Title
Emotional 3D virtual body

Goal
Augment the reality to inflect human emotion based on gestures recognized by Kinect

Methodology
1. Human actions is captured by Kinect, such that the location of human head, hands, body can be calculated, and certain gestures is recognized as a visual sign which reflect human emotion
2. Based on the body location, and the emotions going to visually reflect in the result, the input video is augmented by certain colors, shapes, or 3D objects.

Architecture

The graph above shows how a camera based system use computer vision method to achieve augmented reality. The key process here is to calculate the positions and orientations of marks relative to the camera.
In our case, this part are handled by our Kinect frontend, i.e. the position and orientations of target are returned by the Kinect frontend, which can be used to decide the augment target.

Implementation
1. Input: (g, T, (x,y,z)), in which g is the gesture recognized, T is a mapping table between a gesture g and visual object o of an emotio, (x,y,z) is the target position to be augmented
2. Given the inputs above, our task is going to augment object o at position (x,y,z) to the input vedio stream. This can be done through certain toolkit, including artoolkit, opengl
3. Output: Augmented video stream which reflects human emotion