

jerome

COMP 472 – CART 398 C

Assignment #2

Final Project Template

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Name of the project: **Sonitus Quod Os**

Url: http://hybrid.concordia.ca/~corba/CART498_midterm.html

People and Roles

We are a group of three people, 2 from the computer science department and one from the computation arts'. Even though we plan on sharing ideas and tips on the different sections of the work required, we have already split the project in three domains, which will allow each member's best abilities to be logically channelled.

Bastien (Cart student) is our designer.

He is the one in charge of everything regarding:

- The conception and formulation of the original idea.
- Graphics research, image control, and design balance.
- Sound research, sound bank compositing.

Jérôme (CS student) is the programming specialist.

He is the one in charge of everything regarding:

- Transformation of the original idea into concrete materials.
- Programming (Open GL, Max, Jitter)

Julie (CS student) is the project supervisor and mathematics specialist.

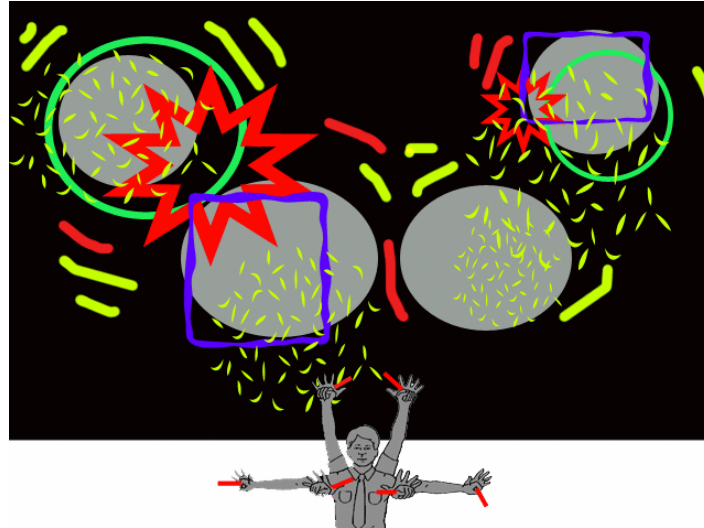
She is the one in charge of everything regarding:

- Project layout, splitting of the work.
- Mathematics conception Fourier Transform, convolution...

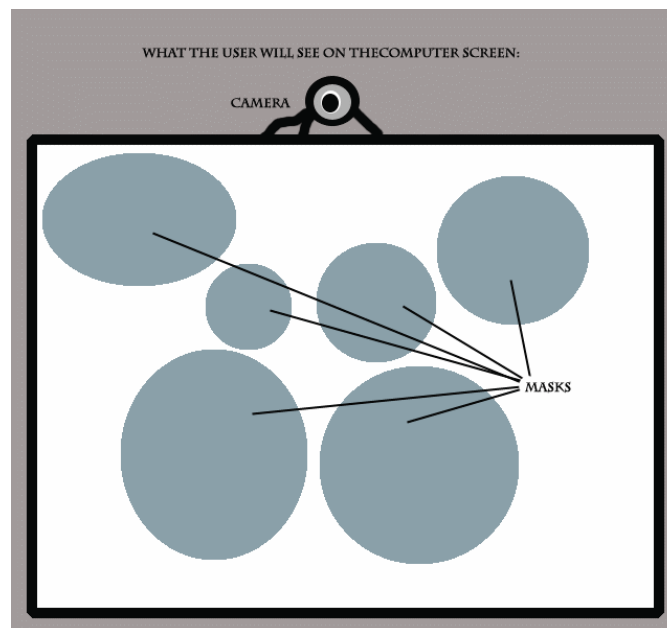
We will all be working on the jitter programming under the supervision of Jerome, the most competent in the area.

What is it ?

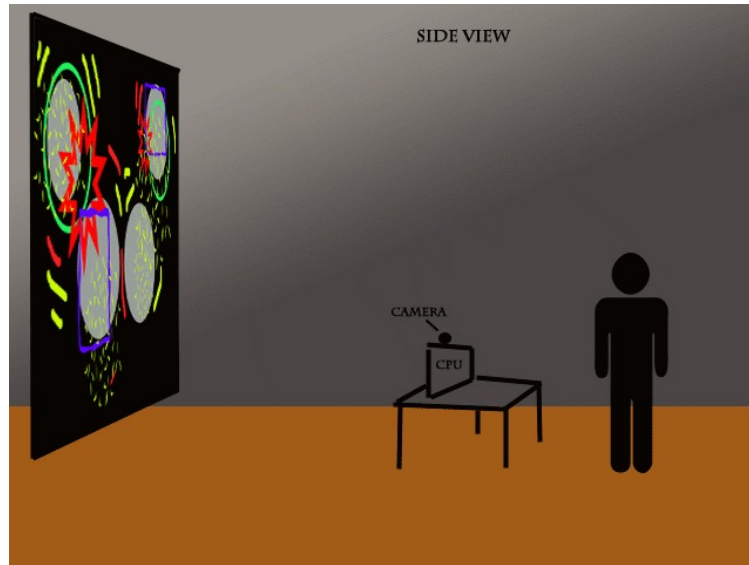
In the group, we discovered that we were all fan of rhythmic music and decided that we should explore this concept. We want to create an interactive music instrument based on the origins of the drums. We want to make our own set of visual drums that people can interact with on a whole new level. This project will not only generate sound, we will make a link between sound and visuals. When the user creates a sound, or does the generic movement to create sound on a drum kit, our patch will explore things such as speed color and size using motion tracking. The different data collected will output visual effects that represent the action being done. In order to be original and distance ourselves from the original concept of the drums instrument, we will not only use regular drum sounds, we intend on achieving a new level of rhythmic creation. We were thinking of using actual people's voices and/or little noises from our everyday lives, not a standard "boom-tchac" that we hear in every beat.



