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15-112

Section I

Project Proposal

For my term project, I want to create a python program that allows users to virtually try on different T-Shirts. Many people face problems with online clothes shopping because there is simply no way to try on the clothes. As a result, users are often unsatisfied with the products because seeing clothes online is much different than seeing the clothes on the people. This costs people time and online retailers money as they send the clothes back and forth through refunds and shipments. In addition, many people want to create T-Shirt designs, but it is hard to easily test out different designs and different modifications. By incorporating a feature to allow creators to virtually wear their shirt while it is in production, it allows them to get instantaneous feedback on each change.

Therefore, I hope to address this issues by projecting a view of a person wearing the T-Shirt on the computer screen with the Kinect. The Kinect sensors provide information of the body’s location and angle that can be used to calculate where to project a T-shirt onto the video stream from the camera. After creating a 3D model of a T-Shirt in OpenGL, it could be put onto the body of the camera stream to look like a person is wearing it. By having the T-Shirt respond to movements of the body and arms, the program will create a dynamic and responsive shirt. In addition, I hope to make the GUI navigation all through a cursor that moves based on the location of the hand from the Kinect. To click on different buttons and features, the user just has to open and close their hand.

In order to provide the 3D model the T-Shirt images of what it looks like, OpenCV can be used for the user or the program to show where to cut specific parts of the shirt to have the body or sleeves. A possible feature can also have OpenCV scan uploaded images and recognize T-shirt by itself. By doing so, it can also crop different parts of the image to form the body and the sleeves of the shirt. Numpy will be used in order to process the various images that are loaded with OpenCV.

In addition, the user interface and the windows will be run by PyGame to optimize performance. Pygame offers support for both the Kinect and OpenGL windows. A splash screen, instructions screen, game screen, shirt selection screen, design screen, and importing screen will be added with PyGame. The shirt design features will also be implemented with PyGame, manipulating images to create a final shirt.

List of Python Modules Used:

PyKinect2

OpenGL

PyGame­­­

OpenCV

Numpy

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