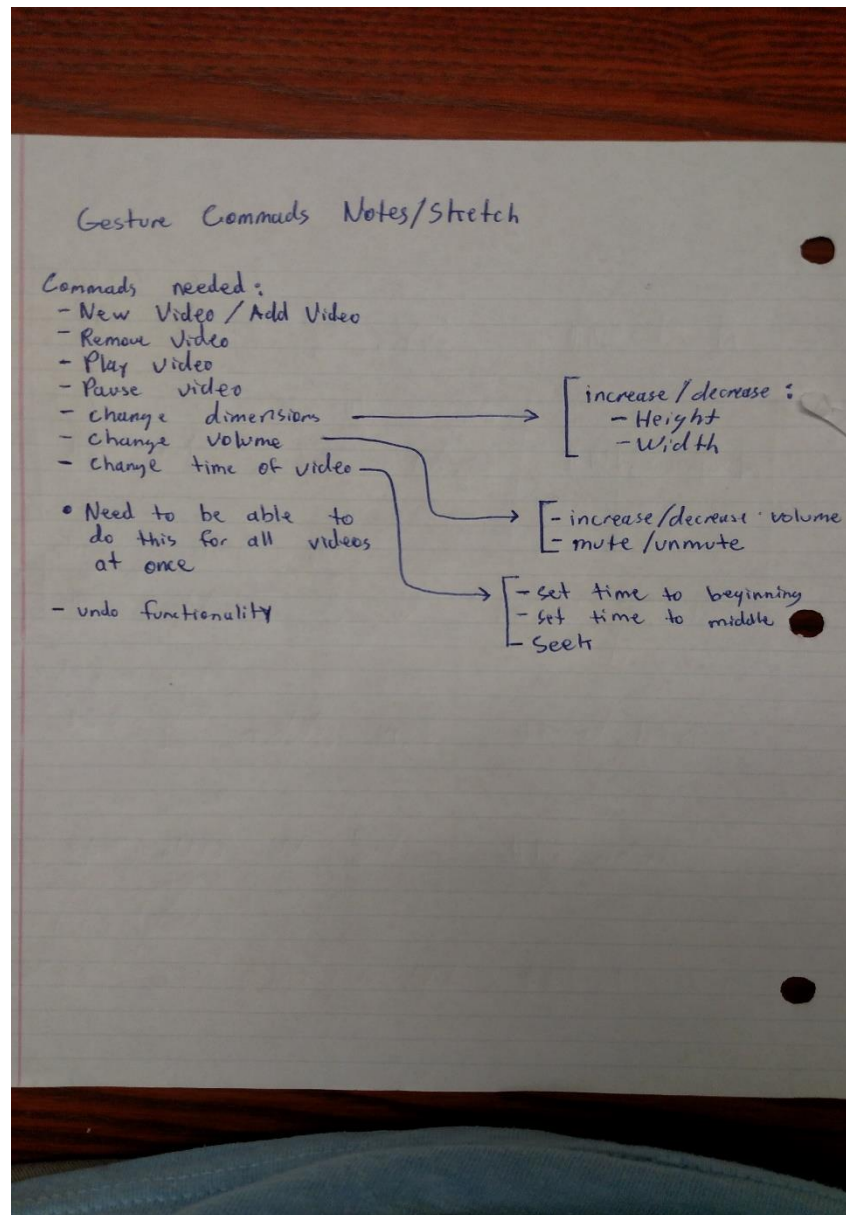


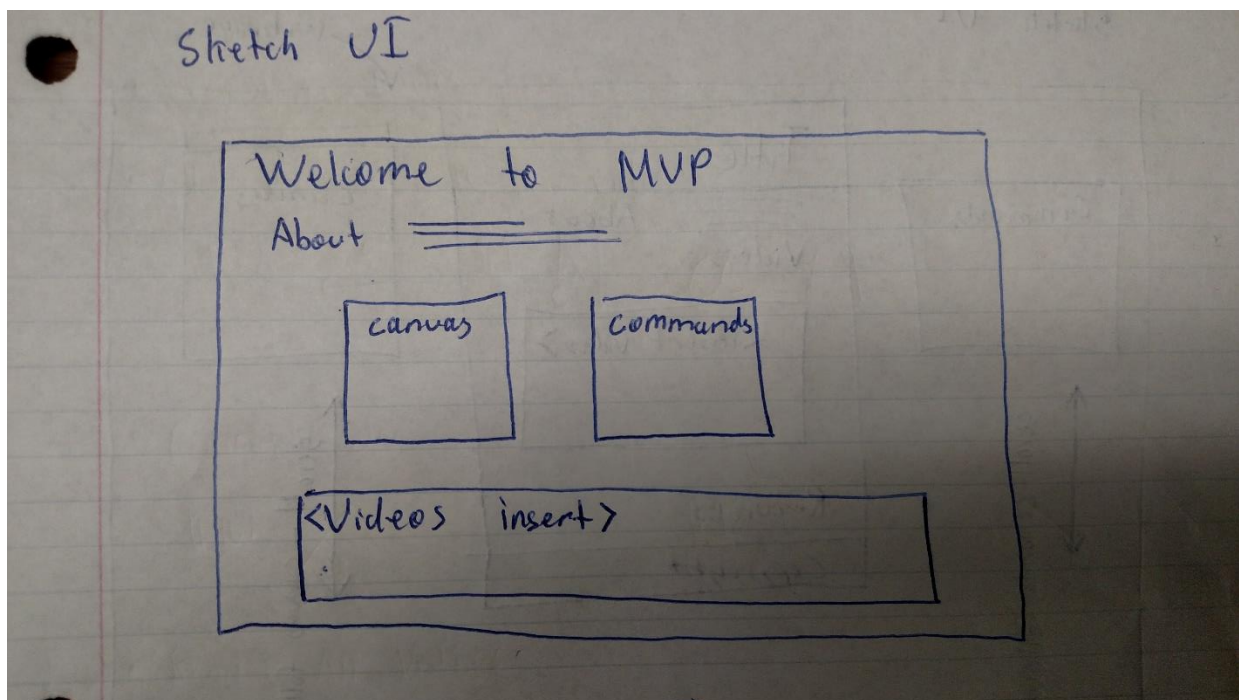
### Homework 3- Multiple Video Player

#### Design Prototypes

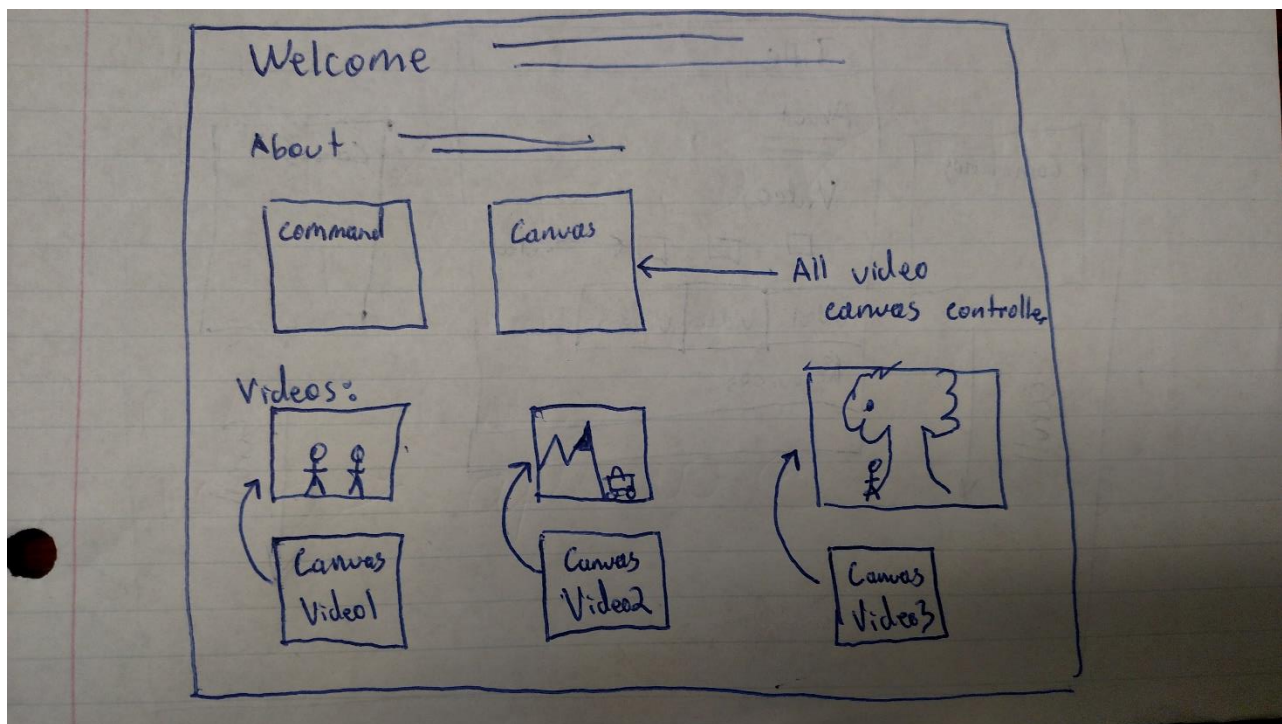
Previous to coding anything I first took several steps to guide me into the right direction of what the application requirements were. I first created a list of functions which would need to be mapped to certain gestures to be able to fulfill the requirements of the assignment before even thinking about how to present an interface that is clean and clear to the user. Below are the functions I thought of as commands for the gesture recognizer.



Once I knew what were the requirements of the assignment I began to sketch ideas to convey a clean interface for the user. These images go in order of first to final design choices. The below one I first drew up drawing some inspiration from the recognizer page. I knew that I wanted to make the commands and canvas juxtaposed to one another to allow a user to understand that the commands are for the canvas itself. I also wanted the canvas to be in an area that draws attention to itself to allow the user to immediately understand the significance of the canvas.

