

Technical Description

Electric insect net (signal reception)

The long handle attached to the net acts as an antenna for the device. A BNC cable is connected to a commercially available receiver. This net can catch analog electric waves.

The net can capture electric (radio) waves within the frequency range of 50Hz – 2GHz. It is possible to capture a wide range of electric waves with the electric insect net including the various electric waves emitted around us. For example, the user can capture electric waves from AM radio, analog wireless radio communication, cordless, and cellular phones. Analog wireless radio communication devices include those used by taxis, the fire brigade and the police. Cellular phone signals are coded therefore are unintelligible when captured. It is possible to change the receiver frequency by pushing a “Search” button installed in the handle attached to the net. The user can hear the frequency contents (noise or conversation) through headphones.

The user can record the electric wave contents (sound) currently being received in one-second intervals by pressing a “Record” button installed in the handle. The frequency, sound and time stamp data are packaged together and stored in the notebook PC contained in the insect cage.

Insect cage (data storage) (receiver, a notebook PC and peripherals)

The insect cage contains a notebook PC and receiver. The receiver is used to collect the electric waves. The notebook PC (Microsoft Windows installed) is used to manage and control the receiver. The receiver is a high performance DJ-X2000 model made by ALINCO.

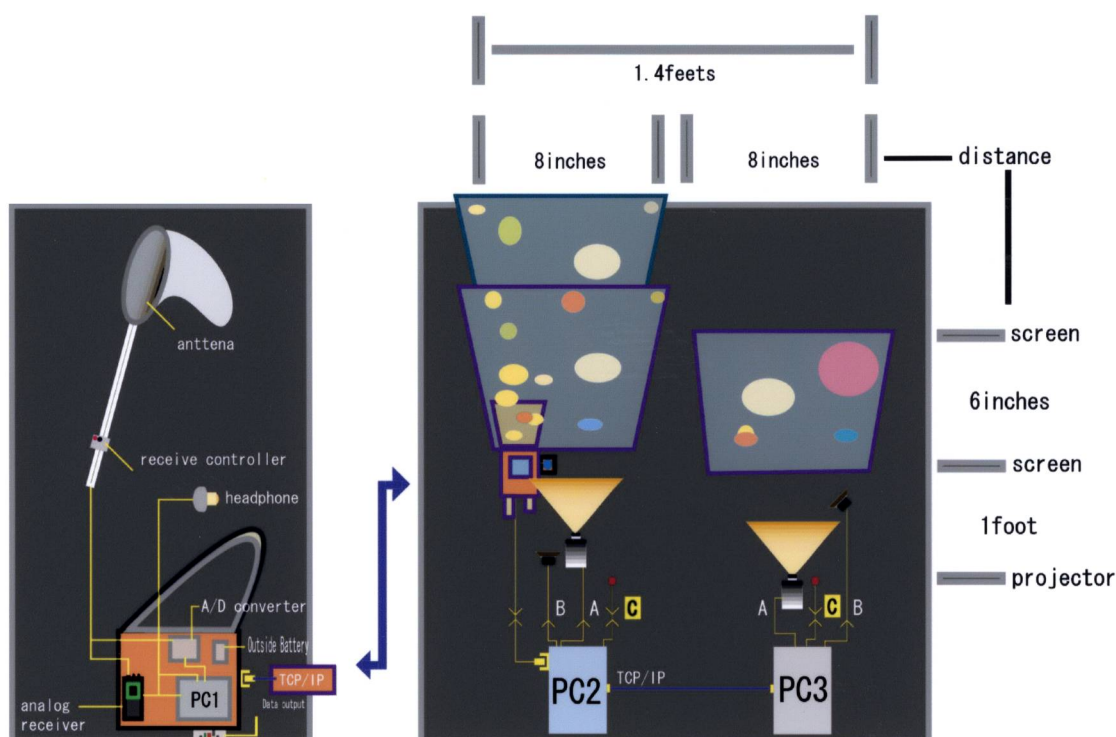
The receiver and notebook PC are connected serially and continuously in use. The software ((C) SuzcomWare2000) is used to manage the receiver, sound capture and data storage, and also sends commands to the receiver to change frequency. The sound signals that the receiver collects enter the PC through the microphone terminal. Every time the user presses the “Record” button, a one second interval of sound is captured,

frequency information and a time stamp added, and stored as a single package of digital data in the PC. Data is stored as a file.

The data remains on the hard disc of the PC even when there is no power supply.

The notebook PC in the insect cage is connected to the image display server by LAN connection. The user can forward stored data to the image display server by pushing the “data transmission button” contained in the cage.

The user can forward this system anywhere through Internet. This is possible because the system is connected to a network based on TCP/IP.



