

## Application Form

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**Title of work:** INTERACTIVE AUDIO-VISUAL TRIPTYCH „MEDIABOX“

**Year:** 2004 **Length:** 6 square meters / 2.50 m. height

**Country of Production:** Bulgaria

**Master Produced On:** **Our team will provide all equipment:**

- 3 prints (90x120 cm);
- Constructions;
- PC with necessary software;
- Headphones, cables and IR sensors.

**Author(s):** Antony and Georgy Raijekov

**Production of:** Independent project, supported by Interspace MAC and Centre for Policy Modernisation

**Synopsis:** The main idea is the creation of an open interactive environment that gives the observer the possibility to "compose" music through images. MEDIABOX converts the observer into co-author. Through a synthesis between music and vision it allows him to get sounds from the images while watching them. The sounds are mixed in a unique for each observer way, thus generating music. The combination between images and sounds aims at achieving maximum influence and provide the possibility to perceive with all senses at the same time.

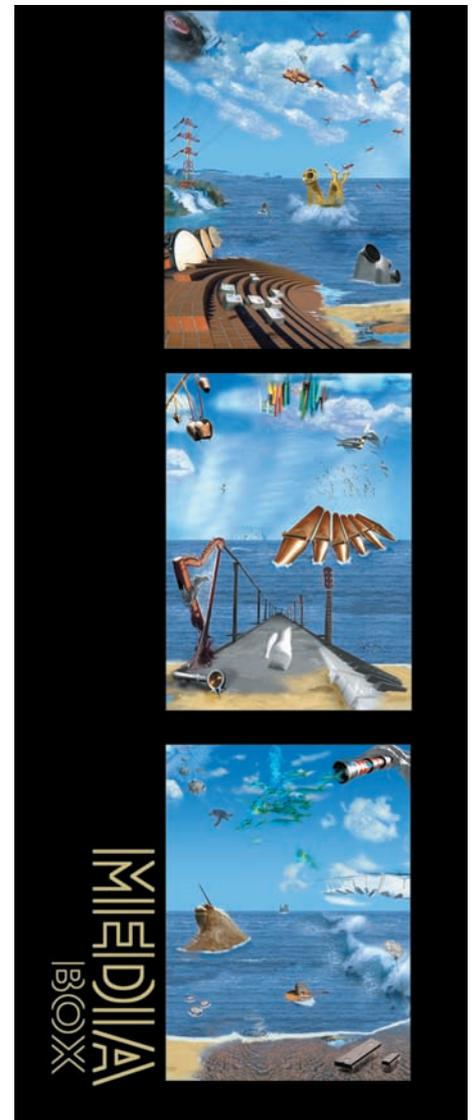
Video presentation of MEDIABOX project can be found here: <http://zull.org/mutant/mediabox.avi> [60 mb])

**Place:** Sofia **Date:** 12 July 2005

**Signature:**

Antony Raijekov:

Georgy Raijekov:



## Part Two: PRESENTATION MATERIAL

### Interactive audio-visual triptych MEDIABOX by Antony and Georgy Raijekov

The audio-visual triptych MEDIABOX is a multimedia installation that transforms the pictures into a musical instrument. Its goal is to create an open, interactive environment that transforms the viewer into co-author and provokes his creativity. The main idea of Audio-visual triptych MEDIABOX is to create an interactive environment that allows the combination between music and vision. The interactive environment makes the observer free to activate sounds from the pictures, by watching them. The sounds are mixed and generate a uniquely composed music – unique for each observer.

Audio-visual triptych MEDIABOX submerges you to the magic of technologies which succeeded to bring alive three surrealistic collages and to make every observer - through melodies, vision and feelings-to “paint” music, to submerge and to watch with eyes shut the melody that he or she composes.

Different musical instruments are shown on each of the three pictures. Behind each one it is placed a sensor which when is activated, starts playing a musical fragment. By activating another musical object (sensor), the two fragments are mixed and generate music. As long as each observer watches the pictures in a different way, a unique music environment is generated for him/her. MEDIABOX is completely open source project. Our team has developed the hardware and part of the software, which is combined with other open source products that altogether form the technological base of the artwork.