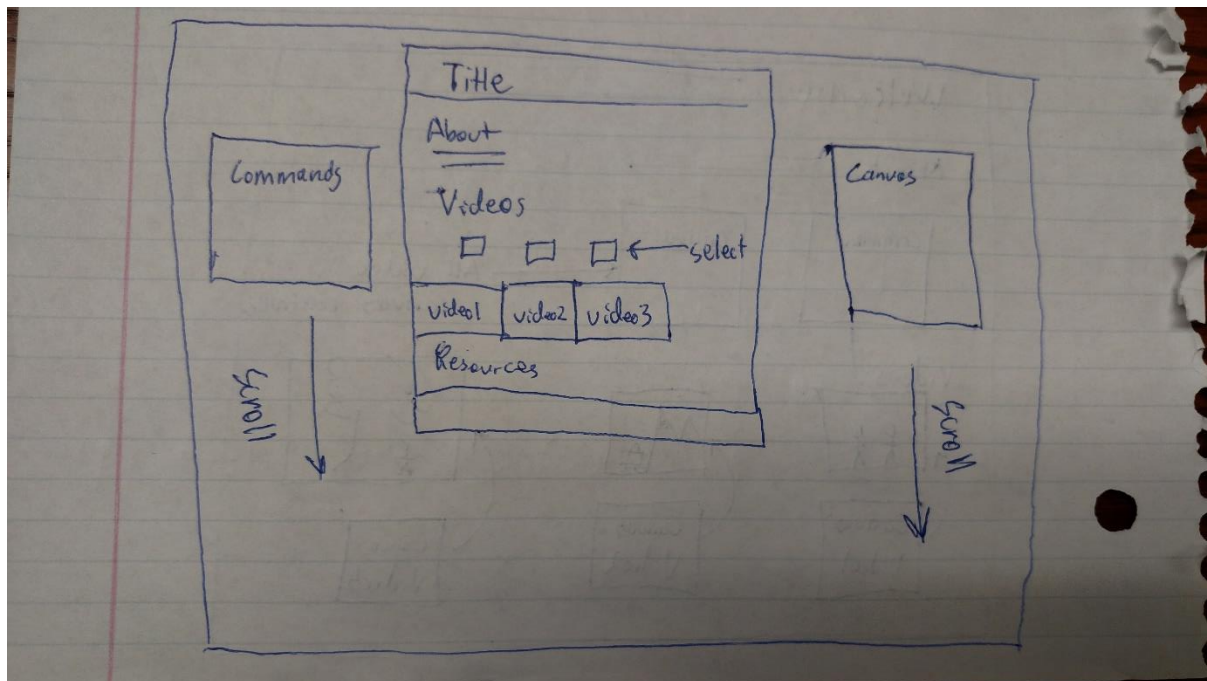


Once I began playing around with the recognizer I realized an interface like the previous image would have difficulty controlling specific videos, and simultaneously perform actions on all videos, these requirement made me rethink my interface. The number of gestures would have to increase by a multiple of the gestures each time that there is another video to reference. This is when I came up with the idea of creating several canvases, each canvas mapped to the video above it. Then also having a canvas which could be the canvas the does the “all videos simultaneously”. This would dramatically decrease the total number of gestures. You could have a small set of gestures that could be linked to specific videos and those same gestures could affect all the videos through the all canvas controller.



I believe that this would be a user interface comparable to my final user interface. I began coming into trouble when I had a multiple canvases with the algorithm's recognizer code. The user interface would also quickly become very quickly crowded, especially with the altering of width and height attributes of the videos themselves and having the canvas attached to them. So I decided to abandon this pursuit.

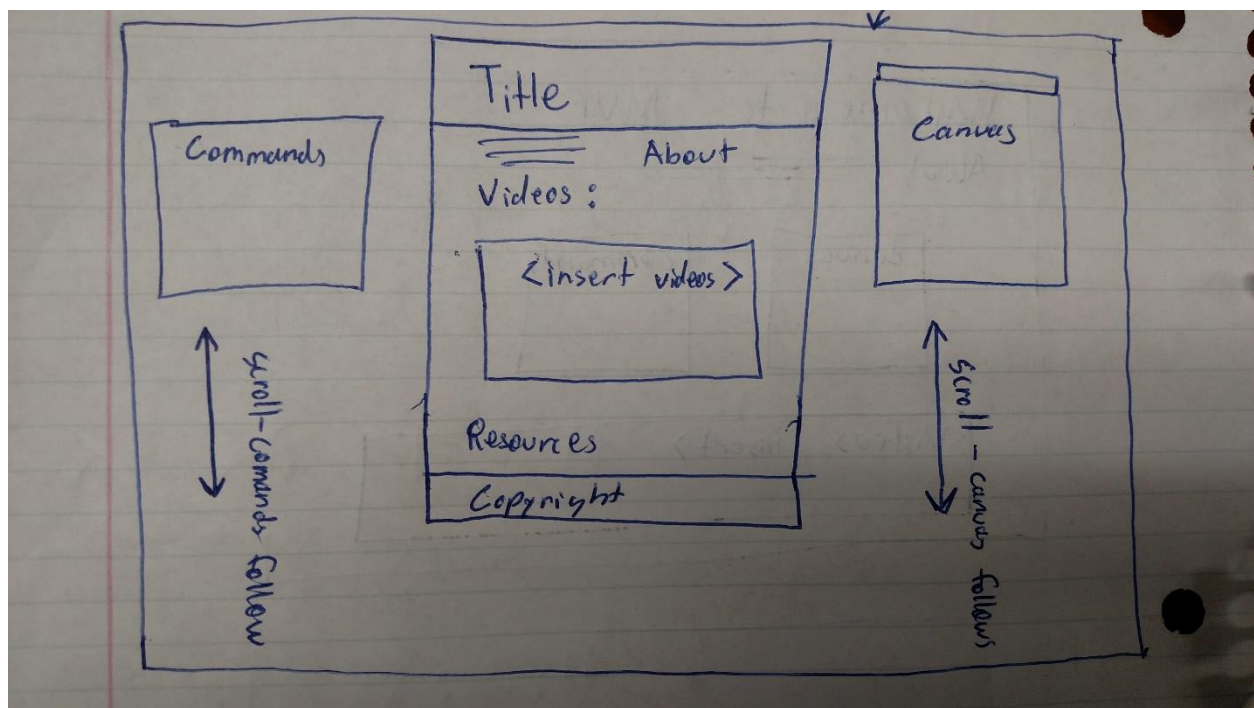
Now I had the problem of not understanding how to do actions to all videos and have some sort of specific selection process to effect the attributes for specific videos. I returned to the idea of 1 canvas, but I still wanted to maintain that the Canvas and Commands were juxtaposed to one another, so I placed them in zones completely of their own on the site. Instead, the selection process was going to involve clicking a button checkbox which would allow the user to know that they are targeting with their gesture that specific movie. I then realized after reading further into the assignment and in Piazza that any form of a button was not ok, so I then abandoned this pursuit without knowing how to specifically select videos for alterations.





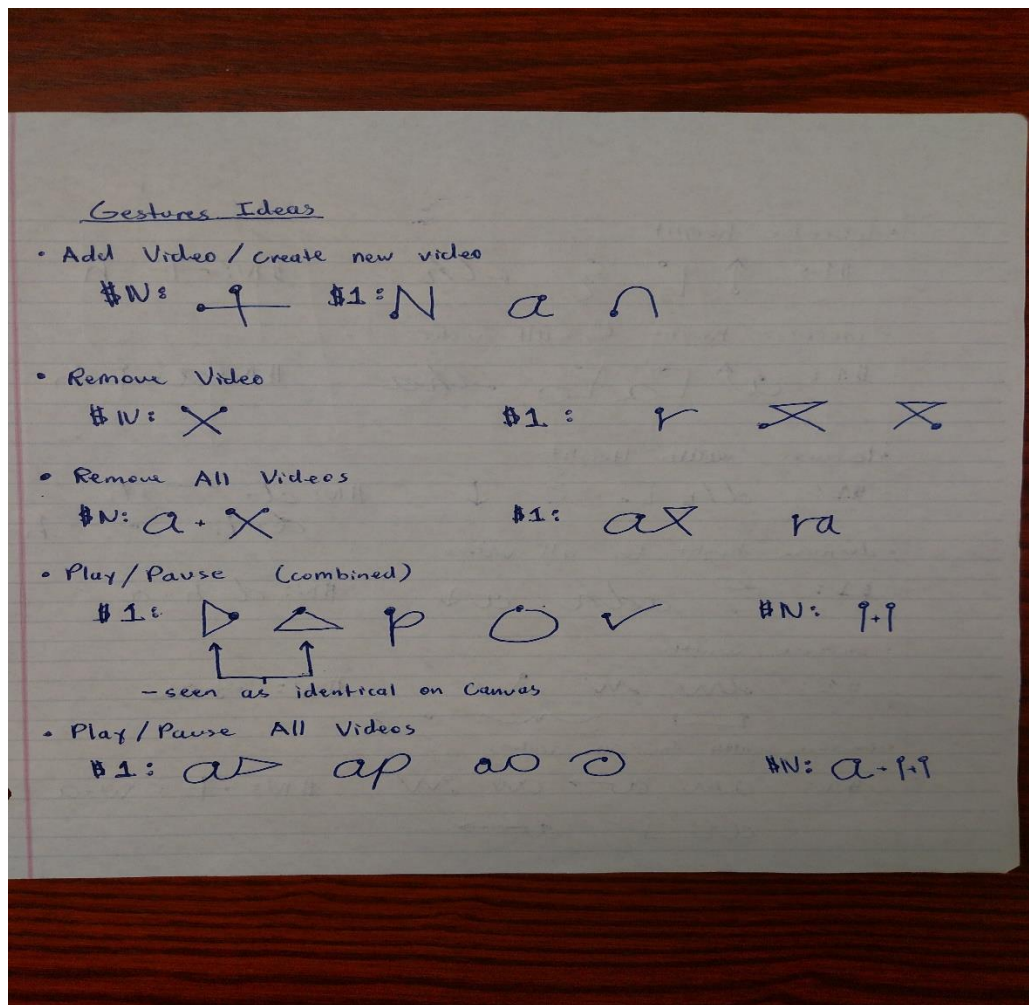
I then thought of creating my own selection gesture. If the user drew the select gesture on the canvas they could select/de-select videos that existed in the "<insert videos>" area by simply clicking the video. I then wanted the video to be clearly marked that it had been selected by the user, so I thought of creating a red border around the selected videos. The videos remain selected until they are deselected which is simply use the select gesture again to select/deselect. I kept the canvas and commands on opposite sides so that the user has clear organization that the commands + canvas = videos. Where videos are located in the center of the view and canvas and commands scroll with the user.

