Kaleidophone
An Interactive Light and Sound Installation ....

Concept
for an interactive light and sound installation for Private
Reveries and Public Spaces, London

Kaleidophone
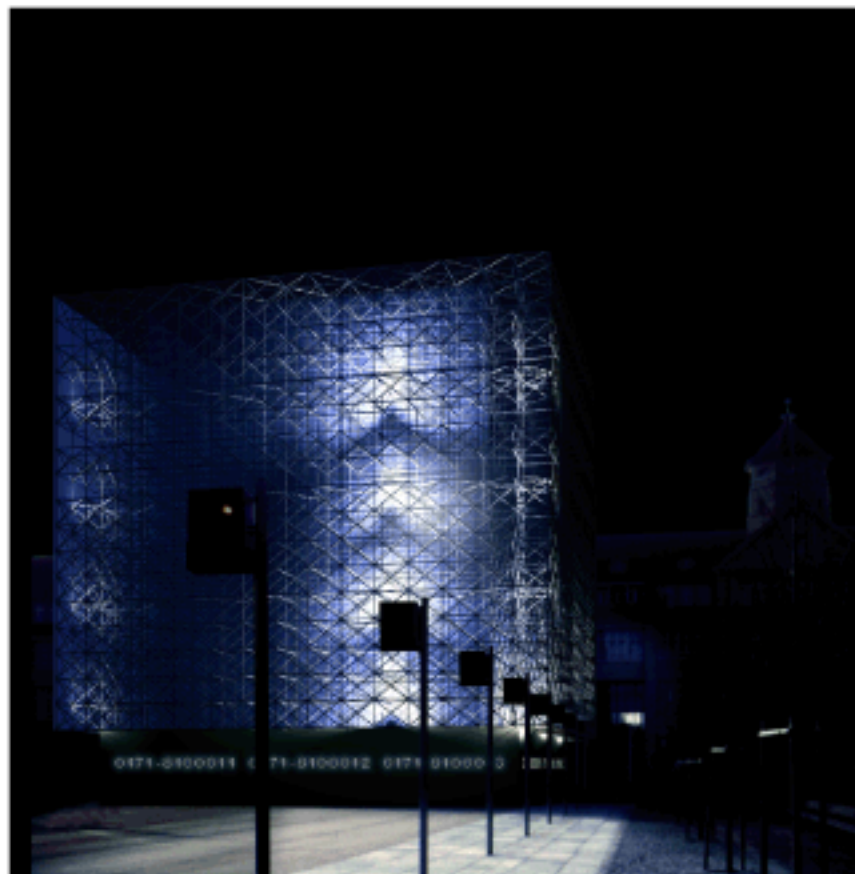Frankfurt am Main, 26 September 2001

Prof. Christian Möller

UCLA
Department of Design and Media Arts
1300 Dickson Art Center
Box: 951615
Los Angeles, CA 90095-1615, USA

Tel: +1-310 825 1969
Fax: +1-310 206 6676

moelchr@t-online.de

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1.0 Theme

With this installation passers-by can interact with an urban scale high filigree architectural sculpture using a normal mobile telephone to generate spatial sounds, and in the darker hours of the day manipulate a play of light and shadow.
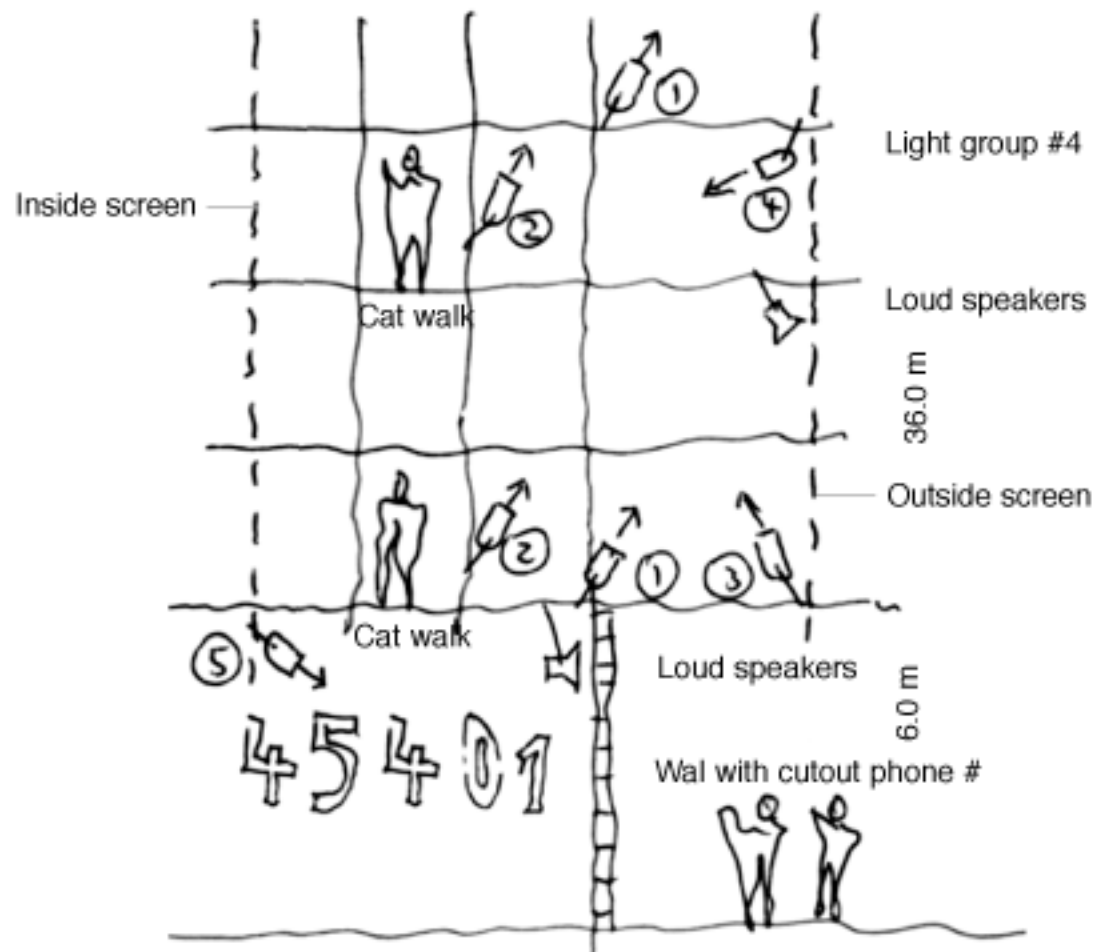
2.0 The Physical Structure