Light infrared (IR) sensors are activated by the ray, emitted by the beam on the headphones of the viewer and thus activating, to its part, the spots from the picture that is observed. Each move of the sight from one spot to another makes the sounds mix and create a different kind of music. Behind each spot is placed an IR sensor connected to IR Multiplex Receiver device, which is finally connected to a PC via the LPT port. The IR Multiplex Receiver transforms sensors' signals into IDs so that the main program could recognize which spot is activated. After one spot is activated and the Multiplex Receiver device sends its ID, the main program loads and mixes the corresponding sample from the instrument's sample bank. There are 25 active spots (sensors) behind the three pictures. All Instruments are separated into three groups: background sounds (such as organ, sea and gramophone beats, percussions), harmony instruments (piano, violins, harp) and solo instruments (kawal, trombone, strings, guitar). Each "instrument" has a sample bank containing between 5 and 20 samples. When a spot on the picture is activated, the main program picks random sample from that bank and mix it with other currently plying "instruments". Each instrument's sample is long between 15 sec. and 1 min., depending on its "role" and group. The generated music depends completely on the viewer's activity.

**WEBSITE:**     <http://tony.cult.bg/mediabox.php>



MEDIABOX is an interactive audio-visual triptych that allows the viewer while observing the pictures, to activate and mix different musical instruments and thus generate uniquely composed music.

