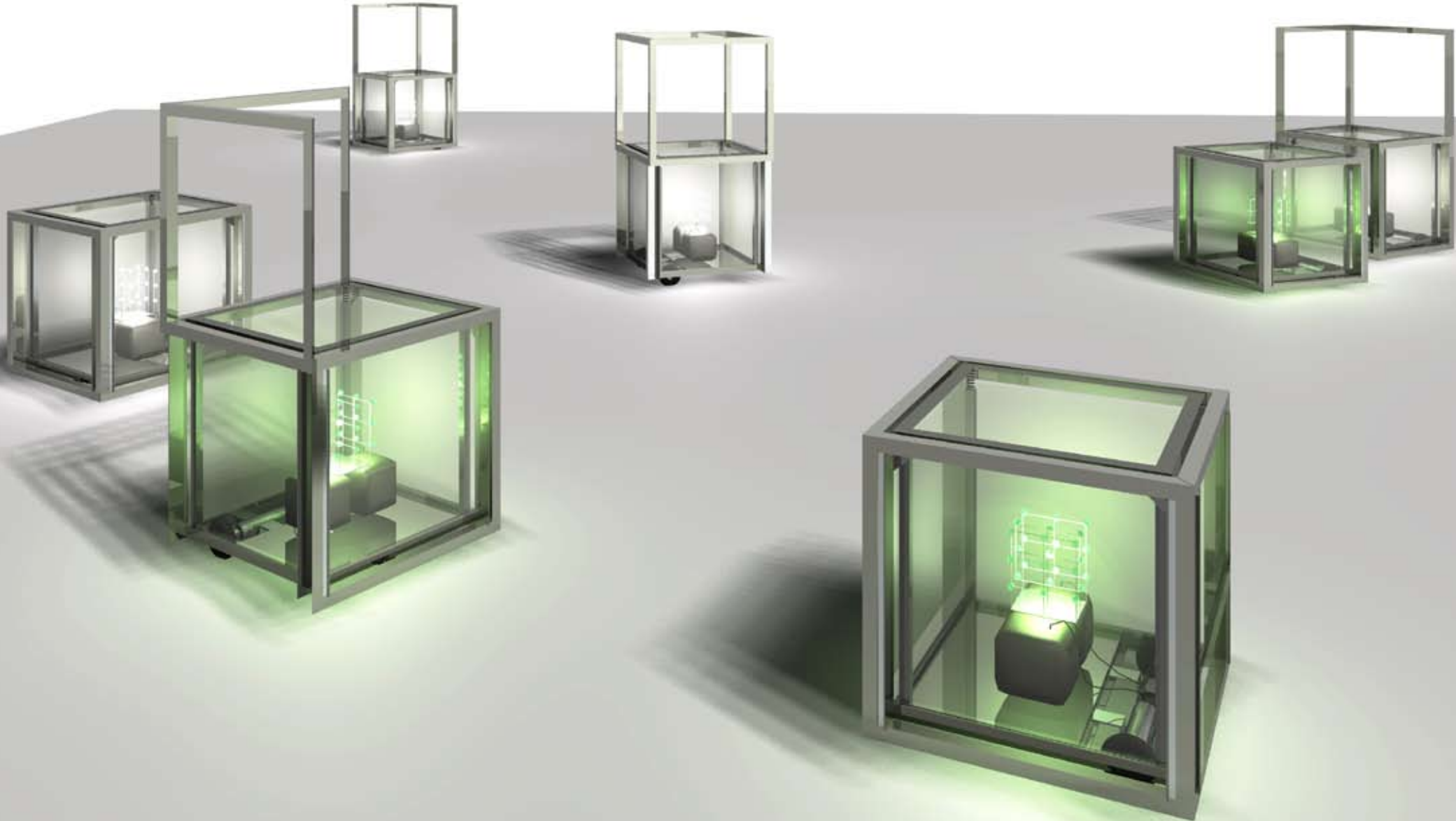


# FERNFÜHLER

## Interactive furniture for public places

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Realisation: in cooperation with Dr. Thomas Fuhrmann, Systemarchitecture group at the institut for Telematics TH Karlsruhe



# FERNFÜHLER

enliven public spaces bringing form and structure into the consciousness of the general public.

