The Kinect was released in November of 2010. Since then it has revolutionized the way computers interact with their environment. The now inexpensive way to enable 3D mapping can enable almost anyone who wants to learn programming to create many applications. One of the main features of the Kinect is skeleton tracking. This enables the Kinect to track the coordinates of every major joint in the body. This feature is what I will be using in order to accomplish many projects. Enabling skeleton tracking can help many people. With skeleton tracking, assistance in moving large or heavy objects can be accomplished easily by anyone. This is the main objective of Zone Emitter or ZoE.

In order to accomplish skeleton tracking, libraries or a group of certain files will be used. These files are created by communities and are released under the GPL license of anyone to use. One library in particular is SimpleOpenNI. This library enables me to write code for the Kinect in a graphical program called Processing. The code itself is written in Java which I have academic training in. With SimpleOpenNI, skeleton tracking can be accomplished. From this data of XYZ coordinates, and using geometry, the skeleton tracking’s data can be converted into useful information. This information can be used with the arduino in order to make hardware interact with the user. Servos are useful in this application and can recreate the geometric abilities of human joints. In other words, the data from the Kinect can be translated to move robot arms, legs, and any robotic recreation of a limb that is being tracked by the Kinect.

The main focus of project ZoE is to enable anyone to interact with large scale robots with ease. This will be accomplished through a large scale of servos and motors that are connected to the Kinect through the arduino in real time. Other projects that have already been completed show that this is possible already. User head tracking has enabled a RC car to follow the tracked user anywhere. This and in combination with sonar sensors for object detecting, enables the RC car or any object for that matter to track a precisely follow the user. This can be used in applications such as large heavy objects as well as wheelchairs for nurses.

Many other tracking implementations can be used with the Kinect. Object recognition has already been established through the Kinect by looking for certain XYZ coordinates. With the Kinect modified to be portable, object detection along with object tracking can be used to assist drivers in vechicles at night. The main limitation of the Kinect is it unable to work during the day under direct sunlight. But at night, the Kinect works perfectly and can be used in night assisted driving or NAD. Objects such as people, signs, and anything else can be immediately detected and tracked by the Kinect and help anyone with driving at night.

The possibilities of the Kinect are endless and as a fairly new product, not many projects have been done. I hope to be one of the first few researchers to use the kinect’s abilities in a large scale and help improve the lives of many.