Video Sync Research

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1 Introduction

We need to create the ability to sync two videos of different length and starting time to start at the same time. We will use two recorded videos of similar length that are recorded at the same time. Our objective is to sync both videos so they start and end at the same time in order for us to use it reliably in tracking cars and objects within the videos.

2 Source of Videos

A potential list of video inputs include:

- IPhone Cameras
- ISU PD CCTV Live Feeds
- ISU PD Records
- Multiple Production Camera Feeds

3 Potential Syncing Methodologies

After researching several methodologies to sync the videos, we came upon a few methods to sync them. Our first idea is to manually synchronize the videos. We could use some sort of video editing software in order to sync the videos using the metatime start of each video and matching them up. Our second idea is to utilize a react component that utilizes the metadata of videos in order to calculate a synchronization between two video inputs. We would input both videos and then capture the metadata of each video, specifically getting the time and date of said videos. We would then calculate the offset of metadata time from both videos and utilize the offset to sync the videos. We would then shorten the videos and output it into a react component using html video output code.

4 React Component Pseudocode

Outlined below is pseudocode for the react component as laid out in the rules above:

```
VideoSync Component(video1 video2)
    video1 = convertToVideoObject
    video2 = convertToVideoObject
    syncOffset = 0

    fetchmetadata(video1)
    fetchmetadata(video2)

    getTime(video1)
    getTime(video2)
    calculateSyncOffset( video1, video2)

    return(
        htmlDiv
            output video1
            output video2
        endHtmlDiv
        )


function fetchmetadata(videoInput):
    return video.metadata.time // using MediaSource API and fetching it using startTime of video

function syncOffset (video1offset, video2offset):
    return abs(video1offset - video2offset)

return VideoSync
```

5 Conclusion

In conclusion, we have decided to go with the react component as it offers us on demand synchronization and quicker response times compared to manual synchronization of the videos. It also offers us the ability to expand with the ability to incorporate multiple videos due to the abstraction within our code. We hope to be able to implement this soon using the code above as an outline.