

Arduino Lab 5: Bouncy Ball

Name: _____ Signature _____

Learning objective: In this part, we will learn how to communicate between two programs (one running on the Arduino and one on your laptop).

1. **Download and install the programming language Processing** (20 pts)
(<http://www.processing.org/download>) Demo one of the examples included in the download (for example, 3D camera MoveEye).

Signed off: _____

2. Move a ball with a photoresistor (30 pts)
Load Examples → Libraries → Serial → SerialCallResponse
Hardware: construct the light sensor circuit described in lab 4
Software: The bottom portion of the code (commented out) is for the Arduino. Copy it to a new Arduino code window. For now you will not need to alter the Processing Code but you will need to edit the Arduino code. The current code assumes three sensors but so far you only have 1. The current code Serial.prints those three values. You need to change the code so that you do only one analogRead and output constants as the other two values. For example, I used firstSensor as my photoresistor analogRead and set secondSensor as 100 and the third as 200.

Compile and upload the Arduino code, and then run the Processing code. You should be able to control the ball using the photosensor.

Signed off: _____

3. (26 pts) Add a potentiometer to the hardware and change the software so you can control the x and y of the ball.

Signed off: _____

4. (24 pts) Add a button to the hardware and have it do something interesting. For example, change the size or color of the ball.

Instructor sign off: _____

5. (20 pts) Extend the project in an interesting way. For example, extending the canvas and having the ball move throughout the entire space would be worth perhaps 5 points or so. Adding more sensors (may need to borrow from teammates) and controlling a second ball would be worth 10. These are just examples.

Instructor sign off: _____