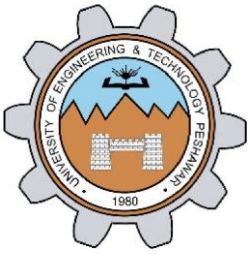
Verification of Ohm’s law Using Bread-Board

LAB # 4



Spring 2022

CIRCUIT AND SYSTEMS 1 LAB

Submitted by: MUHAMMAD SADEEQ

Registration No.: 21PWCSE2028

Section: C

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work.'

Submitted to:

Engr. Faiz Ullah

(May, 2022)

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Experiment # 4

Verification of Ohm's Law on breadboard using DMM

Objectives:

In this lab we verified ohm's law through practical experiment

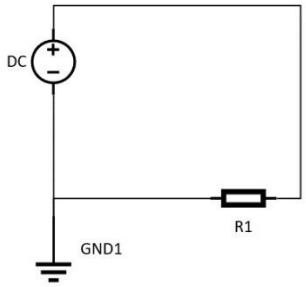
Ohm's Law:

Ohm's law states that the current through a conductor between two points is directly proportional to the voltage across the two points. Introducing the constant of proportionality, the resistance, one arrives at the usual mathematical equation that describes this relationship:

$$I=V/R$$

where *I* is the current through the conductor in units of amperes, *V* is the voltage measured *across* the conductor in units of volts, and *R* is the resistance of the conductor in units of ohms.

Circuit Diagram:



Apparatus:

1) Power supply
2) Breadboard
3) Wires
4) Digital Multimeter
5) Resistor

Procedure:

1) First we connect the components and the wires according to the circuit diagram as given below:

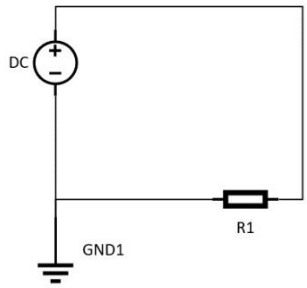


Figure 9 Circuit Diagram

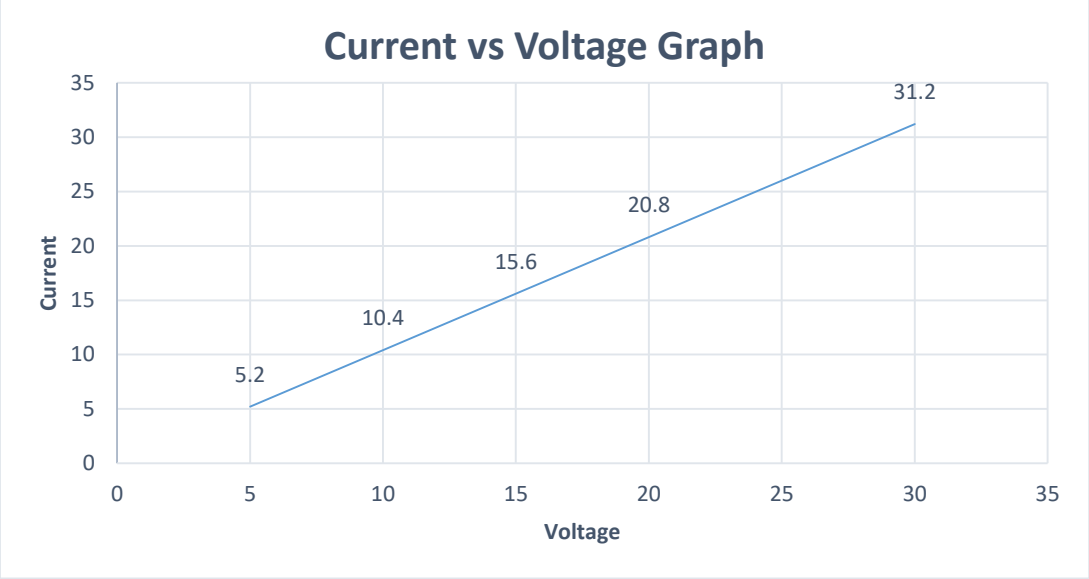
2) We set the power supply at certain voltage and then measure the current through digital multimeter.
3) Repeat the previous step several times and then graph all the values.
4) If the graph is straight line, then this verifies the ohm's law.

Observation:

R=960k Ω

Serial No.	Voltage (V)	Current (A)	Error
1.	5-0=5	5.2μA	0
2.	15-5=10	10.4μA	0
3.	15-0=15	15.6μA	0
4.	5-(-15)=20	20.8μA	0
5.	15-(-15)=30	31.2μA	0

Graph:



Conclusion:

The data shows that the higher the voltage, then the higher current, meaning that the voltage is directly proportional to the current, which is what Ohm's law states.

A straight line graph is obtained when we plot a graph of voltage vs current.