3D version – In this version the tablet is again used as an interface, and operates as a "magic lens" showing a portion of the full fluid system at a given time. The fluid system is placed on a virtual sphere, projected onto an OpenGL cube map, and the user can think of as be thought of as being placed inside a sphere of fluids. Through the gyroscope sensor on the iPad, the user rotates around the system to see parts of the system at different orientations. Touching the screen at a certain point casts a ray to the cube map and updates the vector accordingly.

Conclusion

The Fluid Automata project exists at the crossroads of visualization and art, using scientific visualization methods as the basis of interactive art. Although the work is presented primarily as an interactive art piece, we hope that going forward some of the implementation ideas and extensions to IBFV may prove useful to the 2D and 3D visualization of interactive and/or dynamic vector fields.

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RADIO CHIGÜIRO: MAKING COMMUNITY RADIO

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Abstract

Radio Chigüiro was a social platform for the distribution of Lafayette, Indiana's "glocal" culture. It operated as a community radio, exploring youth practices associated with parties, live music shows, and free radio workshops by using a web site as a medium for contact, production, and participation.

Radio Chigüiro studios in west Lafayette, Indiana. December 2007. (photo by the author)

Introduction

Radio Chigüiro emerged from the idea of making a participative radio station. The first reference is Bertolt Brecht's essay from 1932, *The Radio as an Apparatus for Communication* (Brecht 1964:51). In the early development of radio culture and broadcast, he envisioned using radio as a participatory medium. He proposed it as a bi-directional medium as opposed to one-way broadcast, a model in which the listener could participate and potentially become a broadcaster himself. Much of the research on radio revolved around topics like media activism because some media activist tactics were studied and later adopted by Radio Chigüiro. Even though Radio Chigüiro had no activist content on its programs, the use of free wireless networks and the airwaves without official permission or mass media channels to promote non-mass-media content are methods that have been used by media activist groups in the past.

This project explored the use of technology for community purposes. I approached this Idea by experimenting with it and doing it myself, networking with a local group of people. I was motivated to work on this project because I wanted to understand my ethical disagreement with copyright and the current model of culture production and

distribution. When I think of the current context of culture production and distribution, the first thing that comes to my mind is a pop record that is specially designed for mass consumption.

The massive success of an artist is not based on talent, but on the economic power of the corporation behind it: the more wealth there is, the larger the consumer trend. This rule also applies to the range of a radio broadcast: The most powerful economic conglomerates will build the strongest and tallest antennas to cover the largest audience.

In his essay *The problem with music*, Steve Albini states that the possibilities of becoming a rock star are comparable to a narrow passage door, through which only one band can pass. The rest of the thousand bands will never make it into the mass media circuit. Furthermore, Albini argues that even when the artists make it so far as to sign a contract with a major record label, they achieve no sustainable income because they must pay for their own recordings. The band receives a very small percentage of the record royalties and will have to pay for all the expenses, often getting into debt with the labels (Albini 1992). At a symposium, the performance artists Chicks on Speed commented on their experiences after signing a deal with EMI . They explained how it took them about four years fully pay their multi-million dollar debt to this major record label. In the end, they opted to start their own record label, showing better results while keeping their creative freedom (Influencers 2006).

Consumers of music have also been affected by today's music industry. Labels in the United States are represented by what is called the RIAA (Record Industry Association of America). All of the major record labels in this country participate in it, and their business is based on copyright law. A handful of students at Purdue (and other universities across the country) have received a letter from the RIAA stating how they could face a lawsuit of up to $500.000 in copyright infringement for using peer to peer (P2P) file sharing. In an interview for *The Exponent*, Purdue's student newspaper, one of these students said: "I got nailed for Vanilla Ice," even though Vanilla Ice is not the one that is directly suing her (Thomas 2007: 1). As human beings we are culture consumers, but it seems that we cannot have ownership of the culture that is imparted to us.

The current model of distribution is based on an industry that operates as an intermediary between the producer and the consumer, but none of these last ones is benefiting from it. Copyrighted productions that favor globalized mass markets want to homogenize the world and are counter-productive to local culture, people and artists. A possible solution to this problem might be that artists have a direct connection to their fans without intermediaries. It is simple: the art product is made independently and distributed to the consumer's hands.

Creating an independent radio station in Lafayette, Indiana was ideal because an active, independent music scene exists. The music scene in Lafayette consists of individuals that cooperate to book shows, bring in touring bands, and play and promote their own music. This community is based on the principles of friendship, fun, and solidarity. There is usually not significant profit from the live shows, but it does not seem to matter because local musicians use this methods to promote their music and network with other bands.

Community Networks

When I first moved to Lafayette, I was interested in doing research about internet radio and podcast technologies. I had been working on a net radio project in Bogotá called *Radio Cápsula*, and I wanted to learn how to do it on my own. Initially, I programmed a website that had a podcast embedded. It had the possibility to archive and play sound files, but it did not have any content.