The physical dimensions of the Kaleidophone sculpture will depend on the prevailing conditions at the point in the city designated for its location; for this project proposal, a cubo-id steel frame structure measuring 40 x 40 x 40 meters is assumed.

The external surface is a dark membrane-like textile gauze. An approx. 6 meter high plinth section is boarded up with painted wooden panels with cut-out rows of telephone numbers lit from behind.

Computer simulation Kaleidophone

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Inside screen

Cat walk

Light group #4

Loud speakers

36.0 m

Outside screen

Cat walk

Loud speakers

6.0 m

4 5 4 0 1

Wal with cutout phone #

3.0 The Lighting System

Five groups of lights behind the translucent surface illuminate the installation inside and outside creating a kind of kaleidoscopic game of light and shade on the outside surface of the sculpture.

One part of this lighting system which particularly supports the feedback, i.e., the interactive potential, consists of flash lights (#4) pointed at a second gauze inside the structure. These react literally like "lightning flashes" when the passers-by touch the number pads on their phones and thus make an otherwise invisible physical inner form visible at the centre of the light sculpture.

4.0 The Audio System

Loud speakers attached behind the membrane and inside the plinth section broadcast a sound ambience which are composed interactively by the passers-by.

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Mobile phones

Light and Sound sculpture
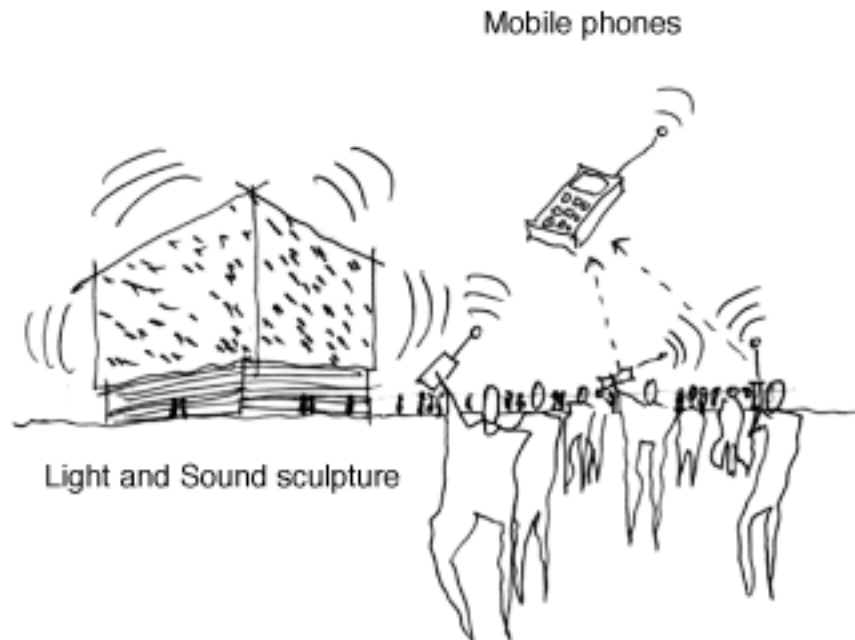
4.1 The Tonal Structures

All the tonal structures used here have been developed according to the principle of "physical modelling". A physical model of the tone-generating object is digitally simulated and then placed in a self-defined environment - in a "world". There the object is made to produce sound by means of an "impulse" which is also self-generated. It is thus possible to generate sounds with familiar physical characteristics which create a harmonious whole, independently of their individual frequencies.

5.0 The Interface

Visitors and passers-by in possession of a regular mobile telephone (cell phone) can dial the telephone numbers diplayed on the installation and link up with the computer system which controls the installation. After they have successfully "logged in", visitors can push the buttons on their phones to create sounds that are broadcast by loud speakers into the street. The mobile telephones function as the keyboard of a musical instrument located in a public space.

Kaleidophone
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5

6.0 Optional Experiment

The telephone interface developed by us also allows speech input. In other words, passers-by can speak into their telephones' microphones and have their words broadcast by the loudspeakers into the street. The mobile telephone thus becomes a megaphone, and the interaction generated turns into a public "teleconference".

7.0 In cooperation with:

Light design
Nathan Thompson (Melbourne, Australien)

Composition and Sampling
Ludger Brümmer (London, UK)

Programming
Sven Thöne (Frankfurt, Germany)

Hardware development
Wolfgang Schemmert (Frankfurt, Germany)