As they are connected with each other, “Fernfühler” can also play, and can influence the behaviour of these other “Fernfühler” (or of the people sitting on them).

The town-planning interest lies in enlivening urban spaces for passers-by and making these spaces able to be changed. Instead of providing seating in public spaces as permanently fixed architecture, mobile groups of seats are provided which communicate with each other, thereby discovering, through experimentation, the optimal arrangement of elements in the space. Planning from the bottom-up is brought to bear here, instead of planning from on high, so involving the user in the process of shaping public space.

## the concept

“Fernfühler” are seating options that can be moved around at will. The seats are modular. They can be brought together to form ensembles, or they can stand alone. By pulling out their backrests they can be transformed into spatial elements, or, with the backrest pushed in, they can just be seats.

“Fernfühler” detect what other “Fernfühler” (or the people sitting on them) are doing. And they can react to what the other ones are doing.

They are tough and unpretentious.

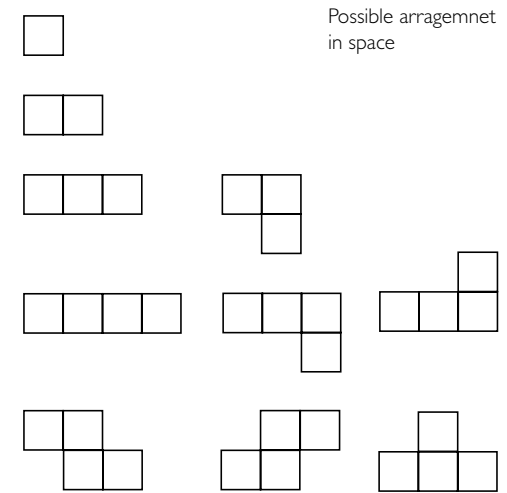
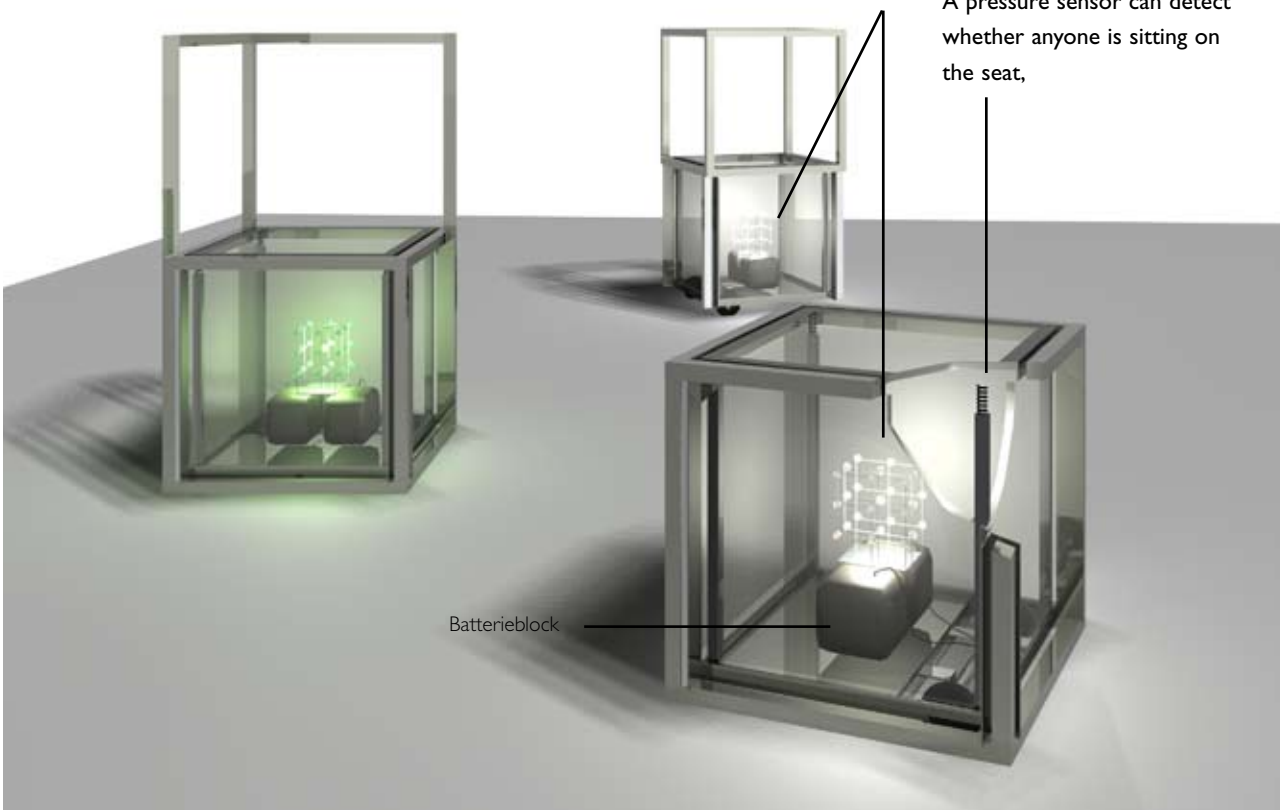
They like people's company as they always move in their direction.

