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Guide to the Sync Code

# Introduction

We received data from 2 sources in data collection:

Laptop 1 - To collect video data using go pro.

Laptop 2 - Connected to iPad to collect data using Xdot.

Though all efforts were made to start them both at the same time, there was a delay in the systems (GoPro had delay of almost 3.5s) which caused the de-sync.

The participants were instructed to start walking only after they hear a beep sound (trigger indicating the start of recording) and both the GoPro and Xdots were acquiring the data at the same frequency of 120Hz.

# Available Data

1. A video file for each trial that shows the timestamp when the Xdots were triggered.  
   A screenshot of a computer

   Description automatically generated
2. A pickle file that has the timestamp for every gopro video start and end time.

A screenshot of a computer

Description automatically generated

# Method

1. We calculated the difference between the absolute time when the Xdot sensor(from the ipad recording) and the gopro(from the pickle file generated by GoPro) was started.

Firstly, I manually find out the time when the start recording button was pressed on the iPad(this is when the Xdot starts) and noted that in an excel sheet named “Ground Truth Sync”. It Is there in the github repository.

1. Secondly we know from the pickle file when the start signal was triggered by the GoPro. Both the Gopro and the Xdots were connected to the same server, so they had the same clock.
2. To calculate the difference between them, I converted their start time into Unix Epoch time and then subtracted them straight away.
3. These values are accurate upto 1/120 of a second (~0.0084s). We used Adobe Premiere Pro software which allowed us to skip frame by frame and since the video was shot at 120 fps. The Xdot sensor also have the same sampling rate of 120 hertz.
4. Finally, I compiled the time difference into a file named “sync file.xlsx”
5. Also in some case we were unable to sync either because the video was corrupted or there was no server clock while screen recording. Owing to this: out of 176 participant, 155 participants were synced.
6. From here, I found that there were some participant wherein the Xdots were triggered after the video was started. Since the video was of only 120seconds, I did not include those since they could make our dataset inaccurate and inconsistent.

# Links

Github link for the repository : [GITHUB\_REPO](https://github.com/PhilD001/NACOB_2022_gait/tree/main/Sync%20Code)

Link for the Xdot Dataset: [Xdot screen record](https://drive.google.com/drive/folders/1hks7SR02hDnacU_Ba_IeHgUZKE57CZhR?usp=sharing)

Link for the GoPro Dataset: [video\_information.pkl](https://drive.google.com/file/d/1SMINCn3FH1tfpqk8m1DNeHQTAyZT4IqK/view?usp=sharing)