A Place-Theoretical Framework for the Development of IT in Urban Spaces

by

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Volume II

Appendices

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Volume II: Appendices

a) Gwangbok Street: Information

The following is a copy of the original document issued by Busan City Council describing the area to be dealt with by the project. It is reproduced in its entirety, and is unaltered, and thus includes the mistakes and errors of the original English language version:

Description of the Site

Located on the south-west tip of the Korean peninsula, the city of Busan is widely known as South Korea's largest port city. The city, with the total area of 763 km^2, comprises of a complex of geographical features, including its coastline to the south-east, a series of rolling hills and panoramic mountains. The current population of the city is approximately 3.7 million, living throughout 16 districts and towns. Throughout its history, Busan has been the strategic bridgehead of Korea, a peninsula country required to accommodate intricate geopolitical balance between the land and coastal force. With the economic leap towards its modern advancement during 1970's alongside the change in the dynamics of the global economic scene of which its centre has shifted from the Atlantic to the Pacific region, Busan has been fulfilling its role as the a central port for such future Pacific era. Busan Port was opened in February 27, 1876, and it was the first modern port in Korea that has been consistently developed with the most advanced facilities and equipments at the time, and has emerged as the largest port with the longest history in the nation. By 2002, taking benefit of its location by the sea, Busan has emerged as the commercial and transportation hub of the world trade scene, handling the third largest distribution volume in the world. Aiming for the "The Marine Capital of the New Northeast Asian Era", the new port is now under construction. Once it is completed by 2011, the existing North Port will be rearranged with new facilities for the diverse fields of uses that includes culture and tourism, shipping and distribution, and finance and service, thus transforming the once-marginalized port area to be the new urban waterfront of which the citizens of Busan are able to access and enjoy easily.

Once known as the hub of commercial and transportation network, Busan is gradually renewing its image as the centre of culture and tourism. PIFF (Pusan
International Film Festival) takes place every year, while the city held a number of international sporting events in the past such as - Asian Games in 2002 and FIFA World Cup in Korea/Japan. In November of 2005, the 2005 APEC(Asia-Pacific Economic Cooperation) Meeting is scheduled to be held.

Ever since the City opened its port in 1876 as part of modernization waves driven by the Imperialism, Busan experienced dramatic growth, and is still advancing in response to the ever-changing global demands and its dynamics. Under its new slogan "Dynamic Busan, Asian Gateway", the city is currently focusing its efforts to become the new centre of Northeast Asia in various fields of industries including distribution/business, service, maritime culture and tourism. For further information and details on Busan, go to http://www.busan.go.kr/2005_intro.html

Mesoscope - Jung-gu

If Busan is the gateway of Korea, it can be said that the Jung-gu District is the gateway of Busan. At the heart of Busan's history in which it led the nation to develop itself towards the economic advancement during 1970's, some of the major port facilities including Busan Port International Passenger Terminal are located in Jung-gu District.

With Mt. Bokbyeongsan and Mt. Yongdusan running through the center of the district, Jung-gu is comprised of lowland region of Jungang-dong, Nampo-dong, Gwangbok-dong and Donggwang-dong, in which most of them are reclaimed land except the area of the old City Hall site. Areas of Bosu-dong, Bupyeong-dong, Daecheong-dong, Yeongju-dong, Donggwang-dong are filled with retail and residential districts.

With the total area of 2,8km^2, 54,883 residents, 44 administrative agencies, and more than 60 financial and its associated facilities, Jung-gu is the centre of Busan's political, economic, financial, business, information and telecommunication networks. The district takes a significant part of the nation's industrial distribution network, especially around the Busan Port. Clear indication that the district acts as the heart of business and commercial networks is reflected upon the fact that the temporary population per day in today's Jung-gu District reaches approximately 1 million, which is 20 times more than its permanent residents. Subway line No. 1 runs through the middle of the district, offering the ideal environment for the lives of more than 1 million residents, while the International Coastal Ferry Terminal and Pier No.1 & 2 for the commercial freight take a leading role as strategic gateway for the city towards the globalization. Jagalchi Market and Gukje International Market located in the district are the two of the most famous markets in Korea. In addition, more commercial attractions such as Dried Fish Market, Sindonga Market, Lotte-Kolon Underground Mall, Gwanbok-Nampo-Bupyeong Commercial District and other retail establishments constitute Jung-gu as the commercial downtown of Busan. Total area in Jung-gu for the commercial use is approximately 1.45km^2, taking up almost as much as 52% of the district's entire area. The district has two major urban parks, a case that is rare for Busanites. Mt. Yongdusan Park and Jungang Park are enjoyed by many residents around the area while some of specialty shops form the bands of retails such as Lane of Books in Bosu-dong and Hanbok Lane. Jung-gu also features some of the most important historic and cultural attractions of the modern history of the region and the nation including Busan Modern History Museum and Yeongdo Great Bridge where the scars of Japanese Colonization Period remain intact; and Forty Steps from the traces of the Korean War. Jung-gu is currently focusing on establishing diverse resolutions to revitalize its failing economic status of retail sectors and stagnation of the local development that have been suffered through 1980's to 1990's. As part of the solution, the district is utilizing some of the existing cultural and historical resources that have been accumulated for a century, as well as taking advantage of contemporary cultural facilities such as PIFF Plaza, a place that host the annual PIFF (Pusan International Film Festival). By adjoining resources from the diverse fields of cultural realms, Jung-gu is attempting to be reborn as "the center of culture and tourism that embraces the past, present and future".

Similar in these attempts, various efforts of local developments are on the way, such as - to utilize the large-size vacant lots that have been left out by the relocations of government agencies and schools. This includes the 2nd Lotte World, a mega-sized cultural complex accommodating the world-class distribution, hospitality and cultural facilities. On the other hand, Jagalchi Market is now proposed to go through the updated renovation, in which its facilities would be linked with the new Maritime establishments, and is expected to be revitalized as the new international cultural attraction.

For further information and details regarding the Jung-gu District, go to the official homepage of Jung-gu District Office of Busan Metropolitan City http://www.junggu.busan.kr and http://english.junggu.busan.kr/index.asp

Microscope Gwangbok Street and PIFF Plaza
Gwangbok Street in Gwangbok-dong was established since 1678 when Choryang Japanese Trade Center has been relocated from Dumopo until the Ganghwa Treaty was signed in 1876. After Japanese colonization started in 1910, Choryang Japanese Trade Center acted as major residential district for which the Japanese Concession has been built. Today's name of Gwangbok-dong came from the commemoration of the Korea's independence (gwangbok) from the Japanese occupation, reminiscent of the fact that this area once held the largest number of Japanese residents prospering during this period.

The area around the Gwangbok Street was widely known as Busan's fashion mecca with many clothing stores flashing the latest trends in fashion. Although
Gwangbok Street has been the most bustling commercial downtown of Busan, filled with youthful energy and the latest fashion that the tourist regarded as their
must-see, recent developments in the urban periphery areas and the relocation of the City Hall have caused its economy to slow down gradually.