Fernfühler with pulled out side pieces

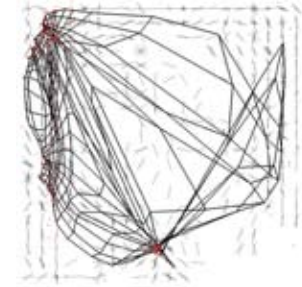
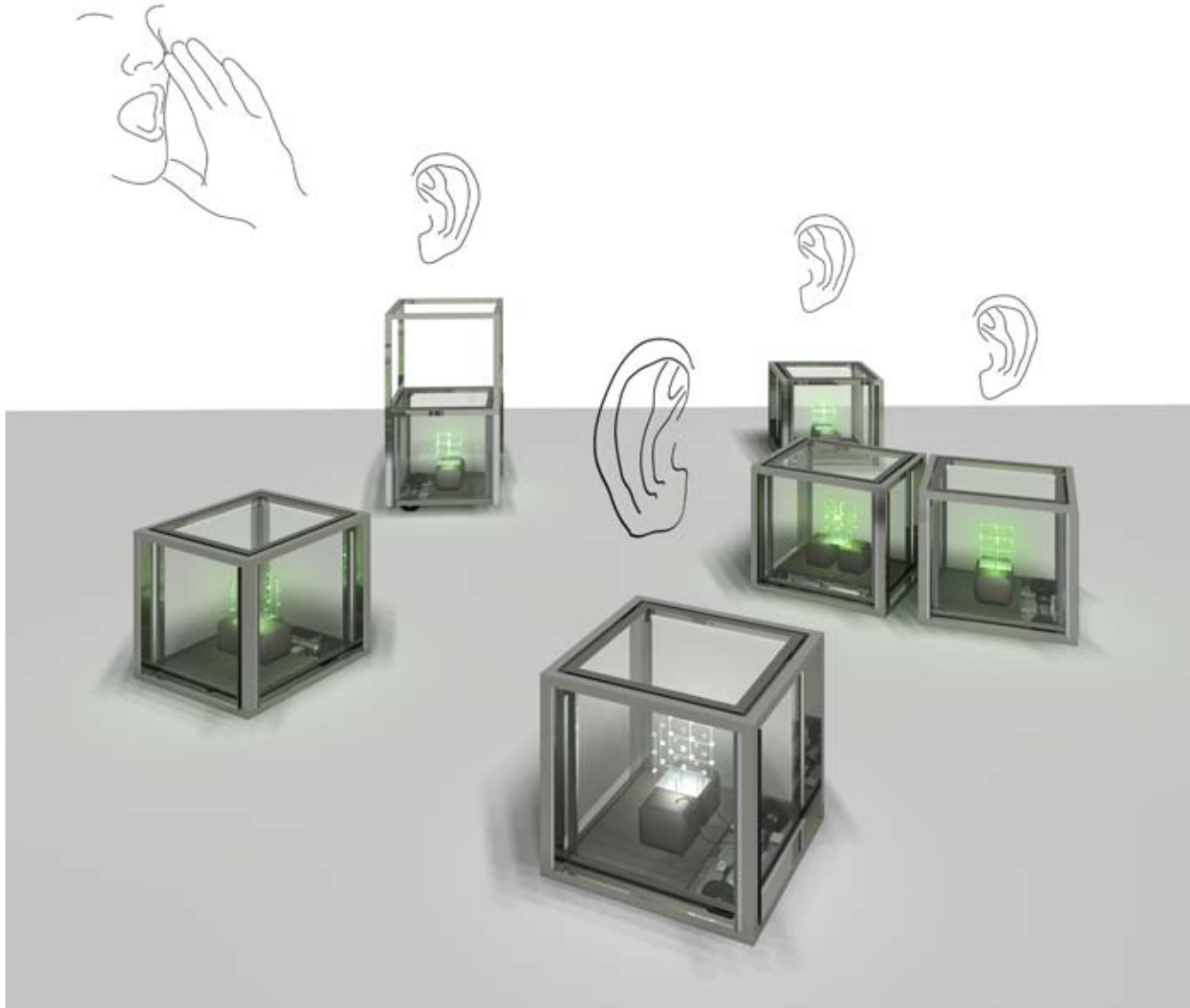
LEDs inside the seat display the seat's state of activity

