CEIS101 PORTFOLIO PROJECT

Created By:

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INTRODUCTION

Hello everyone, this project is to demonstrate all my work that I have completed while taking CEIS101.

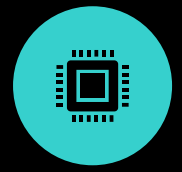
Some of the things done in this class were to develop a smart home security system part of it being with Tinker cad and the rest using a breadboard and Arduino IDE.

Throughout this PP Presentation you will get a glance at exactly the type of things I created while taking CEIS101.

PROJECT OVERVIEW

Using Tinker Cad in the beginning of the class.

Went over how to use a breadboard and what it does.



Used Arduino controller.

Arduino IDE to run code from Arduino controller.

Used Ultrasonic Sensor

Used LED lights.

Used Resistor and Photoresistor.

Used passive buzzer for alarm.

CIRCUIT SIMULATION-TINKER CAD

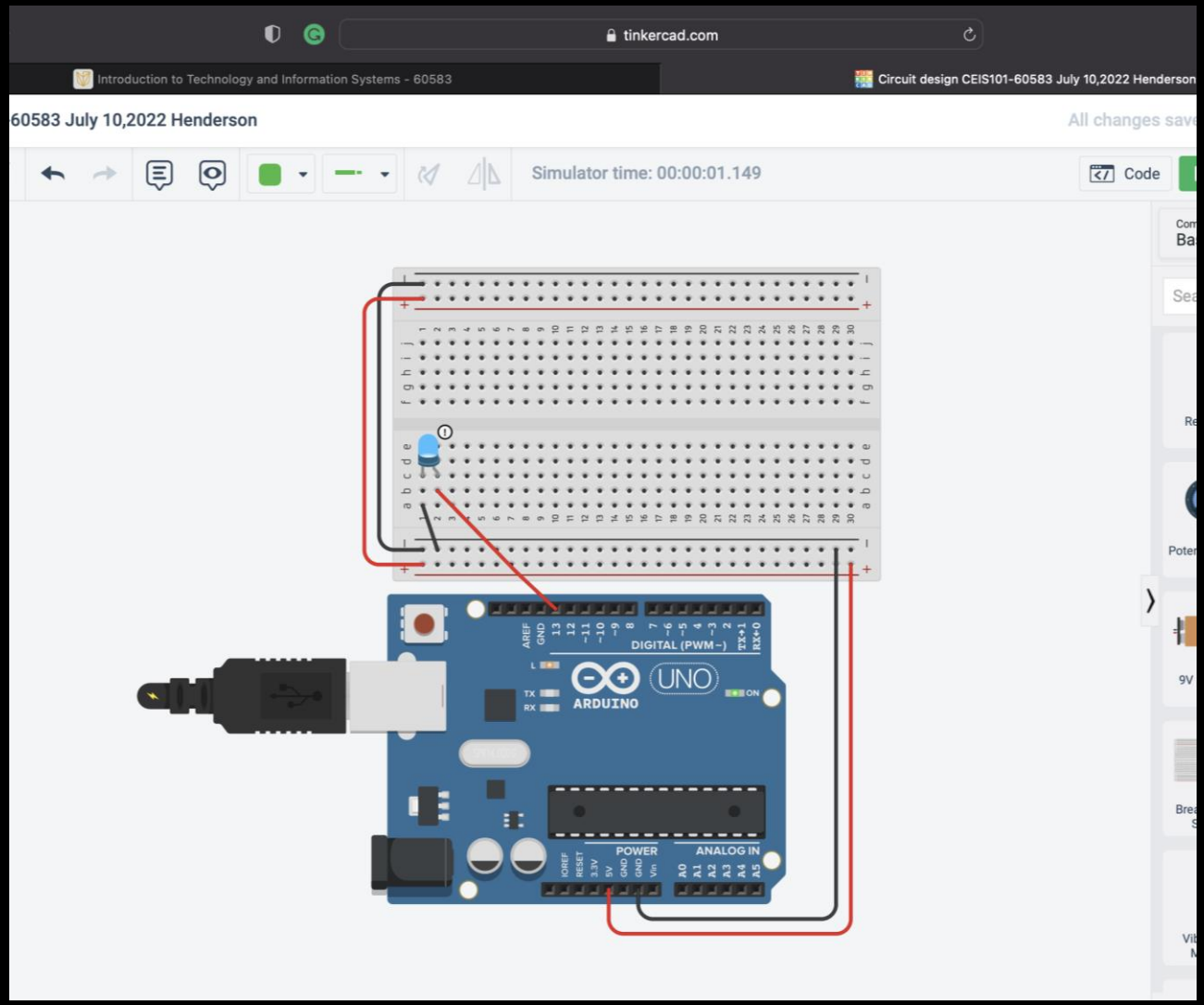
Created a circuit with Tinker Cad.

Used red and black wires for ground and power to simulate light coming on.

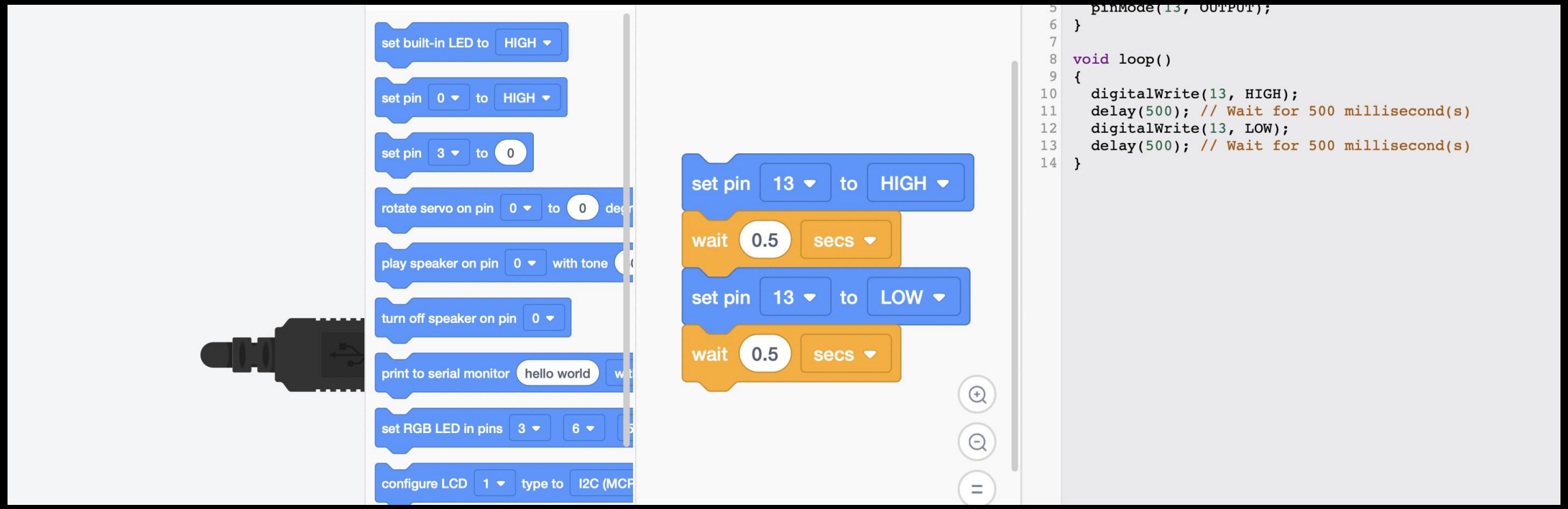
Used blue LED.

Ran code using Tinker Cad.