### TEAM

**Antony Raijekov**

Idea, music, software, sound engineering and curator

**Georgy Raijekov**

Idea, art director, painting and curator

**Stefan Tsenev**

Hardware engineering

**Ventzislav Dikov**

Music composer

**Ivan Hristov**

Digital media processing

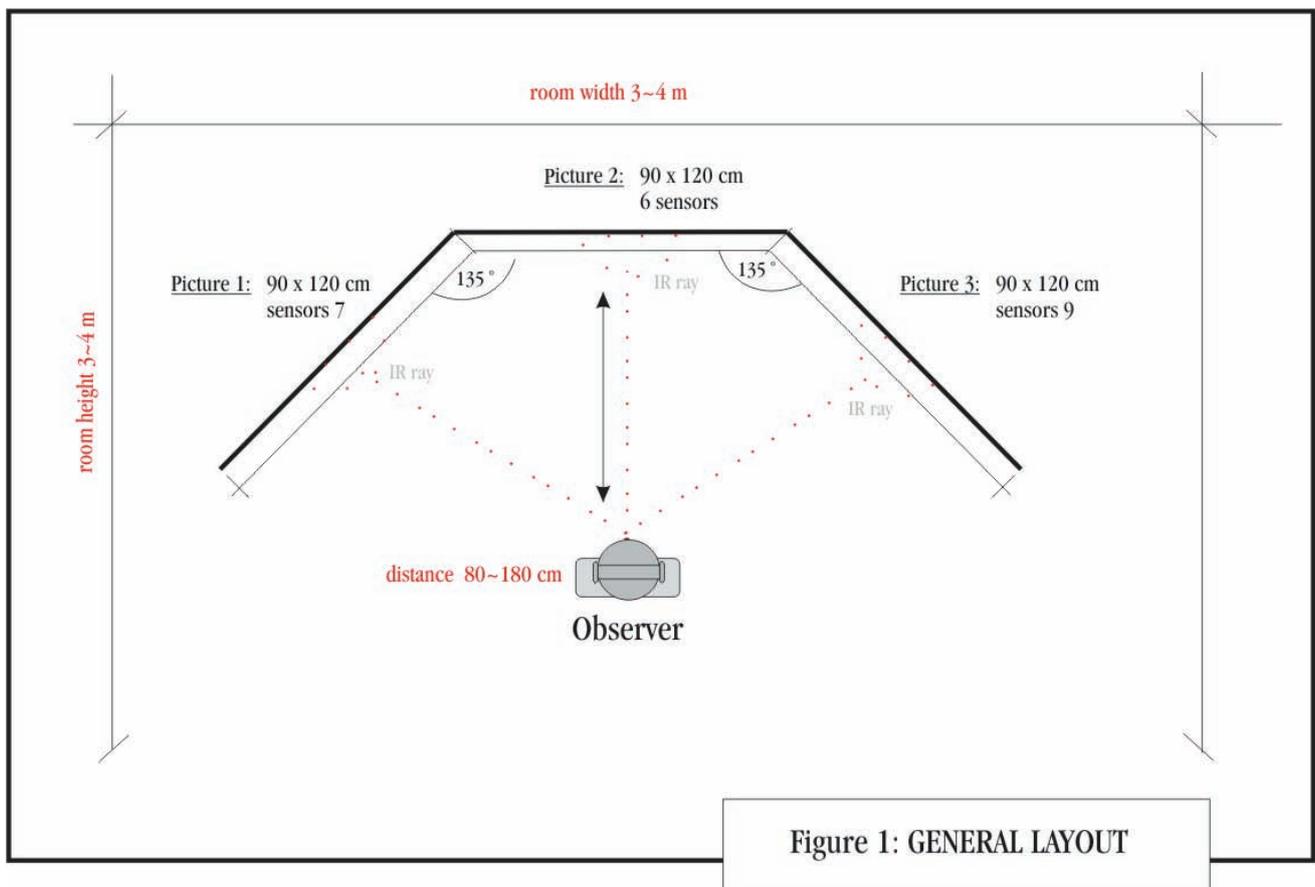
**Anna Paskaleva**

Art photography

**Andrej Dimchev and B. Nikolov**

Linux consultants

### General layout



The three prints (90x125 cm) are arranged as trapezium in the space (dimensions of approximately 4-5 square meters). The angle between the left, middle and right print is 135 degrees. The observer is positioned from 80 cm to 2 m from the middle picture (print). The computer is placed below the middle picture. All the cables from the sensors are located behind the sensors of each picture and are connected to the PC.