Streets in Nampo-dong are crowded with many movie theatres and people. These movie theatres started to be built just after the nation's independence, and more than 20 theatres has been constructed through the 1960's. Currently, more than 5 multiplex theatres operate actively, attracting many moviegoers. As PIFF (Pusan International Film Festival) started in 1996, most of these theatres around Nampo-dong and Chungmu-dong area have been newly renovated and grouped as one single area under the title of PIFF Plaza. Leading the festive atmosphere of PIFF, PIFF Plaza has emerged as an international-caliber cultural attraction, promoting Korea's film industry and its outstanding reputation to the world.

b) Gwangbok Project Drawings

The following are copies of the four A1 sheets sent by the architects to Busan City Council, South Korea, 2005, in response to the competition "Revitalization of Gwangbok Street and PIFF Plaza".

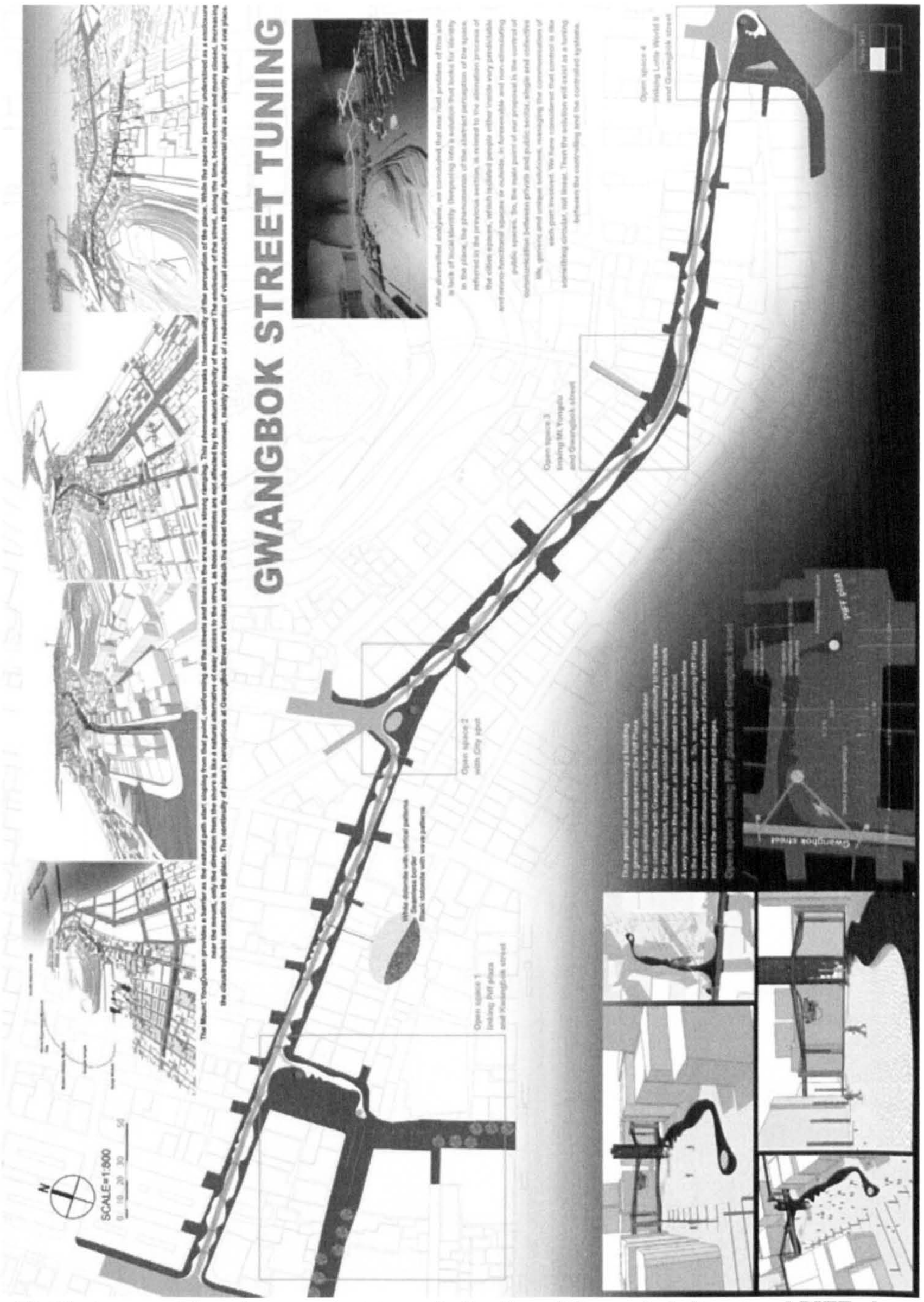

Figure 77: First page of drawings, contest to revitalization of Gwangbok Street and PIFF plaza, 2005.