A pressure sensor can detect whether anyone is sitting on the seat,

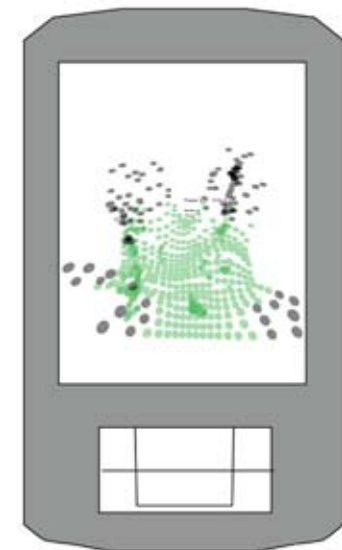
Batterieblock



They can hear. When you call them, they come.  
Everything that “Fernfühler” do can be observed in a small computer game.  
A worm's eye view displays the area where the “Fernfühler” are located as a network of nodes.



two-dimensional self-organizing map



This image can be made publicly visible for anyone on a hand held computer by passers by who are in the area.

The network structure's nodes, which represent the local arrangement of "Fernfühler", can be manipulated by people playing with the "Fernfühler" on the handheld computers' displays or on the projected video screen.

In this way people can control the paths that the seats follow in the area where they are located

## The installation

A moderate number of "Fernfühler" occupy the area.

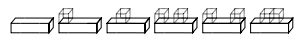
"Fernfühler" are intelligent. They are items of furniture with rollers and a motor. They can therefore move on their own. As soon as people arrive in the area, they will move towards them, as they have microphones which listen for their voices.

Now people can take their places on the seats, they can form groups or remain alone. Because "Fernfühler" make first for wherever people are, the arrangement of furniture elements in the area corresponds to the structure of the area, thereby strengthening it. Now you could just find a spot in the area and watch how the seats move around and how other people react to them.

