

# Locus Sonus Research Report: 2012-2013

by: Alejo Duque

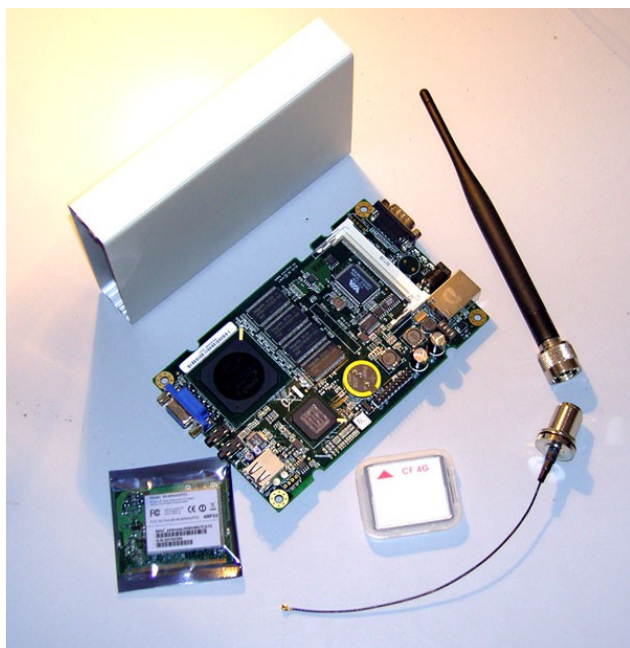
## Projects Involved:

- Locus Sonus Streambox (Status Report)
- TRUeQUE (Personal undergoing Research/Game/Soundwork)
- Syposium Presentation

## Locus Sonus Streambox

Keywords: #streaming #media, #hardware, #freelibre, #OpenSource, #PureData, #Linux

An easy to deploy plug-n-play stream machine running PureData (pd) and running on cheap, silent and reliable hardware (Alix computer).



During the last batch of streamboxes we manage to fine tune many different things to achieve a noticeable degree of stability. Namely running a forced file system (fsck) check at every new boot of the device. This way we manage to secure a system that was often times getting corrupt cause of unexpected power disconnects.

Under the hood we also changed the operative system to run a kernel compiled in the machine by the way of the Gentoo Linux distribution. Nonthless after our last years debugging and optimizing the system in relation to the hardware, while shipping few more streamboxes, we have hit a "bug".

In computer slang this is often considered as a failure or malfunction, in the Locus Sonus streambox project it is a bottleneck that is in my view neither hardware or software related.

It has become more demanding to motivate the communit of streamers (participants wiling to set up a device that streams permanently from a particular location). Many of the long time streambox hosts have either changed their habits and connectivity conditions, others might have lost interest

and what is more worrying is that many of the new comers haven't been able to keep up with the compromise of setting up a stream after receiving the box. (The causes for each might vary and it becomes untrackable to determine each particular cause after hundreds of emails sent, something that becomes clearly unsustainable cause one thing is developement the other is motivational).

---

Is clear that the technical set-up needs to be updated to recent times, with this I mean is crucial that we find new ways to feed the soundmap<sup>1</sup> with sources that could perhaps be online on less "long-term" basis.

This Alix boards (see picture above) that have served well their purpose over the last years with their limited computing power have caused a sort of dead-end with participants that will be confused unable to provide them with 5 basic things:

- Electric Power
- Network connection to the internet via cable (Ethernet)
- A good location
- A good microphone
- Stability

If any of the above fails, the system will end up stored. We have worked hard setting up many of the streamboxes, helping whoever decided to adopt one on their set up, but when they end up being located thousands of kilometers far away and to be operated by persons with little expertise in computer technology then we risk to loose on having more active sources. It is crucial that either the profiling of whoever is to receive a streambox assures that they will manage to provide the 5 points above or we radically change the system to something even easier to deploy. This has been part of my research during the current year. There is an alternative is called Oggstreamer<sup>2</sup> its price is higher by 50 euros more of the current Alix board price.

As a reference on the hardware and how it works here is a video: <http://vimeo.com/48150724> And below I paste one of the few conversations i have had recently with Oggstreamer's main developer.

There have appeared other cheaper alternatives but I personally don't think that for example the RaspberryPi is a big improvement over the Alix and will still be far to debug from the distance. Though as said earlier on this report the problem is more related to the host than to the hardware itself. With the RaspberryPi one ends up cluttered on cables having to use a separate card for sound (that also increases its price). Experience has shown that we need to provide a clean solution to the end user so the only thing they will have to worry about is placing the box in a sound rich place and getting the appropriate microphone for capturing the scene. Since is all about sound. That's what resides at the core of this project.

I will be looking to get populated Oggstreamer boards that can be cheaper to buy than the finished box, this way we might save on resources and even find a way to package the box including a microphone solution that is also something the Locus Sonus Lab has been researching in parallel.