TINKER CAD CIRCUIT LAYOUT



IOT CODE USING TINKER CAD

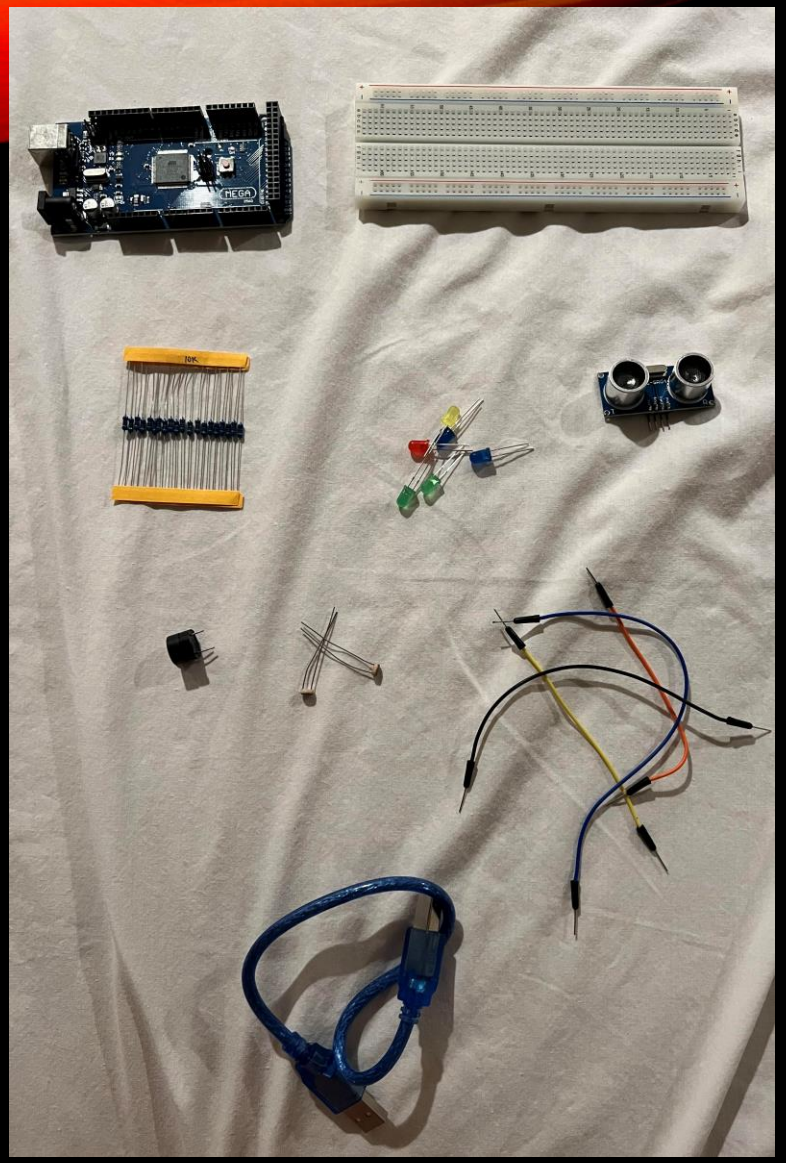


INVENTORY OF PARTS, CIRCUIT BUILDING, AND DISPLAYING MESSAGES

- Inventoried parts for Arduino Kit.
- Used Breadboard to simulate red light.
- Used red and black wires for ground and power for light to come on.
- Used Arduino IDE for serial monitoring and code.

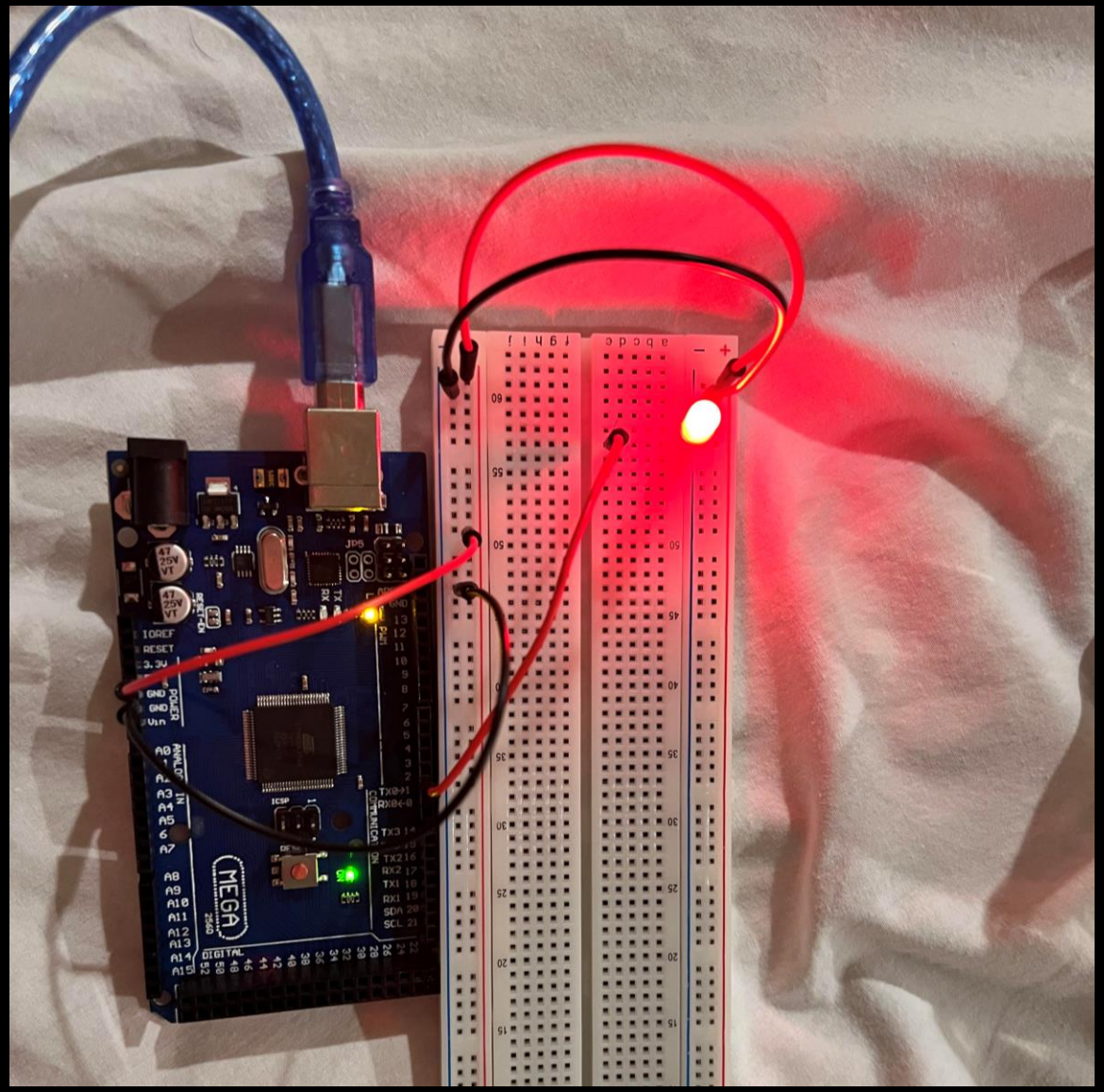
INVENTORY OF IOT KIT

- UCTRONICS Kit
- ESP32 (2)
- LCD Modules (2)
- Breadboards (3)
- Mini Router
- Patch Cable
- Digital Multi Meter
- USB to Micro USB (2)



