Cityscape Computing System
Interactive urbanism by transforming intermedia levels

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Abstract. *The central feature of the project is the development of a computer and its interfaces to simulate urban space and, in the context of an intermedia city tour, to allow citizens to creatively influence their urban space by manipulating media structures at chosen points throughout the city.*
A master plan is set up to re-cultivate public spaces and points of architectural focus. The city reacts interactively to the commands. A dialog is created between user and public space.
The tour route is an open structure which can be expanded at any time.
Via interfaces the user activates a reaction in the real city by making changes to the virtual model. This results in a dynamic space, a communication based on the results of this transformation.
The user interface allows an information transfer between real people and virtual space. Virtual reality then reacts to the input by transferring that information back to reality. The direct influence on the architecture is effected by a media-transformer. It projects an additional perception level on to reality while monitoring the data via various analysis interfaces.

Keywords. *Interactive Urbanism; Media Installation; Human-Computer-Interaction*

Changing Urban States

A city has to provide fast and diverse forms of communication and interaction on the basis of close proximity.

It takes care of functions such as work, utility services, living space, education, culture and recreation for which – up to now – close proximity has been vital.

Due to the rapid spread of new forms of communication technology the merits of combining function and proximity are losing their importance.

In particular utility services, education and service facilities can no longer be regarded as essentially local.

As some functions disappear, the opportunity of strengthening the city's significance as an area of population focus and interpersonal exchange arises.

The city has to be rediscovered as a public space for the people, with plazas, rendezvous points, and recreation areas where social life is promoted and for which people are willing to take responsibility.
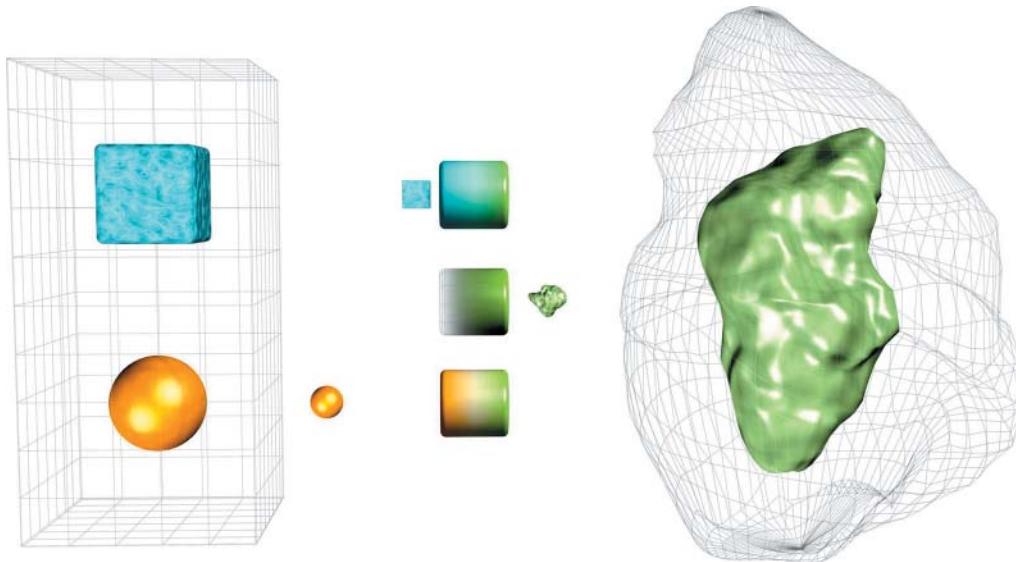
To aim at a higher responsibility and awareness for urban structures, the inhabitants have to be involved in the progress of urban planning and organisation. The cityscape computing system accompanies this development process. It is meant to encourage the inhabitants to argue with the urban space and to strengthen the corporate feeling of the inhabitants.

Interactive Urbanism

By modifying parameters in virtual space via interfaces, the user triggers a reaction in urban space. This leads to a dynamic space and to a communication based on the results of transformation. The user interface allows a bidirectional information transfer between real and virtual space. Virtual reality reacts on the user-input by transferring the given information to reality via media layers, which have been installed in specific urban locations. Influence on architecture is effected by this media-transformer. It projects an additional perception level to reality while monitoring the data via various analysis interfaces. At the moment of transforming architecture via media layer, architecture develops a liquid state.

Hardware Components

A possible hardware solution for the tour and the communication between its components is based on a location-based service system, with radio links between a central server and mobile devices via access points.

Mobile Pad

The user is carrying a mobile computing system during the city tour. Within the interface range of the access points, it permits the access to local specific applications. Beyond this range it serves as a route planner and information portal.

