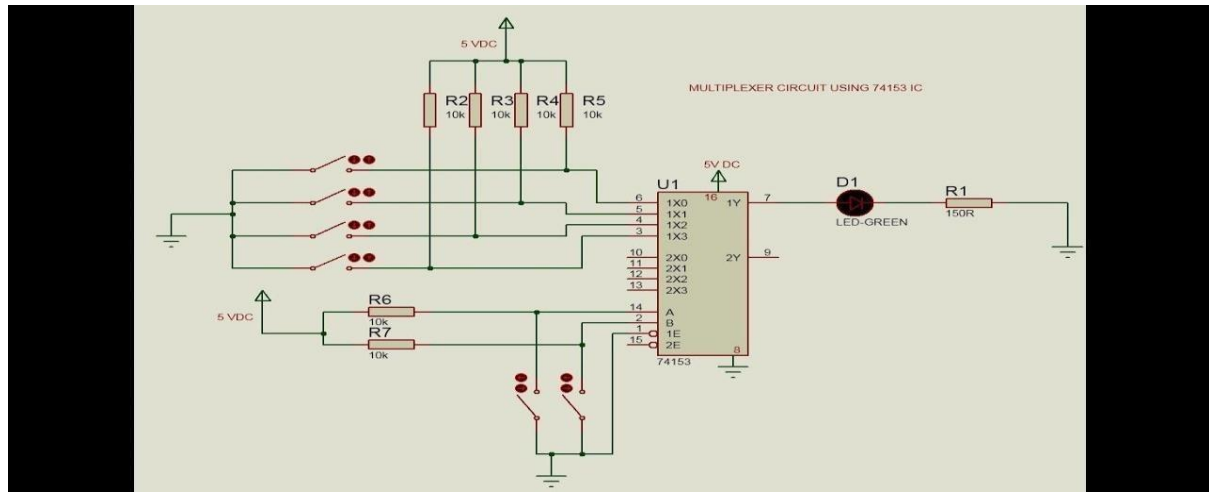
SIMULATION RESULTS:

