1. Overview of Project

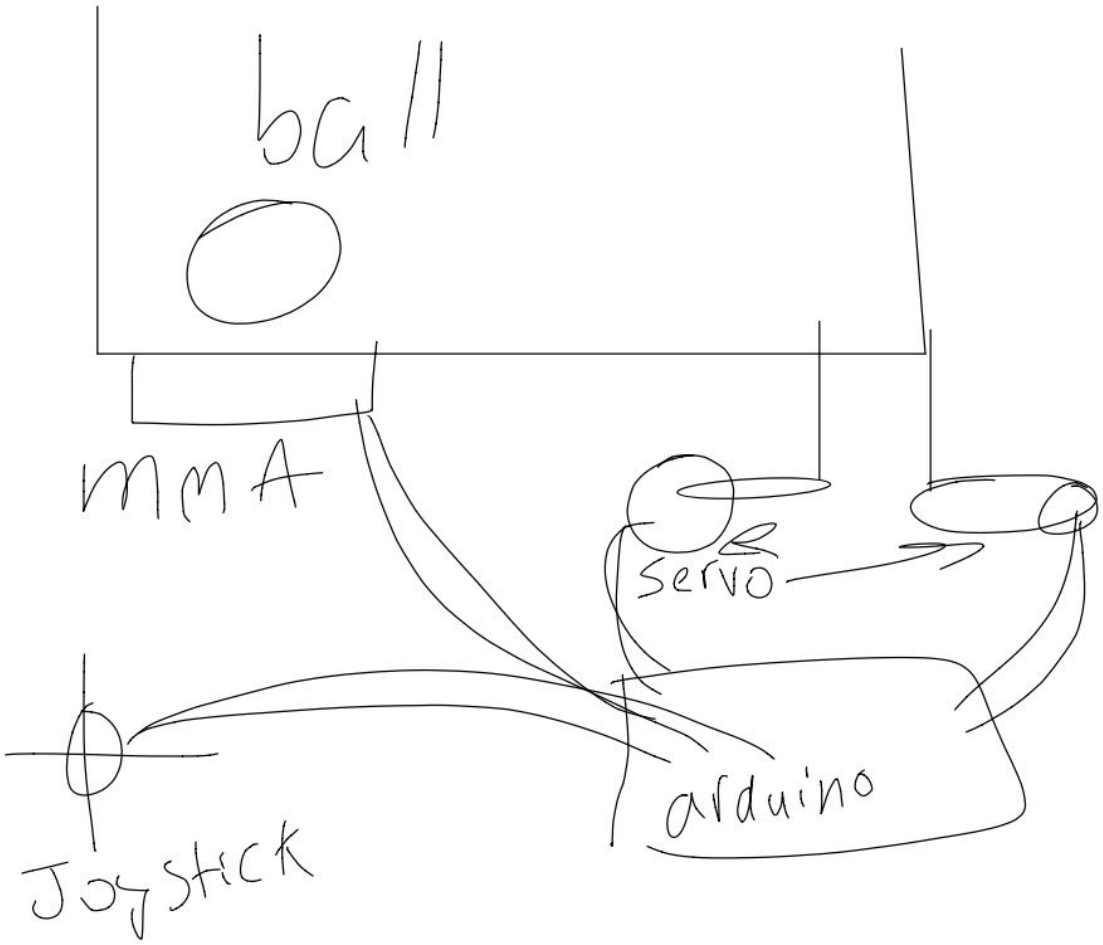
- Describe to us what the project is intended to do?

It is a box with two servos, and based on the input of a joystick. The game was to keep the ball in one place as the box randomly moved the servos to throw you off.