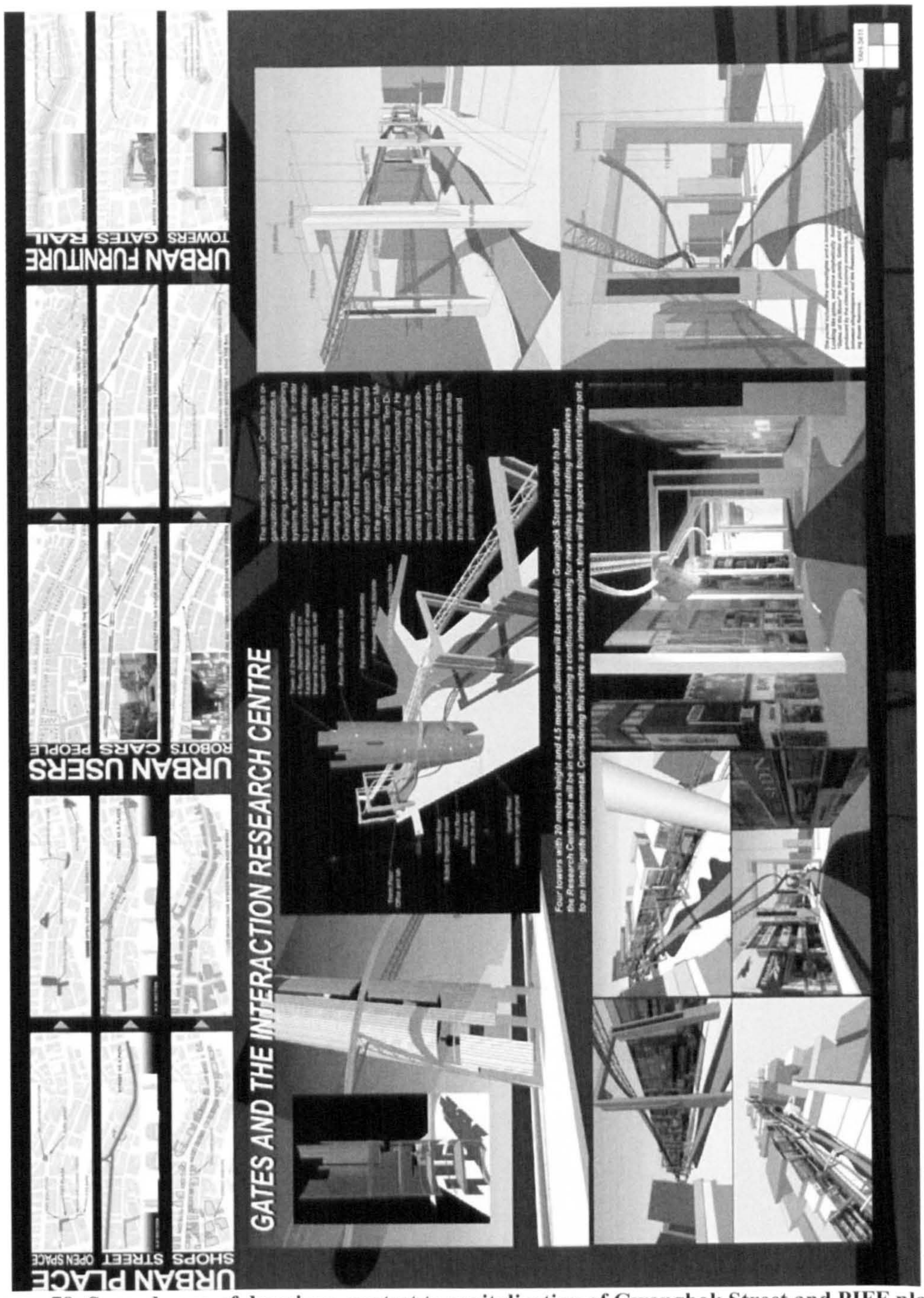

Figure 78: Second page of drawings, contest to revitalization of Gwangbok Street and PIFF plaza, 2005.

Figure 79: Third page of drawings, contest to revitalization of Gwangbok Street and PIFF plaza, 2005.

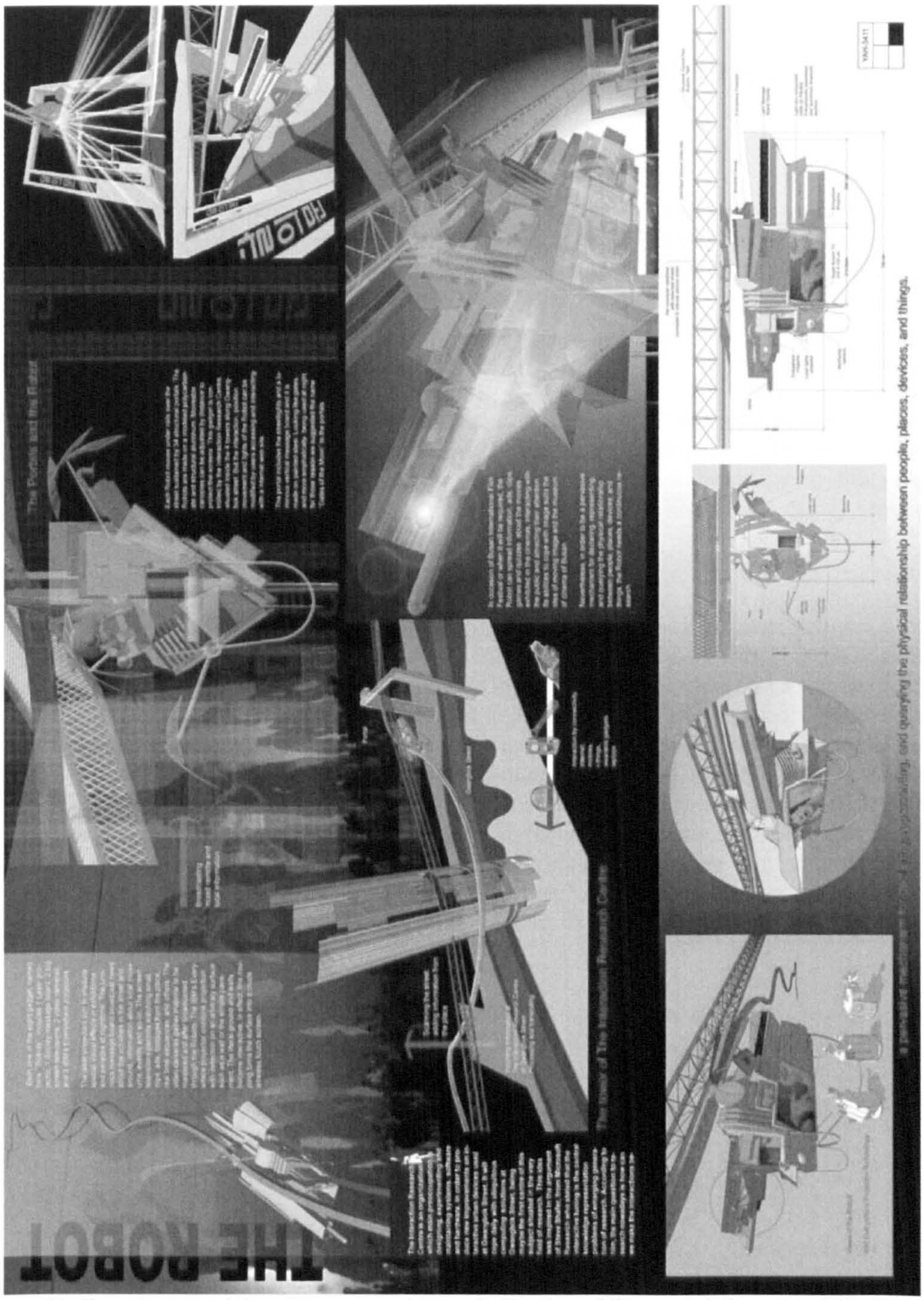

Figure 80: Fourth page of drawings, contest to revitalization of Gwangbok Street and PIFF plaza, 2005.

c) Gwangbok Project: Rationale

The following is the original text of the explanatory rationale accompanying the drawings for the Gwangbok Street project, - the International Idea Competition on Urban Design "Revitalization of Gwangbok Street and PIFF Plaza" at Busan city, South Korea, 2005 (Souza, Renato C. F. and Kim 2005).

Introduction

In order to design improvements to Gwangbok Street, this proposal took into consideration some theoretical frameworks in order to analyse the site, which are presented in the section entitled "Analysis". The section "Problems" describes the main issues that have led to the proposed solution. The conclusion presents some ideas and concepts that have dictated the design solution.

1. Analysis:

Identifying problems without employing layered methodology is almost impossible. According to Rapoport (1977), relations of congruency or conflict between physical forms (both visible and concrete), social forms and cultural forms can contribute to an understanding of the environment. Therefore, Rapoport considers the correlation between the multiplicities of concepts about space and simultaneously tries to find a model with which to understand the physical, the social and the cultural environment with the support of other fields of knowledge (Psychology, Sociology, Economics etc). His theory encompasses concepts of human forms (actions people take in order to cope with life's activities) regarded as a process of dynamic and continuous adjustment between them and the territory under consideration. These relations are organized into patterns, which he calls 'ordinations'. Thus, the analysis of an 'ordination' can reveal the arrangements of the physical, social and cultural forms in terms of the extent to which they either conflict or cohere with each other.

