

# Weekly Report 10

February 26<sup>th</sup> – March 12<sup>th</sup>, 2020

Group 33 | VIRA (Virtual Insight into Real Athletics)

## General Information

### Advisor

Dr. Diane Rover

### Team Members

Katie Perkins – Team Lead

Nate Irmiter – Stakeholder Communicator

Bailey Righi – Product Manager

Willem Paul – Standardization Manager

Caroline Rankin – Meeting Facilitator

## Weekly Summary

This week we hashed out what the guided module for the Neer Impingement Test will look like. We also established reliable and accurate communication between the application in Unity and the server. The human models are able to be manipulated by the user (not perfectly yet) and they look more realistic.

## Past Week Accomplishments

### Katie

This week I worked on converting what I've done for user movement of the arm to make it VR compatible, as well as adding new components (like the user's hands) that we will need in VR. After doing that, I added more to the scene to get the basic visuals of what we will want for the guided module, such as an examination table and walls for a "room". I also have been working with the models in Unity to see what problems we are experiencing with mesh distortion.

### Nate

This week I did some more work on the models. We tried implementing clothing from sources other than MakeHuman, which caused some issues regarding the different vertices of the mesh and how they interacted with the rigging/movement of the model. To fix these, I tried reducing the meshes to fewer points. That didn't end up working, so it's going to be a trial and error process in order to figure out how to get all that done. I also wrote a script for the Neer Impingement module, so I went through a bunch of different videos that performed the test and wrote down some of the information that the trainers in those

videos communicated to the user because that is the sort of info that is preserved as we transmit this test to a walkthrough format.

### Bailey

I worked on loading data from the server and created components dynamically in our Unity scenes based on the information retrieved from the server. I did this for the module selection in the guided mode and for the statistics in the performance dashboard. I also helped Caroline debug a few things for her scenes that were similar to what I did. We also made a communication diagram and worked on our upcoming presentation.

### Willem

This week, I spent time creating more server code to retrieve user statistics. This code was more complex than previous code because it involved a series of queries and compilations to transform the data into a useful format. I also worked on creating diagrams of our server for our presentation.

### Caroline

This week I worked on parsing data from the server to update text objects in Unity. I used that to populate a UI list in the user profile selection screen. I also worked on transitions between scene to scene in Unity. Other non-technical work that I did was that I made a communication diagram with Bailey and worked on our Peer Eval slides for an upcoming assignment.

## Individual Contributions

Name	Hours This Week	Cumulative Hours
<b>Katie</b>	12	37
<b>Nate</b>	12	36
<b>Bailey</b>	12	35
<b>Willem</b>	12	39
<b>Caroline</b>	12	37

## Plans for the Upcoming Week

### Katie

I'm going to work on editing the inverse kinematics script we have to limit the range of motion of the joints so they don't look distorted, and then find a way to hide the target that the user will be moving to move the arm. After that, I'm going to start working on animating the ghost limb for the guided module.

Nate

I plan on continuing to work on the models and figure out how to fix the bugs that arose this week from changing around how we were making them. I've got ideas as to how to do that, but if none of them end up working we might have to utilize another sort of technology to generate our models which would likely be something I would look into.

Bailey

I will transition the scenes we've made into VR so that they can be viewed in the Oculus Quest. I will also create the narration of the guided module for the Near Impingement Test.

Willem

I plan on implementing the ability to add user performance data to the database through the server. I will also be working with Caroline on designing a consistent UI appearance and layout.

Caroline

My goals for the next few weeks are to make all of the UI designs consistent and look professional. I also want to work on deploying some of the UI to the headset.

## Summary of Our Weekly Advisor Meeting

We showed our advisor how we are now able to move the arm on the Oculus headset, and then showed her the new models we made and the screens for the UI that we've been working on. We talked to her about the things that we're planning on doing for the next iteration and got her feedback on the things she noticed that we could improve on for the models and arm movement.