Future development goes the OPUS-CELT codec way. With <20ms Latencies they open a way to more AudioDSP projects coming up<sup>3</sup>.

As a conclusion for the current year I will like to stress that both hardware and software have been explored and stretched fairly well, if there are issues to solve now regarding the number of streams online this will then directly depend on selecting better the places and people who is to host a streambox.

All my notes to previous releases are here: <http://nujus.net/~locusonus/wkdl/?page=StreamBox+Alix+v.0.1>

---

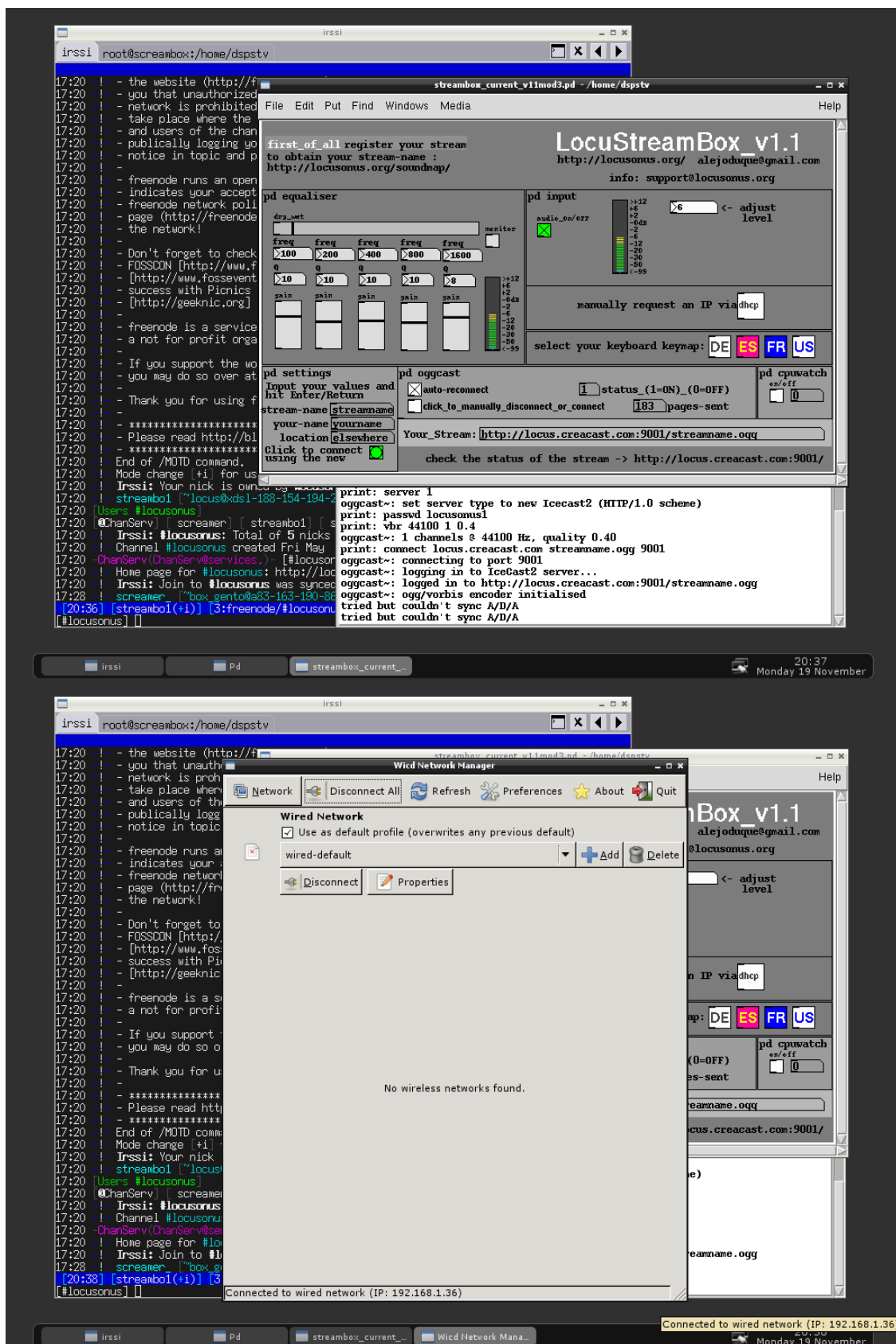
<sup>1</sup> <http://locusonus.org/soundmap/034/>

<sup>2</sup> <http://oggstreamer.wordpress.com/>

<sup>3</sup> <http://www.vsdsp-forum.com/phpbb/viewtopic.php?f=7&t=798&sid=81c1c5e273b35a09932d31b4fbadd322>

---

Screen captures of the current 2012 streambox sending a live captured sound and the network control panel:



## Do you want to buy an OggStreamer?

---

**Georg Ottinger** <georg@otelo.or.at>  
To: alejo d <alejoduque@gmail.com>

Mon, Jun 4, 2012 at 2:58 PM

Hi Alejo,  
I am currently assembling the last 6 devices from the first batch and I want check whether you are still want to buy a device? best wishes, Georg

