Jonathan Hess

Section 3.2

## Week 3 Lab Report: Title

# Lab Report Rubric

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| --- | --- | --- |
| **Category** | **Student Score** | **Grader Score** |
| **Organization** | | |
| **Appropriate sections** | **1/1** | **/1** |
| **Appearance and formatting** | **2/2** | **/2** |
| **Spelling, grammar, sentence structure** | **1/1** | **/1** |
| **Work** | | |
| **Experimental procedure** | **1.5/2** | **/2** |
| **Results (data, code, figure, graph, tables, etc.)** | **2/2** | **/2** |
| **Conclusion** | **2/2** | **/2** |
|  |  |  |
| **Total** | **9.5/10** | **/10** |

# Introduction

This week we were given disposable cameras to take apart and analyze. I mostly analyzed the electronics in the camera after removing the outer layer. The circuit in the camera controlled the flash of the camera and contained many parts.

Then we worked with the arduino kit and I built the basic blink light and then my own program for the RGB LED to make it do other colors.

# Systems Level Perspective



# Procedure

In this section you will explain your approach of working through different problems/questions/tasks you attempted during the lab.

## State the Task/Problem/Question Attempted

Figure out how the flash in the camera worked.

## Procedure

E**xplain in detail** what you did to find the answer to your question. The reader should be able to follow your procedure and repeat exactly what you did.

1. removed the locks on the bottom of the camera’s case.
2. took out the circuit from the case
3. discharged the capacitor with a screwdriver
4. I looked at the parts and up the parts
5. experimented with the charging circuit and checking voltages.
6. Wrote the code in the arduino IDE
7. Made circuit for blinking external led on breadboard
8. Plugged the arduino into the computer
9. Tried uploading the file
   1. Had errors with uploading that were solved with unplugging wires from pin 0 (tx pin)
10. Plugged RGB led into breadboard with each pin to a different pin on the arduino
11. Created a program that turned on blue and red for equal periods to create purple.

CODE TO MAKE PURPLE

setup code:

pinMode(BLUE, OUTPUT); //set the pins to BLUE, RED, GREEN CONSTANTS

pinMode(RED, OUTPUT); //set the pins to BLUE, RED, GREEN CONSTANTS

lopping code:

digitalWrite(BLUE, HIGH);

digitalWrite(RED, LOW);

delay(50);

digitalWrite(RED, HIGH);

digitalWrite(BLUE, LOW);

delay(50);

# Results

## Results

After looking at the circuit for a while I came to realize that the IC created an alternating current that was then fed into the transformer to step up the voltage. This is because you can’t easily boost a DC voltage so they boost the AC signal and then get DC with a diode.

 Transformer that steps up voltage.

Rectifying Diode for converting AC to DC (not full bridge)

What was fun to know was even shorting the capacitor didn’t break it, showing how capacitors can handle very high voltage and current.

I was thinking that on my own I could make an RGB color input where it would prompt you the values and then make the color by changing the time that the lights are on.

# Conclusions and Reflection

With the camera I learned more about transformers such as them getting hot after charging the capacitor. I also learned about PWM for motors and it was cool to see how it would work for LED lights. I also saw the setup transformer that increased the voltage but had to be passed through a diode to get DC voltage.

## ***Include the questions, or ideas you had or areas where you got stuck and want to think more about. Discuss these with your lab mentors or teammates or others in the lab. Maybe some others might have the same kind of questions…***