Access Point

Each station of the city circuit is marked by an access point. It amplifies the communication in between the pad and the server. To visualize the
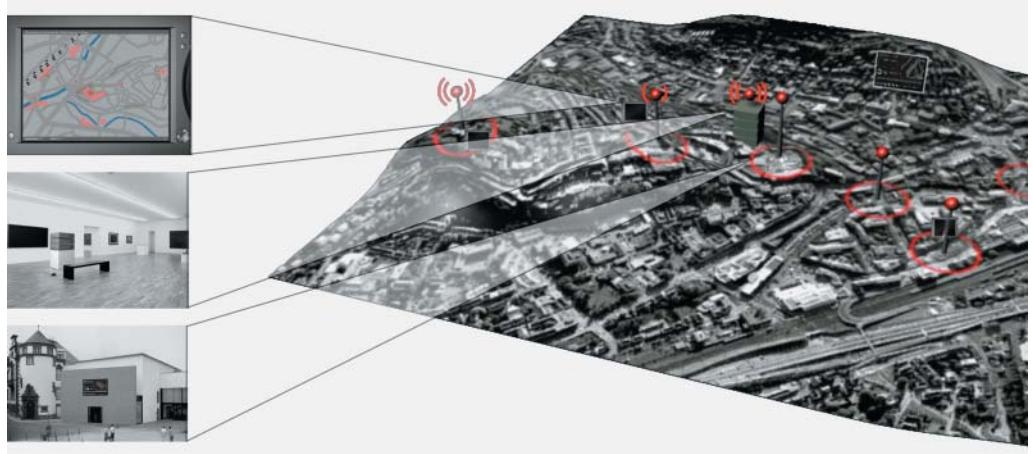
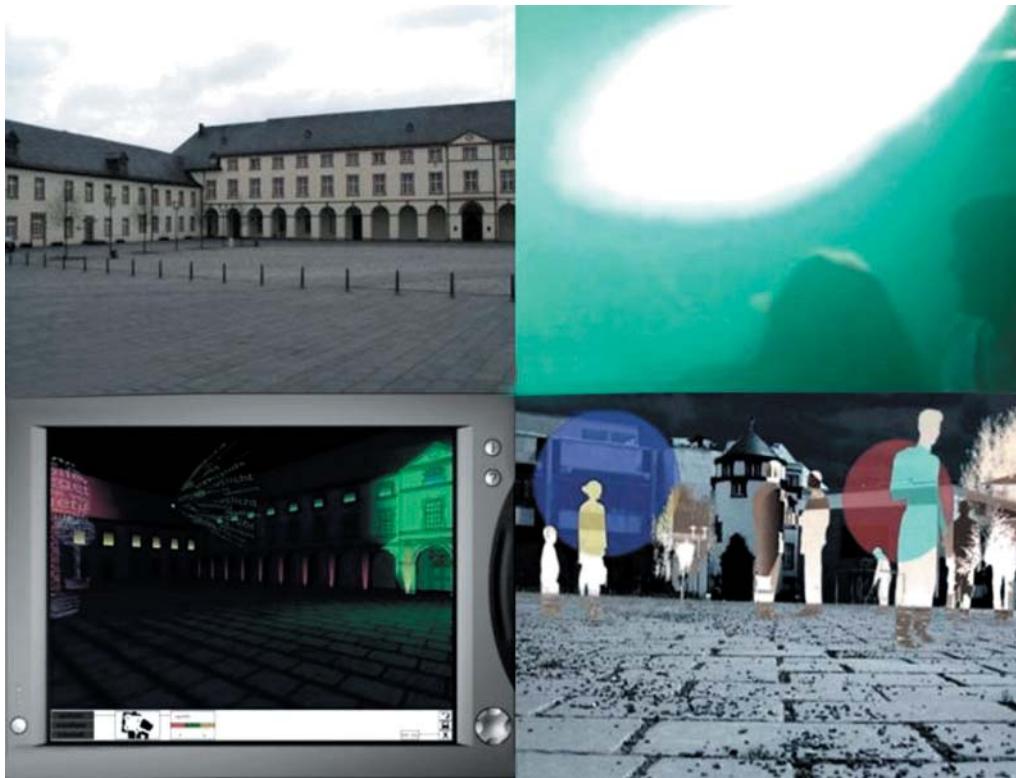*Figure 2. Systemcomponents*

Figure 3. Intermedia City Circuit

Figure 4. Light @ the castel

cross-linking of the places, the access points are connected by laser beams.

Server

The museum as a traditional place for collecting and archiving information serves as repository for the server and the stored data. Visitors have the possibility to observe people´s activities taking part in the city walk. The museum visitor slips into the role of the supervisor.

Infographic

Collected and evaluated server data are visualized and published on the display of the museum. The infographic is a kind of mirror image of the

data base.

Intermedia City Circuit in Siegen

The circuit contains selected places in Siegen, which need a transformation. The selection is limited to an inner city area, because the places should be within walking distance. The starting point for the city circuit is the museum for contemporary art.

Light at the lower castle

The place at the lower castle presents itself as an abandoned plaza. The reconstruction of the place by its historical archetype effects, that it is no

Figure 5. Water @ Siegplatte

longer open to public and disappears increasingly out of the citizens consciousness. A historically important, central convenient place should be a meeting point and a communication place for all citizens and affirm urban life.