Four 'ordinations' are used to analyze social organization and spatial forms in Gwangbok Street: 'spatial ordination', 'meaning ordination', 'temporal ordination' and 'communicational ordination'. We also noticed the relationship between these four ordinations, which is not only layered but also connected. As such it could be possible to determine a "root" (or vital) problem by means of the analysis of this relationship.

1.1. Spatial ordination

The term 'spatial ordination' refers to the physical fabric of a territory, the formal patterns that belong to the public realm, including symbolic properties. This ordination achieves its quality as a result of the topological properties of the individual elements, which present the relational meanings and hierarchies of importance across the territory (e.g., streets, squares, lanes and other topological entities that strongly express the configurational qualities of the form). Hence, the relational properties of the physical elements (proximity, distance, contiguity, separation, laterality or elevation) are more important than geometrical patterns in the environment when it comes to generating this ordination.

As far as the analysis of Gwangbok Street in terms of its position and geometrical relationship with the whole site was concerned, it was possible to deduce the strong formal influence of the occluded side (see number 1, Figure 81) near Mount Yong Dusan, which provides a barrier (see number 2, Figure 81) and forms a natural path that starts sloping down from that point, with the effect that all the streets and lanes in the area are markedly 'ramped'. This phenomenon is significant in that it breaks down the perception that this is actually a place in a continuous sense. There, the space is possibly understood as an enclosure near the mount. On the other hand, the geometrical analyses show that the street is a natural roaming around the mount, formed in a perpendicular direction from the top. An analysis of the documents provided by the Contest organiser shows the historical process by which the street has been settled across time, and from this it is clear that the street's space has always been observed and visually surveyed from the top. Indeed, only the direction from the shore provides a natural alternative as far as easy access to the street is concerned, as those directions are not affected by the natural declivity of the mount (see number 5, Figure 81).

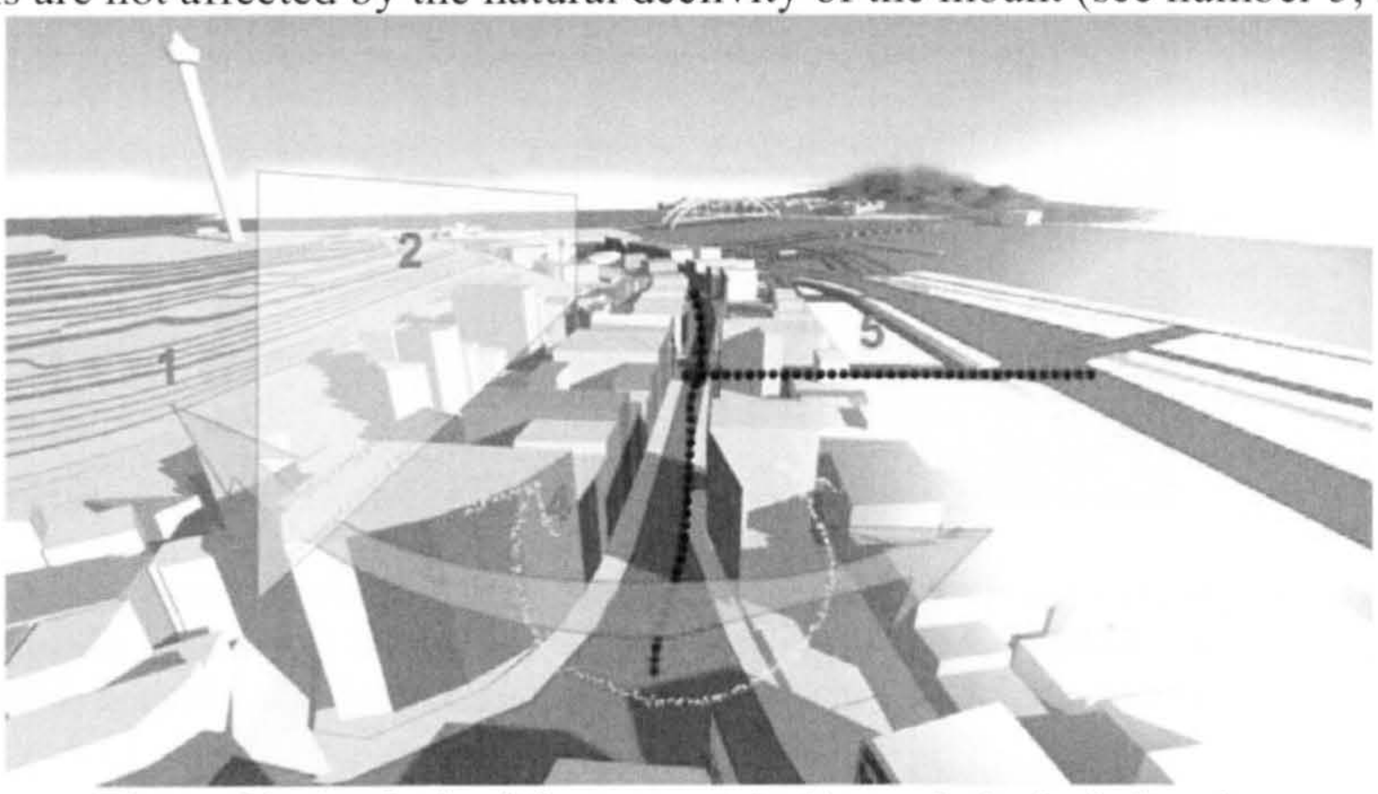

Figure 81: Analysis of the geometrical/morphological situation

That analysis is reinforced by the conclusion concerning the 'ordination of meanings', which has insured that the enclosure of the street, with the course of time, became more and more closed, thus increasing the sense of claustrophobia in the place (see number 4, Figure 81). Therefore, the continuity of '*place perceptions*' in Gwangbok Street is broken up by those factors, thus detaching the street from the whole environment, mainly by means of a reduction of the visual connections that play a fundamental role as 'identity agents' in the place. Thus, neither the ocean nor Mount Yongdusan are visualized by a person in that street, as the heights of the buildings block both panoramic views.