## PROCESS MODEL

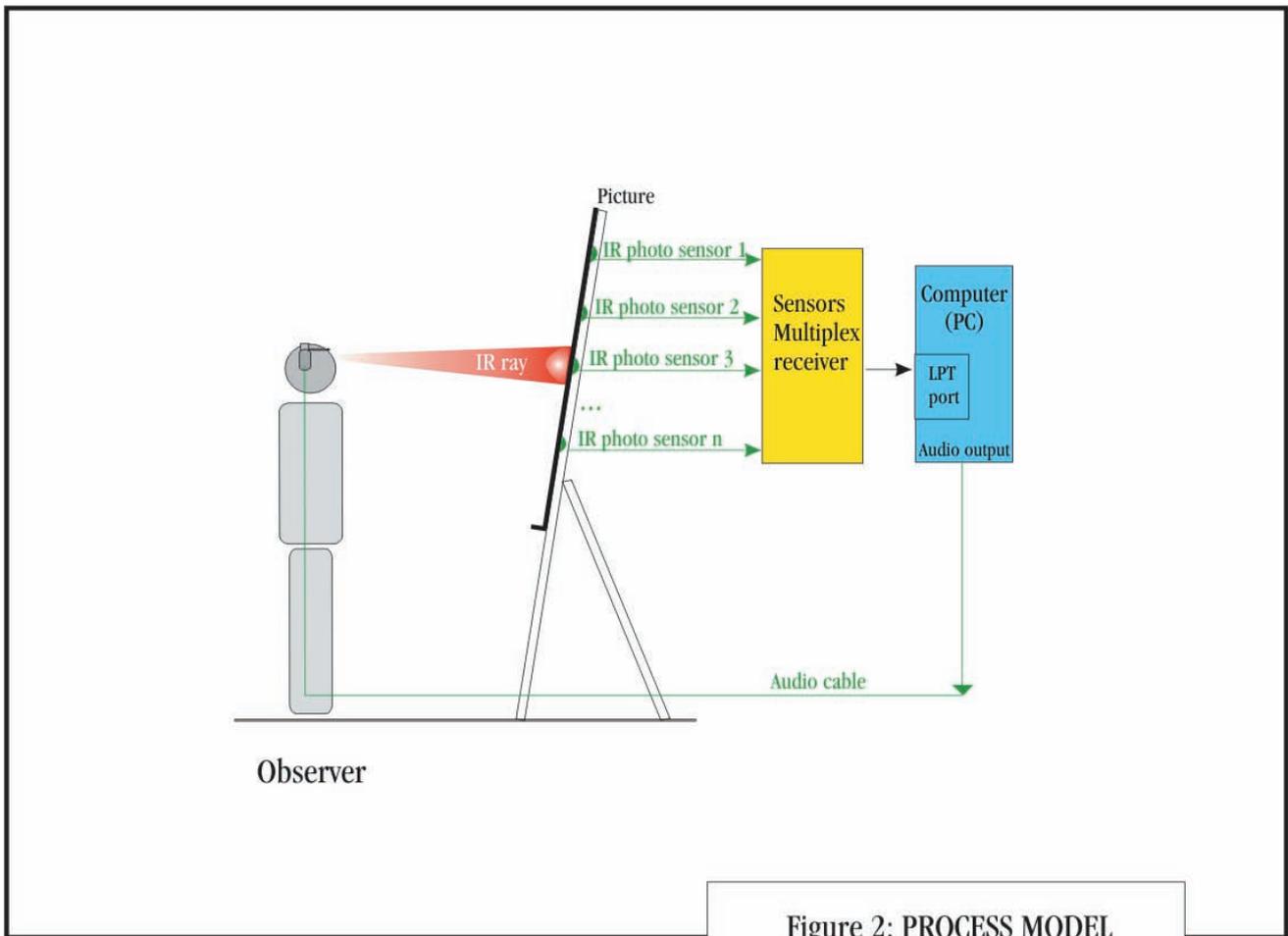


Figure 2: PROCESS MODEL

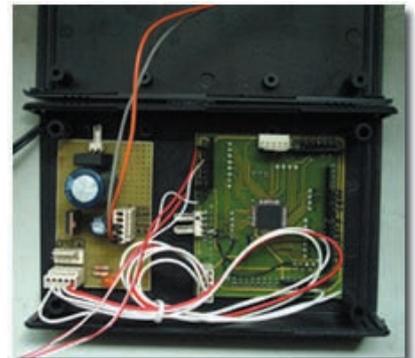
Different musical instruments are shown on each of the three pictures. Behind each one it is placed a sensor which when is activated, starts playing a musical fragment. By activating another musical object (sensor), the two fragments are mixed and audio output is forwarded to headphones.



