Final Project Proposal

Title: Reverie

Artist: Mark Barajas

Description:

This work will take an image of the person in front of a webcam and make a 3D modeled shadowed figure. The figure will be transported to a blank environment that will change according to the motions of the user. By integrating computer vision and/or machine learning with Processing it should be possible to detect certain movements and have them perform specific tasks. Tasks could possibly include:

1. Changing landscape
2. Element manipulation
3. Changes to the environment's light

and much more.

This idea is inspired by the fact that everyone likes to daydream a world where they can control their surroundings.

Code to be utilized:

There is a program called Runway that can be integrated with Processing that can help track the movement of a person using a webcam. By using the OSC library, it should be possible to track movements.

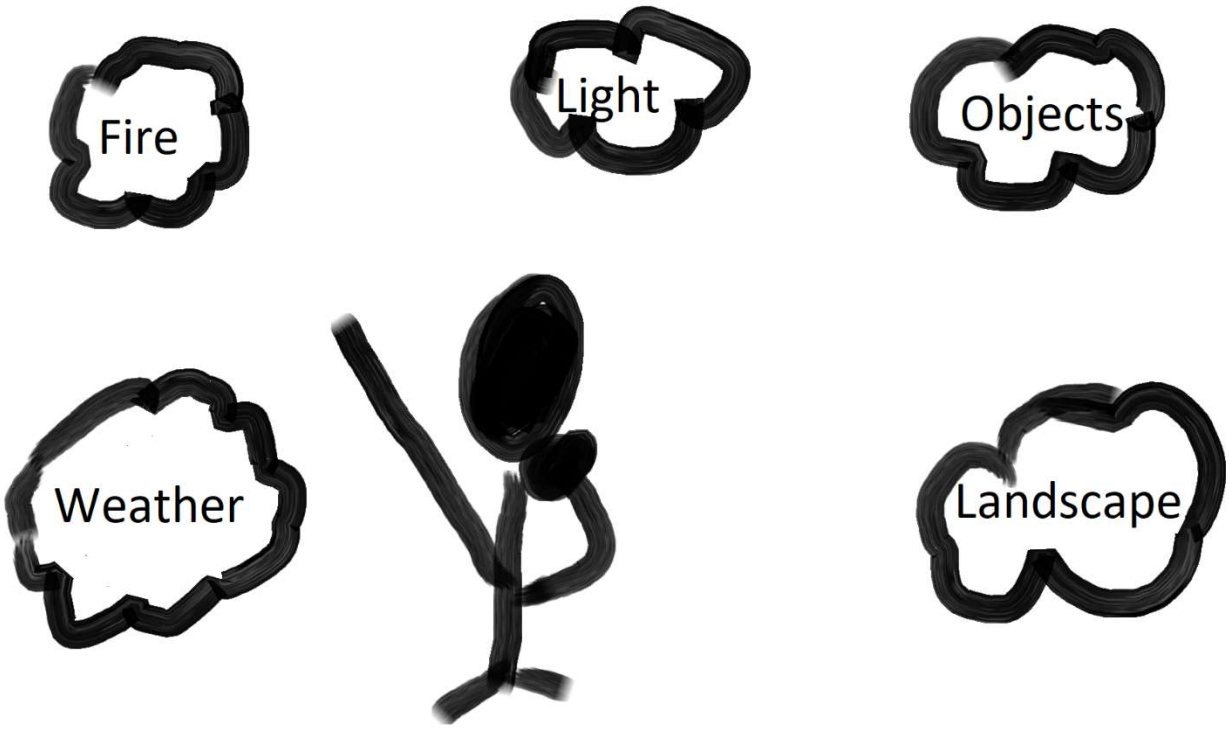
The code will should logically be something like:

User hits a key on the keyboard and sets up in front of the camera to the point where their whole body can be seen in front of the camera. The program counts down then takes a picture of the person and, with the help of computer vision, it detects the edges around the user. This is used to create the 3D model. After the model is made, the camera will actively be recording the user and send the data to be processed.

The difficult part of this project would be the machine learning aspect. For the computer to be able to identify specific actions, it needs to be able to learn what each gesture looks like. This is usually done by taking hundreds of thousands of examples so it would be difficult to do this. Another difficult aspect will be to make the 3D model solely on a 2D image. There are ways to make 3D models from 2D images, but that requires several images of every possible angle of the object of interest.

Here's a link to a Runway program example: https://youtu.be/7btNir5L8Jc

Sketch or aesthetic description of the work:



Ideas for digital exhibition:

For the digital exhibition, it would be a bit difficult to interact with this since not everyone wants to use their webcam. Therefore, I plan to make a short video detailing the possibilities of the environment.