Kevin Whitney

Design Project 1

Entry Log – Monday 1/7/2019

Unfortunately, due to some family matters over break, I had far less time to work on my project than I would have liked. Because of this, I am a little behind where I wanted to be. Firstly, here is what changed since my last update and where I am now.

The largest change is the means by which I am getting the user’s hand as a binary image to use for getting their hand gestures. The final method I have settled on is my own kind of coded out form of what the built-in method in OpenCV is for background subtraction. Firstly, as the program starts, a frame is saved of the initial background of the user’s camera feed. The user will be prompted to leave that area of the frame empty (they’ll have a visual reference to work with). Once this is done, the live video feed is constantly compared to this frame. The absolute value of each pixel of the current feed minus the corresponding pixel of the initial background is then calculated. Then, I create a binary image by creating a white pixel wherever the difference of the two pixels is above a certain threshold. The result of this is that anything in the current video that was not in the initial frame will be tracked, which will be the user’s hand. This works in static camera setups, which is what I intend for this to be used with (a desktop windows application). There is an option to reset the background image if the user’s camera is knocked or if something changes and they need it reset.

As of right now, I have a working model of this. My next step this week is to start working on gathering binary images of the different letters of the ASL alphabet and really begin work on training the CNN to recognize these hand gestures. As well, I want to continue to update my project proposal.

Although I am behind where I wanted to be, I plan to make up the time I missed over break and am still in a good spot to get done what I need to get done.