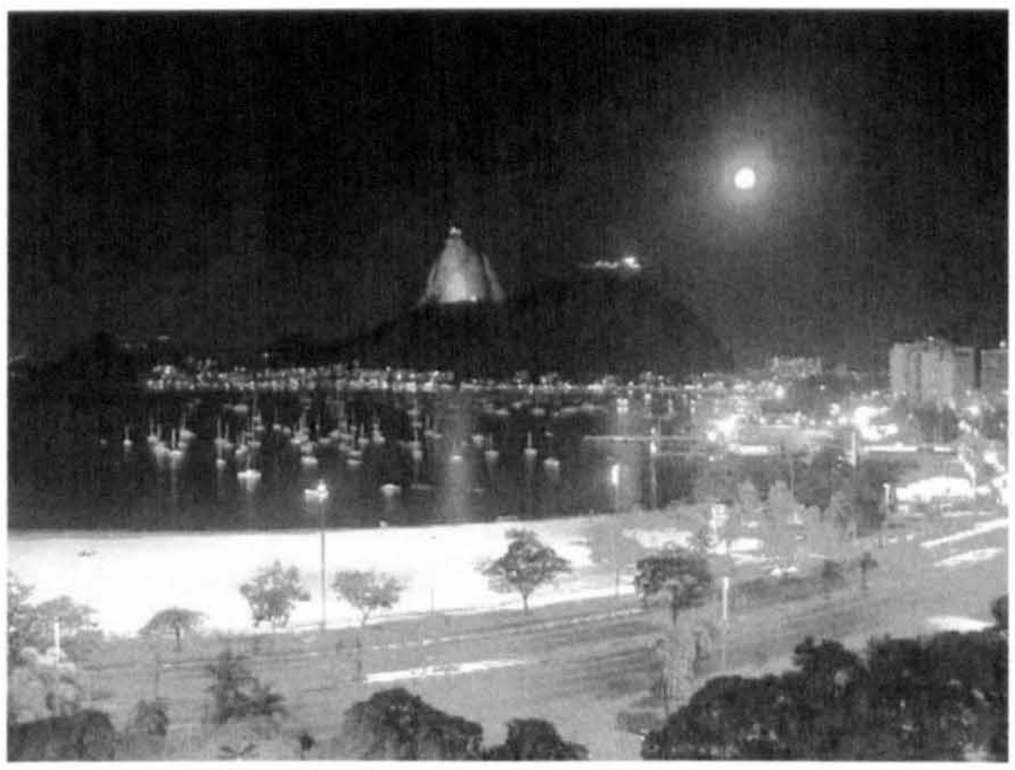

Figure 82: Aterro do Flamengo, at Rio de Janeiro, Brazil. A strong presence of the landscape's image is maintained through the use of lights to illuminate Mount Corcovado, thus shaping its presence at

night. The closest streets sometimes permit both the mountain and the ocean to be seen. This provides both the street and the whole city with a strong sense of identity.

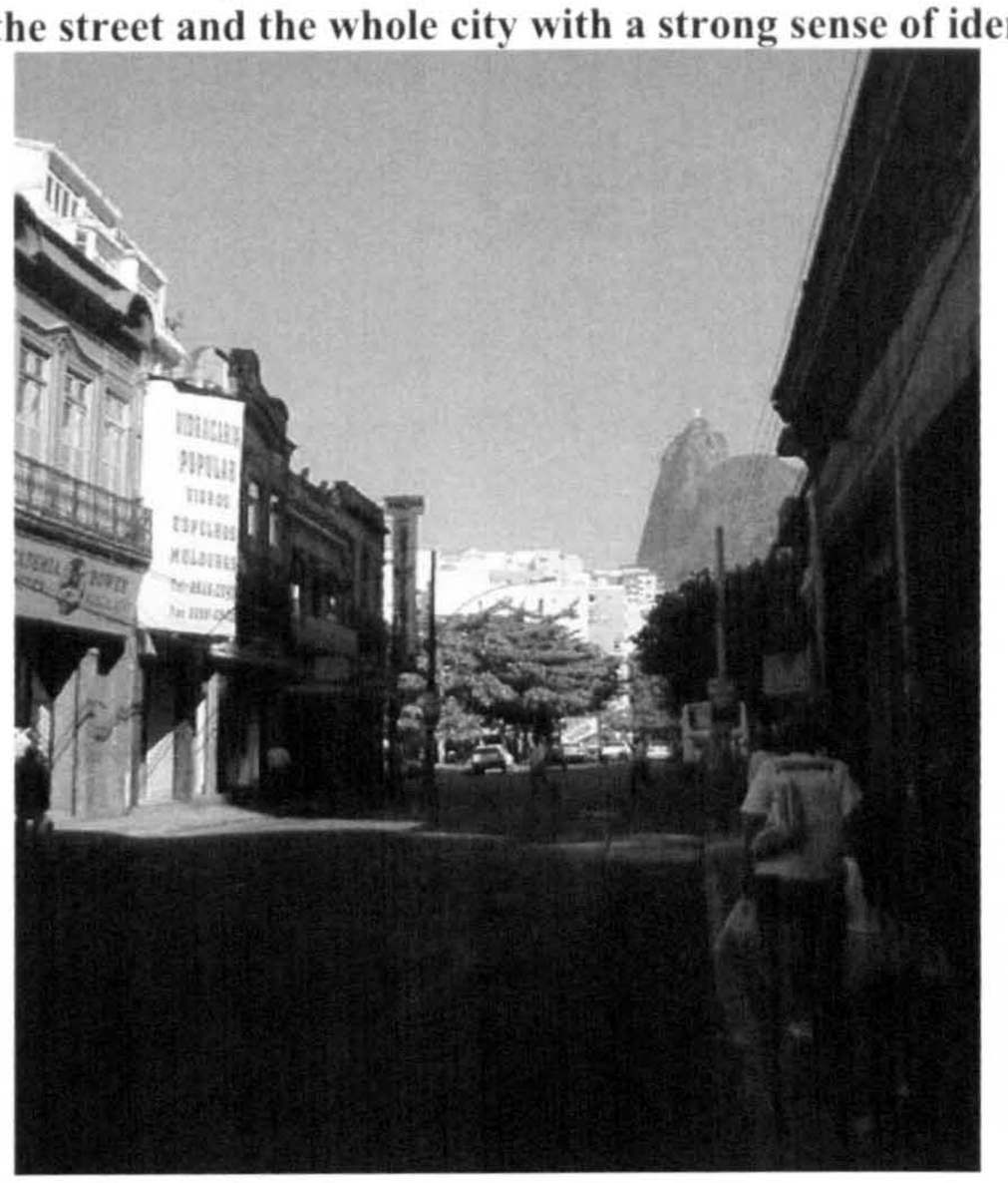

Figure 83: Sao Clemente Street in Rio de Janeiro. The facades do not entirely block the view, and Mount Corcovado appears as a landmark. This natural feature, beyond contributing to the local identity, permits easy locomotion over the territory as orientation is equally easy.

This is not a trivial fact but rather a strong characteristic of the spatial ordination of the place. Others streets with the similar geometrical conditions to Gwangbok Street drawn their main source of identity from the surrounding landscape, as in the cases, for example, of streets in Copacabana and Aterro do Flamengo, and neighbourhoods in Rio de Janeiro, Brazil (Figure 82 and Figure 83).

With regard to its relative position, Gwanbok Street shares social and cultural centrality with Mount YongDusan (Figure 84), but the terrain itself blocks the links with the surroundings. Therefore, it is possible to understand the site as a central point circled by Jagalchi Market area, Gukje Market area, Daegak Temple area, Busan Modern History museum and the Busan Movie Experience Museum areas, all of which areas were mentioned by the Contest organizer as important areas connected to life in Gwangbok Street. The lack of those links seems to have been a contributing factor in diminishing the local identity, thus affecting the quality of both commercial and social areas: however close Gwangbok is to those places, a straight link can only mean a connection made by means of walking, without any gradation in between made by means of visual or other sensory changes.

