Tele-contiguity and Interaction: Architecture as Communication Interface

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Abstract

This paper is centered on the use of video-communication and tele-collaborative applications in temporary architecture.
Today we live in an Electronic society in which computers, mobile phones, internet have become integral part of our everyday lives. Architecture has to interject the new space characteristics: fluxes and interrelations should begin the goal of research. This approach has three significant characteristics: unification of real and virtual worlds both input and output, tele-contiguity between remote participants, convergence of amplified perceptions and sensible spaces. Tele-contiguity is superintended as an improvement of body materiality through sensory amplification and not as an impoverishment of human sensory system: the system should support an environment that looks like a natural and functional extension of the space that people use in their everyday activities.

Introduction

Fluxes and movement have began the starting point in elaborating new casual and unexpected configuration of spaces. A possible strategy in this approach is the overlapping of events in using architecture as an incentive of senses, a communication machine. In this way we pose again human centrality in space, we can regain the importance of body and human senses. Architects should be forced to think space in relation to fluxes: fluxes of movement, of perceptive sensations, images and sounds.
Human centrality is not superintended in a Humanistic or Renaissance interpretation but like a possibility to destroy the forced imposition of their perspective solution in the representation and realization of objects, architectures, spaces. My approach is not mainly centered on the conceptual and formal definition of buildings forms or of urban spaces: my work describes the use of overlapping images applied to constructions, to facades, to sidewalk level as a generative point in conceiving space. The search for a universe that is sensational, fantastic and irrational. Communication as an authentic need to escape and to redeem iteself .

Crisis

In this approach the main attention with Intelligent Environments has been the application in architectural spaces of “digital-subdivide” ’s overthrow instruments. By “digital divide”, we usually mean the opportunity to gain access to the new informative tools non–equally shared out to the population of the planet. What I would chiefly like to focus on is a further subdivision this time between people having the same chance of access to the new media, that is between those who use them as a aid to their lives and those who still regard the new informative tools as something alien and not functional. Playing on words, we could coin a new expression: "digital subdivide" meaning an item of subdivision between people belonging to the same culture and having the same opportunity of access the new media (Italians, for example) [1]. We can take as a starting point the apparent and constantly increasing complexity of daily human relationship between two different categories: those who keep not using the new information tools such as internet or make an irregular use of them, and the so-called “wired”. More precisely, the “wired” is a person who “needs” being connected, who uses internet for whatever purpose: for information retrieval, for banking, for trips, for work, for everything. The increasing swiftness of access to information modifies our way of thinking and the relationships between people. Today the iper-technological world has been changing the human

psychical dimension because of the increasing affirmation of sensorial spurs (Internet, mobile phones, television, radio). Rationality should be replaced by creativity. Ego splits living the multiplicity and the "multi-personality" in itself: it is time to experiment everything sharing experiences, relationships in real or virtual groups that have been created in a non-conventional way. Internet, mobile phone, cinema, television, net art and their languages are available everywhere by everyone and they should be used to connect bodies and places of everyday life both with events or particular services and with other places of everyday life. New technologies constrain us to involve users in global interactive communication in architectural staging or installations for communication both out-door and in-door: we can realize this item in large public spaces such as squares, commercial centres, train stations and airports. In this way it should be possible to join different contests and to involve people in the knowledge of new media's potentiality.

Tele-Contiguity and Interaction: Amplified Perceptions and Sensible Spaces

Tele-contiguity is a new scientific word coined (Panunzi, 2000) to resume the revolution in using and conceiving architectural and urban space through the application of new information and communication technologies. Contiguity means to be directly in contact or to be in immediate succession with something or somewhere. Tele-contiguity is the possibility to make perceptively contiguous remote spaces through a large audio-visual surface [2]. Both tele-contiguity and interaction should look a navigable city of the future: mobile users could interact with digital sensible surfaces simply through third generation mobile phones (UMTS) and palm-top. In this way, the phone will be used like a "mobile mouse" to interact with the new interface-surface that will be placed in different public spaces. The transformations that involve the society of new media have been mixed in the digital convergence: natural human perceptions have been amplified using communication technologies and real spaces have become more sensible for users in an invisible way. The aim of the digital convergence should be to bring near in time and space invisible realities and live realities. In which way can architectural and urban concepts be transformed in interactive objects? Digital images can be measured in different ways: modular, projective or expansible and they can coincide with some architectural components like windows, facades and walls. These architectural surfaces will become communication interfaces easily approachable by everyone everywhere. Briefly,

Figure 1- Experiments and applications of tele-contiguity by *Dipartimento di Progettazione Architettonica e Urbana, del Paesaggio e degli Interni, La Sapienza University, Rome, Italy*

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this approach is intended to a standardized use in opposition to the spot-architecture and the media-building that are mainly intended for a small percentage of population.

