

Lab 3 Report

LAB # 3

SECTION # 1

Ben Rayborn

SUBMISSION DATE: 2.9.2020

DATE

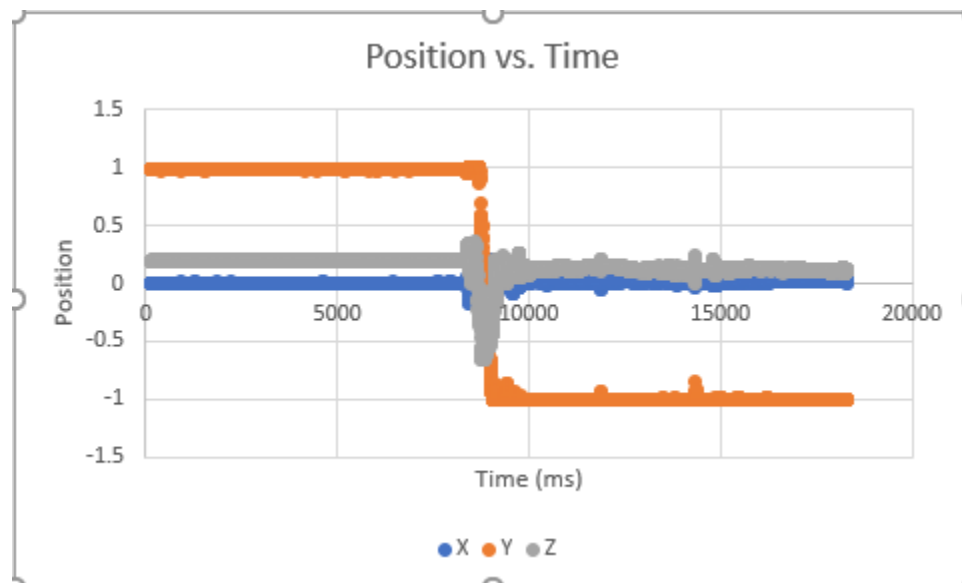
2.9.2020

Problem

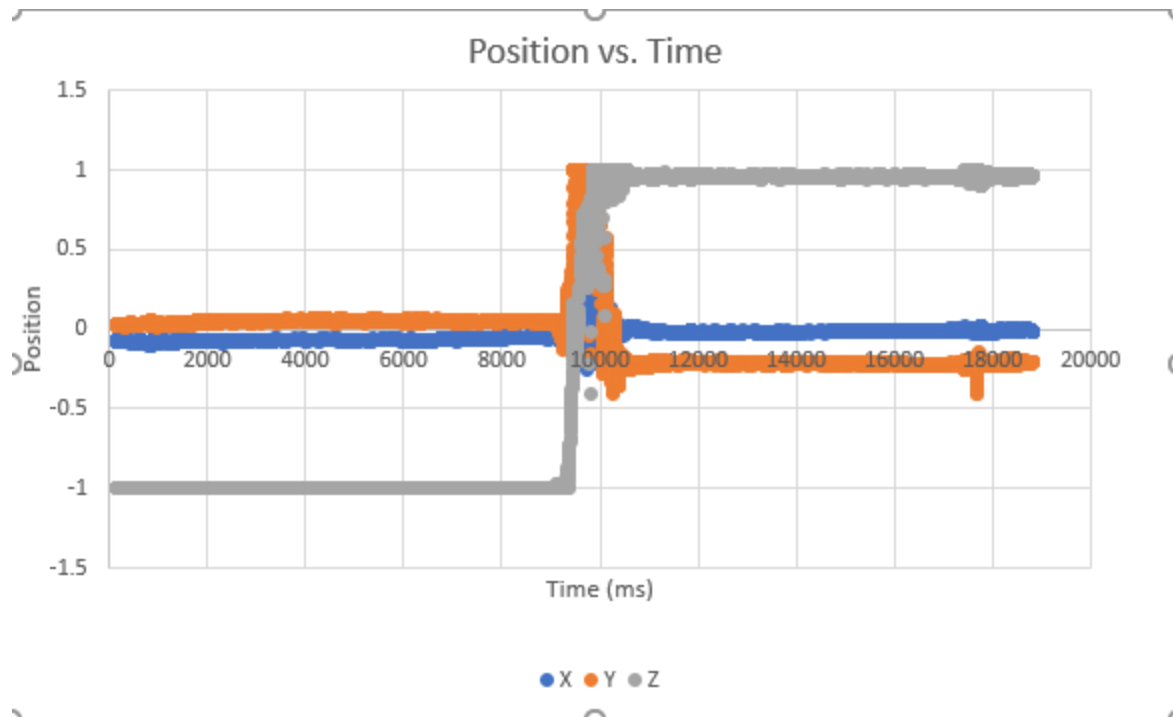
Problem 1: DualShock 4 Data Collection

This problem was to plot the position of the controllers while holding them flat, upright, and moving in a repeatable pattern. The chosen pattern was sitting flat on the table, rocking forward to rest on the joysticks, and rocking back.