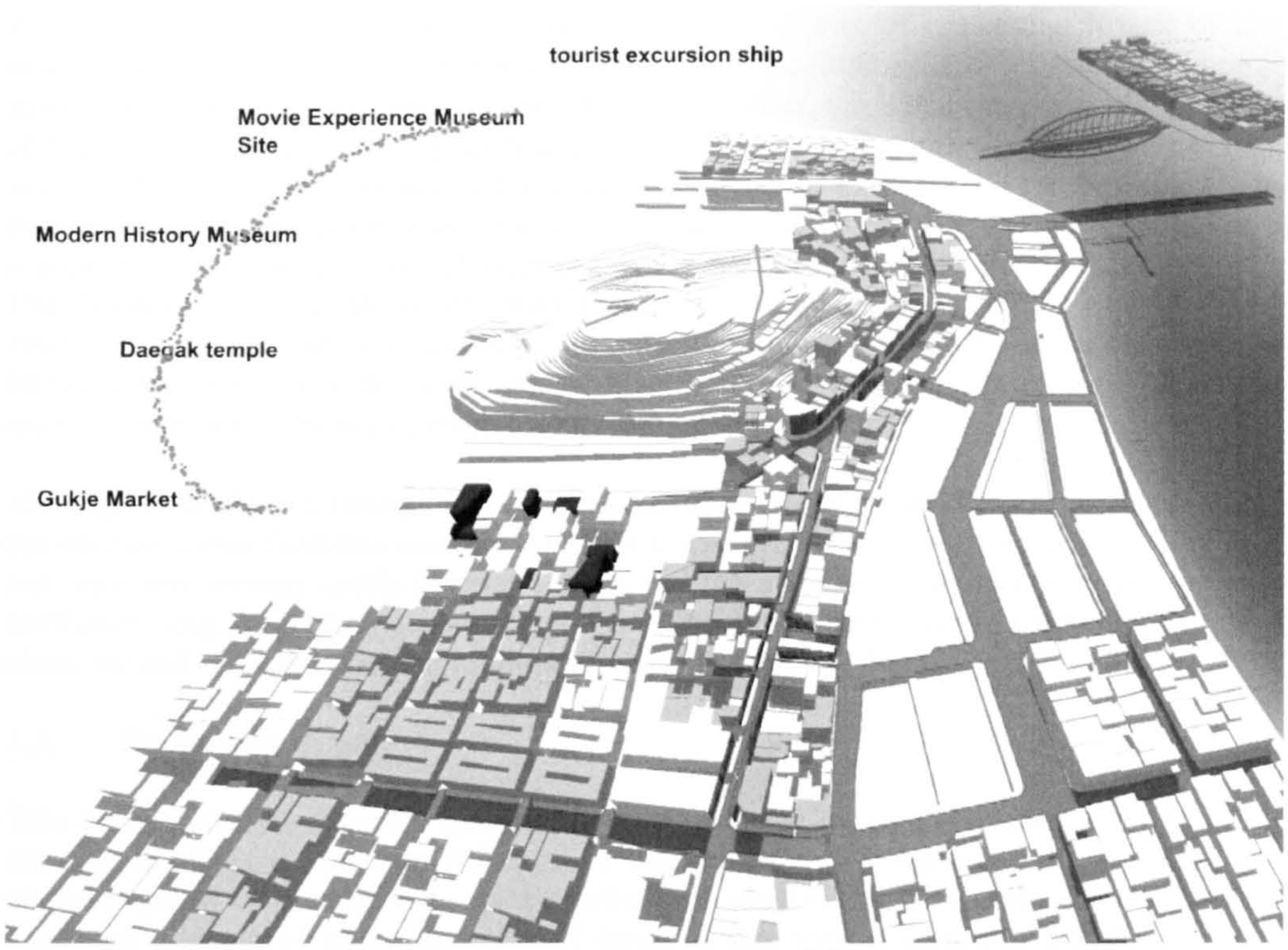

Figure 84: The socio-cultural belt of Gwangbok Street.

1.2. Ordination of meanings

This refers to the material, shapes, colours, details of materials and forms, iconic aspects of the buildings and of the environment. This ordination corresponds to the subjective value conferred by the community on their physical environment, referring to the cultural patterns as a source of the materials' meanings. For instance, each material (gold, stone, wood) is understood as having a cultural meaning with collective value attributed to it and occupies an important position in the general meaning of the place.

In Gwangbok Street, the surfaces of some materials are printed with literature concerning issues of local and national cultural life. For example, in that street there are pavements hand-printed by artists, whereby all the importance and significance of the Cinema's Festival of Busan is transmitted. But more than this, the whole of the street is covered with a wide variety of materials, some of which lack any relation to the local context. This situation came about because of the influence of contemporary tastes regarding the decoration of commercial buildings, and it seems to be more about thrilling customers; it has little to do with the assumptions of Modern or Contemporary Architecture. Like others parts of modern cities which developed within the context of increasingly complex links between activities and people, this issue in Gwangbok seems to be getting out of control. Thus, this condition generates a certain chaotic aspect and a lack of identity despite the fact that the street is a historical urban place. In short, none of the buildings reflects the past or Busan's history. However, modifying the facades or imposing on them in order to achieve a designed condition and controlling its diversity, merely wastes the power of the complex and the rich expression of order in people's lives, which means expressing the best qualities of social living in terms of different shapes, functions, and lifestyles. In addition, as will be seen below, bringing the facades into conformity by means of standardization seems to be a matter of merely coping with the *appearance* of those complex relations, instead regarding it as a totality that encompasses the continuous and dynamic regulation of people and the environment. Whereas Alexander (1979) points out that the attempt to build an external appearance is actually to adopt a position that ruins

the quality of places, and Castells (2000) sees it as a way of remedying a lack of identity by embedding places in a complex web of fluxes, Glanville (2000) discusses the issue in terms of the management of systems of information. All these authors agree that the key point is not a question of ruling over the shape or appearance, but rather of deeply understanding the mechanisms by which influences are exchanged in the environment. To the extent that it can be related to particular design decisions, this point represents an issue that is more than merely circumstantial or political: it is related to the extent to which interaction between people and the environment itself is possible. The facades of Gwangbok Street could amount to an original and complex expression of identity related to contemporary life, guarding the efficiency and utility of the materials. With respect to formulating new ways of communicating and advertising in a place, new ideas concerning interaction between the activities in the street need to be considered.

Gwangbok displays a strong level of organization in terms of other icons, and this is depicted by the existing urban furniture and others elements and facilities. Thus, the analysis using pictures did not show any serious conflict between users and those elements, as they were neither missing nor malfunctioning. Therefore, a new design for the area will take account of the need to reinforce its character and will only demand minimal changes to those elements.

1.3. Ordination of time

This refers to temporal cycles (i.e. the rhythms of the activities that separate day from night) and the overall emphasis placed on the calendar and the seasons. It integrates the individual perception of the passage of time passing to the collective, configuring a suitable (or not, in the case of conflicts) division of space in terms of time. In this way it separates out the activities in the territory with respect to the cycles of time and the relative position of the people in time and space.

Plenty data was delivered concerning Gwangbok Street. We consider, however, the most traditional issue concerning time in contemporary places, which is the difference between day-time and night-time occupation. With this in mind, we have increased the level of activity in the street by means of the adjustment of opening hours, thus providing an opportunity for the transformation of Gwangbok Street into a 24 hour commercial area.