Hardware system

Image display server, infrared sensor and AD converter

The image display server visualizes the data forwarded from the insect cage. Using frequency information data that has been forwarded from the notebook PC, the image display server transforms this data into light sources similar to fireflies, which simultaneously emit sound in accordance with predetermined rules. Data converted into light sources have a random life cycle, and are continuously forwarded onto the next image display server with the passage of time.

All servers are of peer-to-peer design that do not have central league host.

Using this system it is possible to connect an unlimited number of image display servers that have different IP addresses. When the light sources reach the final image display server, their life finishes and they cease to exist.

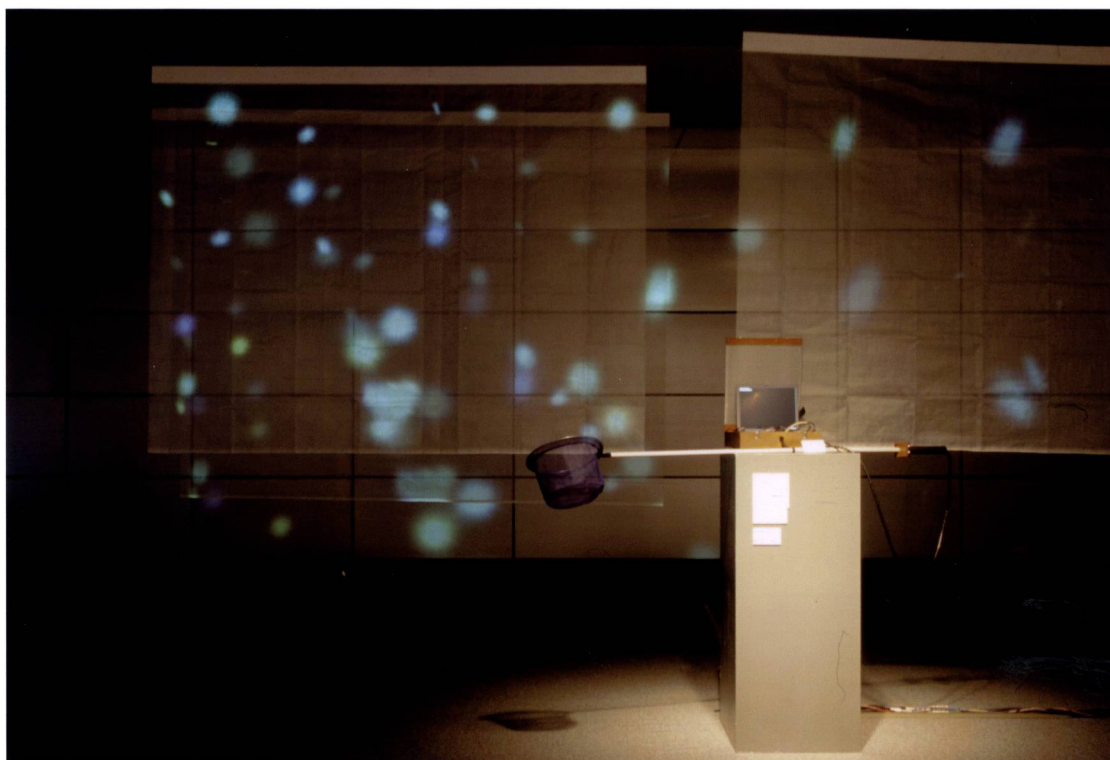
An AD converter is connected serially with the server. The AD converter constantly analyses the output of the infrared sensor connected to the converter. The infrared sensor bounces infrared rays off a hemispheric object and measures the variation in the degree of reflection. The AD converter digitizes the analog output from the infrared sensor. The serially connected image display continuously reads the output from the converter. When a person or an object enters the zone covered by infrared rays, the infrared sensor reacts accordingly. (The voltage of the analogue signals is between 0-5V). The infrared sensor reacts to the entrance and movement of people in the zone. These variations become a trigger for the light sources contained in the server, causing them to try to escape in the direction of the outer bounds of the display screens.

This is dramatic representation of electric insects all simultaneously trying to escape as they feel the presence of people in the infrared zone.

Sound effects

The sounds of the electric waves captured using the net are not only expressed as a light source.

Light sources move slowly and emit a sound when they bounce off the outer bounds of the display screen. (Microsoft's DirectSound was the principle audio software used)



Notebook PC: 1

Signal Reception: Receiver 1 (ALINCO
DJ-X2000)

PC1,2: Image Recognition, Sound
Effect and Display Graphics

Kit: Mockup of standard Insect net
and

PIC: Translate input from handle into
serial data

Speakers: BossSpeaker 3set

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-30/4