Social purpose

Tele-contiguity can be used also for social purposes giving "different" people the opportunity to live in affectionate and work world (family, friends etc…) in a virtual reality: this kind of communication could bring comfort for patients in hospitals, for prisoners in prisons, for old people in homes for the aged.

Instruments

The ultimate goal for a large majority of researchers in the area of Computer Graphics (CG) and Virtual Reality (VR) is a system that "looks real, acts real, sounds real and feels real" [3]. The main systems that support human tele-communication today are Virtual Reality systems (VR) and videoconferencing systems: both of them represent humans and their acting using avatars or using output of different 3D acquisition systems. The systems used for the definition of the Tele-Immersion Portal requires elaborate complex 3D models of humans that could make a real time acquisition or "scans" of humans or objects. These systems are very expensive and they should be used daily only supported by Internet2 (new faster network) because of the large data and information quantity to transmit. Instead, the use of remote surfaces perfectly equivalent (dimension: natural scale 1:1) can give us nearly the same results. In this way, the connection between real spaces and broad-casting through interactive surfaces can be supported by some cheapest instruments and technologies like web-cam, video projectors, reflecting surfaces, led-wall, video-wall, sensors

(GPS: Global Positioning System), radio links, wireless-lan internet connections. All these instruments will be easily approachable with third generation mobile phones (UMTS), 3G phones, palm-top and bluetooth. Bluetooth is an industrial specification for wireless personal area networks (PANs). Bluetooth provides a way to connect and exchange information between devices like personal digital assistants (PDAs), mobile phones, laptops, PCs, printers and digital cameras via a secure, low-cost, globally available short range radio frequency.

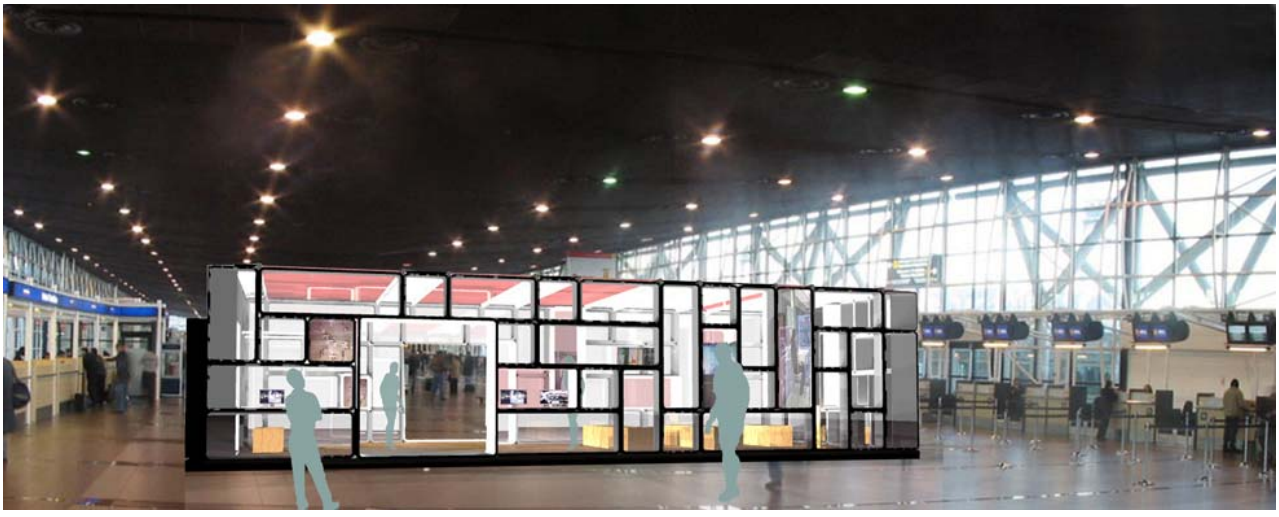
Project

In this section I will describe the use of tele-contiguity and sensible surfaces in the project of a temporary architecture such as a pavilion. The project is characterized by a modular, homogenous and light system: it could be transformed in different configurations because the elements could be composed and re-composed on the basis of other lines of logic.
In the project of the *Pavilion_Perception's Windows and Sensible Spaces* the space of architecture springs out from the desire of mass diffusion of digital-knowledge. Digital-knowledge is superintended as knowledge of new informative tools and precisely of new media, net/web art, digital art and of the Information Technology and Communication literature (reviews, magazines, newspapers, books, net-reviews and web sites). The project has a flexible and simple system and the architectural object is apart, it can be easily put in different contexts such as in door vast and open spaces of railway stations, airports, covered squares. This architectural staging offers the possibility to video-communicate in a natural scale and to be on line both for web and multimedia