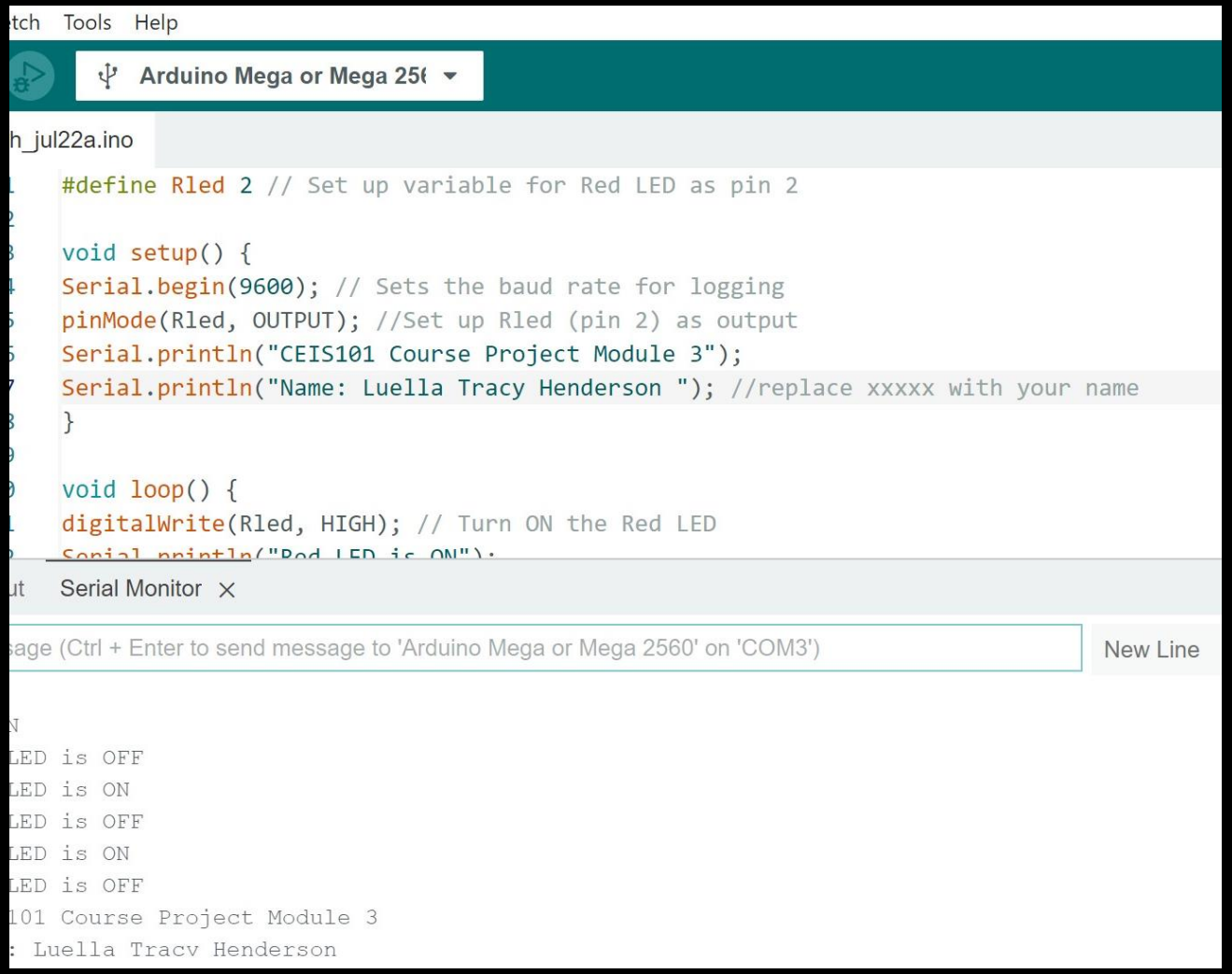
ORGANIZATION OF PROJECT COMPONENTS

- Arduino Mega 2560
- Breadboard
- Resistor 10kΩ
- LEDs
- Ultrasonic Sensor
- Active Buzzer
- Photoresistor
- Wires
- USB Type B cable