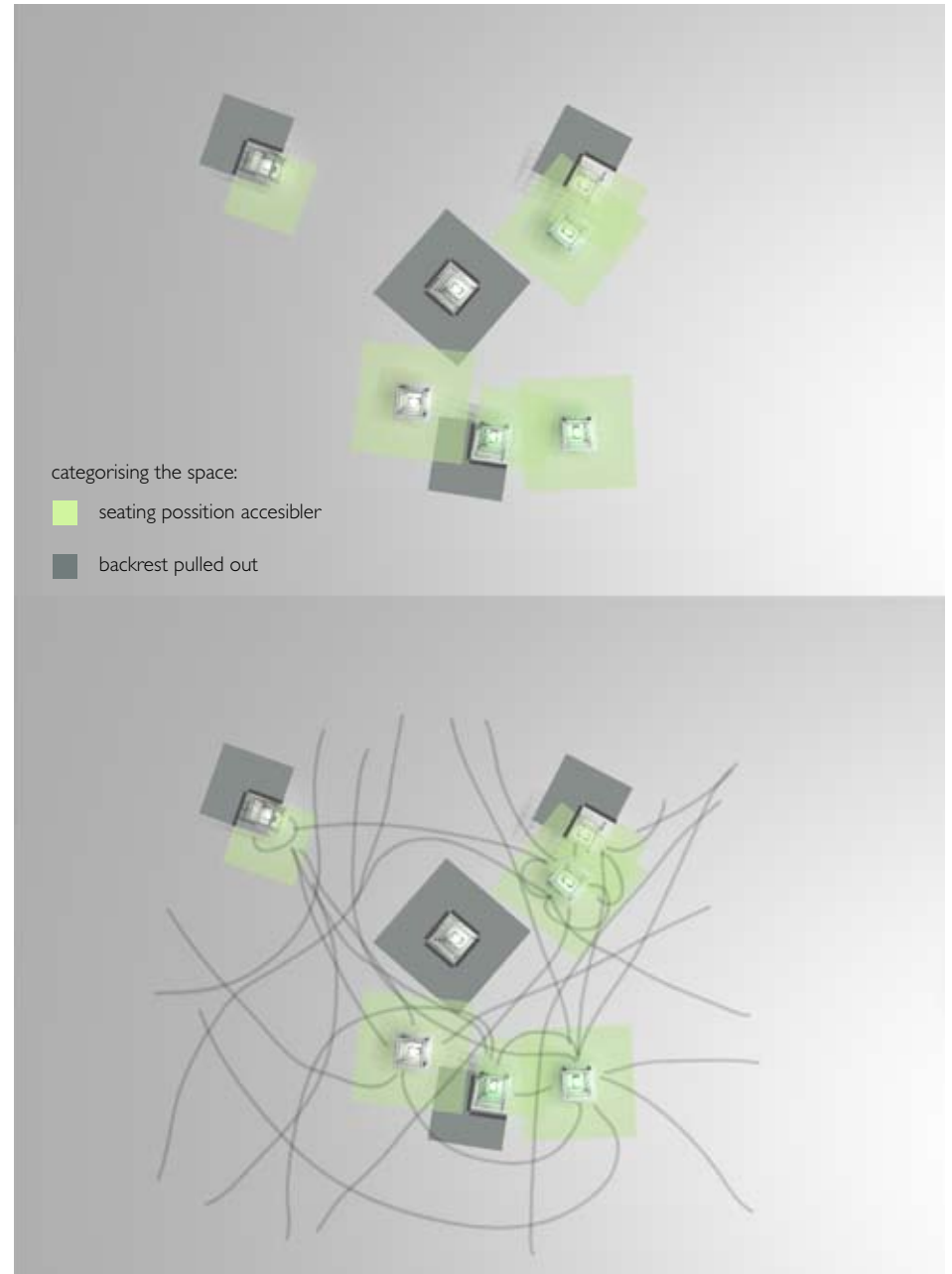
Anyone who finds just watching the seats operating automatically too boring, can get out a handheld computer, load the game over a wireless network and use it to activate the "Fernfühler".

On the screen you see a network structure with dots at each node. Each "Fernfühler" in the area represents one of the nodes on this network.

☐



variations of positions



The network connects each “Fernfühler” while at the same time acting as a skin lying over the area. At this point there will be several options for determining the behaviour of the “Fernfühler” in the area by manipulating the graphical interface. The purpose of the installation is to make public space more attractive, especially to young people. By providing networked seating, they experience the area as a place that changes, one that has moved beyond stable architecture. In addition they can themselves try the role of director, either on the hand held computers or, if they prefer, on the big screen, as they can influence the behaviour of passers-by by re-arranging the positions of the items of furniture. They experience what it is like for computer games to have an effect directly on the surrounding physical space and on the other people there.