---

**alejo d** <alejoduque@gmail.com>  
To: Georg Ottinger <georg@otelo.or.at>

Mon, Jun 4, 2012 at 4:09 PM

Hola Georg,  
I do will love to integrate the oggstreamer to our soundmap: <http://locusonus.org/soundmap>  
I still send the alix boards with pd or darkice... BUT i dont have the 200Euros for a test board..  
do you have any unassembled boxes, kind of a kit from the core encoder?  
Warm regards,  
/a

---

**Georg Ottinger** <georg@otelo.or.at>  
To: alejo d <alejoduque@gmail.com>

Mon, Jun 4, 2012 at 4:26 PM

Hi Alejo,  
I see ... Do you have access to standard SMD (mainly 0805) components? And would you like to soldier one by yourself? best wishes, Georg

---

**alejo d** <alejoduque@gmail.com>  
To: Georg Ottinger <georg@otelo.or.at>

Mon, Jun 4, 2012 at 4:31 PM

ouch... no, unfortunately no SMD.. i was wishing/hoping you could just sell populated boards.

---

**Georg Ottinger** <georg@otelo.or.at>  
To: alejo d <alejoduque@gmail.com>

Mon, Jun 4, 2012 at 4:37 PM

Hi Alejo,  
That's a pitty - I can only send you a bare PCB without components - but in this case this doesn't make much sense ... What kind of microphones do you usually hook up? best wishes, Georg

---

**alejo d** <alejoduque@gmail.com>  
To: Georg Ottinger <georg@otelo.or.at>

Mon, Jun 4, 2012 at 4:44 PM

On Mon, Jun 4, 2012 at 4:37 PM, Georg Ottinger <[georg@otelo.or.at](mailto:georg@otelo.or.at)> wrote:

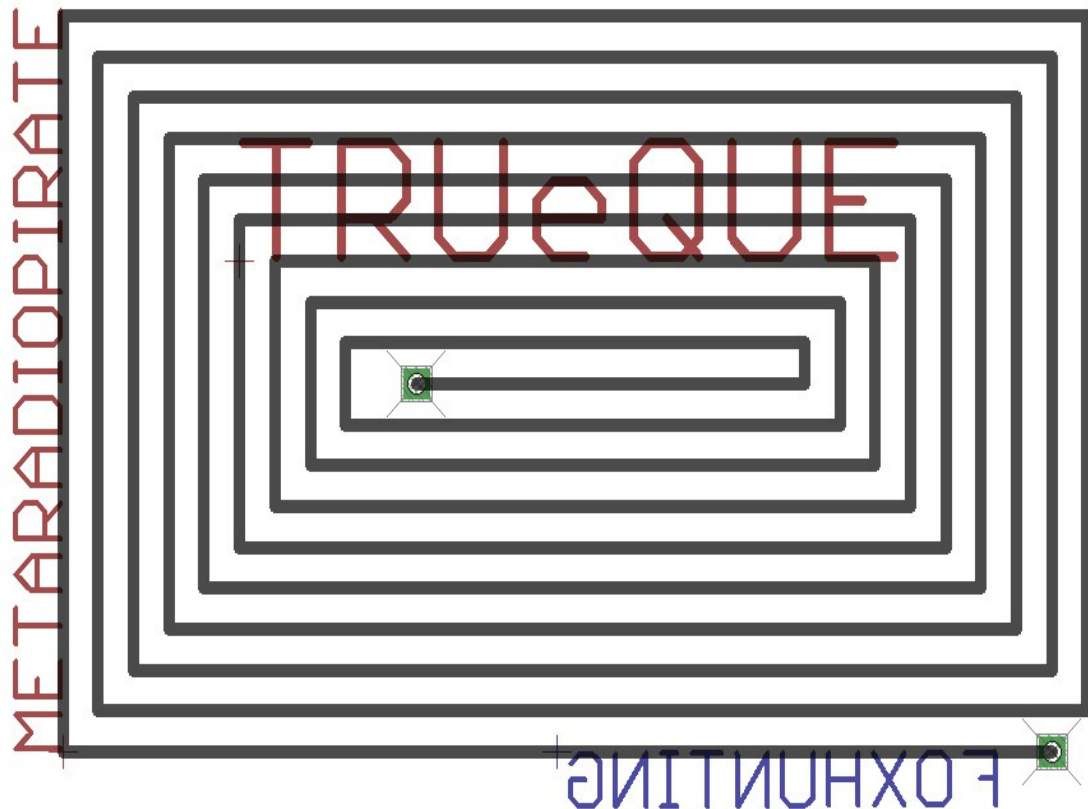
What kind of microphones do you usually hook up?

thats been also under research. we send the boxes to people that works on/with sound so they usually provide good mics.. some other times i solder a panasonic electrect with a cap and a resistance.. they work.

