

Supervisor Meeting

12 November 2020

Time: 1300

Location: MS Teams

Attendees: Darragh, Anthony, Michael, Damien

Introduction We met today to discuss our progress in the last week.

From Us

- We are working on a timeline presentation of our work from project approval to date and our expected work from date to the project presentation at Christmas.
- We have made progress on displaying the eye movement on a graph, we can now capture movement, plot the x,y coordinates to a graph and overlay multiple captures to see any deviation.
- We need to clean up the 'noise' displayed on the graph.
- We are working on a document to standardise the capture process. This document will serve as testing information also, that is we will be documenting conditions involved in each capture.

From Damien

- Damien asked us to redesign the report we sent to him regarding the graphs. He wants to send to Ed Daly to update him on our progress so he has an understanding where we are when he meets with us next.

Copy of graph report below

Eye Tracking – Data Processing v0.1

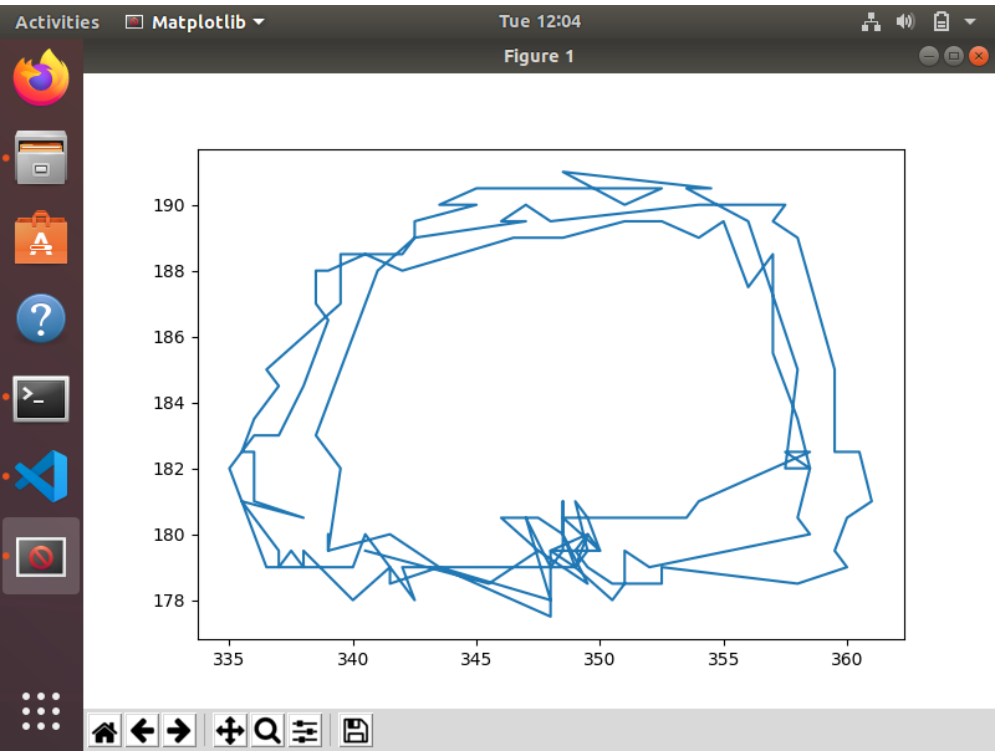
Process:

1. The user positions their head roughly in the centre of the screen.
2. Then they will look directly at the camera, which will be the starting point.
3. When the user is ready the data capture will begin. (Press “R” to record)
4. The user should then follow along the edge of the screen in a clockwise motion.
5. Doing 3 complete laps of the screens edge, until the returning back to the starting position.
6. Once complete the user will press “ESC” to close the application.
7. We first begin by creating a **Baseline Sample** for the user (Control Element)
8. Once the baseline sample has been created, we can then run a **Test Case** for comparison

