

Design Document

Work In Progress

1. Project Overview

We are creating an interactive art installation for a high traffic, public area that allows for both passive and active interaction. We want to use the people passing through the space to create pseudo-random content within the installation. Active users can then interact with this content in real-time.

The experience will be centered on a large projection screen. It will cycle through various graphics simulated in real-time. The displayed content will be similar to an audio visualizer in that it will take data from multiple sources (ex. User interactions) and display them graphically in an artistic way. In its rest state the system will play back previous interactions to create interesting images which should entice new users.

We will use cameras to detect people entering the space and each person will generate a unique item in the simulation, such as a particle, that will appear on the screen. These items will be much more identifiable than any system controlled graphics. They will move across the screen based on the person's direction of movement through the space and drive user interaction by affecting the simulation in interesting ways, such as sound or graphics, whenever they are interacted with.

The interaction will come from active users in front of the screen using their body movement to influence the simulation.

2. Technical Requirements

2.1 Software and Technology

- OpenFrameworks with OpenCV and Kinect
- Visual Studio 2012
- Adobe Photoshop and Illustrator

2.2 Hardware

- 1 Kinect for Windows
- One computer with 4 USB connections and output for two monitors/projectors
- 2 web cameras
- 1 projector
- 2 50ft. USB extension cables
- 2 speakers
- Sound mixer and appropriate cables

2.3 Materials and Tools

- One large projection screen
- Tape

3. Feature List

Interactive Features	Description
Use body movement to influence graphics	User will stand in front of the screen and use their limbs to manipulate the simulation

Use body movement to manipulate of sound	The sounds in the simulation will change depending on users manipulations of the graphics
Entering the space generates simulation items	When users walk in through the space a new graphics item is generated
Moving through the space affects the simulation	The movement in the space affects the items in the simulation that were generated upon entry

Technical Features	Description
Capture skeletal movement data for up to two primary users	Ability to have 1-2 primary users that interact with the screen
Detect secondary users' movement through installation space through the web cameras	This gives us the ability to generate items and movement in the simulation
4-6 unique graphic simulations that incorporate primary and secondary user data	Multiple representations of interaction data to provide a varying experience
Unique set of sounds for each simulation	These sounds will be non-intrusive to the space. Similar to the "21 Swings" project in Montreal

4. Milestones

Jan 31st

- Preliminary technical research
- Preliminary scene designs (4-6 mock-ups)
- Running OpenFrameworks project
- Preliminary code design
- Look into acquiring necessary equipment

Feb 2nd

- Final scene designs
- Finished design for code
- Simple project with simulated user input for scene testing (mouse)

Feb 14th

- Fully implemented set of scenes with distinct looks
- Varied interaction for each scene
- Preliminary designs for audio

Feb 28th – Submission

- Project reading raw Kinect data
- All audio samples recorded/acquired

Mar 7th

- Kinect data influences simulations

- Scenes with distinct Kinect interactions
- Preliminary audio functionality in scenes

Mar 14th - Working Prototype Demonstration

- Kinect functionality complete and debugged
- Audio fully implemented in scenes

Mar 21st

- OpenCV reading data from webcams

Apr 2nd

- Webcam data creates items within simulation

Apr 16th - Project Complete

- Project has run and
- Project complete and debugged

5. Team Members & Roles

Ryan Bottriell	Lead Developer
Zara Tooth	Developer, Manager
Marco Brito	Lead Designer
Matthew Fournier	Designer, Developer