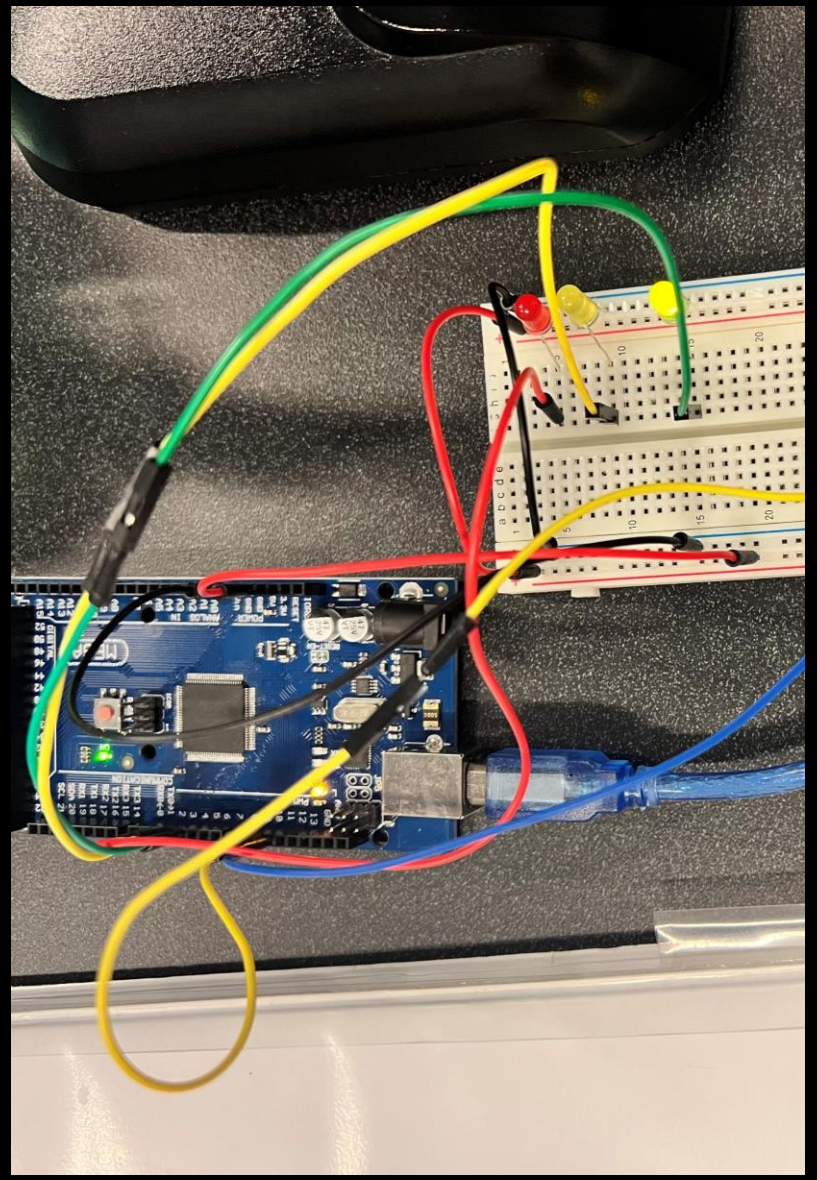
BREADBOARD & ARDUINO MEGA CIRCUIT WITH RED LED ON

ARDUINO IDE SERIAL MONITOR

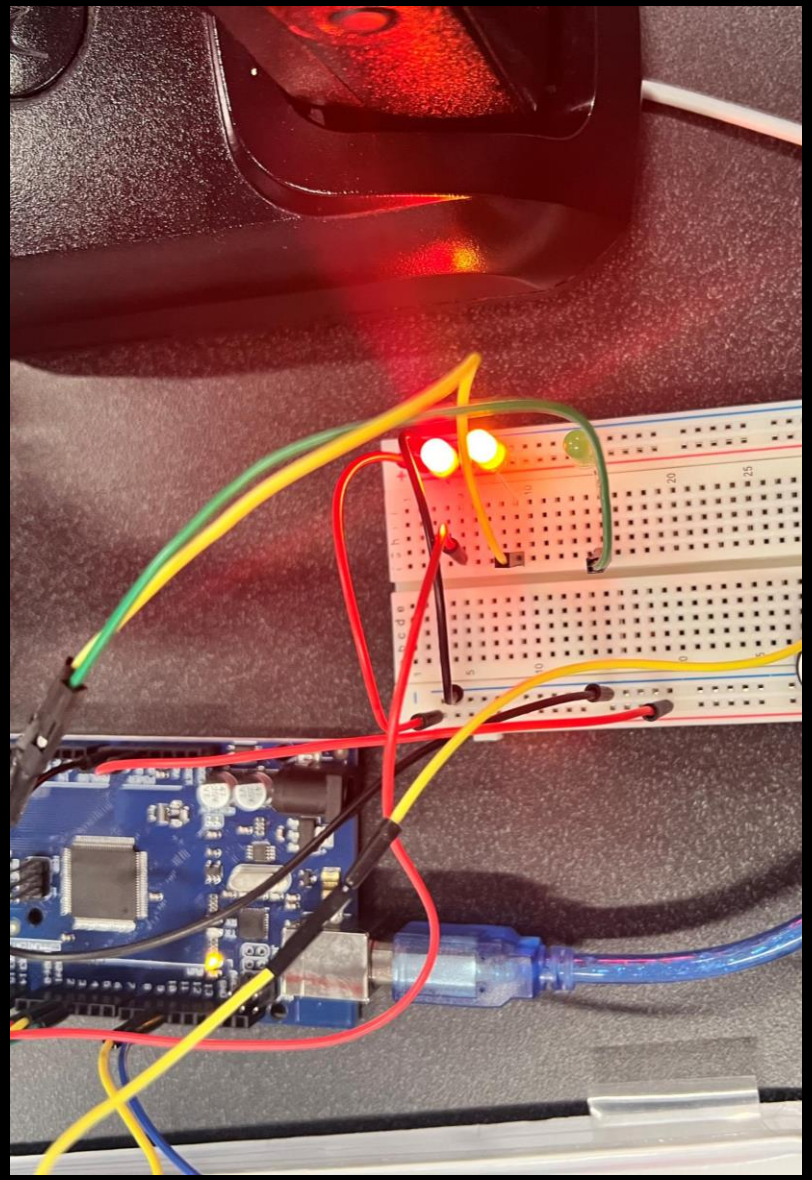


ADDING DOOR SENSOR TO SMART HOME SYSTEM

- Created door sensor using green and red LED lights.
- Used Breadboard.
- Used active buzzer get alarm sound activation.
- Blue and yellow wire used for buzzer sound.
- Arduino IDE used for coding and for serial monitoring.



CIRCUIT OF DOOR CLOSED WITH GREEN LED ON



CIRCUIT OF DOOR OPEN WITH GREEN LED OFF

week 4 project | Arduino IDE 2.0.0-rc9

File Edit Sketch Tools Help

Arduino Mega or Mega 25(

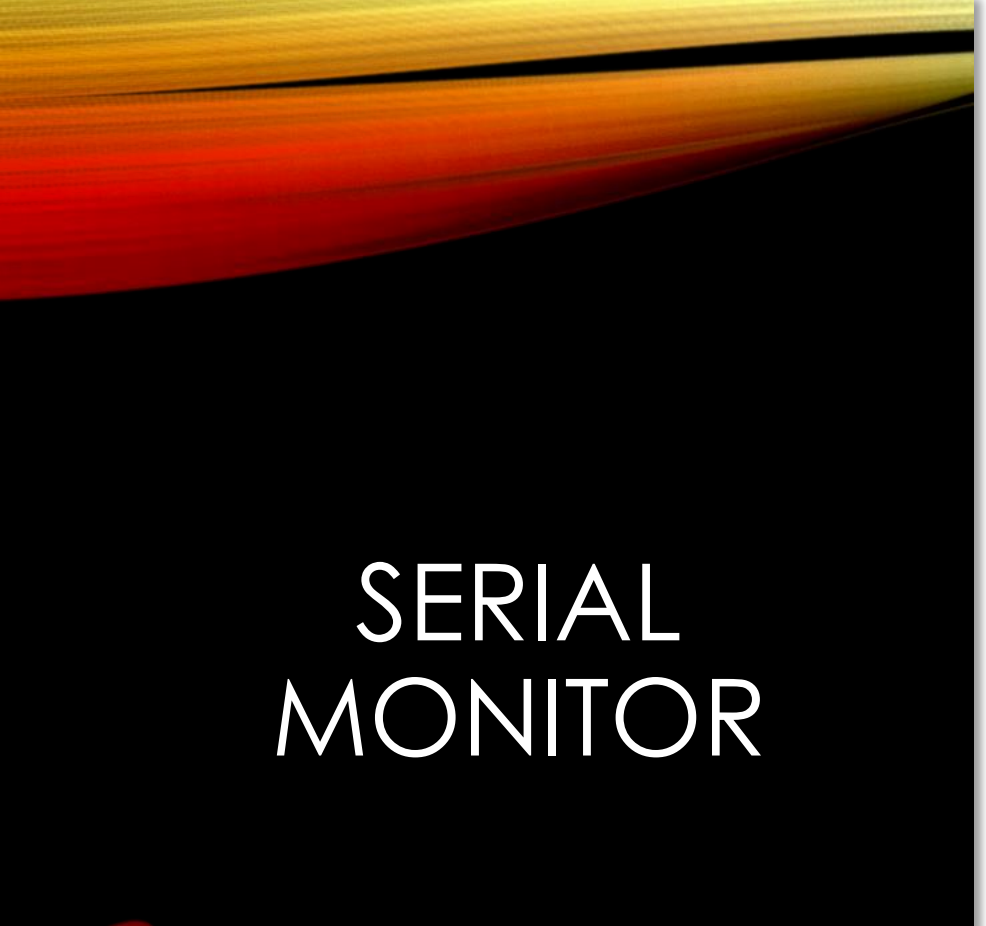
week 4 project.ino

```
1   #define Rled 2
2   #define Yled 3
3   #define Gled 4
4   #define buzzer 10
5   #define door 11
6   #define delaytime 1000 // === Second run, change to 100
7
8   void setup() {
9   Serial.begin(9600); // Set the baud rate
10  Serial.println("CEIS101 Course Project Module 4");
11  Serial.println("Name: Luella Tracy Henderson "); //replace xxxxx with your name
12
13  pinMode(Rled, OUTPUT);
14  pinMode(Yled, OUTPUT);
15  pinMode(Gled, OUTPUT);
16  pinMode(buzzer, OUTPUT);
17  digitalWrite(buzzer, LOW);
18  pinMode(door, INPUT_PULLUP);  //door sensor
19  }
20
21  void loop() {
22  int value=digitalRead(door);
23  if(value == 0) {// Door closed, no security threat
24  digitalWrite(Rled, LOW);
25  digitalWrite(Yled, LOW);
```

Output Serial Monitor

ARDUINO CODE

SERIAL MONITOR



Output Serial Monitor ×

Message (Ctrl + Enter to send message to 'Arduino

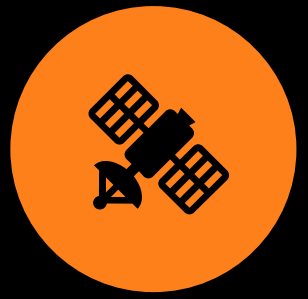
```
CEIS101 Course Project Module 4
Name: Luella Tracy Henderson
Door is open. Security Alert!
Door is open. Security Alert!
Door is open. Security Alert!
Door is open. Security Alert!
Door is open. Security Alert!
Door is open. Security Alert!
Door is open. Security Alert!
```

TROUBLE SHOOTING

Issues Faced:	Getting just the green light to be active instead of the red or yellow	Wires being too short (before I knew of the extended wires) Issues with the buzzer after I got the green light to be active.	having final product somewhat reversed.
Summary of Troubleshooting:	Changing some of the coding	carefully following instructions from video continuously as well as looking at project guide.	having friends help to try to figure it out.

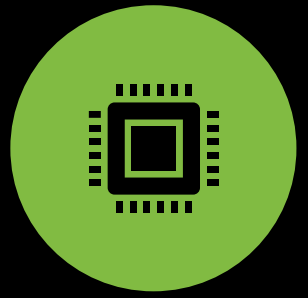
homework huddle with instructor. ☺	going back to week 3 of project and starting from scratch.	Continuously went over wire placement use wire extenders.