CONCEPT USED: We assemble this circuit over a breadboard and check if they are working. To do that we have used two push buttons are inputs for the control pins A and B. And, used a series of potential divider combinations to provide variable voltages for the pins 12, 14, 15 and 11. The output pin 13 is connected to an LED. The
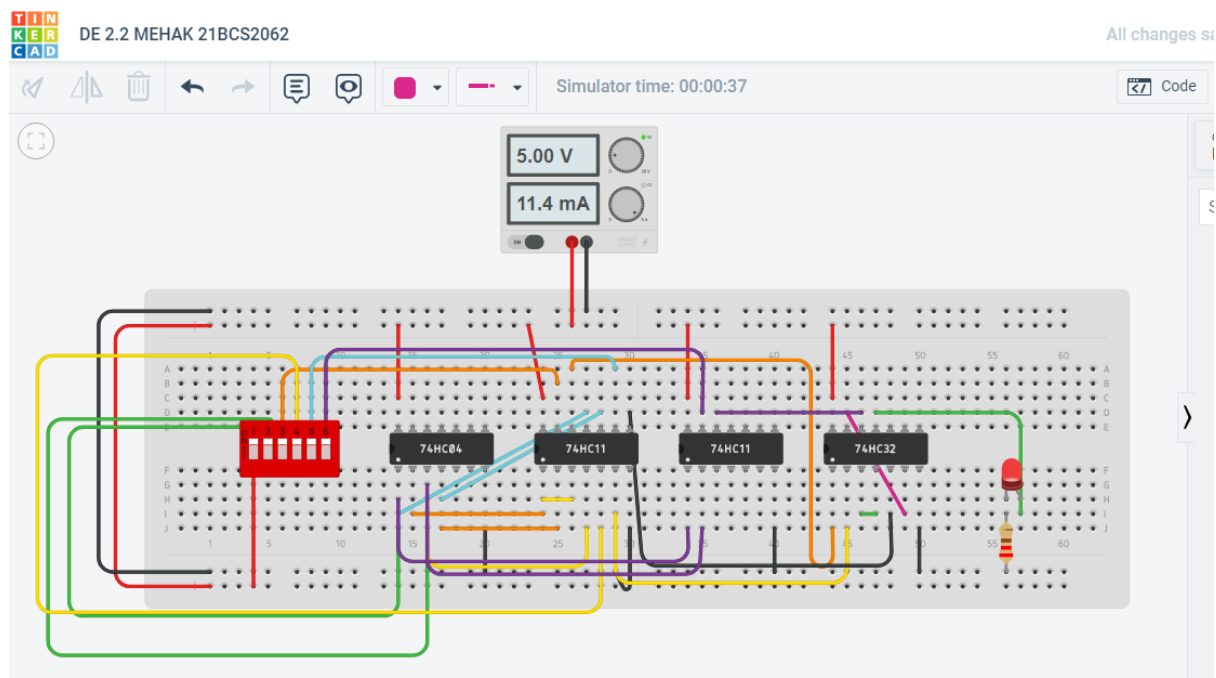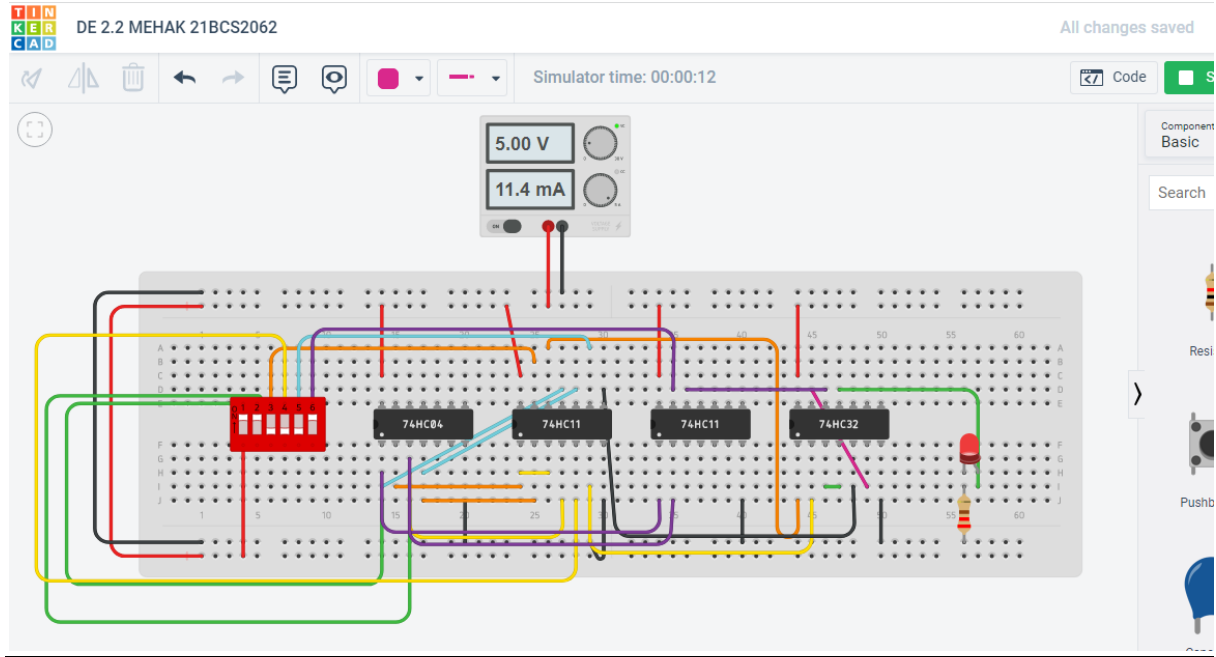
variable voltages supplied to the LED will make it to vary the brightness based on the control signals.

LEARNING/ OBSERVATION:

1. To understand the behaviour and demonstrate the Implementation of 8:1 Multiplexer using IC 74LS153.
2. The pins X0, X1, X2 and X3 are the four input pins and the pin X is its corresponding output pin.
3. The control pins A and B are used to select the required input to the output pin.
4. The Vdd pin (pin 16) has to connect to the supply voltage which is +5V and the Vss and Vee pin should be grounded.
5. The Vee pin is for enable which is an active low pin so we have to ground it to enable this IC.
6. The MC14052 is an Analog Multiplexer meaning the input pins can also be supplied with variable voltage and the same can be obtained through the output pins.

7. If LED is connected to the output pin, then the variable voltages supplied to the LED will make it to vary the brightness based on the control signals.

TROUBLESHOOTING:

• IC Blast-Input must be off 5 volts else IC will burn out.
• Connection Error-Connections should be jointed correctly.
• Connections must be tight.
• LED burn-Blast Resistor is used to limit the current through the LED that prevents it from burning.
• Connect output carrying wire (green wire) to the anode of LED through the resistor NOT to cathode.

RESULT:

• The Data acquisition system using Multiplexer has been designed and Implemented.