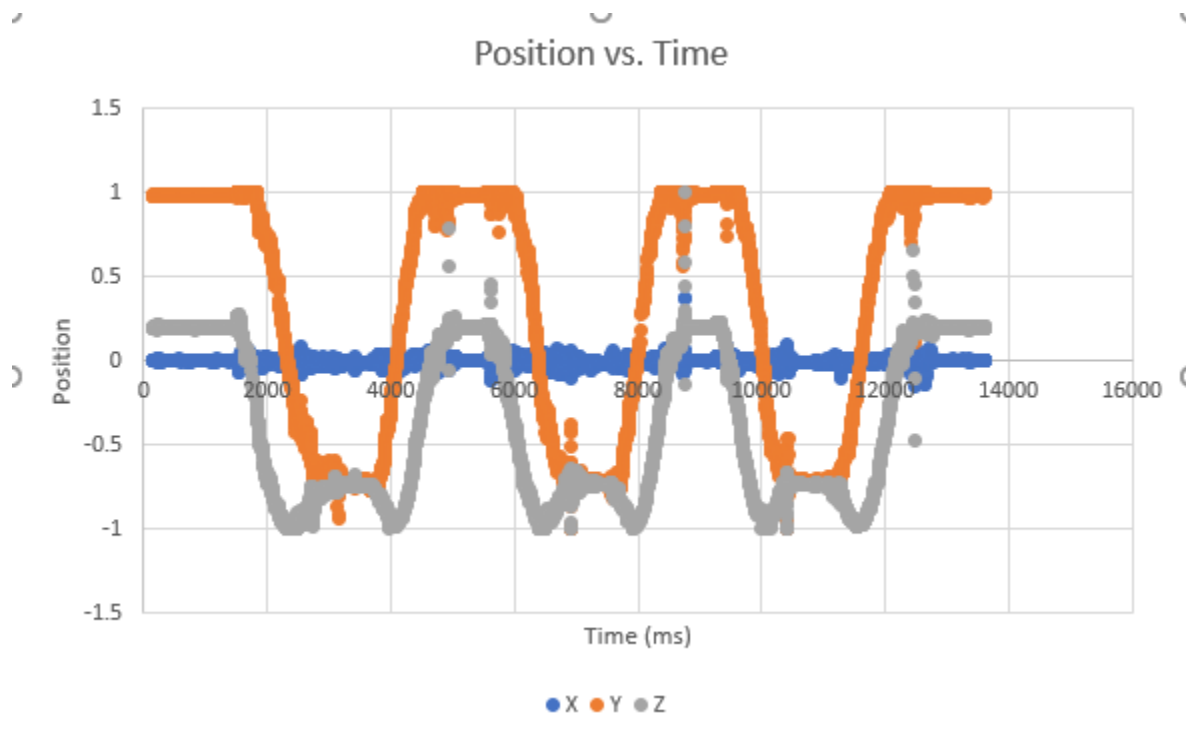
Flat:



Front:



Custom:



Problem 2: Introduction to Functions and the DualShock 4

Part one had convert the time to seconds and print it out in a uniform format.

```
/cygdrive/u/Spring2020/se185/lab03
Echoing output: 012, -0.0004, 0.0004, 0.0012
Echoing output: 012, -0.0002, 0.0002, 0.0013
Echoing output: 012, 0.0000, 0.0002, 0.0012
Echoing output: 012, 0.0001, 0.0006, 0.0009
Echoing output: 012, 0.0001, 0.0009, 0.0007
Echoing output: 012, 0.0000, 0.0006, 0.0007
Echoing output: 012, 0.0000, 0.0004, 0.0007
Echoing output: 012, -0.0002, 0.0004, 0.0011
Echoing output: 012, -0.0004, 0.0005, 0.0011
Echoing output: 012, -0.0004, 0.0005, 0.0010
Echoing output: 012, -0.0001, 0.0004, 0.0009
Echoing output: 012, 0.0000, 0.0004, 0.0011
Echoing output: 012, 0.0000, 0.0004, 0.0013
Echoing output: 012, 0.0000, 0.0006, 0.0011
Echoing output: 012, -0.0001, 0.0004, 0.0007
Echoing output: 012, 0.0000, 0.0002, 0.0010
Echoing output: 012, 0.0000, 0.0004, 0.0011
Echoing output: 012, 0.0002, 0.0006, 0.0012
Echoing output: 012, 0.0002, 0.0005, 0.0013
Echoing output: 012, 0.0001, 0.0004, 0.0013

brayborn@C02042-21 /cygdrive/u/Spring2020/se185/lab03
$
```