TRUeQUE (Personal undergoing Research/Game/Soundwork/Workshop)  
#soundwalking #subverted #networks #cryptography #fictocriticism #morsecode #pynchon  
#taussig #dispositif #ARDF #packetradio #HAM URL: <http://dorkbot.org/dorkbotmde/trueque/>

TRUeQUE is a word that in french will relate to what the meaning of the word 'troc' could express. Is an exchange of value be it material or inmaterial (services, trust, knowledge/know-how, etc.). This kind of practice has been the economical pillar of ancient communities in the planetary South and elsewhere. It is even more so relevant to explore it in the break of the current so called "crisis of capitalism".

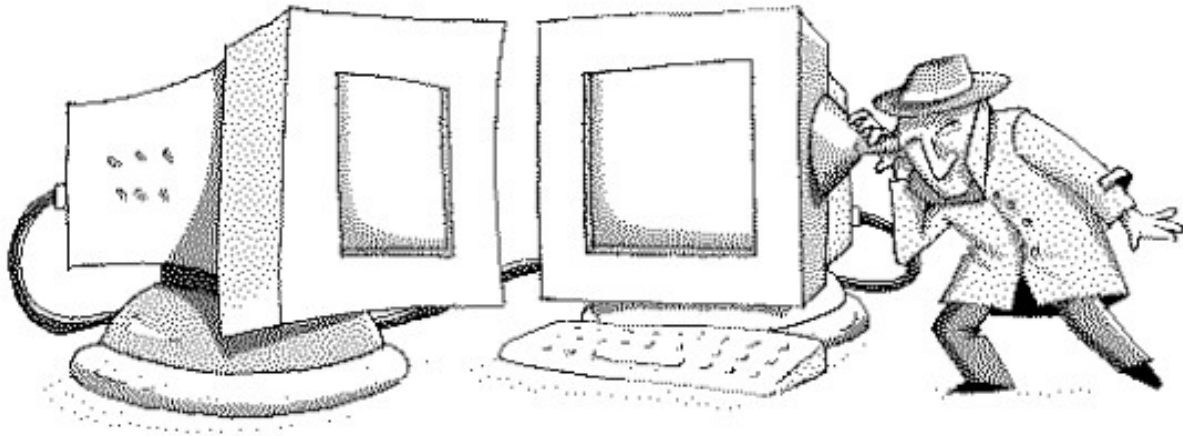
During the last year of research the concept and approach surrounding TRUeQUE has evolved from being a simple 24h stream (on-line based sound project) related to the somehow expanded task of the switchboard operator. Now it is conceived as an event taking place in an alternate reality, that is, in the mix of on-line and off-line flows. At the core, TRUeQUE is an attempt to build an infrastructure for and alternative communication system. To be deployed as a game/workshop very close to the ideas around the practice of sound-walking<sup>4</sup>.



A Laberynth Antenna (physical case study for a hertzian dropped timeline)<sup>5</sup>

<sup>4</sup> <http://www.sfu.ca/~westerka/writings%20page/articles%20pages/soundwalking.html>

<sup>5</sup> <http://colinkarpfinger.com/blog/2010/the-dropouts-guide-to-antenna-design/print/>



### TRUEQUE [TranscommRoutes for UnExpected Queued Events]

A site specific sound performance making audible the spectral landscape? Sounds dwell the electromagnetic spectrum<sup>6</sup>, from randomly composed satellite telemetry feeds, ionosphere electromagnetic activity (natural radio<sup>7</sup>), E.V.P (electro-magnetic voice phenomena), telepathic control at 50Hz, shortwave radio oscillating in-between the queer and the subverted while opening doors for the Other to chime in (psy). Shamanic transmissions, Crytoanalysis<sup>8</sup>.

A Switch Board based AR game, a research project built through **IRC** channels, **MUDs** (Multi User Dungeons) and the non-localized-street. (Some records are kept undisclosed for your safety).

#### Proposal (for a timeline and a workshop):

23:22 < voice1> Is **TRUEQUE** confirmed as an ARG<sup>9</sup> or no?

23:23 < voice2> depends on what you want it to be.

23:23 < voice2> probably it's an ARG tying to look like real operation...

23:23 < voice2> but since it is done good it is imposible to prove that things mentioned here aren't real.

23:24 < voice2> being intense, tricking players to believe that they are part of some spy, military, government conspiracy or operation

23:24 < voice2> i think that you can understand what i mean.

**TRUEQUE** is inspired in Oedipa Maas, a Thomas Pynchon's character from the novel "The Crying of Lot 49" her drive was lead by the thrill to discover and underground postal service. We mix that with the basic principle of alternative pre-colombian economies and their daily produce exchange. As mentioned before, Participants/Players will take on proposing encrypted messages, hidden drops, platforms, vectors and hideouts. We will go out to play some hunting around the location where the workshop takes place. We will kick start the "game". (but it won't be a simple one liner game).