ADDING DISTANCE SENSOR TO SMART HOME SYSTEM



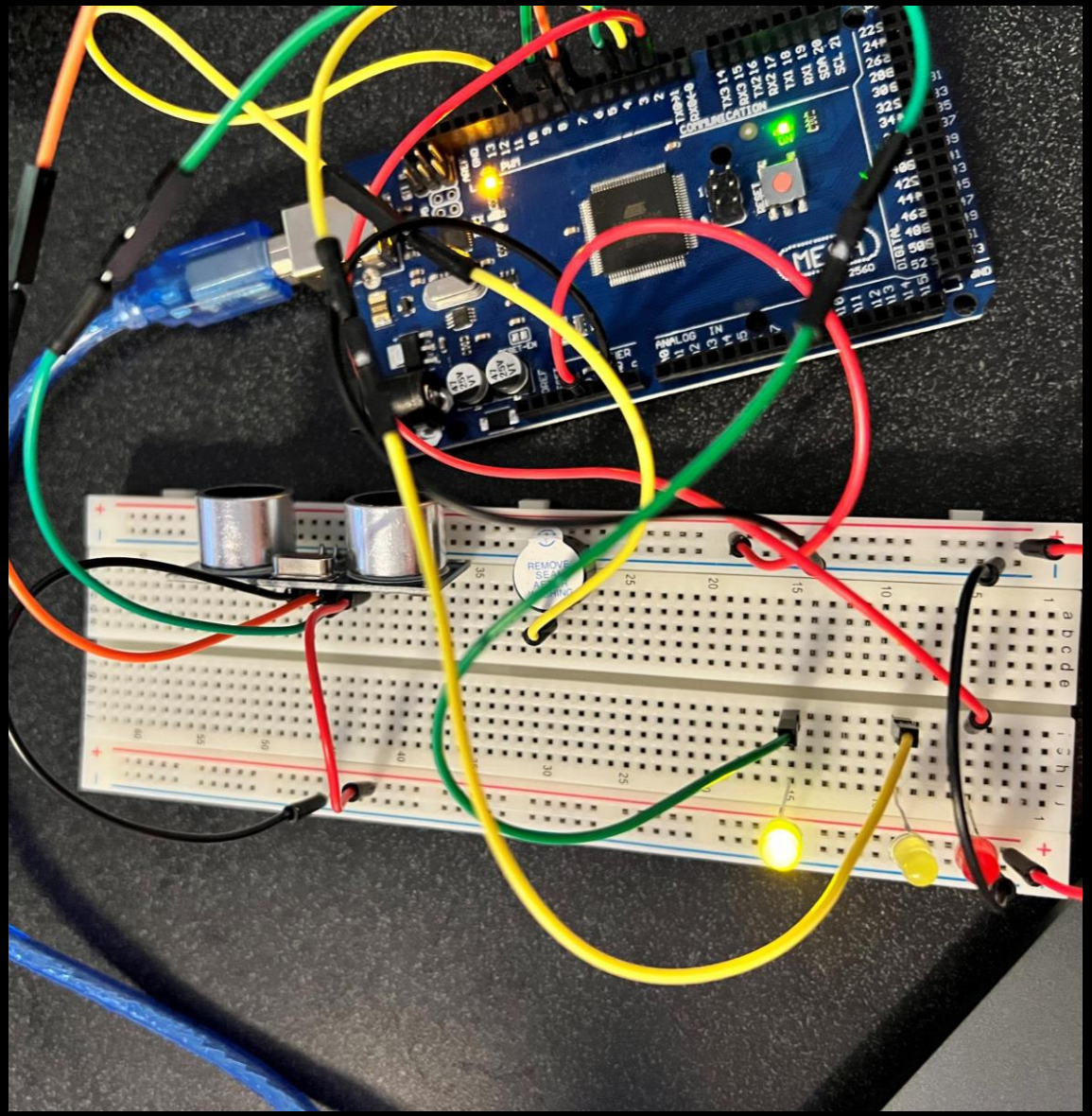
Created distance using ultrasonic distance sensor.

Used Ultrasonic Distance Sensor.

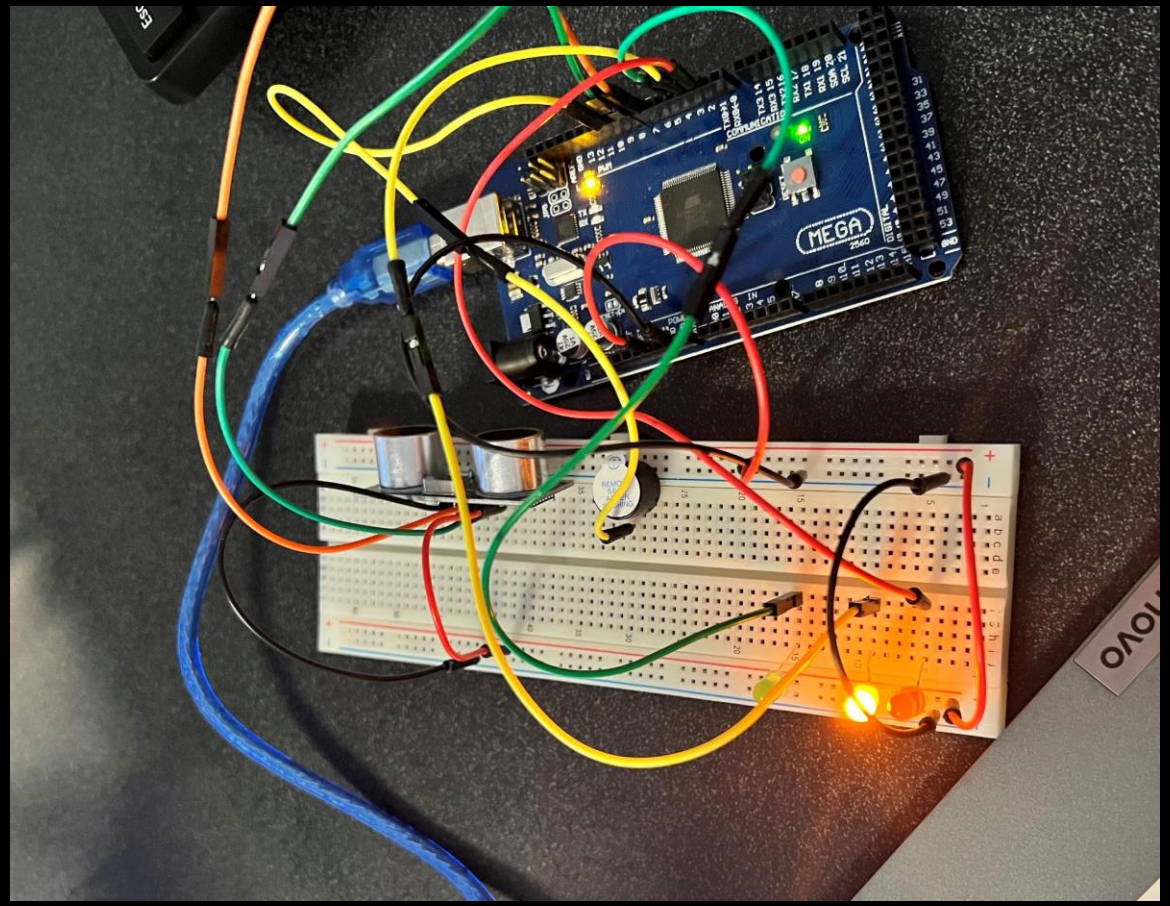


Used Excel for analysis of data from ultrasonic sensor.