## The seats

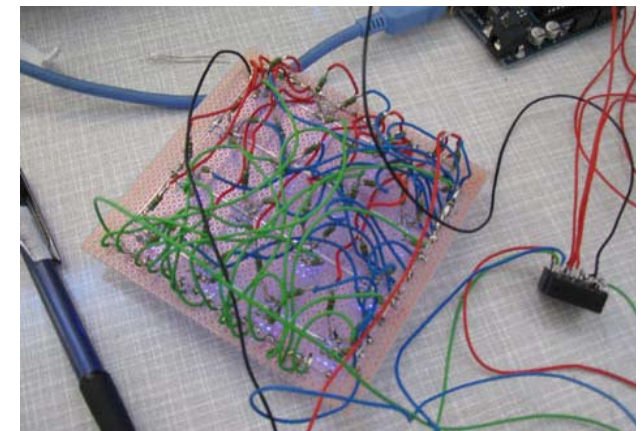
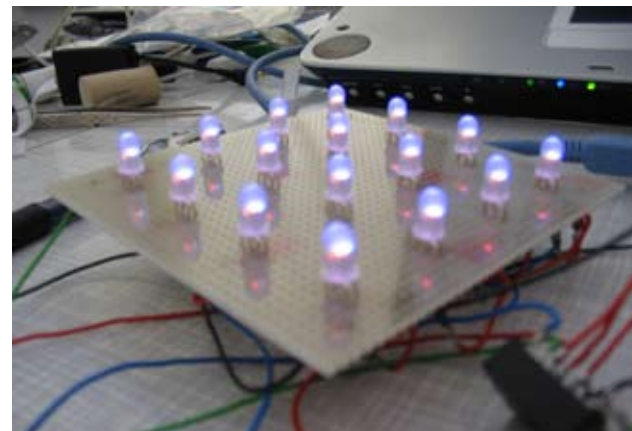
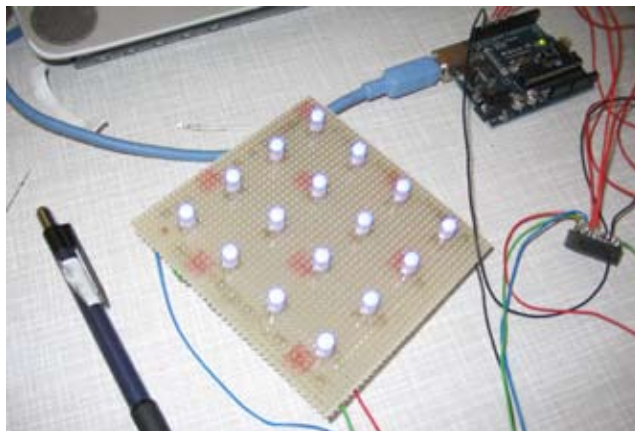
move on rollers. When you sit on them, they will be on their frames, which settle down onto the ground on springs. Each seat has two side pieces which can be pulled out and used as backrests or, with both extended, transform the seat into an item that divides physical space.