Through sound we propose a sort of 'ritual' to breakthrough. Spanning from the realm of radio-electric waves we go deep into the invisible void, between physical and immaterial, visible and non-tactile. From what we sense to what our devices register. Intra to extra corporeal distances that relate to time, distance and scales. Be them local, site specific, tele transported, meditated and/or meditated.

<sup>6</sup> <http://www.burtonmackenzie.com/2007/05/poor-mans-spectrum-analyzer.html>

<sup>7</sup> <http://abelian.org/vlf/>

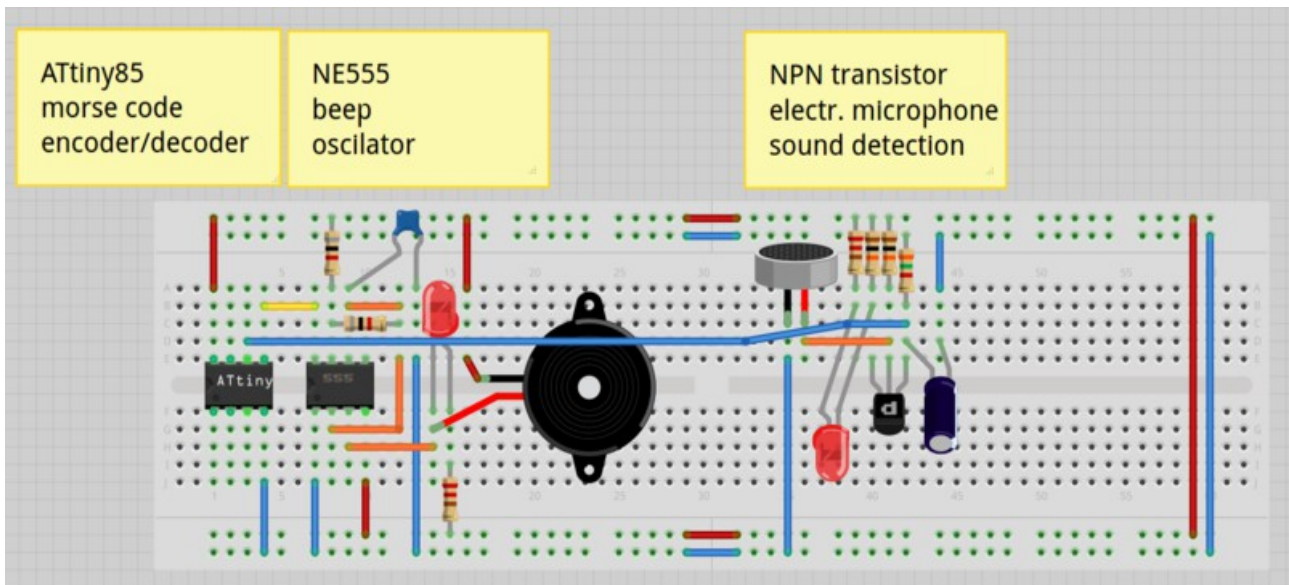
<sup>8</sup> <http://www.cs.tau.ac.il/~tromer/acoustic/>

<sup>9</sup> [http://en.wikipedia.org/wiki/Alternate\\_reality\\_game](http://en.wikipedia.org/wiki/Alternate_reality_game)



### Current Hardware developments:

Based on work from the opensource/openhardware communities, the wisdom of a friend Tobias Hoffmann from the group #hackteria the current version of TRUEQUE is based on some of his documentation<sup>10</sup> among others<sup>11</sup>.



*"A morse code generator & decoder for audio data transmission in morse code. The ATtiny85 microcontroller measures up to 3 sensors (light, temperature, presence, air quality ...) and broadcasts its finds by morse code. It listens also for morse code in the air and could controll up to 3 actuators (lights, motors, sound devices ...) "*

With the portability offered by such small 'dispositive' plus the autonomy in terms of electric power (power for the system comes from batteries) it's then possible to trace a map with hidden devices that agents/players/performers/hunters should be able to go in&out the 'play'. The most important fact about this low-cost system is that it will be possible to add sensors to the boards, use this data to be transformed into morse code to be transmitted either by direct sound waves or via radio waves to be decoded only by the person with the receiver. "Players" locate signals (As in ARDF<sup>12</sup> aka Foxhunting<sup>13</sup>). In a concurrent event. Finds, collected as evidence, be them sounds, images or videos are shared online via different platforms: piratepads, 4chan, pastebins, multiplayer-platformers, etc. An [IRC](#) channel or a [MUD](#) serve as host for actual -realtime- chat of the hunts, either space will become the place where to coordinate potential and current actions. No puppet masters control the timeline of events. All of the above presented as a "workshop" that will be a meeting place to start unrolling and unforeseen/unexpected narrative.