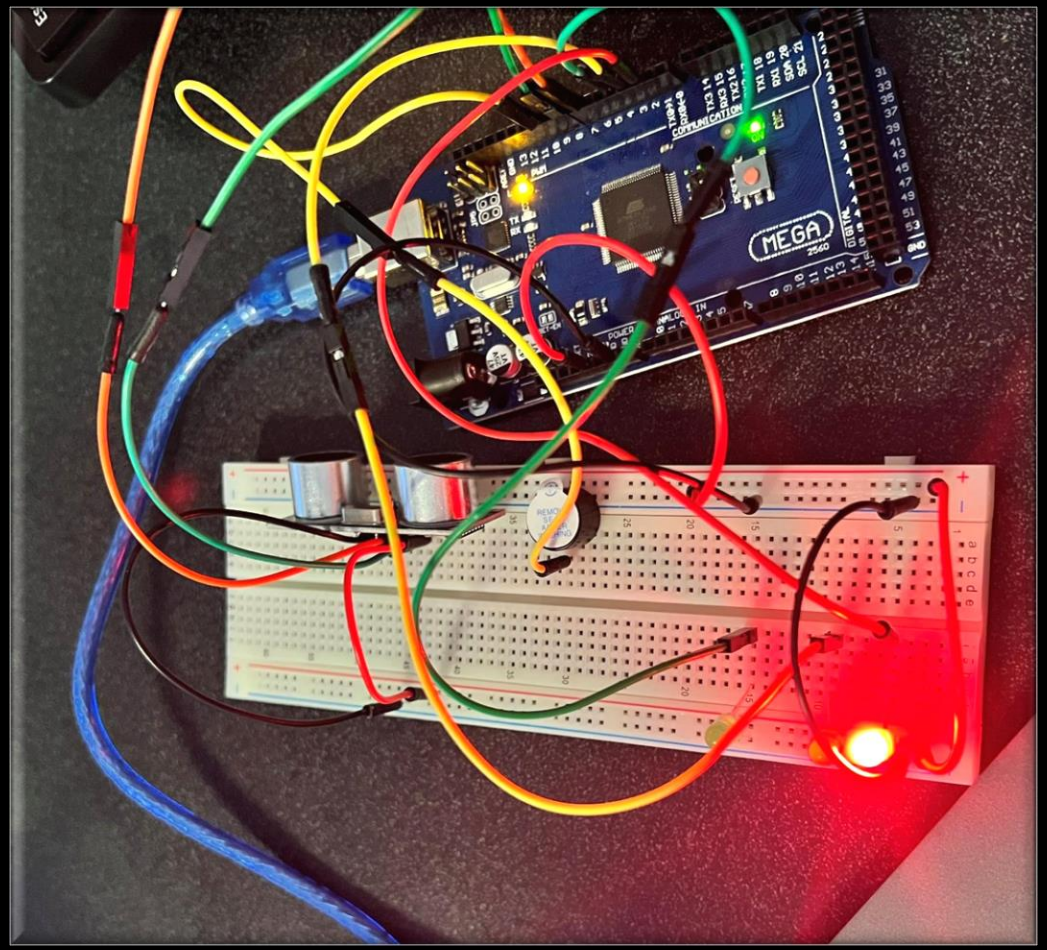
Used Arduino IDE for coding purposes and serial monitoring.