1.4. Ordination of communication

This encompasses all the methods people use to communicate with each other, including both the use of verbal and 'non-verbal' languages, and the devices they use (or don't, as the case may be) to help them do so. It reports the flux of information across the region and the way each message can cross the areas and implement both various and useful functions, such as, for instance, individual orientation among the places and collective identification within one specific place.

The facades in Gwangbok can be seen as a kind of communication process and thus it could be said they constitute a system of information, which plays a fundamental role in the local identity. The main issue here is the chaos that results that from the colours, lights and materials in the displays. Thus, it claims to constitute an efficient control system, fulfilling a missing visual programme; but regarded as a communication system, the relation between private ads and displays and welfare in public space cannot be solved by means of a clichéd solution, as mentioned before.

The connection between Gwangbok Street and its cultural-belt (Figure 84) is another problem requiring solution; a somewhat clichéd correction to this problem consists of spreading regular signboards with the aim of orienting people through the territory, as it happens to be nowadays. However, those signs, in conjunction with the proliferation of information broadcasted over the surfaces of the street enclosure, can only result in a 'weak' information process.

There is a mixture of both formal and informal timetables that control and regulate the events that take place in the environs of Gwangbok Street all year round. Since that timetable determines the presence of the public on the street, people need to know every change or adjustment in it, thus improving the organization of time by means of an efficient system of communication. Moreover, commercial buildings continuously demand changes in the way that they attempt to grasp the attention of the public, and in those cases, communication processes need to consider the complexity required in order to guarantee efficiency.

2. Problems

This section presents the idea at the centre of this proposal, describing the problems identified in Gwangbok Street and respective design solutions. Accordingly, the place was analyzed with due consideration given to the four main attributes of architectural space: territoriality, privacy, ambience and identity.

2.1. Main problems related to territoriality

'Territoriality' refers to the limits between the entities in the space, and all related devices, tactics and codes governing the co-existence of a huge diversity of limits. The first related problem concerned illegal parking in the street, which was both a source of obstruction and led to the presence of pedestrian traffic on the car path itself, thus indicating a conflict between cars and pedestrians. The suggested solution is surveillance in order to prevent illegal parking, and the possible transformation of Gwangbok into a pedestrianized area. Service parking spaces are provided for in the new design, but the presence of cars in the street is going to be gradually reduced. Car path marks are indicated on the ground in order to delimit and define the area used by cars.

Another problem is the lack of identifiable territories indicated on both the floor and the space (canopies), marking the transition between indoor and outdoor activities. In order to attenuate this, the design of the pavement is purposely designed with organic and curved shapes in mind, suggesting support from both ephemeral and minor uses as well as the transient and integrated activities that take place in the street such as presentations, carnivals, marches and parades.

2.2. Main problems related to privacy

Privacy 'conflicts' come about because of the inadequate regulation of interpersonal exchanges; and thus this issue comprehends both the private and public domain and the myriad activities of everyday life. Normally those conflicts demand changes in acoustic or visual attributes; it is a matter of adjusting levels of visibility or audibility i.e. showing things or hiding them, allowing them to be heard or muffling sounds. Furthermore, we understand that activities separated temporally could provide a solution to the possible conflicts, for example by separating public manifest from quotidian activities by means of a timetable that could be drawn up with the agreement of shopkeepers and the accredited representatives of the city authorities.

2.3. Main problems related to ambience

Ambience is related to comfort and the way in which it is possible to maintain the space. So, in order to maintain a high level of ambience, we decided on using materials that were both easy to clear and strong enough for public usage, such as Dolomite for the ground. Bins for litter disposal, with a pattern selected by the City Council will be available in the street. The design of elementary urban furniture, in this proposal, is consciously deemed to be a subordinate and secondary issue in order to avoid the excessive expense of implementing banal and hackneyed solutions, as they normally require the expenditure of too much money when the pieces are conceived of as 'tailor-

made' and specifically designed for use in a particular place. At same time, we took into account the positive experiences of other cities, for instance, those of the United Kingdom, where urban appliances and furniture are always the same, no matter where they are located in the country. In this way it is possible to reinforce the usage of these features and transform them into 'customary' equipment and thus preserve a degree of recognizable utility, rather than using urban furniture and others small details to encapsulate the main idea of the new urban design drawn up for Gwangbok.

2.4. Main problems related to identity

This, more or less, represents the biggest problem to be solved by the proposed design solution, and it corresponds to the absence of the kind of particularities that would contribute to the 'uniqueness' of the space in Gwangbok Street and thus transform it into a 'place'. This problem is probably a consequence of the internationalization of urban patterns that has taken place without reference to the local culture, and which is reflected everywhere, in facades, displays, shapes and forms of buildings. In addition, there is the aim of addressing Gwangbok Street as a pole of culture and tourism, and thereby linking its activities to those developed in the cultural belt.

On the one hand, as a result of the expression of a wide variety of minor private interests in the public space, for example, in the frm of sign-boards, ads and other features, the complex system of information can nowadays present a somewhat chaotic aspect. This results in a weak and unrecognizable identity and causes a kind of collective disordered perception (Agnew and Duncan 1971), which in turn interferes with other qualities of space, such as ambience and territoriality, by means of which people are willing to maintain, preserve and recognize areas. The commercial sector, in its effort to stay connected to external influences (Castells 2004) necessary for the process of exchanging goods and services, fails to maintain local references in the space and the activities. On the other hand, people do not recognize the place as a continuum of their lived space and the experience of the street itself starts to become rather abstract.

3. Conclusion:
Tuning and refining the unmanageable Gwangbok Street

Root problem

The previous analysis has pointed towards a single root problem: this site lacks local identity; it is this problem which is the source of the extraneous interferences with the other spatial qualities. Therefore, in order to make a decision on this key issue, we must start by generating a design hypothesis; only then can we proceed to a series of refutations in order to test the suitability of the analysis that has been drawn-up.

Rules (Strategy) of design

On the basis of the analysis, three rules were established in order to direct the enquiry into the solution to the problem:

- Only structures related to the local identity should be constructed. Since we realized that the site would be subject to continuous change over the course of time, giving the site a fixed face or heavily reconstructing would not be likely to help. On the contrary, limiting the use of contractures that related directly to the local identity by as much as possible will give suggestions for the following building activities.
- As far as the site is concerned, night-time is more important than day-time. There is no solution that is able to satisfy all the aspects of a complex system. As the site is highly related to the entertainment industry, we believe that a solution that satisfies the

requirements of activities taking place at night is better than one that is tailored for day-time ones.
- Continuous research should be conducted in order to keep the design up to date.

Discussion of the solution

We have generated seven design solutions applicable to the entire area of Gwangbok Street, from which main ideas have been refuted, either because they focussed too much on small details, such as the use urban furniture for granting the area its 'uniqueness', or because they required the intensive removal of buildings and existing spaces.

