Motors, Power, Paper Prototyping

Part B. Actuating Servo motors

Part 1. Connect the Servo to your breadboard

a. Which color wires correspond to power, ground and signal?

Power - *Red* Ground - *Black* Signal - *White*

Part 2. Connect the Servo to your Arduino

a. Which Arduino pin should the signal line of the servo be attached to?

Pin 9.

b. What aspects of the Servo code control angle or speed?

Angle is controlled by pos, speed can be controlled by either decreasing delay or increasing increment size in the loop! (I used delay)

```
/* Sweep
 by BARRAGAN <http://barraganstudio.com>
 This example code is in the public domain.

 modified 8 Nov 2013
 by Scott Fitzgerald
 http://www.arduino.cc/en/Tutorial/Sweep
*/

#include <Servo.h>

Servo myservo;  // create servo object to control a servo
// twelve servo objects can be created on most boards

int pos = 0;    // variable to store the servo position

void setup() {
  myservo.attach(9);  // attaches the servo on pin 9 to the servo object
}

void loop() {
  for (pos = 0; pos <= 100; pos += 1) { // goes from 0 degrees to 100
degrees
    // in steps of 1 degree
    myservo.write(pos);              // tell servo to go to position in
variable 'pos'
    delay(60);                       // waits 15ms for the servo to reach
the position
  }
```

```
    for (pos = 100; pos >= 0; pos -= 1) { // goes from 100 degrees to 0
  degrees
      myservo.write(pos);                  // tell servo to go to position in
  variable 'pos'
      delay(60);                           // waits 15ms for the servo to reach
  the position
    }
  }
```

Part C. Integrating input and output

```
#include <Servo.h>

Servo myservo;
int servoPin = 9;
int servoPos = 0;
int potPin = A0;
int potVal = 0;

void setup() {
  myservo.attach(9);
  pinMode(potPin, INPUT);
}

void loop() {
  for (servoPos = 0; servoPos <= 150; servoPos += 1) {
    potVal = round(analogRead(potPin)/100);
    // in steps of 1 degree
    myservo.write(servoPos);
    delay(potVal);
  }
  for (servoPos = 150; servoPos >= 0; servoPos -= 1) {
    potVal = round(analogRead(potPin)/100);
    myservo.write(servoPos);
    delay(potVal);
  }
}
```

Part D. Autonomy!

See media/part_d.mov!

Part E. Paper display + Part F. Make it your own

Due to my move, I had to combine E & F into a single design! The servo arm will measure how boxy this box is, according to how the rotary is set.

See media/part_f.mov!