CIRCUIT WITH GREEN LED ON

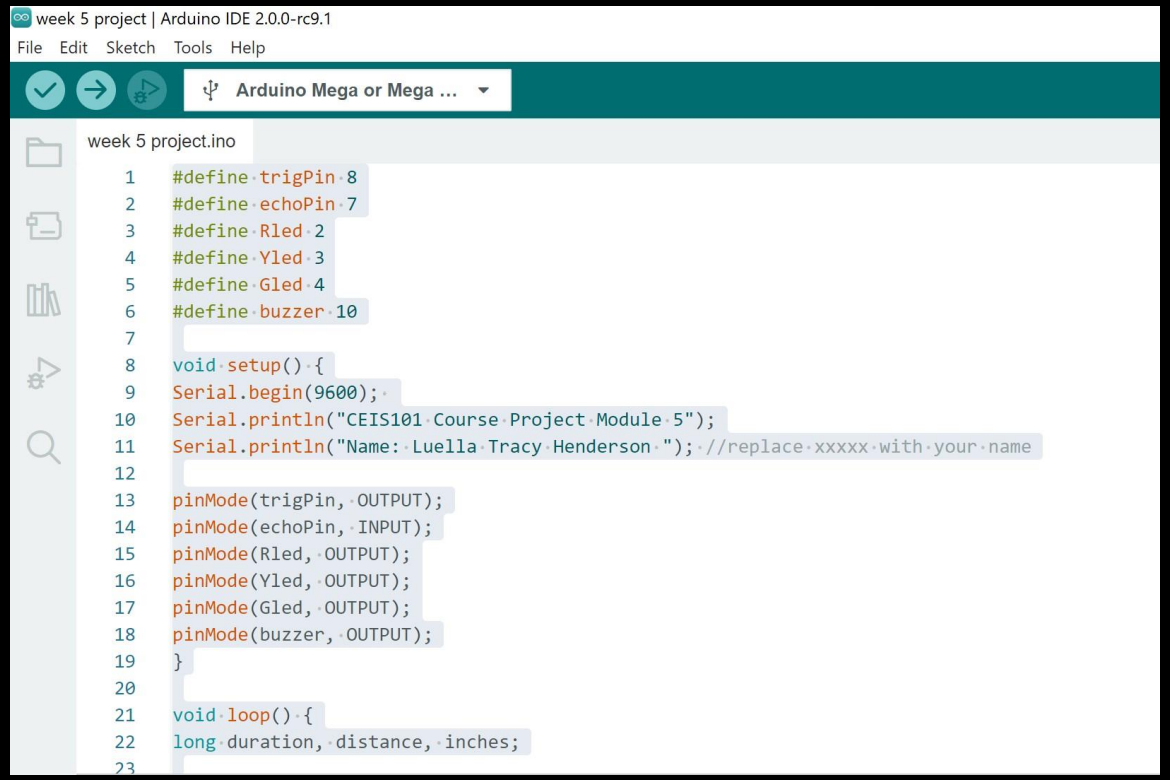


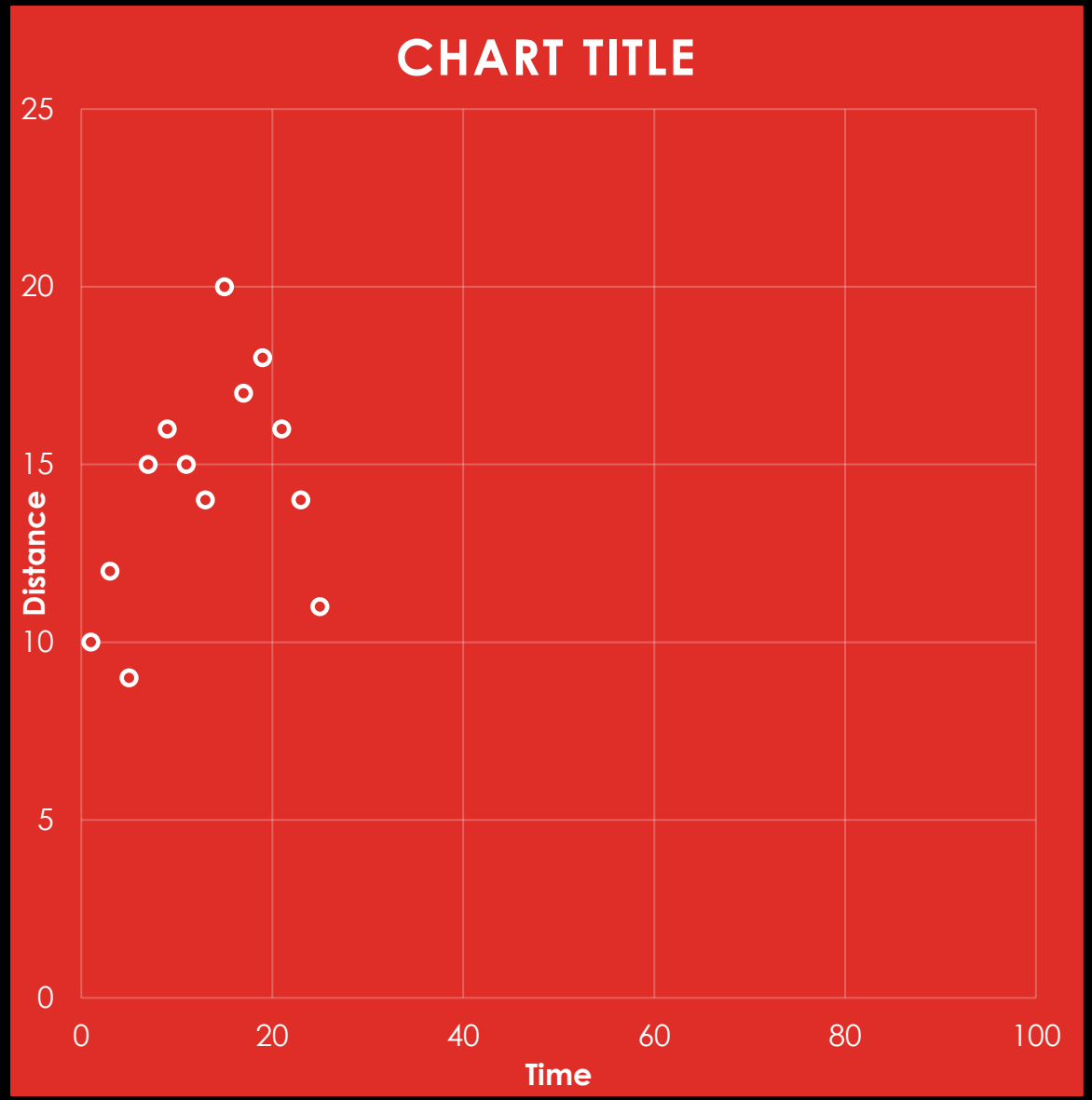
CIRCUIT WITH YELLOW LED ON



CIRCUIT WITH RED LED ON

ARDUINO CODE

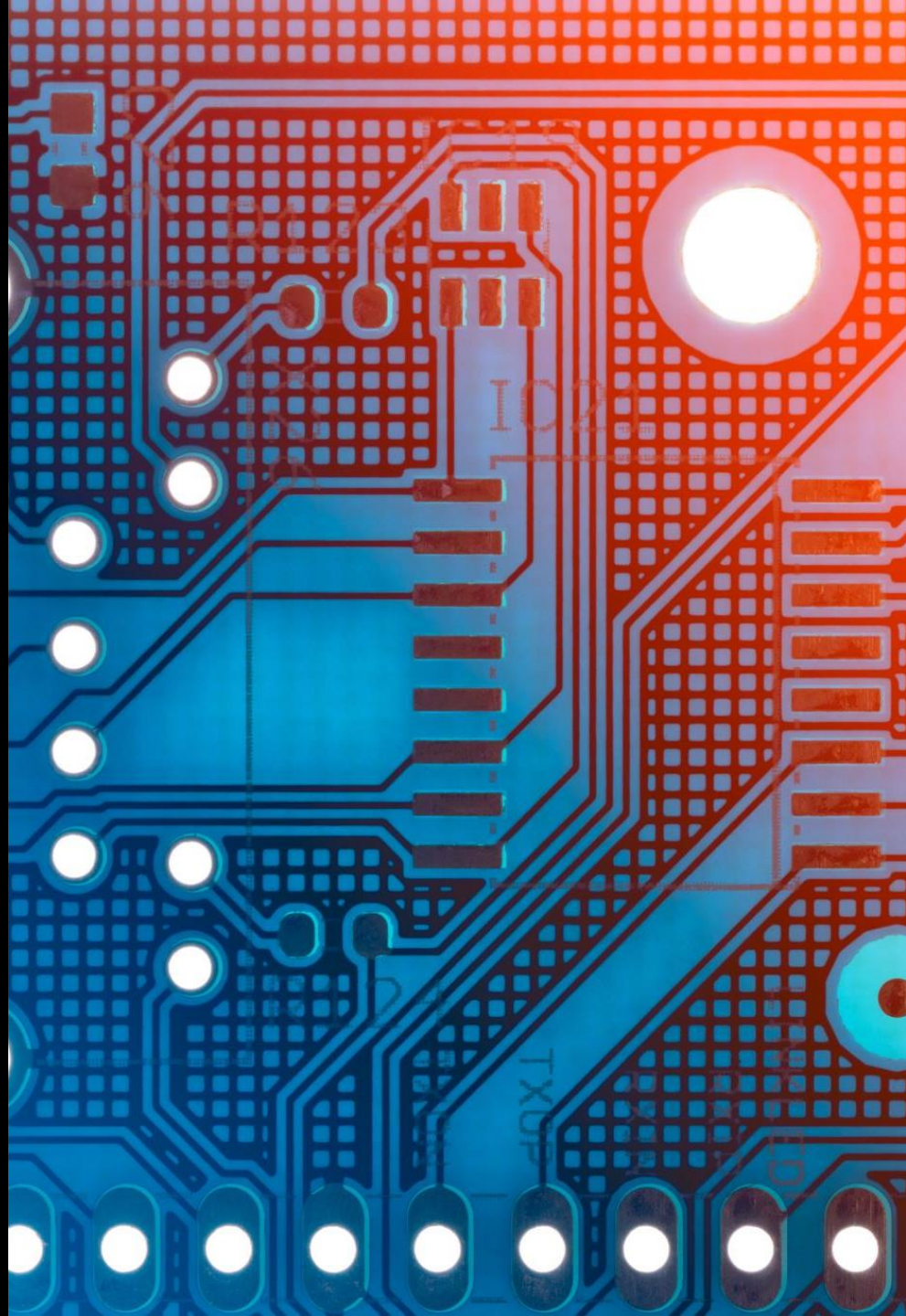


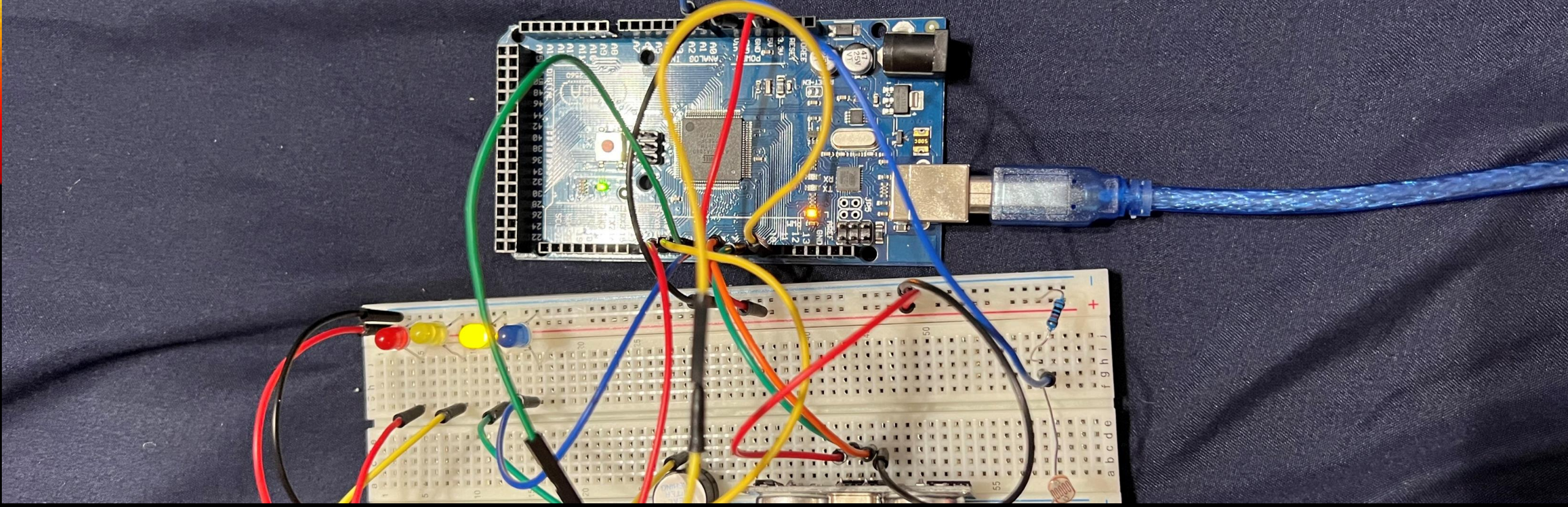


PLOT OF DATA

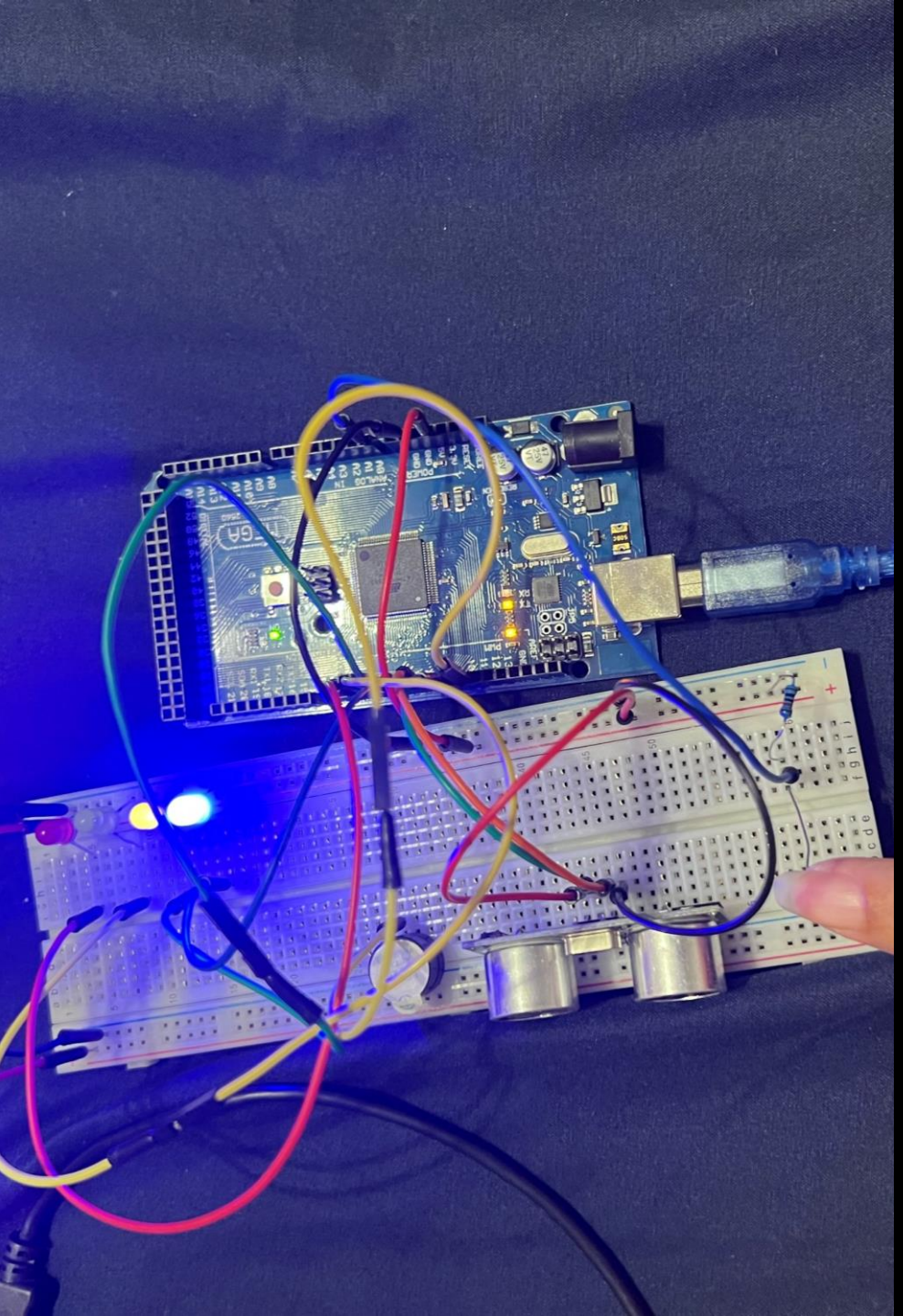
ADDING AUTOMATED LIGHT TO SMART HOME SYSTEM

- Added Blue light to breadboard
- Added photoresistor
- Added resistor
- Used Arduino IDE for code and serial monitoring





CIRCUIT WITH AUTOMATED LED OFF



CIRCUIT WITH AUTOMATED LED ON

ARDUINO CODE

k 6 project | Arduino IDE 2.0.0-rc9.2

dit Sketch Tools Help

Arduino Mega or Mega ...

week 6 project.ino

```
#define trigPin 8
#define echoPin 7
#define Rled 2
#define Yled 3
#define Gled 4
#define buzzer 10
#define photocell A0
#define autoLight 6
#define door 9
void setup() {
Serial.begin(9600);
Serial.println("CEIS101 Course Project Module 6");
Serial.println("Name: Luella Tracy Henderson "); //replace xxxxx with your name

pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
pinMode(Rled, OUTPUT);
pinMode(Yled, OUTPUT);
pinMode(Gled, OUTPUT);
pinMode(buzzer, OUTPUT);
pinMode(autoLight, OUTPUT);
```

Output Serial Monitor ×

Message (Ctrl + Enter to send message to 'A

```
CEIS101 Course Project Module 6
Name: Luella Tracy Henderson
The automated light is ON
The automated light is ON
The automated light is ON
The automated light is ON
The automated light is ON
The automated light is ON
The automated light is ON
The automated light is ON
The automated light is ON
```

Output Serial Monitor ×

Message (Ctrl + Enter to send message to 'A

```
CEIS101 Course Project Module 6
Name: Luella Tracy Henderson
Alert! Possible Intruder.
Alert! Possible Intruder.
Alert! Possible Intruder.
