

# **LAB REPORT**

**LAB #7**

**SECTION #2**

**FULL NAME**

**Alvin John Thomas**

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## Problem

Write a program that outputs a bar graph in real time showing pitch, roll or position of joystick of a DS4 controller. It should switch to roll when the triangle button is pressed. When the X button is pressed, it should switch to pitch and when the circle button is pressed, it should switch to the joystick orientation.

## Analysis

Roll is the angle the controller is tipped left or right. Pitch is the angle the controller is tipped forward or backward. The joystick data can be obtained using the -j flag in the ./ds4rd.exe command line.

## Design

I had to find the values for which the orientation of the controller changed. It was 1 and -1 for either side. I used p\_current to see which button was being pressed.

## Testing

I tested the program by changing the controller to see if the output changed. I pressed different buttons to see what would happen. I wanted to make sure the program terminates when the square button is pressed.

## Comments

For the pitch, I got the program to print F and B instead of L and R to get 5 bonus points.

1. How did you scale your values? Write an equation and justify it.
  - A.  $\text{scaleJoyForScreen} = -\text{rad} * (39.0/127.0)$   
 $\text{scaleMagForScreen} = \text{rad} * 39$
2. As your experiment with the roll and pitch, what do you notice about the graph's behavior near the limits of its values?
  - A. As the graph reaches the limits of its values, its magnitude increases and it becomes constant.

# Screen Shots