That was when I had the good fortune of meeting Chris Toliver, a local electronic musician who introduced me to people with similar ideas and interests in the area. We started talking about collaborating in order to make a free public event with visual art and music. In conjunction with a local record store, *Downtown Records*, we organized the first Radio Chigüiro event on January 21, 2006.

Our idea involved holding an event with local musicians to record live shows to add content to this early Radio Chigüiro site. The event was well attended and the community was supportive. In a certain unexpected way, the success of the first event laid out the method, strategy and channels for the development of the rest of the project. For example, the use of handmade posters, web 2.0 bulletins and word of mouth to promote free shows.

The sense of building community through shows and events began to grow gradually as I started to cooperate more with *Downtown Records*, a small independently run used vinyl record store on 10th Street in downtown Lafayette. This record store slowly became the principal venue for the local music scene. A sense of community and

The Sweet Sixteens at a Radio Chigüiro event in 2007. (photo by the author)

friendship emerged from that space, bringing together music aficionados and performers. Shows occurred frequently and in 2006 to 2007, three to four local and touring bands would play on any given week. I collaborated with *Downtown Records* by making flyers and zines, or playing visuals for the hip-hop and electronic music shows. I also documented the audio of their concerts for Radio Chigüiro. This was indeed my opportunity to meet people and promote the Radio Chigüiro project within this music community. It was a great time for local music production and it seemed that everybody was working with various bands or projects simultaneously, such as/including: *The Minivans, The Mans, The Half Rats, Trent and the Rippers, Bastards Choir, The Leather Scandals, Bossman & His Bad Habits, The Romance Novels, Toliver, Atarilogic, and Analog Zebra. Touring bands that interacted with the Lafayette community included: CoCoComa, The Turpentine Brothers, Black Lips, Times New Viking, Black Sunday, King Kahn & BBQ, Mind Controls, Demons Claws,* amongst others. These bands where appealing to me because of the channels of the distribution that they used. Much of their promotional materials (T-shirts, tapes, zines, buttons, and patches) were self -produced. These products were always inexpensive, had a handmade aesthetic, and could even sometimes be free or traded

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www.isea2012.org

for other DIY merchandise.

In March 2006, Temporary Services, an art group from Chicago, gave a workshop at Purdue's Visual and Performing Arts Department through initiative of Rosanne Altstatt a visiting scholar, and curator. Altstatt proposed an event in Lafayette for *Audio Relay*, a Temporary Services project (in collaboration with Brennan McGaffey). *Audio Relay* is a portable and autonomous radio station that can broadcast within a mile radius. The *Audio Relay* was showcased on Main Street presenting a collection of sounds curated by Altstatt. The event used the *Audio Relay* to broadcast live music for the first time, with the performances of *Atarilogic* and *Analog Zebra*. This public event allowed visitors to submit demos and CDs they wanted to be played on the radio. Temporary Services agreed to let the *Audio Relay* continue to be used for Radio Chigüiro two years following the event. Radio Chigüiro turned from being simply a podcast-internet radio station to an actual radio station on the FM dial and acquired more tangible means of approaching the local community. The *Audio Relay* transmitter was created to allow different groups to broadcast radio independently, and in December 2008 it returned to the Temporary Services.

Parallel to a 24/7 radio broadcast that covered the downtown area of the city of Lafayette, Radio Chigüiro frequently took the radio transmitter to public spaces to focus in the community use of the station. Such is the case of the events *Radio Chigüiro Reclaims the Airwaves* (May 25, 2007) made at the Chauncey Hill Mall parking lot and the *Radio Chigüiro Grill* (April 9, 2006) on a sidewalk in front of the old Downtown Records.

During this period, I had unlimited access to a screen print press through Mine-Us, an independently run local screen printer. I was able to make patches, posters, sweatshirts, and T-shirts with Radio Chigüiro-themed prints for advertising purposes. Screen-printing is an easy and inexpensive way to make large quantities of merchandise. Mine-Us designed and printed many of the sweatshirts and T-shirts for local bands. The owner of Mine-Us, Aaron Zernack, was a collaborator with the Radio Chigüiro project through his participation in several shows as the electronic performer known as "Analog Zebra."

Technology Tools

Developing Radio Chigüiro involved at it's very beginning much research on RSS feeds and podcasting technologies through XML. Dynamic content management, sound archiving, and subscriptions were important topics to understand to be able to develop a 2.0 Web. In 2005, there were few web applications for writing a podcast file or RSS feed. Updating files was a complicated process that had to be written manually in code each time. It was impractical for a Web 2.0 site to have to be updated in this way. With this
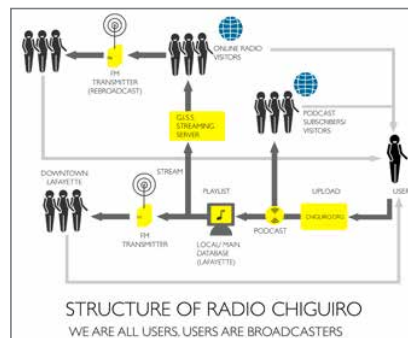
Conceptual flow of information between listeners and broadcasters (image by the author)

limitation, the radio archive grew slowly. During this research period, in order to make the uploading process easier, I found an open source tool, Podcast generator, and installed it on the Radio Chigüiro web site. Podcast generator contains an HTML interface that allows any user to upload media files into a podcast feed in a very simple way. Once this tool was implemented, the archive began to grow rapidly with submissions from the local community as well as from all over the United States. By August 2008, there were 65 original radio programs and mixes, averaging two or three new uploads every week.