Light as a symbol for activity and agility accents it as a place of urban life. Temporary furniture defines new axes and individual modules, and invites the public to join this place. After the user has reached the historical place, he has to configure these media levels. On the city circuit, the user makes his individual calibration, stores it and sets a date for the realization. For each activated light in the simulation the user receives the possibility of dispatching an invitation to this date by free SMS

to acquaintance. Afterwards, the user visits the place again, in order to experience his personal configuration of the light installation together with other citizens.

Water at the parking place 'Siegplatte'

The Siegplatte is established on a former park area, covering the river Sieg with a large parking place. The river is not noticed as a part of the townscape and disappears out of the citizen's consciousness. A city placed by a river should not withhold the qualities of a river landscape, but make them freely accessible to its citizens.

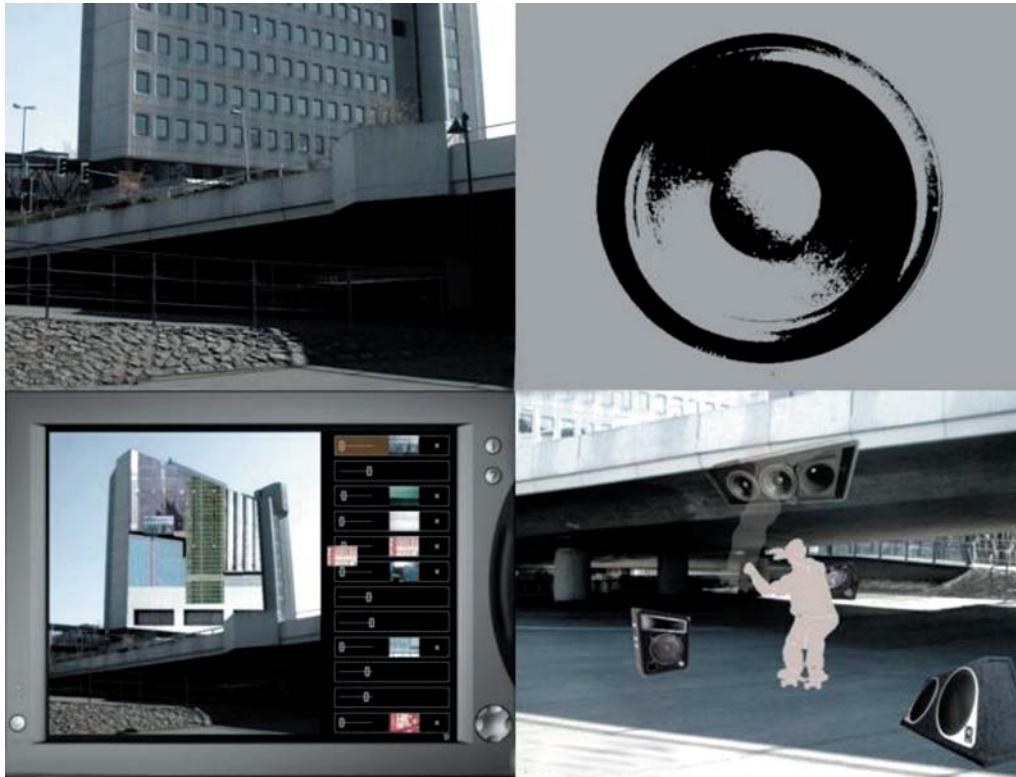According to the classical arcadegame „Dynablaster", the user is invited to clear several

Figure 6. Music @ regional court

fields, in order to remove the Siegplatte gradually and to make the river Sieg perceivable again. Water as a symbol for recovered qualities of a river landscape is led over the Siegplatte by a fountain. Each reached level of the game, is marked by a new fountain. The results of all users are displayed by the amplitude of the fountains. The sum of the score reached by all players becomes readable.

Music at the regional court

The place between the regional court and a shopping centre presents itself as fallow land. It is limited by two heavy traffic streets and the river Sieg. Furthermore, the place is covered by a freeway feeder, emerging immense trafficnoise pol-

lution. The disadvantageous circumstances are strengthened by the massive construction of the regional court, which is in a close-by neighbourhood and rises threateningly with its mono-structured concrete front over the place.

Music as symbol for activity and a skater park as an indication of juvenile dynamics are meant to bring back the urbanity and liveliness to this place, which is appropriate for such a central location. The user is meant to suggest visual transformation for the regional court front. By choosing pictures of different construction types from a data base, he develops a material collage. Each type of construction is linked to a music sample, thus the application makes a real-time transformation of the

collage into a music composition. This composition exposes the desolate place to sound and provides in this way for alive dynamics.

The tour of the City Circle is an open structure, which can be expanded any time. Further areas and media can be integrated into the System.

contribution to a book:

Otto Ermert and Rudolf Heinrich: 2003, 150 Jahre Bauwesen in Siegen, Universitätsverlag Siegen, Siegen, pp 156-157
Yo-Tung Liu: 2003, Diversifying Digital Architecture, 2003 Feidad Award, Birkhäuser, Basel, p 156