Headphones with IR beam

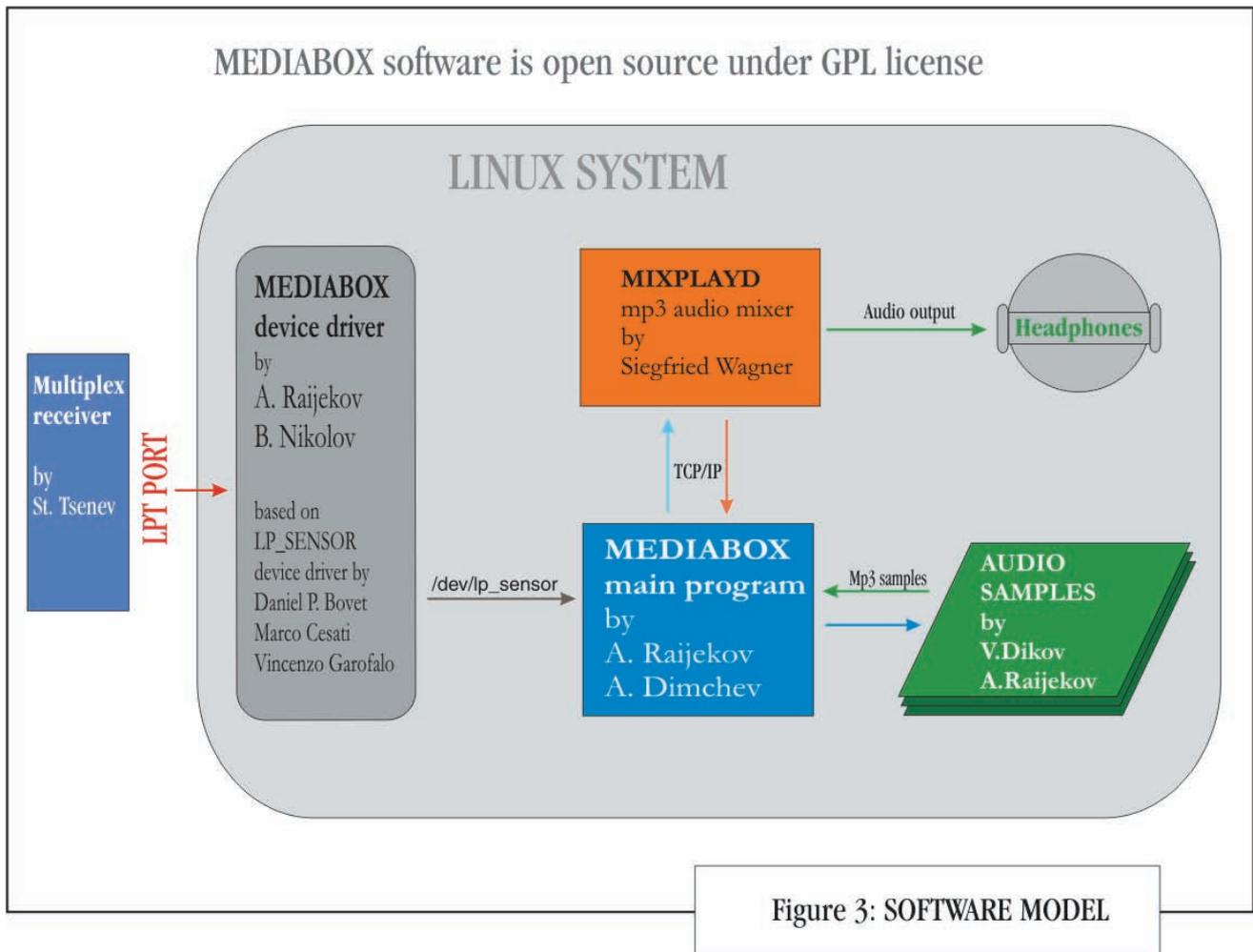


IR Sensor



Multiplex receiver device

## SOFTWARE MODEL



MEDIABOX project is developed completely on open source technologies: Slackware Linux OS, lp\_sensor – driver for parallel port by Daniel P. Bovet, Marco Cesati, Vincenzo Garofalo – modified by A. Raijegov; mixplayd v0.60- mp3 mixer by Siegfried Wagner; madplay v0.15b - mp3 player software by Robert Leslie; mediabox main software by A. Raijegov. The hardware multiplexer, created by Stefan Tsenev, scans the sensors on the pictures and transmits the signals to the parallel port of the computer. Then mediabox device driver transforms the signals into sensor number (ID). The main Program reads the activated sensor numbers and map each sensor to specific instrument. After that the main program checks the status of mp3 mixer, and loads the associated sample from the instrument's sample bank, sends message to mp3 mixer to start mix /play the sample.

## EXHIBITIONS and PRESENTATIONS

**WebTech2005 conference**, Bulgaria, Sofia 22 - 24 April 2005, NDK hall 11

**SAP Labs - Sofia**, Bulgaria 15 December 2004 - 15 January 2005

**Linux-bg conference** - French Culture Institute - Sofia, Bulgaria 05 - 09 December 2004

**"Forum-Festival Computer Music Space 2004"** - 27 October 2004 - 1 November 2004:

The "MEDIABOX" project was presented at the music forum-festival "**Electroacoustic Autumn - Sofia 2004**" in "Union of bulgarian composers", Sofia, Bulgaria.

**"The Global and the Man"** exhibition organized by ArtContact/Post Bank and InterSpace, as part of ArtContact cultural program of Post Bank, that took place from 8<sup>th</sup> to 19<sup>th</sup> September 2004 in the Theatre-laboratory "SFUMATO", 2 Dimitar Grekov str, Sofia  
[http://artcontact.postbank.bg/artcontact.aspx/XHTML?user\\_id=&session\\_id=&lang=en-US&xsl=test&strXML=/en-US/artcontact/03Exhibitions/.Results/Rajeikov/#](http://artcontact.postbank.bg/artcontact.aspx/XHTML?user_id=&session_id=&lang=en-US&xsl=test&strXML=/en-US/artcontact/03Exhibitions/.Results/Rajeikov/#)

## PHOTOS



Installing with Stefan Tsenev at **Webtech2005**



**National competition "Global and man"**



**Linux-bg conference - French Culture Institute**



**Forum-Festival Computer Music Space 2004**