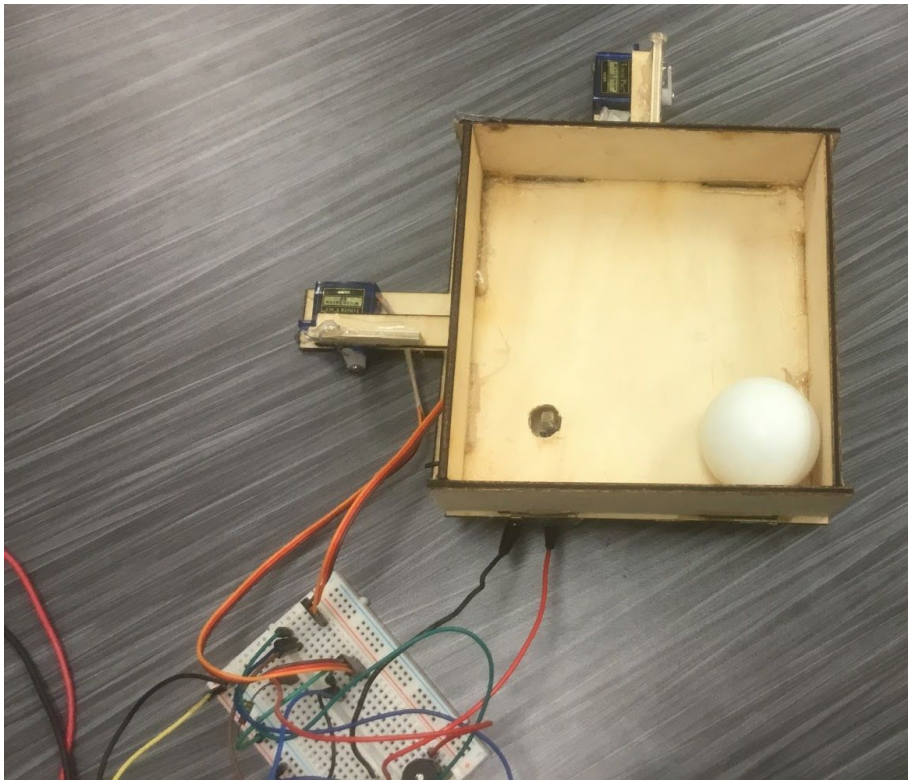
-What were some of your early ideas that you toyed with?

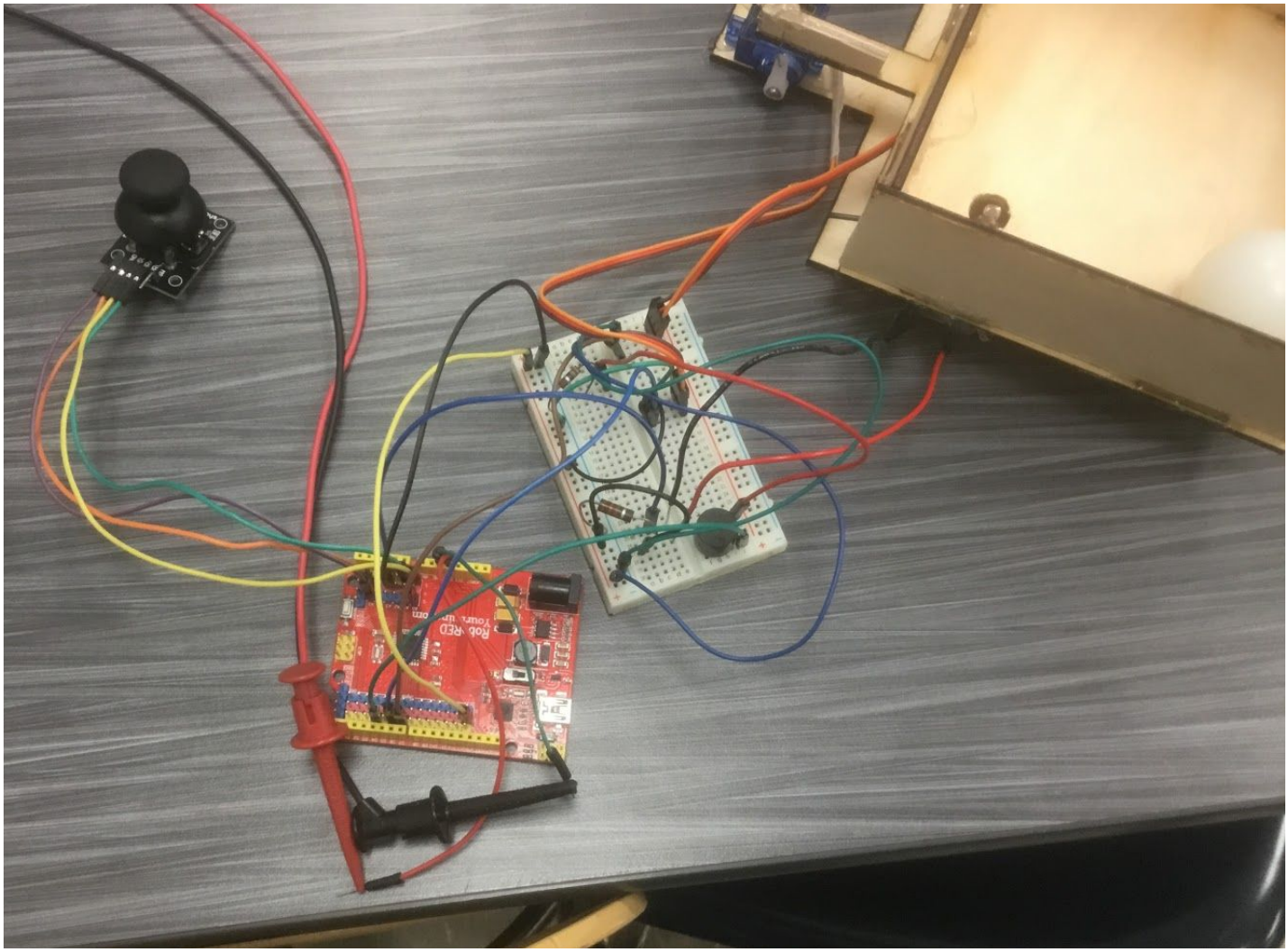
1. Satellite game
    a. Try to find a satellite
2. Snake game
    a. It's snake