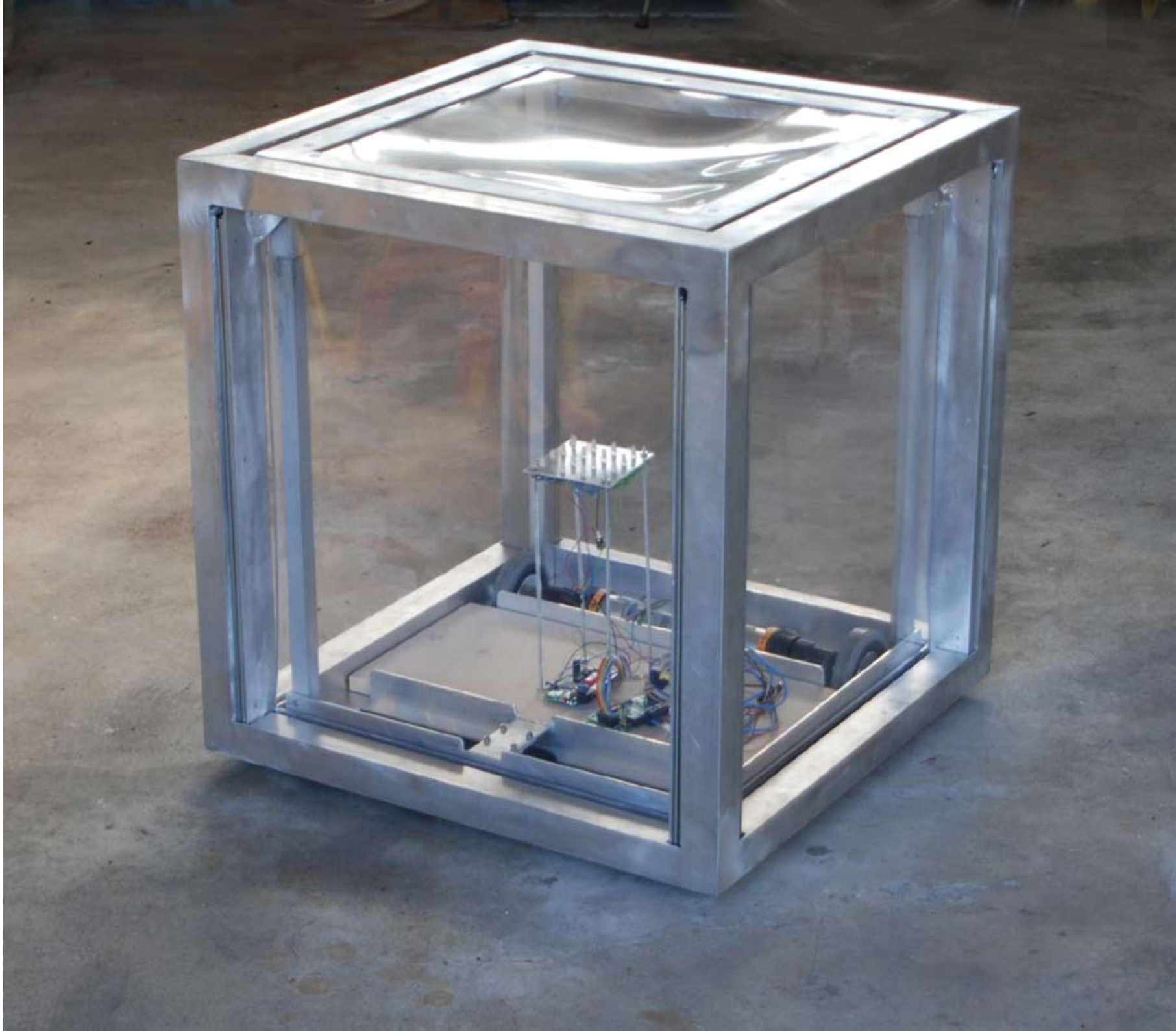
Each seat is at the same time a node in a virtual network, linking every seat together. The nodes in the network are "neurones", they learn from the signals which the seats, as it were, receive.

The sounds in the public space, and the use made of the seats for sitting on, are the signals feeding the neuronal network. LEDs inside the seat display the seat's state of activity within the neuronal network, (with a colour or white light).

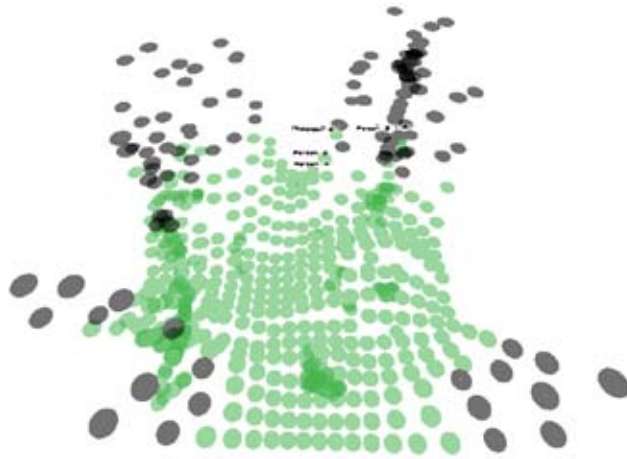
Each seat has a controller to which a microphone and a pressure sensor are connected. The pressure sensor can detect whether anyone is sitting on the seat, while the microphone picks up surrounding sounds, filtering human voices. If these sensors detect activity, then the seat "learns" that position as "positive".

 occupied     active, moving     stimulated, moving     standing





second prototype with LED's  
and motors



## The game

A game is available over a wireless LAN, representing the spatial arrangement of the seats and making it possible to integrate them. In this way it is possible to use the computer game to instantly intervene not only on the screen, but also into the immediate surroundings and the situation of other players.