Part two had us calculate the magnitude of acceleration from the accelerations on each axis.

```
/cygdrive/u/Spring2020/se185/lab03
At 12217 ms, the acceleration's magnitude was: -0.307495
At 12218 ms, the acceleration's magnitude was: -0.312378
At 12219 ms, the acceleration's magnitude was: -0.317383
At 12221 ms, the acceleration's magnitude was: -0.322144
At 12222 ms, the acceleration's magnitude was: -0.328125
At 12223 ms, the acceleration's magnitude was: -0.334106
At 12224 ms, the acceleration's magnitude was: -0.338623
At 12226 ms, the acceleration's magnitude was: -0.342773
At 12232 ms, the acceleration's magnitude was: -0.346924
At 12239 ms, the acceleration's magnitude was: -0.357300
At 12241 ms, the acceleration's magnitude was: -0.375488
At 12244 ms, the acceleration's magnitude was: -0.390015
At 12246 ms, the acceleration's magnitude was: -0.396484
At 12253 ms, the acceleration's magnitude was: -0.406128
At 12254 ms, the acceleration's magnitude was: -0.432007
At 12256 ms, the acceleration's magnitude was: -0.455444
At 12257 ms, the acceleration's magnitude was: -0.462524
At 12258 ms, the acceleration's magnitude was: -0.469727
At 12262 ms, the acceleration's magnitude was: -0.476807
At 12264 ms, the acceleration's magnitude was: -0.491577

brayborn@C02042-21 /cygdrive/u/Spring2020/se185/lab03
$
```

Part three had us give the magnitude at a more readable time. Milliseconds was broken into minutes, seconds, and milliseconds.

```

/cygdrive/u/Spring2020/se185/lab03
At 0 minutes, 46 seconds, and 323 milliseconds it was: -0.054321
At 0 minutes, 46 seconds, and 324 milliseconds it was: -0.055542
At 0 minutes, 46 seconds, and 326 milliseconds it was: -0.057129
At 0 minutes, 46 seconds, and 327 milliseconds it was: -0.058960
At 0 minutes, 46 seconds, and 328 milliseconds it was: -0.059692
At 0 minutes, 46 seconds, and 331 milliseconds it was: -0.060303
At 0 minutes, 46 seconds, and 332 milliseconds it was: -0.060913
At 0 minutes, 46 seconds, and 336 milliseconds it was: -0.061523
At 0 minutes, 46 seconds, and 340 milliseconds it was: -0.062500
At 0 minutes, 46 seconds, and 341 milliseconds it was: -0.064331
At 0 minutes, 46 seconds, and 342 milliseconds it was: -0.065186
At 0 minutes, 46 seconds, and 343 milliseconds it was: -0.065063
At 0 minutes, 46 seconds, and 344 milliseconds it was: -0.064941
At 0 minutes, 46 seconds, and 346 milliseconds it was: -0.064819
At 0 minutes, 46 seconds, and 347 milliseconds it was: -0.064697
At 0 minutes, 46 seconds, and 348 milliseconds it was: -0.064575
At 0 minutes, 46 seconds, and 350 milliseconds it was: -0.064331
At 0 minutes, 46 seconds, and 351 milliseconds it was: -0.063843
At 0 minutes, 46 seconds, and 352 milliseconds it was: -0.063232
At 0 minutes, 46 seconds, and 386 milliseconds it was: -0.062744

brayborn@C02042-21 /cygdrive/u/Spring2020/se185/lab03
$
```

Problem 3: Counting Buttons

This had us give the total number of buttons pressed on the controller.

[illegible]

Analysis

The overall goal of this lab was making data useful. Problem one collected data over time and gave a graph to show the movement of the controller. Problem two printed the output in a more useful way and condensed from three axes to one

Design

This had us design the programs using prototypes. This prevents everything from being buried in the main method, making it easier to read.

Testing

Testing resulted initially in some syntax errors where variables weren't specified as an int, as well as logic errors where the time would increment the minutes and seconds correctly, but it would not reset the value when the larger time unit was incremented. The last problem was demonstrated to function correctly, but it was all in the main method rather than prototyped. When I went to copy the files and finish it out, I ended up deleting everything and I am not sure what I'm doing now that it isn't giving the correct answer.

Comments

A previous lab was counted off for not showing code running. Is this supposed to be the screen shots of Cygwin, or copy and paste from the .c files?

Screen Shots

Inline screen shots