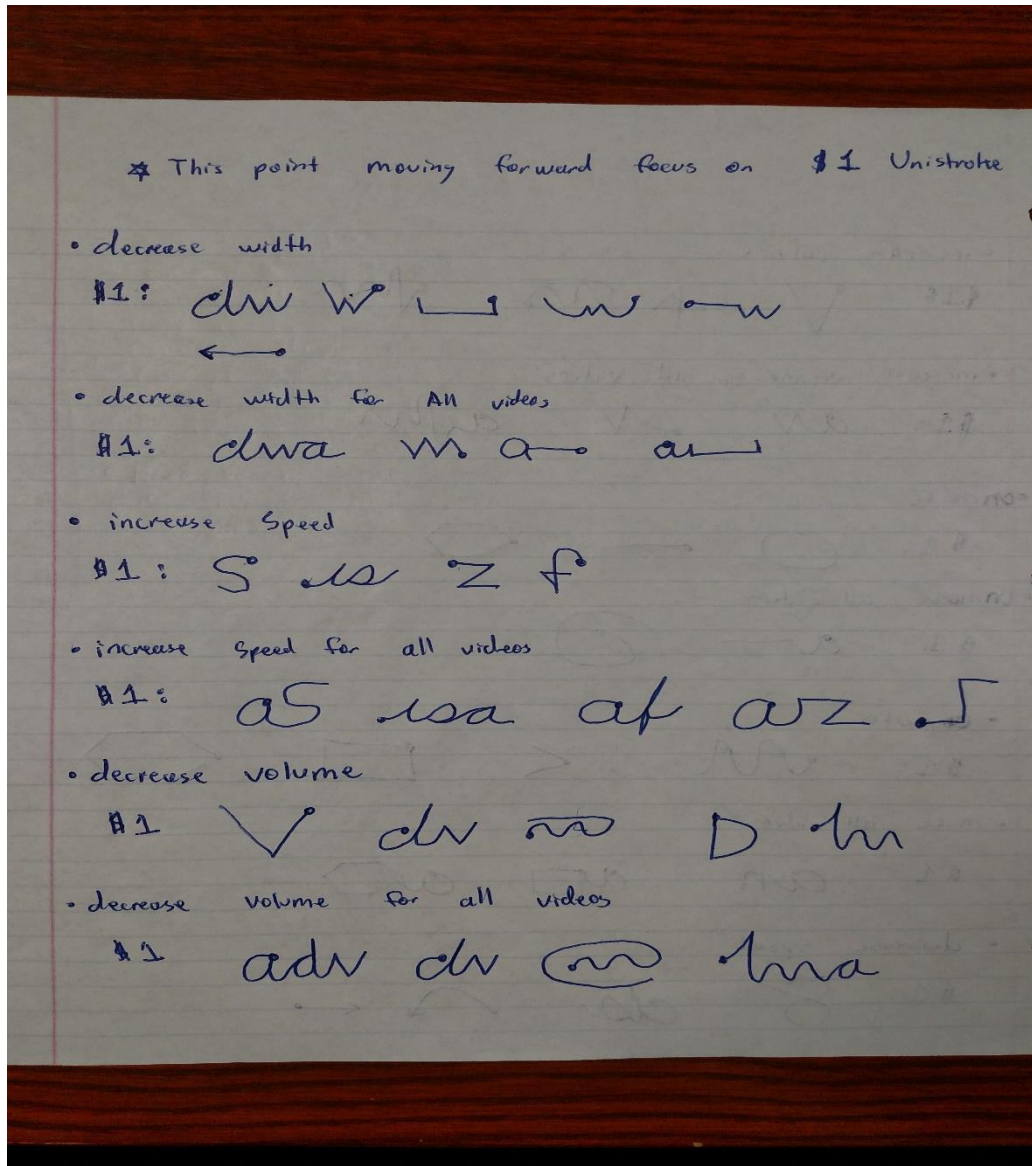
I also wanted whenever an error was thrown in regards to attempting to do a command without having selected something to insert an error right above insert videos. That way the user could understand where they may have gone wrong and attempt again on the canvas with some direction by the error message



## Gesture Design

The following are some gestures that I drew up and tried on the custom recognizer. Many of which I realized were too similar to one another to be used. I abandoned the \$N stroke ideas fairly quickly because I felt that it required the user to do too much drawing, and was not fast enough. Also it made me as the developer lazy so I could potentially make a unique gesture for every video, having a 1 drawn then having whatever action (play/pause, speed up, etc) to signify execute this action on video 1. I felt like this was not as user friendly as having unistroke and limiting the commands but using a selector instead.

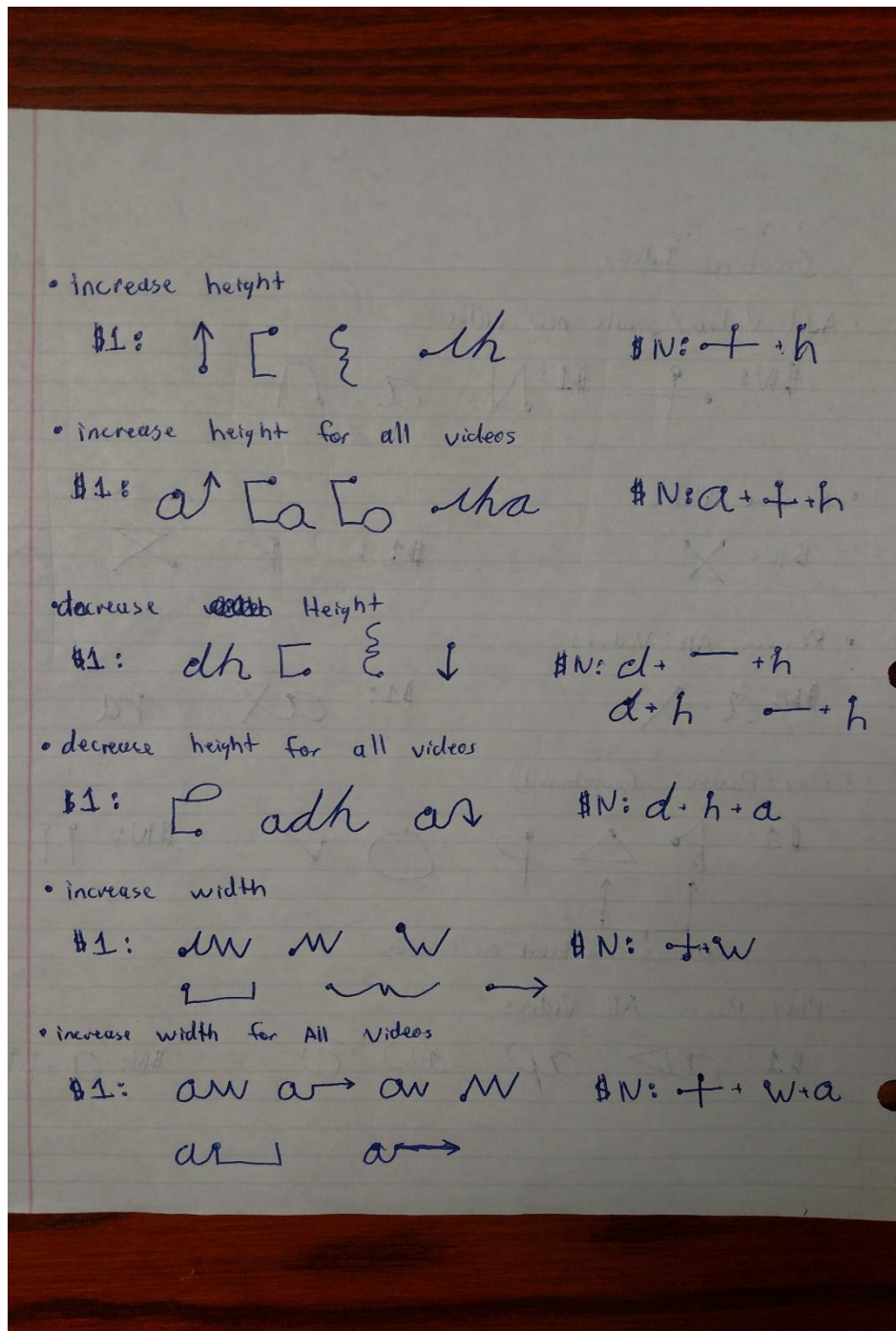




I wanted the gestures to either convey the visualization of the action that they would perform, or the cursive writing of the word that they represented. For example almost all commands that involve altering ALL videos have the letter "a" in cursive as its first letter prior to going on with the remaining command/gesture. I also wanted to maintain that commands that do similar things should look similar. Increasing and decreasing volume appear to be the same gestures just beginning on opposite spectrums. Going right to left to decrease and left to right to increase (I did this because I felt like with the English language we write left to right so it should be natural for this command to be affiliated with increasing). Volume is not the only gesture that follows this pattern: increasing/decreasing width and height also follow the starting on opposite spectrums of the canvas to signify increase vs decrease.

