Creating a Kinect2 Scratch server

The Kinect has been an interesting device. Released near the end of 2010, the device kicked off an exploration into motion based controls for everyone. It has spawned many other motion tracking peripherals, but still remains one of the leaders in this category. Scratch is a programming environment for kids. It allows kids to put graphical blocks together instead of text to create code. It has gained much success. Kinect2 Scratch, developed by Stephen Howell, provided a bridge between these systems. However, over the couple of years several things have happened: Scratch 2.0 was released, which moved the previously desktop application onto a flash-based website, and Kinect for XBox One was released, which required applications to be altered from the first Kinect to be used. Howell told Professor Norman he would no longer maintain Kinect2 Scratch, as the Scratch 2.0 didn’t provide the same functionality as the old Scratch. Howell wouldn’t give up his source code. So Professor Norman decided to explore moving the Kinect data into Scratch 2.0 through a previously unknown mechanism.

This summer I used a lot of Google to search for functionality I needed. For the first couple of weeks the project, about half of the day was messing around with previously existing functionality, and half was reading documentation about resources related to the kind of functionality we wished to provide. After that period, the messing with previously existing functionality was replaced with time spent writing our new programs. After a few weeks, the reading documentation about resources was replaced with writing documentation about our new software.

I used Github to host my projects (as recommended by the Scratch team). In a stroke of luck, in May, the Scratch team released a beta Javascript extension functionality to the public. This was extremely useful. I used Visual Studio 2013 to write the Kinect side of the project in C#.

Professor Norman and I decided upon a server-client setup. I used the Scratch extension functionality for the server, while using C# and a library called Fleck for the Server side. After discovering the two sides could operate independently for other uses, we named the client side Skel Scratch, and the Server side Kinect2 JSON. The server side has just gotten a 1.0 release, while the client side is probably a week or so away.

This research benefitted me in learning how to learn. I learned how to take a problem and solve it by combining already existing functionality into a solution for the problem. I learned how to effectively use Github to host projects. I also learned how each part of the software
Student Researcher: Isaac Zylstra

Professor Mentor: Victor Norman

development process works. These will all be extremely useful in any future work in software development.