**Luyao Wang NetID lw337 final proposal**

*//This is just an intuitive proposal and is subject to change and supplement in the following week.*

~~I want to do a 3D model generator for my final project. This 3D model generator uses Kinect to test depth so that a 3D scene can be generated.~~

~~I realize that it is hard to work out something both concrete and aesthetic in 3D. For the time being, I cannot imagine how to simulate the motion of people or animals in 3D. As a result, it would be better to create something more abstract and accord with my aesthetic pursue.~~

~~Kinect can generate depth images. I will use the depth images to work out my 3D scene. I will certainly use computer vision to modify the image. Since it is too hard for me to entirely mimic human body’s motion, I will make it more abstract. I want to reach the extent that when you look at the scene I produce, you will not believe it is from reality; but if you compare it carefully with reality, you will see the similarity.~~

~~I will probably use ofMesh to “distort” the 3D scene in order to generate an abstract scene. I would like to use different color to represent objects of different quality. Like infrared thermometer, I want to work out a method to assign different color to objects of different property. The criteria might be the size or the consistency of color, the shape of the object should also be taken into consideration. That could be a challenge to me in the aspect of algorithm.~~

~~I will also add some animation to the 3D scene. One solution is to use noise to add offset to the vertices of the meshes. Another solution is to use Kinect to observe the motion of the real world for a while and discover the regular pattern of the motion. The second method is harder and needs more attention.~~

~~I will get more knowledge about ofKinect this week and I will add more to this proposal.~~

Since I cannot set up Kinect correctly on my computer. I decide to use webcam for my final project. I change my proposal and hope to make an interactive game with body control. Although I have no access to Kinect, I hope that I can make it in another way.

I used webcam in the homework in week 06 class 12. Now, I will adopt that idea for one more time – use color to track the movement of an object with special color. To put it simply, I scan every pixel of each frame of webcam and detect the color. If the color of that pixel meets some specification in RGB, that pixel is recorded. The average X coordinate and Y coordinate of the pixels that meet the specification will be computed. With that tool, the movement of the object can be broken down to the average of X and Y coordinates of pixels that meet with special specifications.

For easy control, the object should be specially colored, I tested this method using red and it turned out to be effective. With that tracking ability, I can make possible the body control function. For example, I can replace the UP/DOWN/LEFT/RIGHT key with the movement of hand. You should hold an object of specified color and move your hand to up/down/left/right. In this way the coordinate will tell the direction.

Above is the basis for my game. Next I am going to make a game project using the body control technique.

I plan to make a survival game where you use body control to move up/down your character. The character is keep going, and it will encounter many traps and obstacles. You should use body control to move up/down to avoid these traps and obstacles.