Radio waves have been used as carries for all sort of encrypted messages since the non-linear histories or better 'timelines' of war. We will listen to spook recordings (number stations among others) and study their reporting logs and protocols. Incorporating different feeds, like the ones collected by satellite observation and listening. Our intention: Understand the way data is sent and encoded via new and old algorithms (FSK, PSK, Reed Solomon RS<sup>14</sup> or goppa<sup>15</sup> methods).

---

<sup>10</sup> <http://wiki.sgmk-ssam.ch/index.php/SGMKmorseAttack>

<sup>11</sup> <http://code.google.com/p/morse-endecoder/>

<sup>12</sup> <http://ardfe.web.fc2.com/pj-80e.htm>

<sup>13</sup> [http://en.wikipedia.org/wiki/Amateur\\_radio\\_direction\\_finding](http://en.wikipedia.org/wiki/Amateur_radio_direction_finding)

<sup>14</sup> [http://en.wikipedia.org/wiki/Reed%E2%80%93Solomon\\_error\\_correction](http://en.wikipedia.org/wiki/Reed%E2%80%93Solomon_error_correction)

<sup>15</sup> <http://www.scivee.tv/node/11302>

### Tracing ideas for Future Hardware/Software developments:

If dogs, fish and pigeons carry an electronic tag, so do humans (with their phones and similar electronic location aware devices). The development of a **TRUEQUE** biotag should not consist only on a transmitter, it should be also a receiver, one that can mesh and share data, one that can record voice, send images, sense particular environmental conditions, even map emotions.

Such mesh capabilities will then allow network collaborations to happen, enacting through fictional spaces the basic communication principle of sent and acknowledged packets to deep critic and discourse if wanted. Applied in a distant way from any marketing research or strategy. **A system to log the now.** sustained concatenation. taking place and being shared through undernets and alternets. Preferably leaving no database records behind. A transparent transport layer and protocol system inspired by fictional characters to engage, enact and perform a distributed "game". Based on notions of anonymity and filesharing that will leak our fears, dreams and ideals for the sake of a dislocated collaboration. We will ship and hand such #BioTag devices each ready to be adopted and play a role to cross and connect atoms with bits.

*"... The computer literally numbers the world processually — closer to a mathematical Fourier analysis of physical wave events (sound, light, heat, electromagnetic fields) than to any metaphysical kosmos."*<sup>16</sup>

Machines. Feedback Systems. Statistics and Algorithms are taking over our registers to 'enframe' us within a 'complex' we used to call 'world'. Hijacked perception. Obfuscated phenomenology.

---

<sup>16</sup> Between analog and digital. Wolfgang Ernst. Media Archeology.



## Locus Sonus Internet Auditoriums (Syposium Presentation)

THERE'S NO SOUND IN "SPACE" ..... / .. ... / - . --- / ... --- . - - . - . / .. - . / ... - . - . - .  
dots and dashes representing morse code

by: Alejo Duque Sunday on the 24 March 2012, Nantes - [alejodduque@gmail.com](mailto:alejodduque@gmail.com)

#Terracentrismo #Architectural #Rims #Datamines #Auditoriums #Oyerismos<sup>17</sup>  
#Networkcentrism

*Thinking is first and foremost a survival skill. Thinking is a way to appropriate the world, to share experience and to anticipate forms of control.* <http://dorkbot.org/dorkbotmde/trueque/?sataware>

Pass the T.A.Z (Temporary Autonomous Zone) and driven by escalating discontent. Reclaiming not just a square but the will. A field of operations that melds the acampadas (Spain's continuation of what we saw taking place in Egypt and later tagged as #occupy) through online infrastructures. lorea.org for one. A case as on "how to" approach the vital free information infrastructure from within. Be it pirated satellite transponders, p2p undernets or even getting hold of the fiberoptic cables as is the case of [guifi.net](http://guifi.net). To jam, infect or decode. To bring about, re-create and communicate. This all is taken place in the now and is possible to be explored in terms of architectures and auditoriums while at the same time, as artsits, we reclaim our most basic and even inspirational radical dystopias. Anyhow today it seems that there's no other option left, we are called to Just push Reset!

The main problem with the network, or better, 'networks' is that often times we find ourselves in the middle of feeds, think again on the switchboard operator patching signals from one end to the other. How Egypt adopted technologies (from the fax machine to twitter). Feeds passing on the discontent and resonating thought the networks all around. Even with a big march, la minga, happening in Colombia (2011) and showing how just walking from every corner of the country to the capital city could serve as a way to let everyone know about the power of the most repressed communities have. **Resonating through the networks!.**

Protocols to patch such connections are what we got to solve, in this regard we all know that this task is in the hands of the hackers.. they conform our only option on the battlegrounds of code and electronic warfare. So please invest, adopt and love a hacker, he and she represent our freedom, fighting from the commandline the epic battles of software/hardware to reconquer the current world from becoming walled by fakebooks, Apple and Google. That's the auditorium where action takes place today (2012).

A space made up of submarine cables and datacenters owned by companies and governments that snoop 24/7/365 all traffic breaking basic once respected freedoms.

