Circuits

SE3910 – Lab 2

Name: _____

Date: _____

Spring 2016

Milwaukee School of Engineering (MSOE)

Electrical Engineering and Computer Science (EECS)

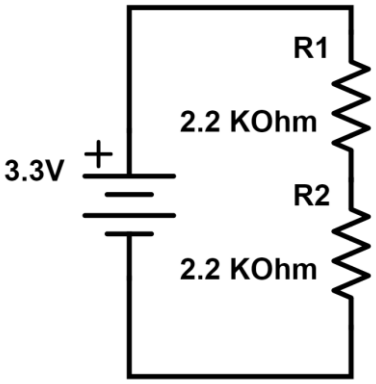
Instructor: Dr. Josiah Yoder

Introduction

Circuit 1

Prelab – Analyze Circuit

Label the circuit below with the voltage across and current through each component, including the source. You may do the analysis on the side.



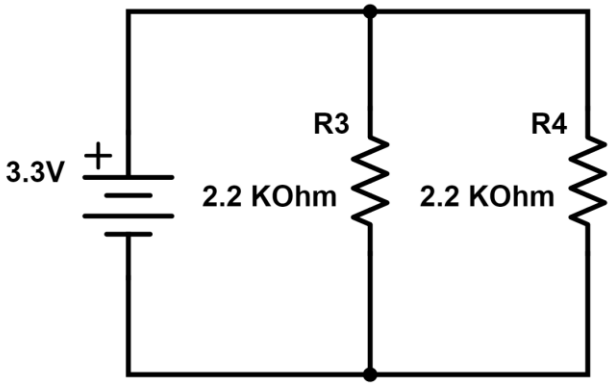
In Lab – Measure Voltage

Measured: R1: _____ R2: _____

Circuit 2

Prelab – Analyze Circuit

Label the circuit below with the voltage across and current through each component, including the source. You may do the analysis on the side



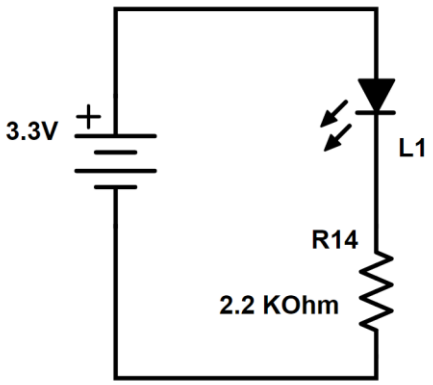
In Lab – Measure Voltage

Measured: R3: _____ R4: _____

Circuit 5

Prelab – Analyze Circuit

Label the circuit below with the voltage across and current through each component, including the source. You may do the analysis on the side. Assume the voltage dropped across the LED is 2.12 V. The flat side of the LED is the cathode (negative terminal). This is also the shorter lead. (See the documentation and resources section of the report for the specification of the LED.)



In Lab – Measure Voltage

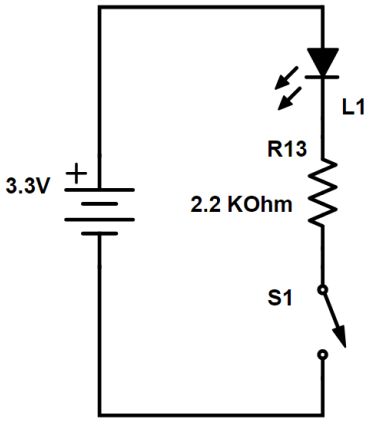
Measured: R14: _____ (EC: V needed for 20mA: _____

Do not apply this voltage to your circuits. Power absorbed by LED in this case: _____)

Circuit 6

Prelab – Analyze Circuit

Label the circuit below with the voltage across and current through each component, including the source, in both the case when the switch is open, and when the switch is closed. You may do the analysis on the side.



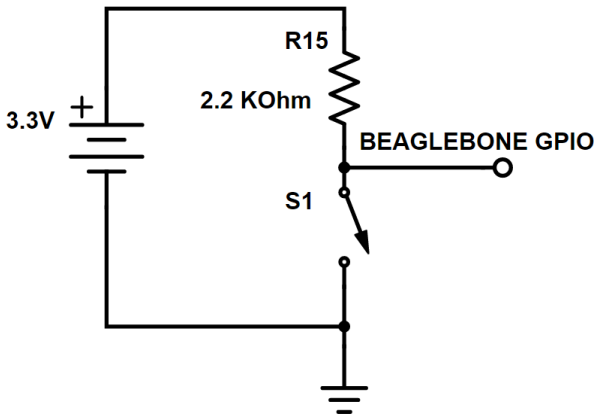
In Lab – Measure Voltage

Measured: S1 closed: _____ S1 open: _____

Circuit 7

Prelab – Analyze Circuit

Label the circuit below with the voltage across and current through each component, including the source, in both the case when the switch is opened and when the switch is closed. You may do the analysis on the side. The GPIO pin is an INPUT here.



In Lab – Measure Voltage

An open (unpressed) switch is illustrated in the figure above.

Measured: GPIO when open: _____ GPIO when closed: _____

From the Beaglebone, read the GPIO pin and report its value when the switch is open and closed:

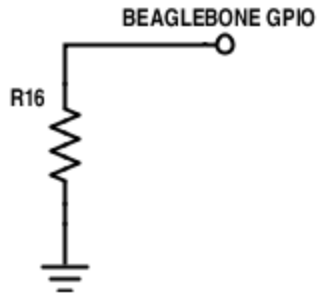
BeagleBone: GPIO when open: _____ GPIO when closed: _____

Circuit 8

Prelab – Analyze Circuit

This one is purely theoretical. What is the minimum resistance for R16 that is allowed to be used in the circuit below? The minimum resistance for R16: _____

Show work and explain why this is a **minimum** resistance rather than a **maximum** resistance.



In-Lab Observations

[You can write these on the previous pages if desired. You must write SOME in-lab observations, and you may wish to summarize them here. I do not expect you to fill this space.]

Analysis and Conclusions

[Write your explanations for observations here. I do not expect you to fill this space.]

Excellent Credit:

[Write any excellent-credit efforts you made beyond the requirements (and the EC on circuit 5) here. See ideas at the end of the lab webpage.]

Comments on the Lab, good or to be improved [Required]