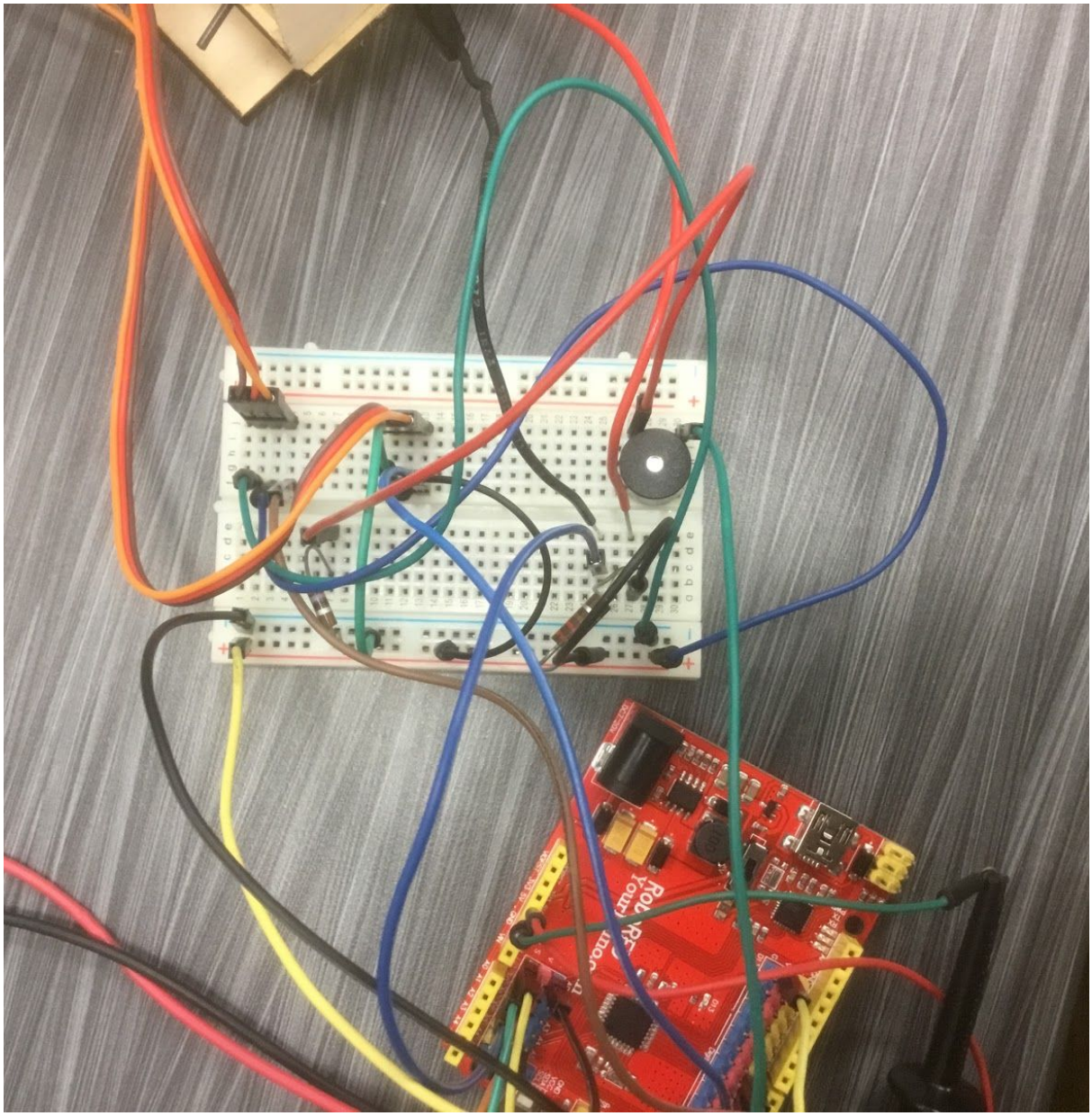
-Please show us any sketches that you came up with the idea of early iterations of your project.