Let's reclaim those grassroot protocols and go back to that what was never called web1.0. We take with us what we got from the napster fight: p2p, add strong encryption algorithms, proxy onion layering "a la Tor". Behind this all there's a world wide network of interconnected hackers: Riseup, no-log, lorea,

---

<sup>17</sup> #oyerismo as in "ecouter-ism" coming from voyeurism, or in English "listen-ism" (?)

indymedia, anillosur... IRC It's still there, like the M.U.D or the networked FPS.. you can find hundreds of people conspiring as a legion #telecomix, #anonymous.. some more concious of what they do then other actually developing alternative systems for encryption and anonymity. A subgroup that should be recognized for their mythical achievements in this short history of the networks.

*So why do we limit our thinking on connectivity to only mobile devices when we could have more fun bouncing messages over hacked satellites? Even the moon "our" natural satellite could serve the case. Anyhow the world is becoming more and more full of addicts, junkies of doses of TCP/IP packets. supeflous connections.. illusions. Some Other appear as torrents, fluent streams, real-time. Galileo destroyed geocentricism, but it got reconstructed by an unstoppable ambition for connectivity, command and control represented today by the 'saturnesque' ring of artificial geostationary satellites (and space junk). And so Earth became –once again—an immobile object in the centre of a medial universe.*

Where is that listening place? Today, on a wider scope (read that as: laboratory spectogram). Who is listening?







*ANYONE HERE KNOWS WHAT ARE THIS BUILDINGS FOR?  
WHAT ARE THE ACOUSTIC PROPERTIES OF SUCH A 'DISPOSITIF'  
(if any or none, let us consider that the infrastructure is the message)*

Perform directly into the mic with the Bird call for the Rossignol aka Nightingale or in spanish Ruiseñor:

-Choose and playback for the audience one of few of the following sound tracks:

[Sputnik Telemetry](#)

[Radio Universidad Oaxaca](#)

[Chavez en Harlem](#)

[Japanese Rocket Launch](#)

*We live immersed on #tech-#no-#logic-#al conventions. Inside an Abbrev.iated World of technicalities.*

Technically we live in a world of abbreviations , there's among many this category for what I enjoy to practice, is called SWL (for short wave listening): "The hobby of listening to shortwave radio broadcasts located on frequencies between 1700 kHz and 30 MHz. In some developing countries, shortwave listening enables remote communities to obtain regional programming traditionally provided by local medium wave broadcasters. Some estimates have placed the number of shortwave listeners worldwide in the millions."

-Playback some SWL recordings, Morse Code among others, possibly coming out from Egypt during the revolution.

Interactions, reactions -> Responsibility (occupations)

Another approach to reclaiming control is the one enacted in full civil disobedience by the Brazilian truck drivers that hijack a Satellite for their daily use. This geostationary satellite covers a big are of the planet opening the opportunity for others to replicate. As part of my SWL (Listener) activity I have build a couple of antennas and procured few recordings. Big part of the research is here:

<http://dorkbot.org/dorkbotmde/trueque/?sataware>

And some of the AERIAL instruments are here:

<http://dorkbot.org/dorkbotmde/trueque/?antenukas>



To close the presentation I've done a realtime demo tuning in the Brazilian satellite pirates from the rood of the School of Architectre in Nantes. Here a short video clip:  
<http://vimeo.com/39352352>

This presentation was dedicated to a teacher.  
"I am comforted by the hope that your generation will lay the HighFrequency fiber-optic cables and crack the secret world war algorithms" Friedrich Kittler (1943-2001). A su memoria.

## **CV**

### **Alejandro Duque 1970 Medellin - Colombia**

ADDRESS: Oberdorfstr. 10 Seon CH-5703 Switzerland

PHONE: +41 (0) 62 775 1920

EMAIL: alejoduque@gmail.com

URL1: <http://dorkbot.org/dorkbotmde/rebot/?TRUEQUE>

URL2: <http://dorkbot.org/dorkbotmde/trueque/?satware>

Alejo Duque was graduated from the school of fine arts of Medellin in Colombia (1998). Actually he pursues a "Philosophy of Communication" PhD degree at the European Graduate School <http://www.egs.edu> (Switzerland). His artistic research is related to the so called "new" technologies and their crossing point with Open Source Hardware and Software. In Colombia he has worked on setting up a comunitary network project and a hacklab (labSurlab and dorkbot-medellin [k.0\_lab]). Most of his work is developed under the GNU/Linux Operative System being I.R.C (Internet Relay Chat) a fundamental part of his ethos. Artistic production relates to process based experience within affective networks that approach young and old technologies from an experimental, resourceful and tactical use. Currently a researcher at the Locus Sonus Laboratory where he also has the chance to lead a workshop for artists under the title "Into the electromagnetic spectrum".