Another important development for the Web site was having a live internet radio stream, which made our public events available to remote listeners in real time, allowing live interactions with other communities outside the range of the radio transmitter or in other cities or countries. This live web stream was made possible through the *Global Independent Streaming Server (GISS)*, a project by the media activist group *Hackitectura*. Both the Podcast Generator and *GISS* projects share the same open source and Copyleft principles with Radio Chigüiro. Making a project like Chigüiro would have been impossible to be this free and independent if it were not for the Copyleft license and the wide amount of communities that share all the information and documentation necessary.

There is a sense of community and cooperation among some web communities providing a channel for human interaction and exchange of information. Danah Boyd defines these virtual communities as glocalized networks because the internet allows individuals to interact on a global scale (Boyd 2005). It also allows them to communicate and participate with their immediate local context. The use of digital 'flyering' in Radio Chigüiro was efficient means of spreading the word: it was free, easy and quick.

Radio Chigüiro studios at Lugar a Dudas in Cali, Colombia in July 2008. (photo by the author)

The combination of old and new technologies allowed listeners to become broadcasters. All the material uploaded through the website's interface played on the radio. When the user uploaded a file, it became part of a digital archive, that made it available to the podcast subscribers. The same file became part of the radio playlist that was being broadcasted through the radio transmitter on the airwaves (88.9FM), and in the internet simultaneously.

From 2007 until 2009, Radio Chigüiro broadcasted local live recordings and mixes collected through the Web site's (www.chiguiro.org) uploading system or turned in person as a hard copy. The radio station had weekly live shows, free public events with live music, and recording workshops.

Radio Chigüiro is interested in making radio technologies available

to people. For this reason, users of the website can download digital-analog recording instructional manuals or participate in different activities such as the amateur DJ sessions or the Mini-FM transmitter workshops to learn how to make small-range radio transmitters with very simple electronics. Aside from the community work in Lafayette, the project has created workshops and shows in varied places like Bloomington, IN, Chicago, IL, Cali, Colombia ,and most recently in Albuquerque, NM through the ISEA 2012 symposium.

Teaching Radio

The goal of Radio Chigüiro was to undermine the structure of power behind the current music industry and the massification of the cultural product through the use of copyright. Making a radio station with a local community revindicated the use of technology for social purposes, but it cannot easily become "established." The impact of a small radio transmitter will never be as big as the ones run by larger corporations. The music and radio programs we played would not likely have the mass appeal of mainstream culture. Radio Chigüiro is simply a temporary symbolic sabotage of the music industry.
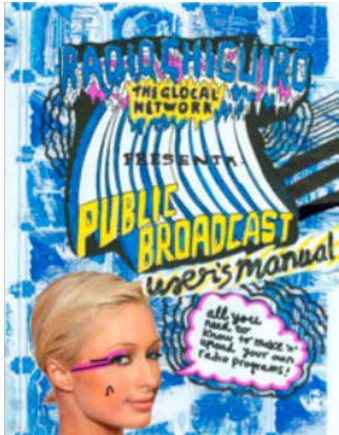
Digital recording and podcasting manual
(image by the author)

The intent with Radio Chigüiro is to diffuse and share knowledge and experiences through the workshops, zines, and manuals to create and inspire new community radios. The idea is to deliver a message of autonomy and a multiplicity of visions that occur in small local communities. Rather than to having a big budget to start your own radio station, you need the information, and it is available and free. Working cooperatively within our immediate contexts will be more beneficial for individuals who make part of communities which have similar interests.

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RESEARCH 360 - Environment Interaction in Virtual Reality: Analysis of Interaction Patterns and Functional Prototyping Methodology

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360 AMBIENTE DE INTERACCIÓN SEMI - INMERSIVO DE REALIDAD VIRTUAL

Abstract

This document discusses creation environments of virtual reality, understood as temporal and spatial constructions that assemble objects, sounds, and images mediated by digital technology, in a habitable environment interaction. In general terms, relates the formal and functional structures between the perceptual, sensory, and cognitive with the object, space, and body, these being the new field of digital interfaces. In summary, the research explores how the use of technology platforms enables the ownership and development of fields of interaction and interface design, the development of different virtual reality environments was planed, so it allowed a glimpse of how the analysis for formal and digital structure today is not only happening by the ratio of feedback, but by the interface, gesture and control supported in virtual media spaces. 360 poses the evolution into a new type of environments, of synesthetic character, to examine these hypotheses in the research there were a series of prototypes that corroborate and rethink some of the ideas these parameters were developed under functional prototyping methodology which is described briefly at the end of the document.