Figure 2 - 3d render of *Pavilion_Windows of Perception and Sensible Spaces* in an airport hall.

services (free and institutional) and for playful purposes. The container of every function is the *Folded Plane*: this is a folded surface containing in it all the different functional systems. Every folded object can be placed in the pavement or in the wall: when the system is open this objects form the different functional spaces instead when the system is closed the surface is completely smooth. In this way, the co-planarity of elements and objects gives the users the possibility to re-configure architectural space while the net-surfaces give them the opportunity of tele-communication with remote participants.

Figure 3 - 3d render of *Pavilion_Windows of Perception and Sensible Spaces* in an airport hall.



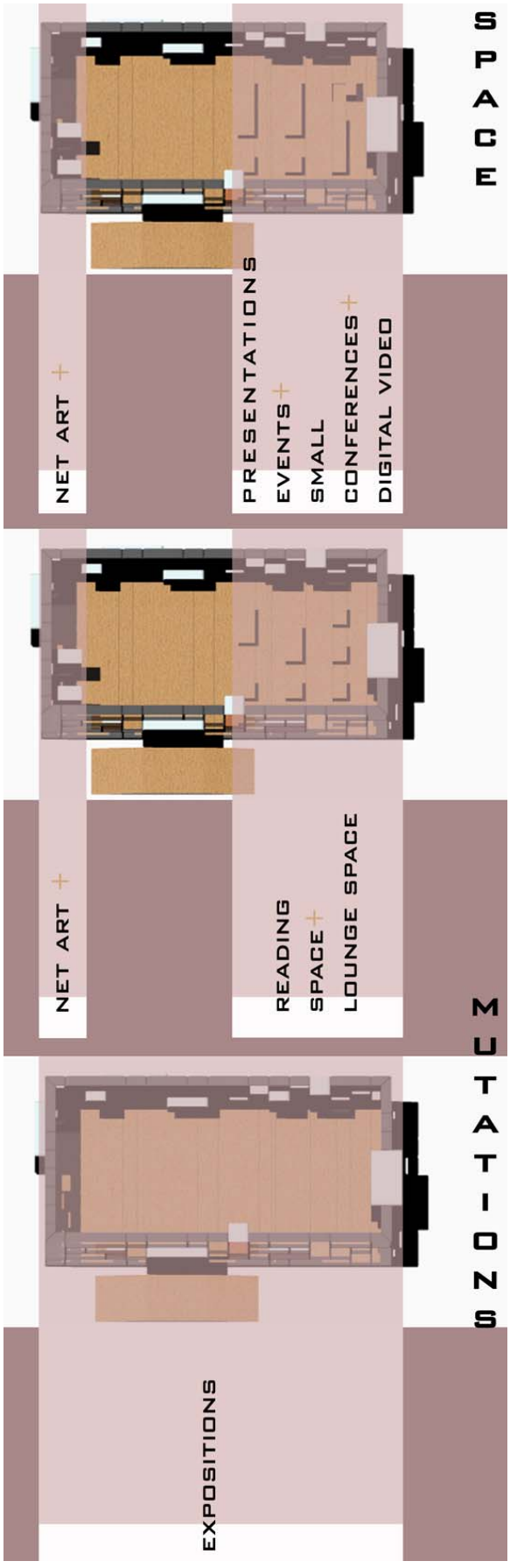


Figure 4 – Different configurations of pavilion space.

Conclusions

The virtual world is a new frontier in the search for new architectural languages: many researchers connect in their projects architectural body and structure through new topological and even geographical relationships. The notion of ground is expressed in metric and formal values as well as in the role-changing between the subject and its surroundings [4]. In this way, rather than the subject crossing the space, it is the space (including everything solid) which composes that space that moves around the subject. Is it right to consider human as videogame electronic protagonist? Essentiality we should not exclude interaction but allow just the part of it which is necessary for the dialogue between people and environments. In every city we could be able to listen sounds and conversations and look images from other remote places of the world through architectural skin as a digital-cyber-net surface or dress.

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