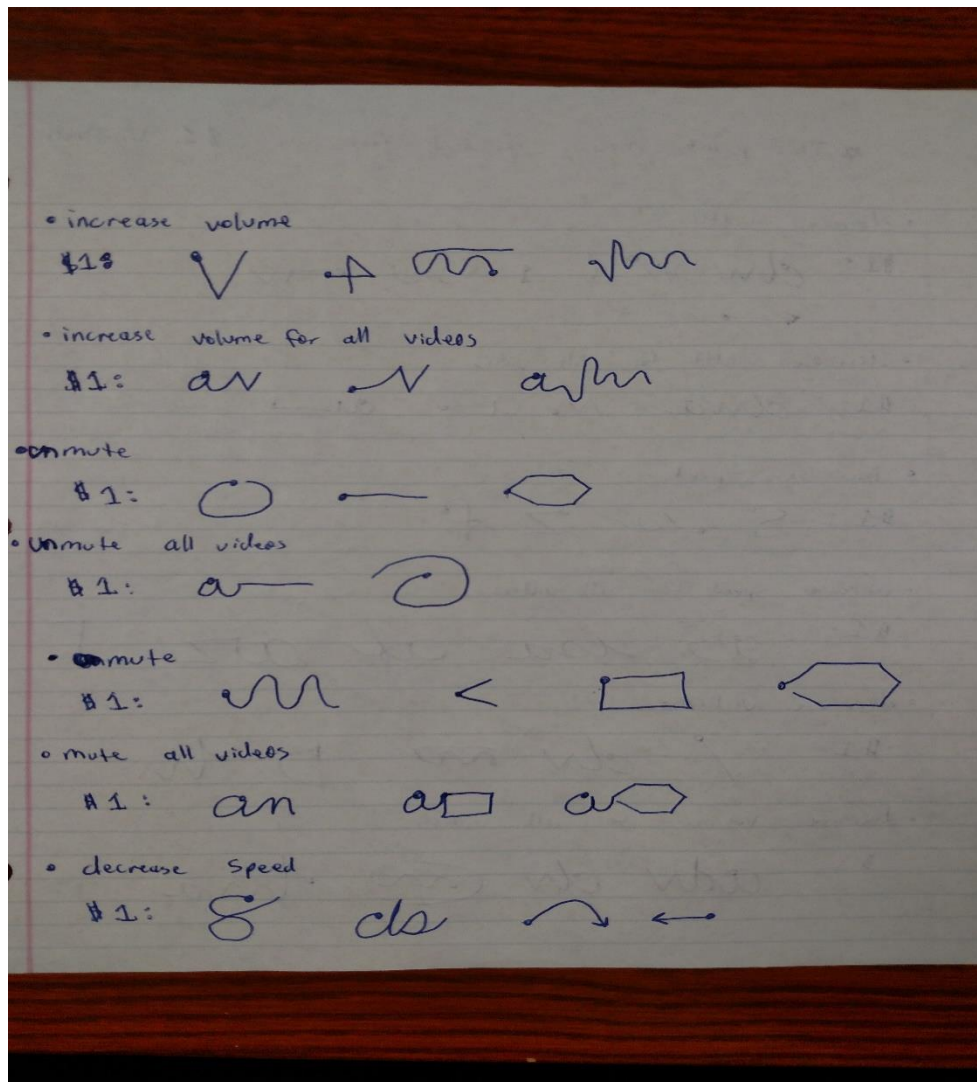


Some of the gestures were too difficult to be recognized. I began following the cursive path too much and realized that drawing out an "iha" could easily be mistaken by the recognizer for an "adh" which are opposite commands (as seen below). Working with the recognizer made me have to rethink many of my gesture ideas to make sure that the user never had to undo his action. The gesture had to always be recognized (and not confused with other gestures) in the set for me to allow it to be part of the set.

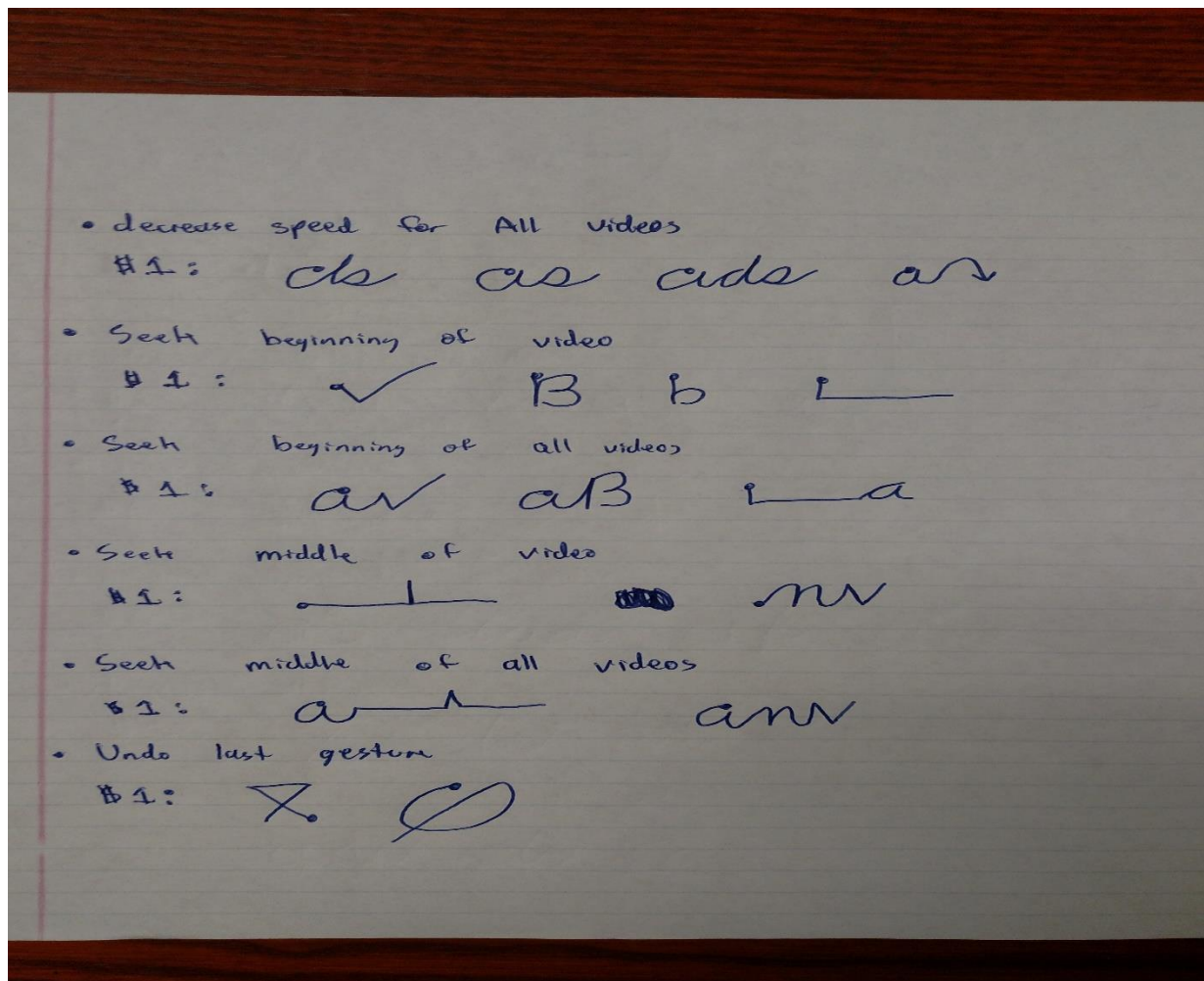




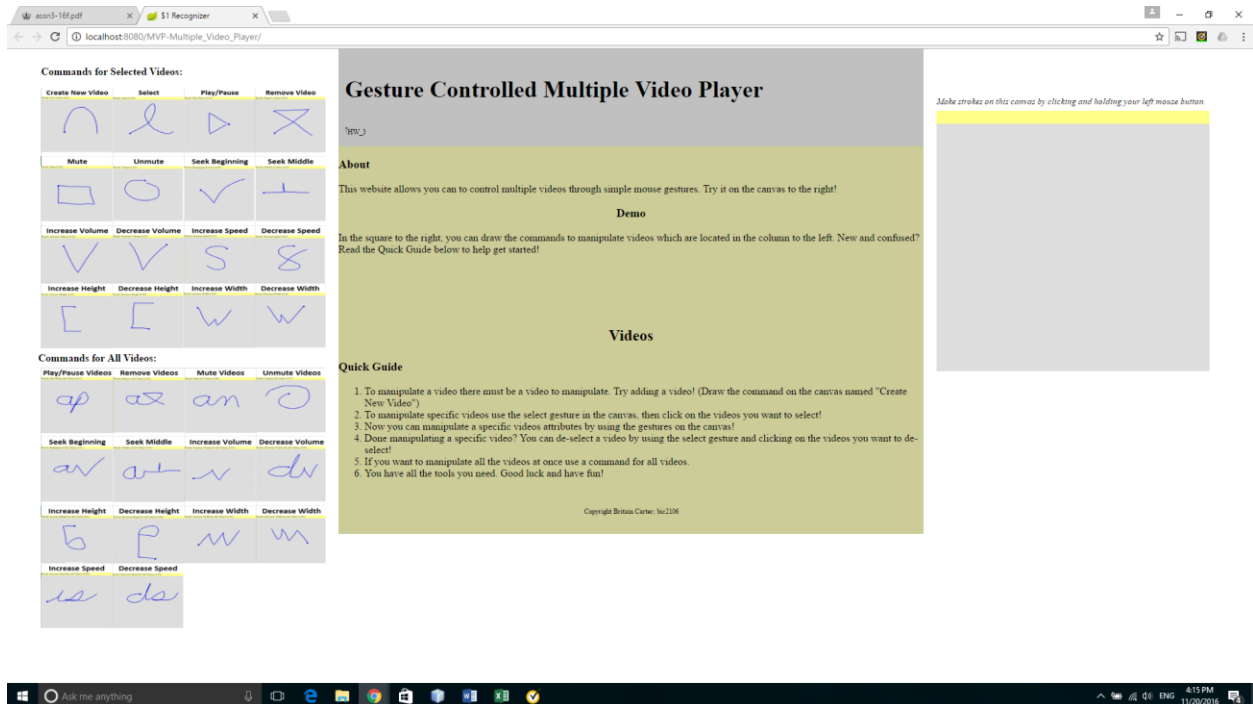
Mute vs unmute both address the same concept of volume so I wanted them to be visually similar to the user. So the user can better remember through the gestures images themselves. Unmute became in the final product a circle, very similar to that of a "go" light, as in continue hearing. While mute became a square, which is similar to that of a stop sign, as in stop hearing.