## **Education**

BA at Universidad Nacional de Colombia MA from Universidad de Castilla-LaMancha (Spain) PhD candidate from the European Graduate School (Switzerland)

## **Relevant participations:**

### **(Art Festivals, Exhibitions, Workshops, Conferences)**

- 2012 reSource 002: Out of Place, Out of Time: <http://www.transmediale.de/node/21863/>
- 2012 Co•Operaciones Medellin-Colombia: <http://cooperaciones.mdelibre.co/>
- 2012 Locus Sunus Symposium Nantes - France
- 2011 Synergia. Centro de Artes Santa-Monica - Barcelona Spain.
- 2011 Impakt Festival - Utrech Netherlands.
- 2011 Orbitando Satelites Workshop- Centro de Arte LABoral - Gijon Spain.
- 2011 Survival Kit Panel Presentation - Paris
- 2011 Mal-au-Pixel Concert at La Gaitee lyrique Paris
- 2011 labSurlab organizer - Medellin Colombia <http://labsurlab.org>
- 2011 Transmediale - Participation at the Radio Magic Panel.
- 2010 MediaLab-Prado Ciencia de Barrio + Exhibition Estarter#2 Madrid Galeria Off-Limits
- 2009 Paper presentation at Video Vortex Split
- 2009 Wintercamp Hackmeeting Amsterdam 2008 SHIFT Festival - Basel
- 2008 transmediale.08 conspire - Berlin - XXXXX conference at Peenemünde
- 2008 Metavilla Exyzt Pirate Ship - Venice Biennale of Architecture
- 2007 Satellite Voyeurism, Workshop in the use of satellite technology for art, Dortmund
- 2007 Mapping Festival, Vj audiovisual festival, Aether9 performance, Geneva
- 2007 SUMMIT for non-aligned initiatives in cultural education, Berlin 2006 Electrolobby at the Ars Electronica. Linz

### **Other relevant moments in the process (random access):**

- LabSurlab LatinAmerican meeting of \*labs - 2011 and ongoing
- un/loquer Hackerspace Medellin - Colombia
- Piksel05, free/libre audiovisual software and art. Art residency in Bergen Norway, 2005
- "ART+COMMUNICATION2004:TRANS CULTURAL MAPPING" Riga. LV 2004
- HGK-Luzern, Switzerland, 6 months online and realtime video on linux 2004
- Strasbourg Open Source City 2004Camp for Oppositional Architecture, Anarkithectur, Berlin, June 2004
- Net\_Condition Festival \_Temporary Media Lab ZKM, Karlsruhe, Germany 1999
- Ecole de Beaux Arts de Aix-en-provence 3 months 1999-2000 "ISEA Revelation" Paris, december 2000
- "interferences" Belfort, France
- "net\_congestion" streaming media festival in Amsterdam, october 2000 "Ars Electronica Festival", Linz, Austria october 2000
- "hacktivismo and hackbarna00" 2 events in Barcelona, August 2000
- "Cultural jamming", Riga, Latvia. september 2000 <http://rixc.lv/00/main.html>
- "Transit zero", Sundance Film makers Festival. Sweden/Latvia. August 2000
- "lovebytes", Sheffield. Conferences from the new media art festival. March 2000
- "Internet all over", ecole de beaux arts Aix-en-provence, France November 1999.
- "ZKM net\_condition" temporary media lab, Karlsruhe, Germany nov./1999. syndicate list.
- "QUAM", Quinzena de arte de Montesquiu, Barcelona 1999. 15 days residency "ARCO Electrónico", Madrid February 1999
- "N5M3", (Tactical use of media) Amsterdam, March, 1999.
- M.M.U [Manchester Metropolitan University] 3 months during the spring 2000
- Polar Circuit 2000 Rovaniemi, Finland
- "PC2", PolarCircuit2, Residency Tornio, Finland. June-july 1998
- WDWTW? obra para LabForCulture bajo el tema del "Sintoma de la Victima" 2008
- Muestra Monografica Festival de la Imagen 2008
- Festival de streams LePlacard X Paris 2007
- Net.Art en Colombia, Biblioteca Luis Angel Arango, 2007
- BereBere, Encuentro de Arte Medellin 2007, (Grant from Min. Cultura, Colombia)
- Exhibition "20 years after" UCLM 2006 (<http://www.uclm.es/CU/bellasartes/>)
- Ars electronica, Linz 2006 (<http://www.electrolobby.org>)
- Sonar Electronic Music Festival, Barcelona [www.sonar.es](http://www.sonar.es) (sonarmatica) (2006)
- Next Generation VIPER art festival Basel <http://www.viper.ch> (2006)
- Festival for free Audiovisual Software and Art. Bergen [www.piksel.no](http://www.piksel.no) (2005)
- Colombia <http://www.festivaldelaimagen.com> (2001)
- WWW <http://grafika.splet.net/infos2000/>
- WWW <http://ctheory.concordia.ca/>
- Spain <http://www.w3art.es/schema>
- Spain <http://www.uclm.es/mide>