Laboratory 01: Wiring Protoboards & Measuring Voltage

(Edit this document as needed)

Partner 1: _____Bate Egbe_____661923326____

Partner 2: _____Saaif Ahmed_____661925946_____

Partner 3: _____ (if needed)

Brief description of experiment:
        The objective of this experiment is to apply Ohm's Law in a few basic
applications and understand how it works in a circuit. We will develop a few circuits with
one varying component to analyze the changes in voltage and current.

Part I
Verification that your LED turned on by a Teaching Assistant/Instructor. ____YL_____

Circuit measurements for LED circuit with one resistor

Resistor	Voltage (measured)	Current (calculated)
470 Ω	7.3	0.0155
4.7kΩ (4700 Ω)	7.56	0.0016
1MΩ (10^6 Ω)	7.84	7.84 * 10^-6

What happens to the current as the value of the resistor increases?
        As the value of the resistor increases the current decreases.

How does the LED brightness behave as current changes?
        As the current decreases the overall brightness of the LED is lower.

Part 2
Circuit measurements for LED circuit with two resistors:

Resistor	Voltage (measured)
R1	7.12
R2	1.75

When you add the resistor in parallel with the LED, why do you think the measured voltages for the two resistors are different?

The circuit is powered by a 9 volt supply. That means the total voltage across the circuit must be 9 volts. The first resistor (R1) has a voltage of approximately 7 volts and the second (R2) has a voltage of approximately 2 volts. Added together that equals 9 volts. R2 is placed in parallel with the LED and in series with R1. In a parallel circuit the total resistance of the components is less than the individual components resistance. In addition the voltage across each component in parallel is equal. The first resistor has a larger voltage as it is placed directly in series with the supply. The second resistor is placed in a parallel circuit after R1. Therefore it has a lower resistance.