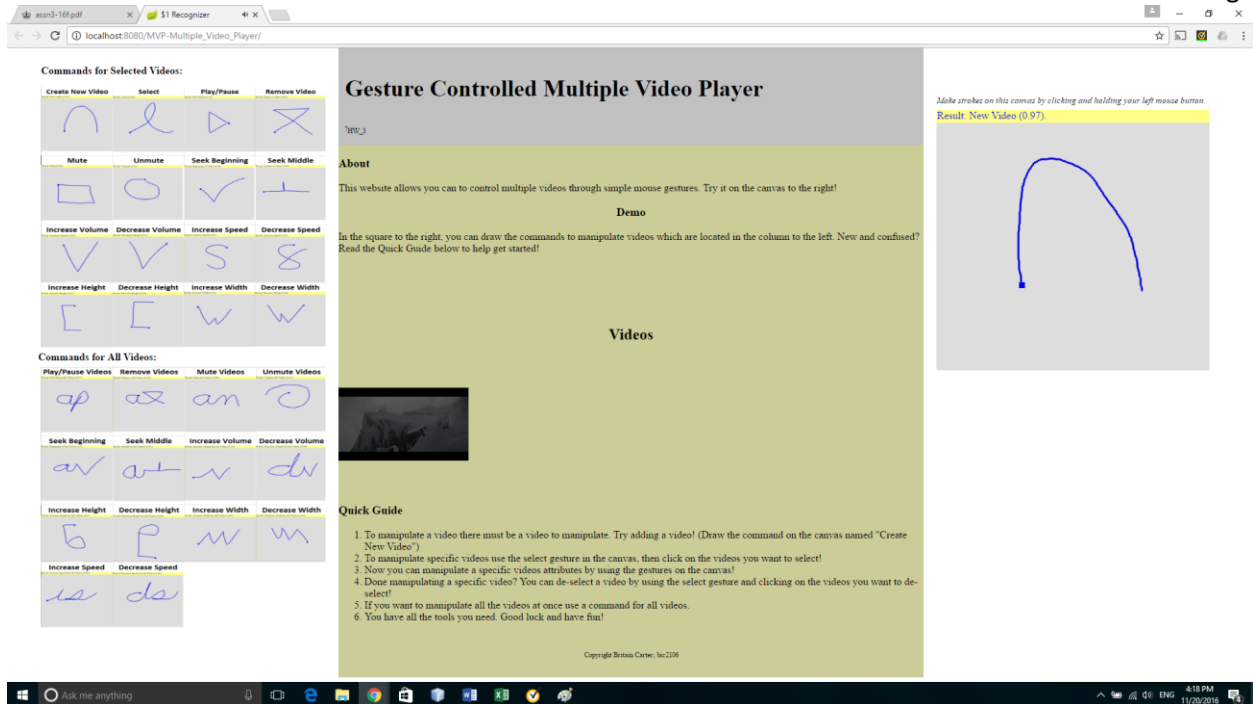
An example of showing visually of an action in a gesture is below in the image of "seek middle of video", and "seek middle of all videos". When I drew the commands in cursive and they were recognized by the recognizer in regards to my set, however I felt like the straight line with a sudden line in the middle portrayed more a sense of time and a middle. With the middle being the spike of where you are about to appear. The "seek middle of all videos" also contains the cursive "a" at the beginning but is virtually the same command as "middle of all videos" to maintain consistency and simplicity in the application for the user.



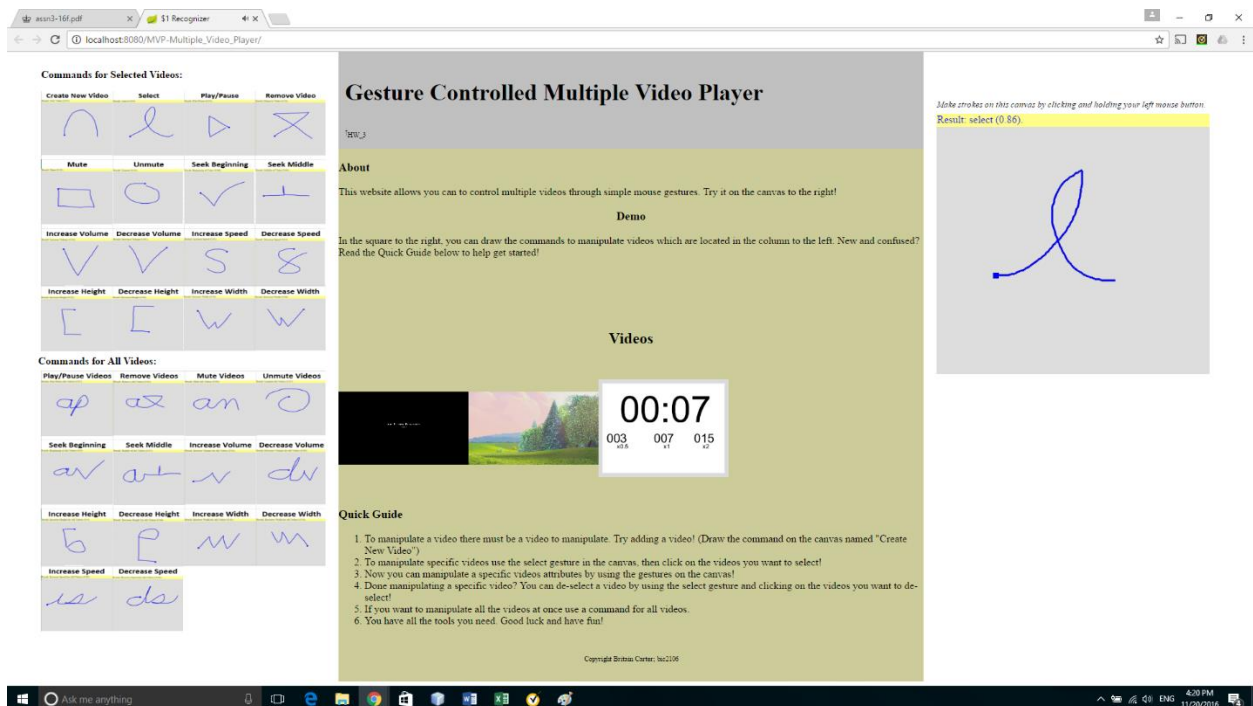
## Screen Shots of Application in Use



Home page. 3 columns, right side for canvas, left side for commands, middle for videos and information to user. At the bottom is a quick guide for those who have trouble with the application.

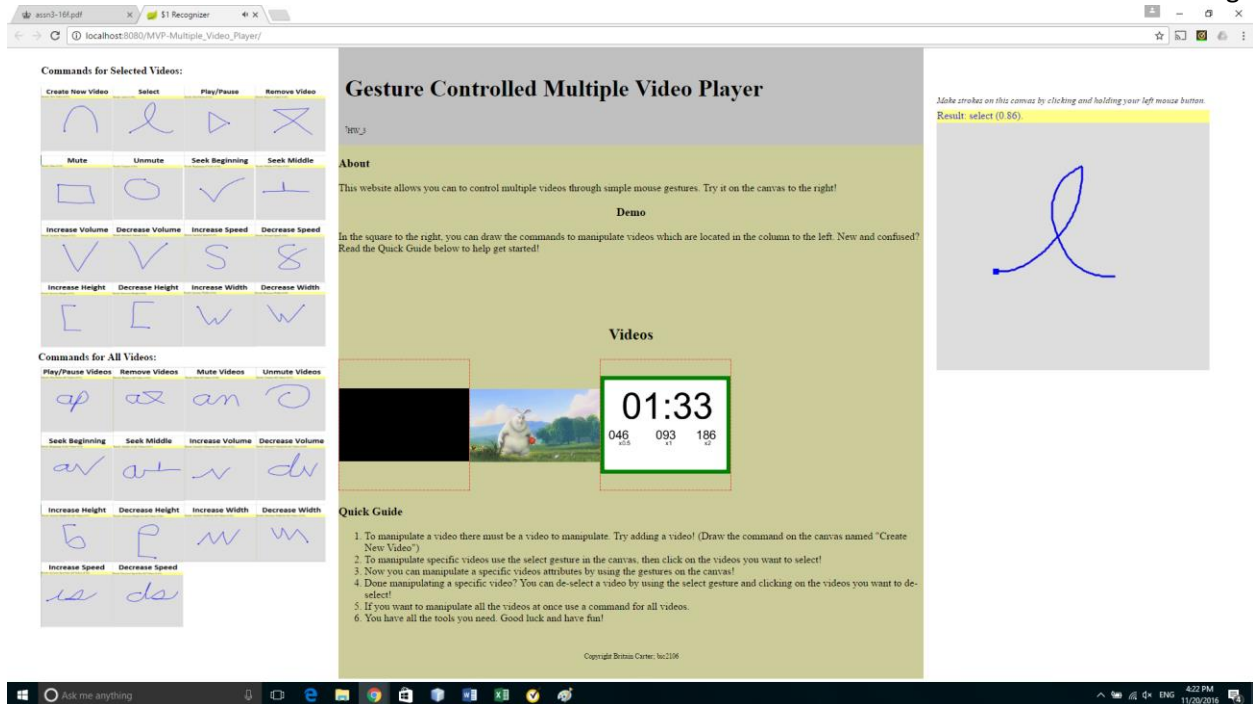


Executed command of new video. A new video has appeared under Videos in the middle.