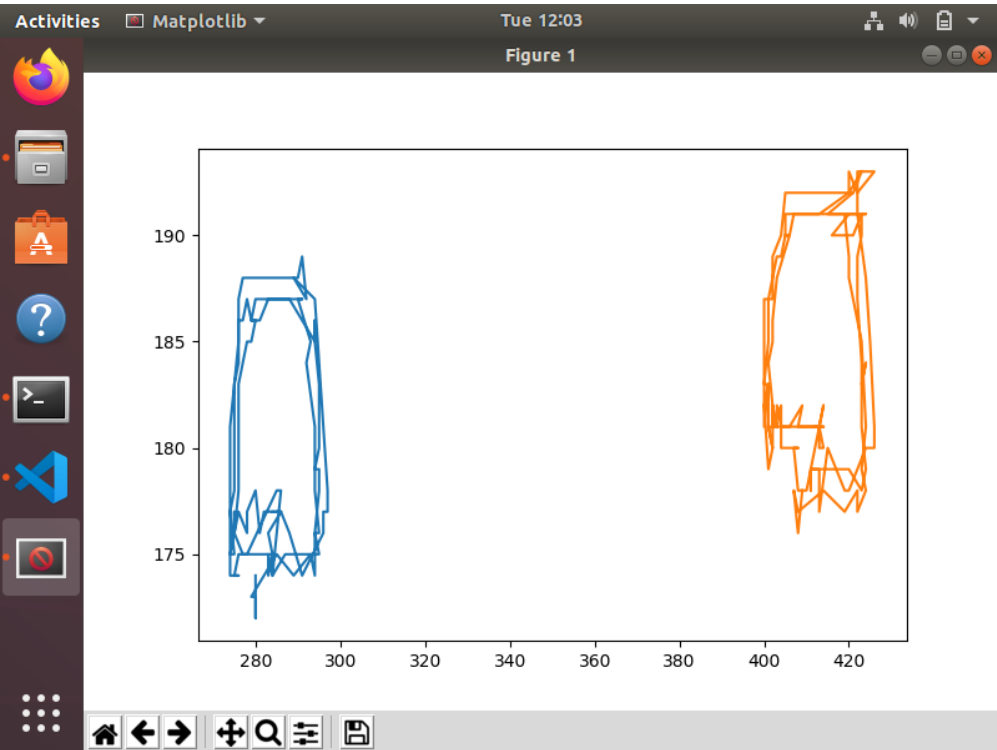
Baseline Sample: **Left-Eye**, **Right-Eye**



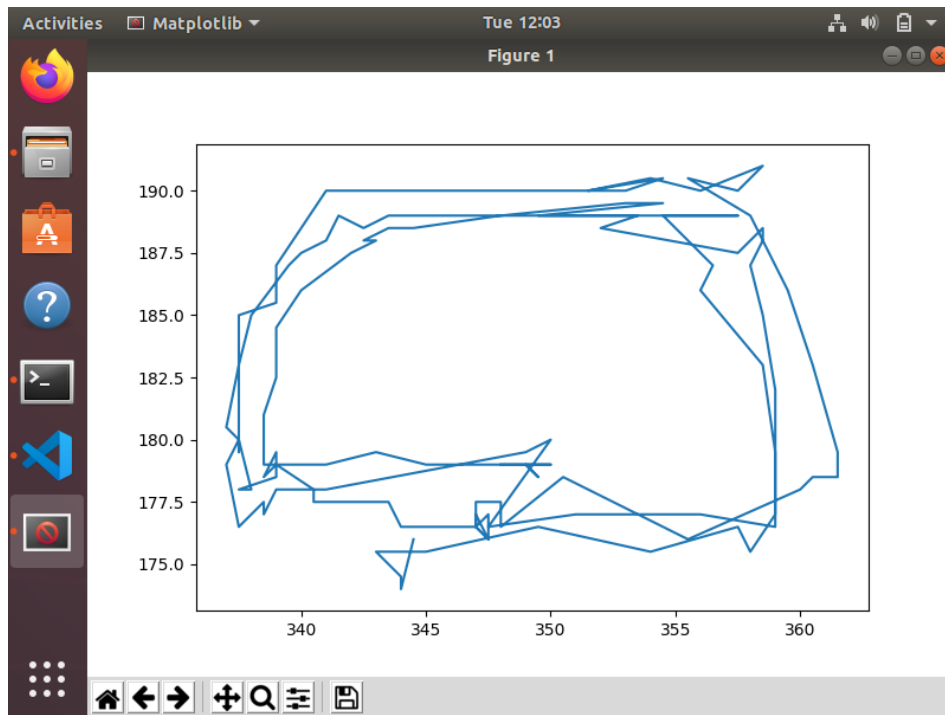
Baseline Sample: **Average of Both Eyes**