Alert! Possible Intruder.
Alert! Possible Intruder.
Alert! Possible Intruder.
Alert! Possible Intruder.
Alert! Possible Intruder.
Alert! Possible Intruder.
```

SERIAL MONITOR

TROUBLESHOOTING

- For this project I had an issue with the photocell not reacting to the amount of light.
- What was done to fix this issue was changing the value in the code from 450 to 750, by doing this I was able to get a reaction from the photocell.

CHALLENGES FACED

In my previous slides for week 4 and 6 I included some of the challenges I faced but aside from that another challenge I faced was with coding.

Since I am not familiar with coding, I was content with the code being provided to me. However, I know when I get further into more of my tech classes I may start to learn more about coding.

While viewing the live lectures I did learn a bit about how to read the code when one of the instructors went over projects.

When I graduate from DeVry, I do plan to take more in-depth coding classes and get a few certifications.

CAREER SKILLS

- Some of the career skills I learned in this class are:

- Learned a little about the hardware (breadboard, Arduino, etc.)
- Getting a sense of coding/programming.
- Critical thinking (problem solving)
- Automation when it comes to building and working with a home security system.
- Being patient when you run into problems since it will be a common thing.

CONCLUSION

I enjoyed this class I can say I learned a lot while at the same time having my mind challenged.

I think down the line I would enjoy playing with the Arduino kit and figuring out what else I could make.

I enjoyed putting everything together and the challenges that I had to face putting this project together.

The overall end results were very rewarding to see, I am very proud of myself.