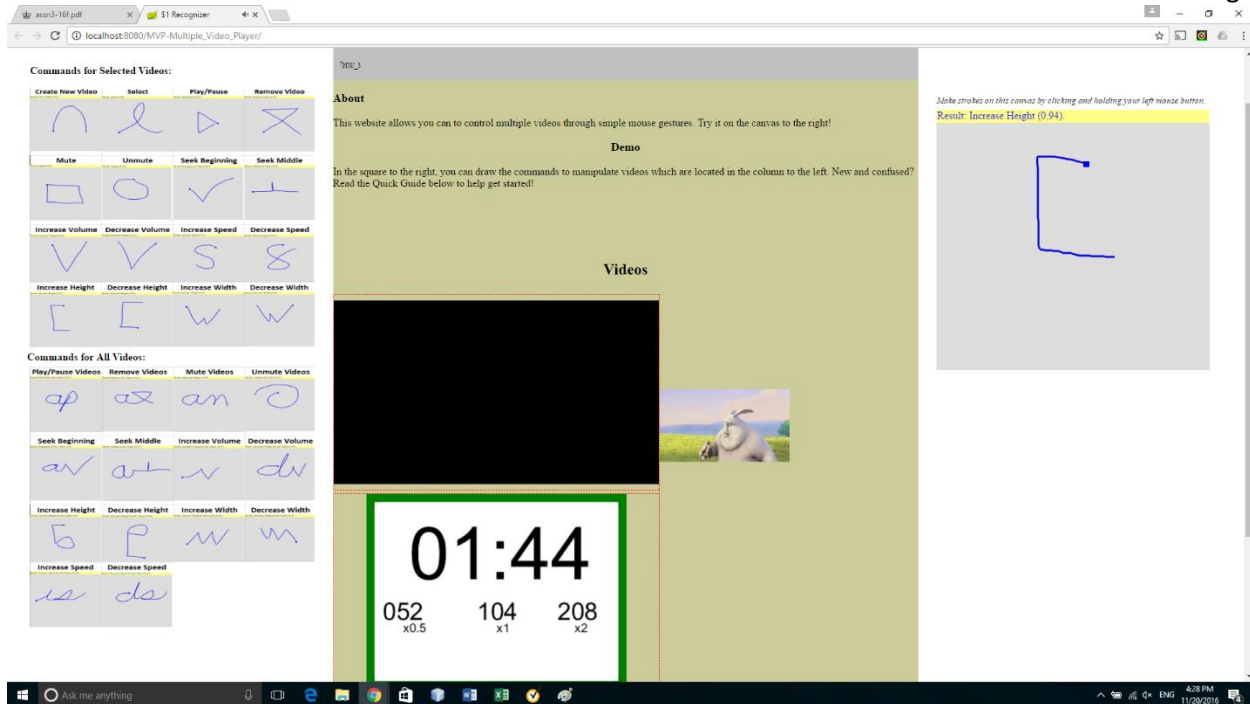


Repeated new video command 3 times to create 3 videos. Used select gesture.





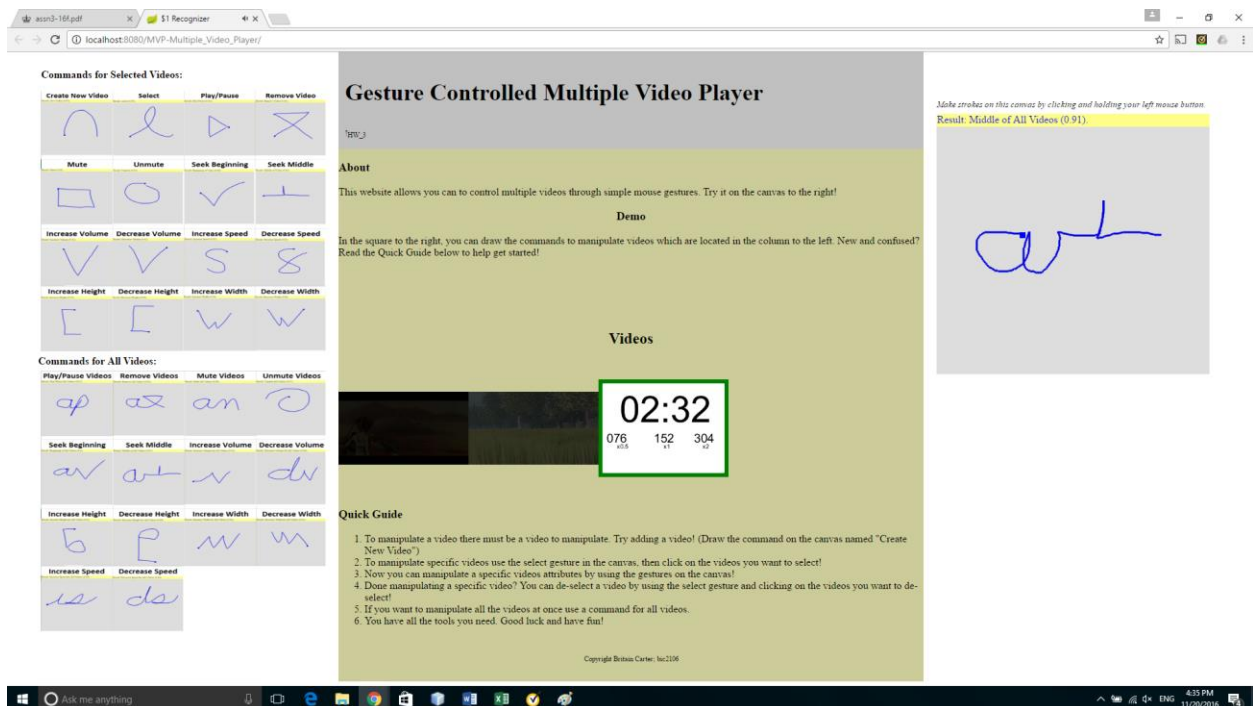
After using the select gesture I clicked on video 1 and video 3. These videos have been highlighted with a red outlining. Now I can execute as many commands on these selected as I would like.



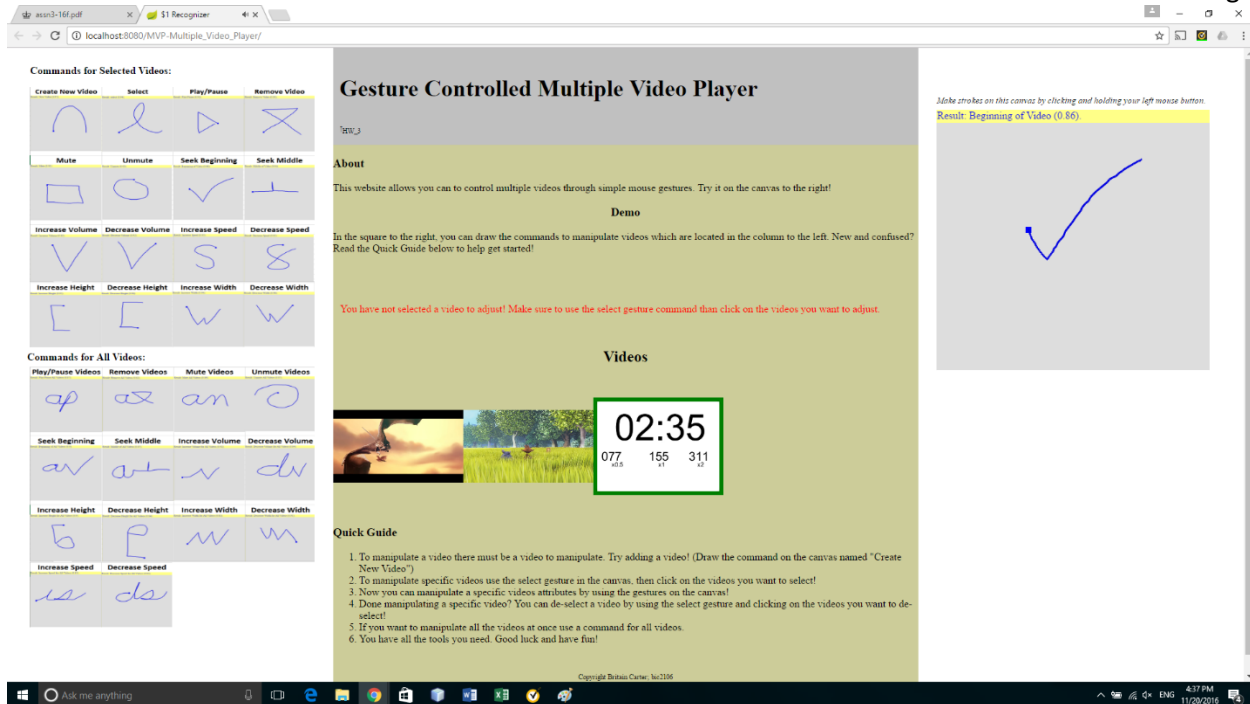
I then executed the increase width twice and the increased height once. As you can see only videos that have the red dotted highlight bar around them were increased. Also the videos did not go off the green area and wrapped around instead. Also if you look to the right you can see that I have scrolled down. My canvas remains in the same location as do my commands after scrolling.



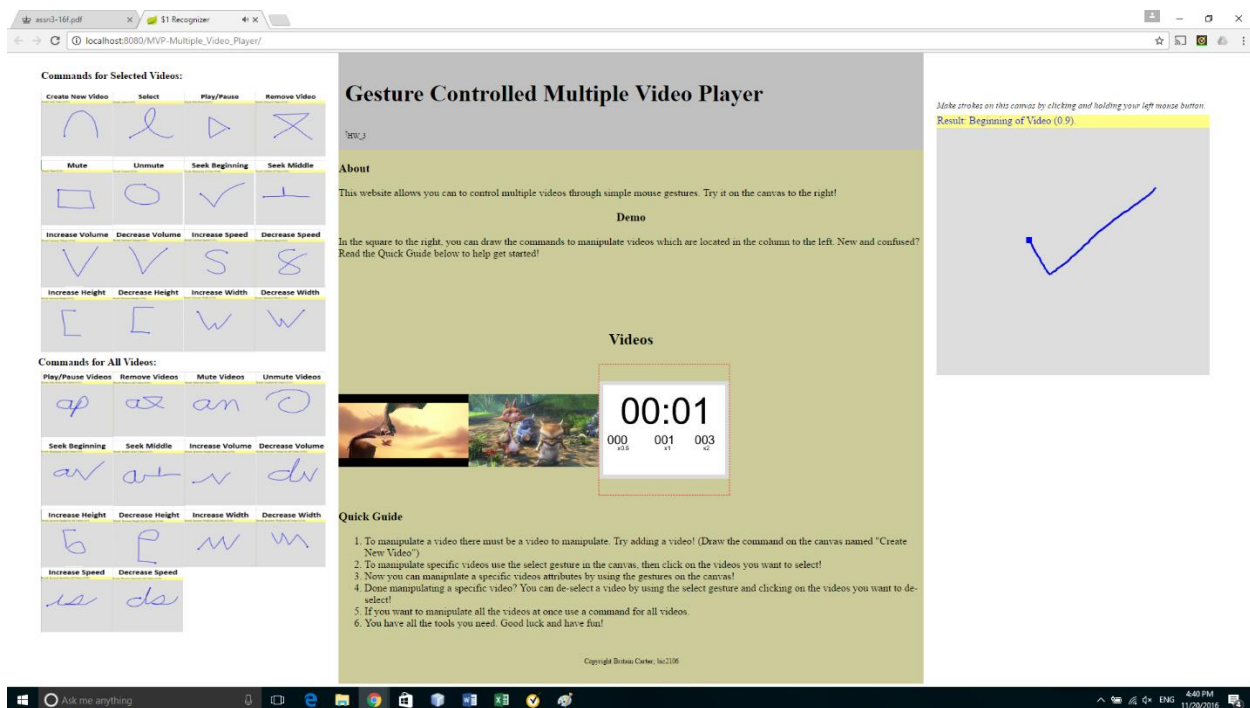
I then executed the remove all videos, and as the name implies it effects all videos regardless if they are selected or not.



