**LAB REPORT**

**LAB #5**

**SECTION #2**

**FULL NAME**

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# Problem

Write a program that outputs the orientation of the controller once and stops when the triangle button is pressed. The program should only output a new line when its orientation changes. The program uses ds4rd.exe to run.

# Analysis

I had to find the tolerance at which the orientation changes, using function close\_to. I used the magnitude function from my previous program in lab 3. I captured raw data from the controller using the command: ./ds4rd.exe -d 054c:05c4 -D DS4\_BT -a -g -b > output.csv

# Design

I created 3 functions magnitude, orientation and close\_to . I used an integer flag to check whether the orientation changed. So, the program will only output a new line if the orientation changes, and the flag is not equal to a specific value. I used an if statement that checked whether the triangle button was being pressed, and if so, terminated the program.

# Testing

I moved the controller around to see how the values change when the controller is moved. I made sure that it only printed a new line when the orientation changes. I also tried pressing the triangle button to see if the program ended.

# Comments

I faced some challenges writing this program. I had to figure out at what values the orientation of the controller changed. It also took me some time to figure out how to make it print a new line only when the orientation changed. I eventually did it using an integer flag.

**Questions and Experiments**

1. How did you approach the design?

A. I used if else statements, tolerance, and I used a close\_to function.

2. What data did you have to read in?

A. I read in the data for the orientation of the controller. I also read in the triangle button, to terminate the program when its pressed.

3. What functions did you choose to implement and why?

A. I implemented the magnitude function from the program in my 3rd lab, to calculate and return the magnitude of the controller.

4. What tolerance values did you pick and how did you decide on them?

A. I used 1 and -1 for each axes of the controller (gx, gy, gz) because it was at those specific values the controller changed. For example gx is -1 the controller is oriented left and when gx is 1, the controller is oriented right.

# Screen Shots

1.