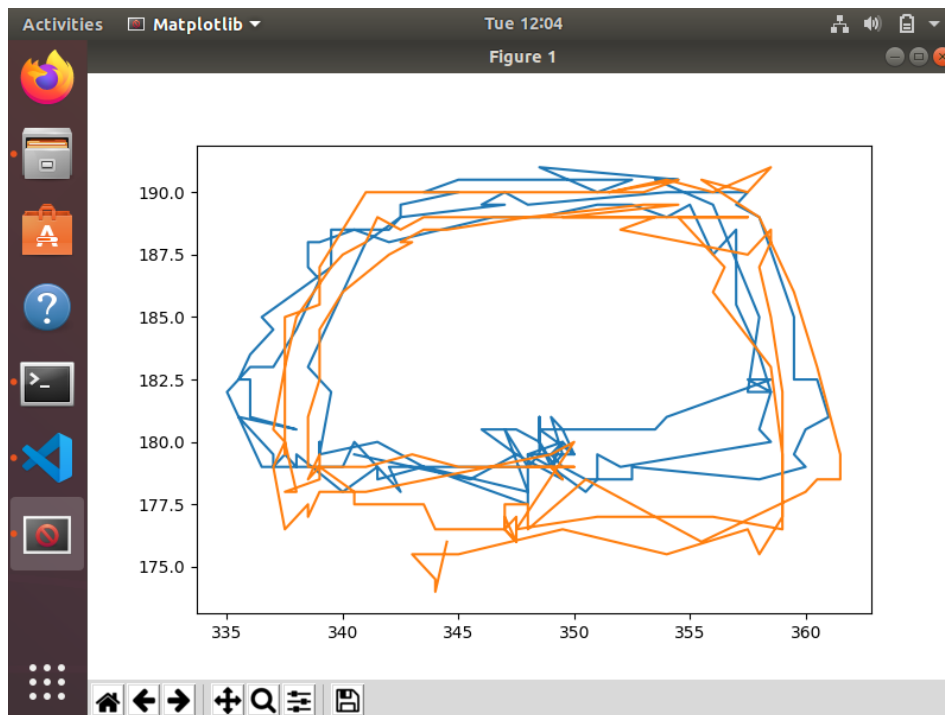
Test Case: **Left-Eye**, **Right-Eye**



Test Case: Average of Both Eyes



Comparison: Baseline Average, Test Case Average



Future Enhancements:

Issue: The data being captured needs to be more consistent.

- Implement a box the user must keep their head inside while recording data.
- Maybe have 2 smaller boxes they must also put their eyes inside?
- The speed at which the user moves their eyes needs to be more consistent.
- Implement a python solution for the ball moving in a circle of eight at uniform speed.
- Have the ball start in middle of screen and only move when data has started recording.

Issue: Need metrics to determine if the test case is a Pass/Fail

- Standard Deviation
- Statistical Dispersion
- Interquartile Range
- Coefficient of variation

Issue: Need to figure out how to store data/results on database

- Tests, results and meta data should be specific to individual users
- Use .csv files instead of .txt for storing/processing eye coordinates
- Store generated graphs as images. (Data storage considerations)
- Uploading/downloading images might take up lots of network bandwidth?
- Store eye data and generate graphs upon request using an API? (Probably a better way)