I then did 3 new video commands and did the seek middle of video command for all videos. As you can see we are in the middle by the timer.

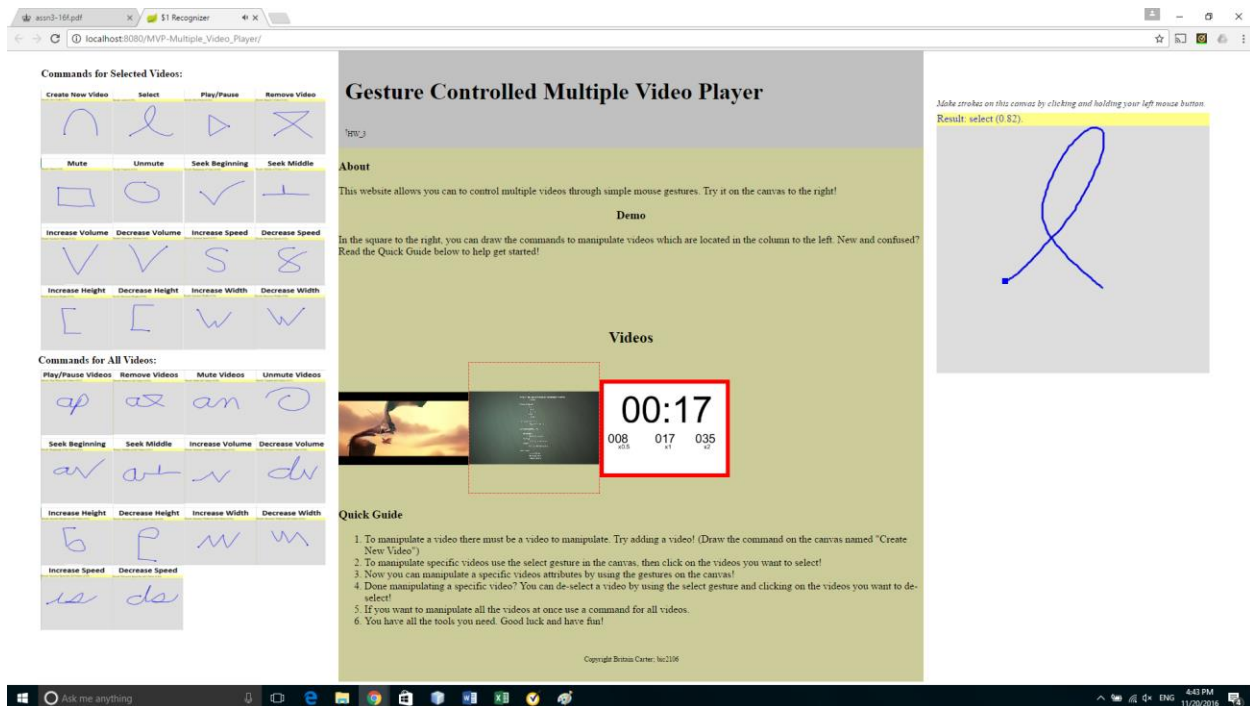


I then attempted (like a user who does not know) to change a specific video to the middle. However, I did not have any videos selected. So there is an error message in red directly above the videos that tells the user that they do not have a video selected, and how to select a video.

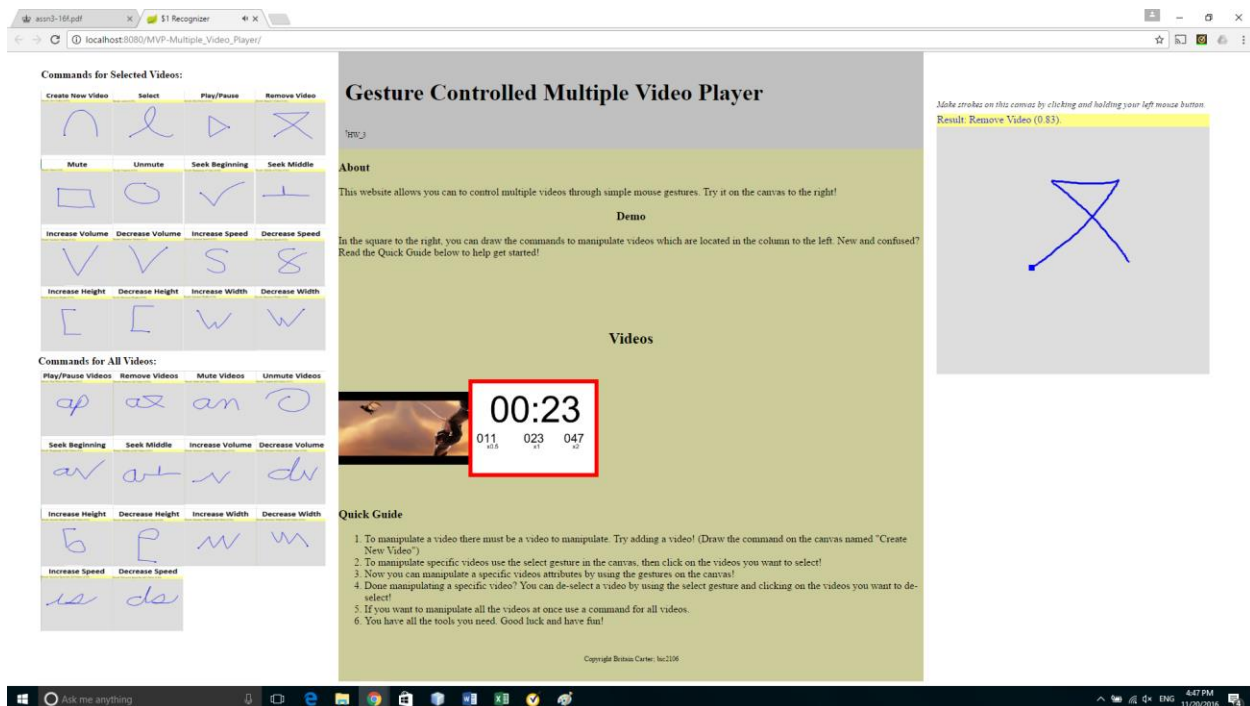


I then used the select gesture, clicked on the timer, then used the seek beginning of the video gesture and that specific video went to the beginning.