The image above is a quick illustration of how the final effect will be seen. The actual drawings such as the circles, explosions and colourful lines are NOT what will be seen on the final outputs of the project. They will obviously be more elaborate. Again this is just to give you an idea.



The User will be facing a computer screen showing the positions of the masks to know where he/she will have to aim in order to trigger the animations, effects and other visual and sounds outputs.



This is a more general view of how the project will function. The user will stand in front of the computer screen to see how to interact with the installation and will also be able to see how he/she is doing on the bigger screen.

What is the project asking or exploring?

What is the technical interest? Explain in mathematical terms, the technique of digital image / video processing that are being exercised in your application.

This project will be divided into two modules. The first will deal with motion capture, getting the motion of the body on special areas. By subtracting a frame to the next one, we get the motion between them, stored into a matrix. Then, masks will be used to get the amount of motion on specific areas. If an area is activated (the amount of motion in it reaches a threshold) then it throws events to special effects module. All this work will be achieved in max-jitter using matrices and applying operations on it. The second module will apply special effects to an image with regard to a theme (rounds in water, flames, lights, music band, ...). This part will use a lot of jitter effect patches and OpenGL primitives. Moreover, a sound module will give a song back, depending on which area is activated, to simulate a drum experience. The volume of the sound will be linked to the amount of motion on the area. These parts (images and sounds) will let us free to develop and express ourselves on general themes.

What is the functional, aesthetic, or symbolic significance of your application? How does it engage the human participant in live interaction?

As previously mentioned, we want to create our own instrument.

I believe many people will agree when I say that music nowadays is becoming too repetitive. Younger styles of music such as Rock, Pop, and Hip-hop are becoming so generic it is truly irritating. We are all French in the group and we agreed that instrumentals and lyrics in commercial rap in north America is

VERY limited in its expressive capabilities. The same goes with rock'n'roll and even more with pop. We feel there needs to be a change. We will start by forgetting about the melody, forgetting about the rhythm and other implemented music rules. Music is one of the most beautiful art in the world, definitely the most popular, and it's component (sound) is the root of many emotional food.

Someone once said that "Art is at its best when it does not know its name". I am myself a firm believer of these words. This is why we decided to forget about all the preconceived rules of music mentioned above and create a new level of sound interactivity.

All members of the group have witnessed, either live or through video streaming, the fantastic abilities of street music artists that create drum kits with metal garbage and other street forgotten objects. The fact that one man, who lives on the street, has nothing for himself and stills creates amazing sound out of nothing truly inspired us. We felt "in a way" like these amazing artists because of our common situation of low resources available. I mean by that that as all amateurs of max in the group, we feel there is a little connection with theses artists that are also missing the instrument. It is indeed a small connection but it speaks to us. As said before, we want to break boundaries of traditional music-making; therefore we will in no way be creating music like the one listed in the reference. It is solely the concept of creating a drum set out of not much that we use.

The aesthetic outputs of the project are a different story.

We will use the data created by the human body into making the sound to create a visual output. The relation between the movement and the final visual and sound effect created will be based on data such as speed, light, color, time, etc... This part will be the design challenge of the project. We can either make a logical relation between some input data and the effects created, to allow a user to try to create his/her own sound. Or we can implement some random factors so that the user will never get around the logic of the output and make every experience unique. An ephemeral art.

Milestones/Timetable:

Planning of our project (10/16/2006 - 11/30/2006)						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
October 16	17	18	19	20	21	22
Step 1: Definition of our idea. Find a concept.						
23	24	25	26	27	28	29
Hand in assignment#2 		Presentation of our project in front of the class 				
30	31	November 1	2	3	4	5
Step 2: Search for mathematical and physical concept. How to do in Jitter ?						
6	7	8	9	10	11	12
Step 3: Programming / Development						
13	14	15	16	17	18	19
20	21	22	23	24	25	26
Step 4: Tests with projector, webcam						
27	28	29	30	December 1	2	3
Step 5: Preparation for the final presentation						
		Hand in assignment#3  Presentation of the project				

Deliverable

We will hand in 3 deliverables.

The first one will be this document and its oral presentation that follows, which we see as the initiating file of the project. It is constituted of the original idea, the planning, the objectives, etc...

Then there are the upcoming patches that we will use to test the beta versions of our final project.

And then the concluding file with the final presentation and a quick final paper presenting the final project's use and functions.

Resources needed:

The resources needed for this project are for now a projector, a video camera, a portable and powerful MAC computer, a subject and a public.

References:

This reference is the one mentioned above in the “*What is the project asking or exploring?*” section.
<http://www.shermix.com/video.php?id=522>

<http://www.cheetara.nl/drums/drums.htm>

<http://www.ababasoft.com/music/drums01.htm>