2. Pictures of prototype. Please include pictures of your wiring, the final product, and more. Show off your hard work!







3. Images of code.

```
#include <Servo.h>

int joyX = 0;
int joyY = 1;

int servX = 5;
int servY = 6;

float X = 0;
float Y = 0;

Servo servoX;
Servo servoY;

int randomInt;

int light = 3;
int sensor = 0;
int buzzer = 3;

void setup()
{
  servoX.attach(servX);
  servoY.attach(servY);

  randomSeed(analogRead(0));
}

void loop()
{
  sensor = analogRead(light);

  if(sensor > 100)
  {
    tone(buzzer, 440);
  }

  else
  {
    noTone(buzzer);
  }

  int tempX = analogRead(joyX);
  int tempY = analogRead(joyY);

  X = map(tempX, 0, 1023, 0 , 180);
  Y = map(tempY, 0, 1023, 0 , 180);

  int chance = random(10);
  if (chance<8)
  {
    randomInt = random(45,135);
    X = randomInt;
    Y = randomInt;
  }

  servoX.write(X);
  servoY.write(Y);
  delay(500);
}
```

4. Video of your project. Please include a link from youtube of your project functioning.
https://youtu.be/ZXFKFiQmG4I

5. Reflection

- How did it go? Did you project work? Why or why not?

My project went well, it worked perfectly and didn't need to be kept working by little fixes.

- What would be the next steps of your project if we had an extra week to work on it?

Try to incorporate the accelerometer or a gyroscope to add more challenge as the arduino can better resist the movement and mess you up more.

- What were some things you learned from this project? It could be electronics specific, or related to designing things/teamwork/etc.

I learned how to map any input device with a set range to another device with a different range using the map function. I also learned how to use a servo, by plugging it into the PWM capable pins, which took me a day to figure out. One other thing I learned was that running two servos at the same time using only the arduino was not as fast as I wanted, as only one servo would move at the same time, making the game "lag".

- What was the biggest hurdle that you or your group faced?

The biggest hurdle I faced was to figure out when you won, or lost. My solution was to use a photoresistor to detect when the ball was over the goal and to turn off a buzzer. The smaller hurdles I faced were the smaller details of the project, such as which pins the servo used, or how much power both servos would take.

- What should I do to make this project better?

The way I would make my project better is to incorporate the accelerometer or a gyroscope to add more challenge. When the box is randomly moving around, given enough time, it will have solved it self. The accelerometer or gyroscope, when combined with the photoresistor, would have prevented this and made the game at least twice as hard.