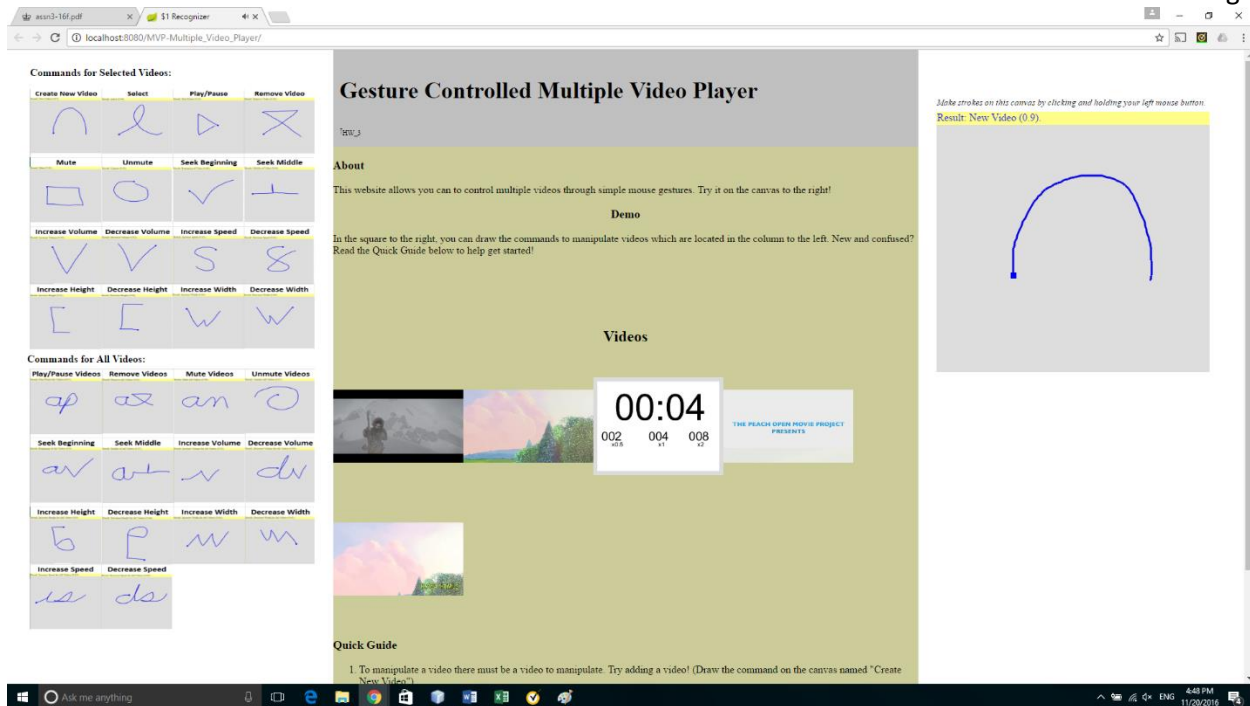




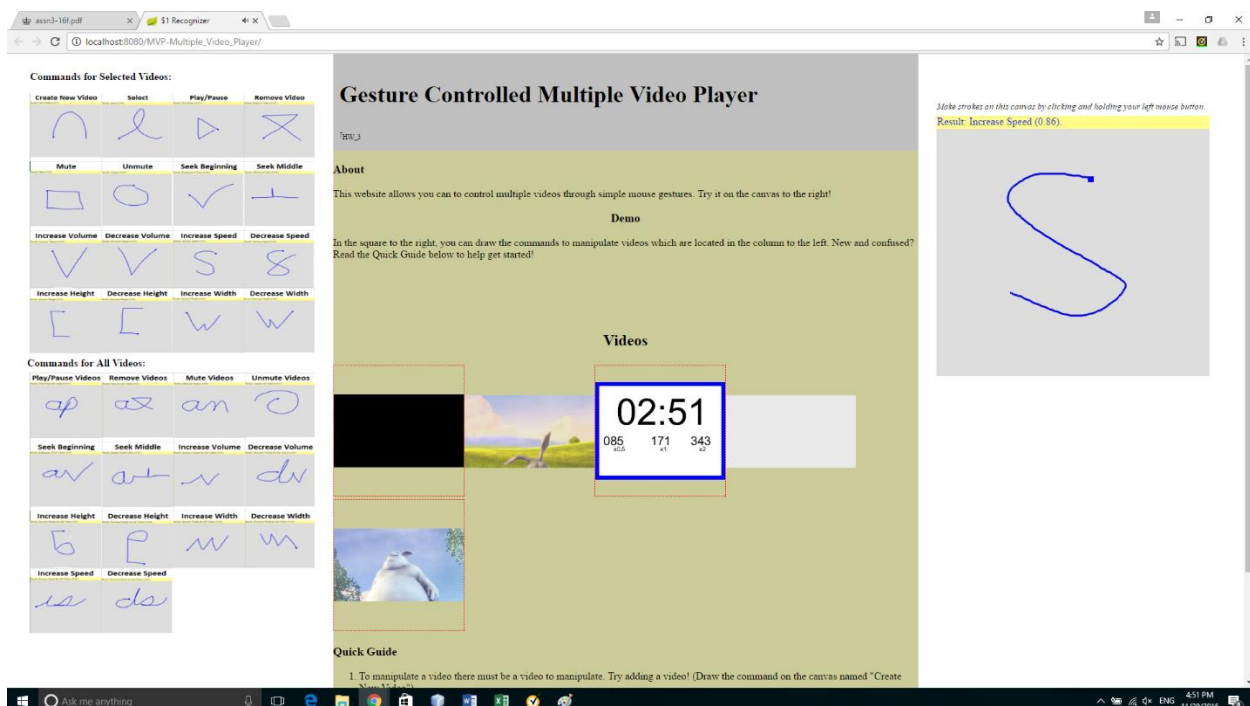
I then used the select gesture clicked on the timer, to deselect that specific movie and clicked on the middle movie. The red dotted line is no longer around the timer but around the 2 movie.



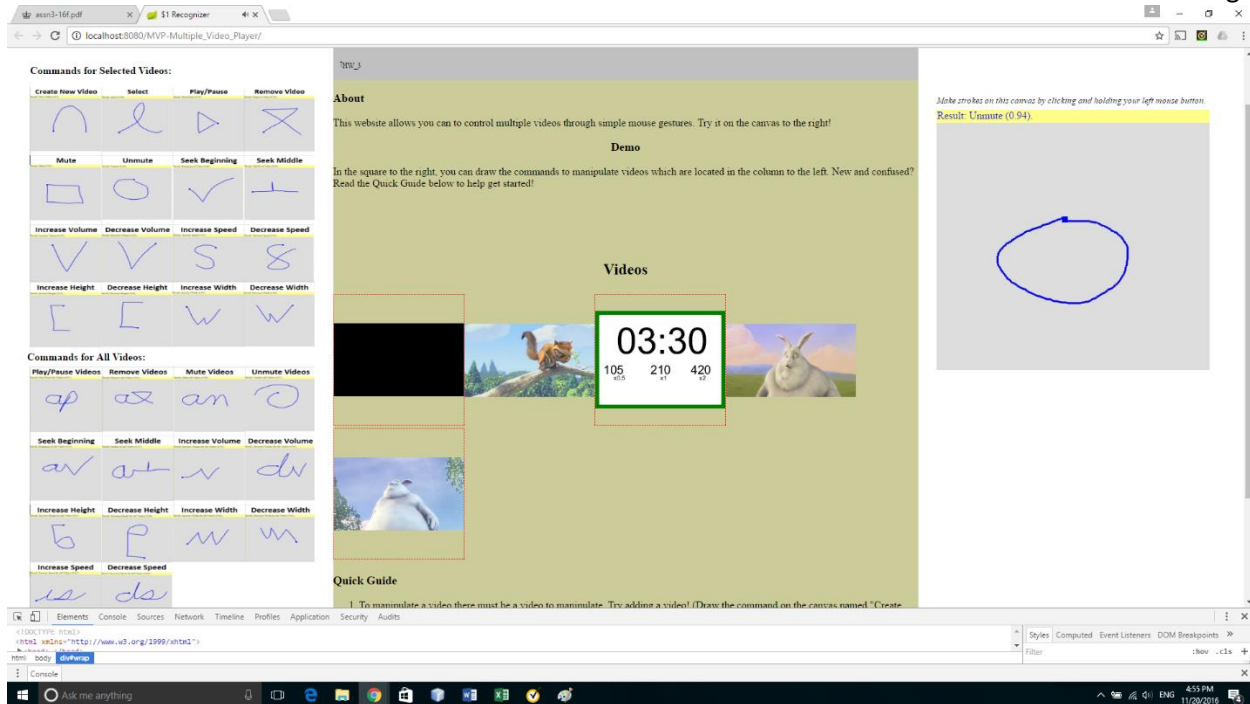
I then removed that specific movie with the remove selected video command. As you can see the second video is gone.



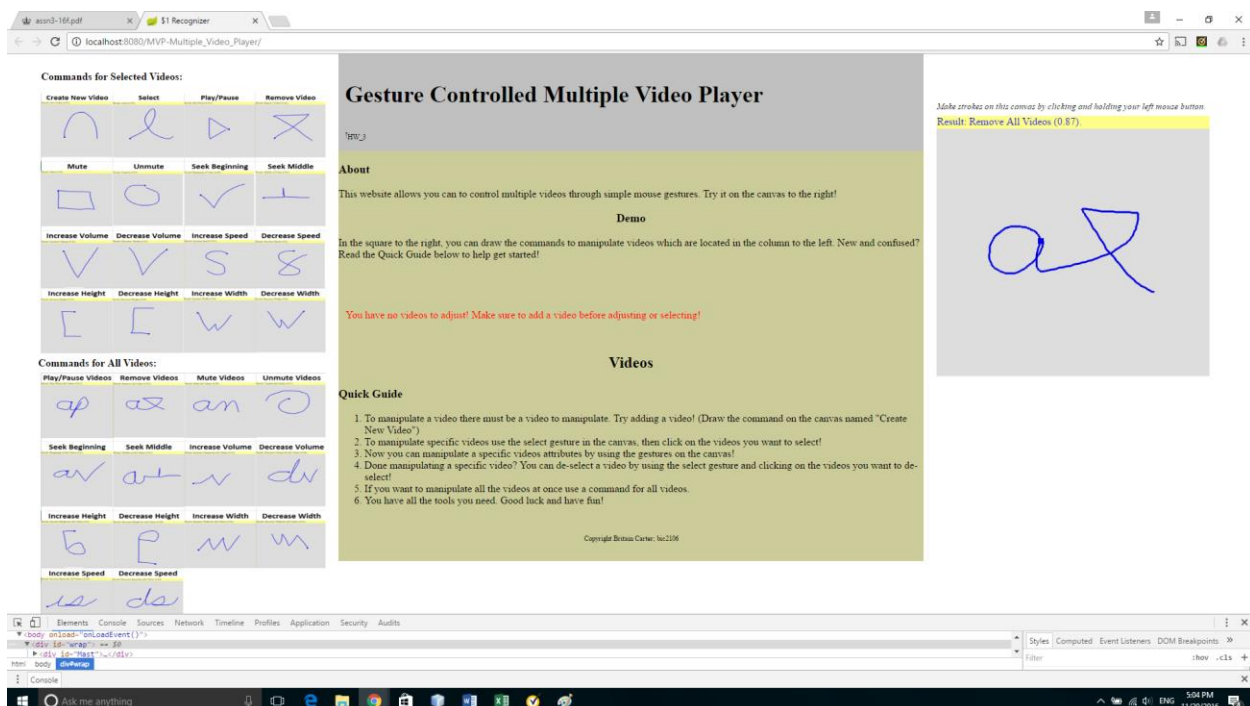
This shows the requirement of 5 videos working at the same time. (All videos are embedded in URL array.)



I have used the select gesture and have selected the 1<sup>st</sup>, middle and last video and have increased there speed.



I then used the mute all videos gesture followed with the unmute selected videos and only videos that are selected are making noise.



I removed all the videos, then ran the command of remove all videos again, and because there were no videos the user was notified with this error. This will occur with any command besides new video if no videos exist.

I have demonstrated through these screenshots that there can be any combination of “all video” with “selected video” commands to alter the attributes of the videos that you so desire.

**Boundaries of the gestures in the application:**

- *There is a max height and width which can be obtained and will cease to increase the height/width with more user input.*
- *There is also a point where decreasing the volume will result in there being no volume at all, and increasing the volume to a point where there can be no more increase in volume.*
- *Slowing the pace of the movies dramatically will result in no volume at all.*
- *If a selected command is executed without any videos selected the user will be notified of their mistake. This also follows with if there is no video and a command is executed the user will be notified.*