In the course of developing the solution into one that looks for 'place identity', the phenomenon of the abstract perception of the space, referred in the previous section emerged as one that could be seen to be related to the alienation process in cities spaces, which isolates people both on the inside - in highly predictable and mono-functional spaces – and on the outside - in predictable and public spaces that fail to stimulate. So, the main point of our proposal is to control communication between private and public sectors, individual and collective life, generic and unique solutions, and manage the communication between each constituent part. We have looked at control as something circular, not linear. As such, the solution will as amount to a form of tuning that takes place between the controlling and the controlled systems. According to Glanville (2000), if systems are of a certain variety and complexity then it is inconceivable that we can satisfy the Law of Requisite Variety and thus properly control them; we must, therefore, regard them as unmanageable.

When a system is unmanageable, we have three options: to reduce complexity, to change the organisational structure (how control operates), and to alter our attitude to unmanageability. The aspect of the design solution for Gwangbok related to the first option was a simplified functional design of the urban space, establishing zones and specifying their elements. The option concerning a change in the controls, meanwhile, was dealt with by establishing new ways for people to interact with the street, thus achieving a recognizable identity. Lastly, the design solution concerned with the third option was to include a Research Centre which would continually new solutions to the problems involved with interaction using Information Technologies devices on Gwangbok Street. This centre would be based inside towers to be placed in 4 areas along the street.

According to McCullough (2004), the principles of interaction in the design are: know when to eliminate an obsolete "legacy" operation, when to automate, and when to assist an action. In others words, we should know how to 'empower', not how to 'overwhelm'. In order to ensure that each of these cases is recognised, we are proposing an organizational structure that works alongside the physical one. Therefore, the solution involves not just an understanding of physical elements, but an Idea of how to maintain and implement their use.

Our project consists of eight movable gadgets. Each gadget, termed here "Robots", includes 1 Laser projector, 1 display message board, 2 big screen televisions, 2 video cameras, and 3 of IBM's Everywhere projectors.

The aim of utilising laser projectors is to produce special visual effects in exhibitions and parades at night-time. The luminous message-board broadcasts news about the activities in the street and its vicinity, information about local museums, events and so on. The television screens allow small clips, ads, footage of the place, real time sequences, and so on, to be watched. The video cameras gather material to be mastered and then broadcast via the Robots. The IBM Everywhere projector combines projection with detection on an arbitrary surface such as a wall or the simple pavement. In this way the ground and walls become interactive, in effect, turning the surface into a crude wireless touch screen.

Each Robot moves under rails over the street sustained by 34 structural portals. The Robots are made of structural aluminium and a modelled polycarbonate. Moveable canopies can be adjusted by distance to protect the screens. This gadget is controlled by the Interaction Research Centre, situated inside the 4 towers along Gwangbok Street. But the interaction, position, movement and lights of the Robot can be modified by users accessing and interacting with an internet web site.

When the Busan International Film Festival is being held, or when otherwise required, the Robot can broadcast information, ads, clips, games and quizzes about the movies exhibited, interacting with the public and attracting their attention. Furthermore, the ability of these robots to cope with images is in congruence with the idea of the moving image; this idea is inherent in cinema, and in this way this innovation of able to enhance the sense of local 'identity' in the street, since the museum of cinema in Busan is one of the areas key attractions (if not the key attraction).

Nevertheless, in order to act as a pervasive mechanism for declaring, representing, and querying the physical relationship between people, places, devices, and things, the Robot needs to be supported by an ongoing research project.

The Interaction Research Centre is an organization whose main preoccupation is designing, experimenting with and maintaining systems, software and hardware, in order to produce improvements in the interactive urban devices used at Gwangbok Street. It will cope with ubiquitous computing solutions at Gwangbok Street on a daily basis, possibly being the first centre concerned with this subject to be located in the very field of research itself. This idea was inspired by the argument propounded by Steve Shafer of Microsoft Research in his article "Ten Dimension of Ubiquitous Computing" (Shafer, Steven and Nolan 1999). He stated that interactive 'tuning' is central to the 'knowledge representation' problems of the emerging generation of research. According to him, the main question for research nowadays is: how can we make the interactions between devices and people meaningful? The same question was posed by McCullough (2004):

> *"In contrast to a sense of place, consider places with senses. Smart spaces recognize at least something about what is going on in them, and they respond. Some of this built-in understanding now can reside in easily adaptable software, some can be implicit in occasionally reconfigurable arrangements of furniture like hardware, and some remains better off being built in. It is the interrelationship of these that needs design" (p.93)*

So, the Research Centre is also concerned with implementing and 'tuning' the interactive devices deployed in Gwangbok Street. This 'tuning' is based on the incremental adaptation of configurations and settings based on a qualitative, top level interpretation of performance. In other words, 'tuning' takes into account incremental growth and change. However, there are a number of questions that need to be addressed: How are new devices added? What model underlies the world in which all of these interoperate? Must the whole system be rebalanced each time it incorporates another element? So, if we project into the future, Gwangbok Street could end up having many specific devices and services, such as wearable locators for people, child-care aids, disability applications, intelligent urban appliances, survey systems for the shops, BBS exposed in open spaces, and other public utility services supported by both located and remote devices.

Rather than just introducing a kind of "push-button" level of interaction, the Research Centre needs to translate the power of tuned interactions into the Gwangbok urban space by means of creative contextual developed widgets (all the time taking into account privacy and other policy considerations). In short, our idea of interaction here is to design devices which make a claim to the actuation of the whole user body, so the Research Centre needs to specialize in ergonomic interfaces and haptics technology.

The portal includes the streetlights and a luminous vertical message board which is made of painted steel. Since these look like gates - and more emphatically are to be used at night - we suggest giving the name "Gates of the Moon" to the portals. Gates and shapes on the ground will alleviate the tedious ambience produced by the chaotic scenery of contemporary city-scapes, and with the introduction of those interactive elements, we anticipate the emergence of new deals between shopkeepers, whilst the Research Centre will engage in redesign in order to improve facades and incorporate those features.

One last point of our proposal involved removing a building in order to generate an open space near the Piff Plaza. This presents us with an opportunity to maintain both an unbroken continuity with Gwangbok Street and the view. For that reason, the design considers the inclusion of symmetrical lamps in order to mark 'solemnities' in the square, such as those related to the festival. A very simple design was suggested so as not to interfere in the spontaneous use of space. Therefore, we suggest using Piff Plaza to present a continuous programme of arts and artistic exhibitions related to the use and processing of images, such as those carried out by Rafael Lozano-Hemmer (Lozano-Hemmer, Rafael 2005).

d) Fargate Project: Project Brief 2006

The following is the original text of the course outline handed out to the architects of the discipline ARC6700 Interactive Urban Visualisation Modelling, 2006.

ARC6700 Interactive Urban Visualisation Modelling

MArchStudies (Advanced Architectural Studies) • MSc (Computer Aided Environmental Design) •
School of Architecture, the University of Sheffield
Course Tutor: Dr. Chengzhi Peng (c.peng@shef.ac.uk, Room 14.21, Arts Tower)
Auxiliar Tutor: Renato Cesar Ferreira de Souza
Spring Semester 2005/06, Thursdays, 2:00pm; Room 15.9a, Arts Tower
Course website: sucod.shef.ac.uk/arc6700/2006

Days of lecture and tutorials

WEEK	DATE	ACTIVITY
1	Thu, 9 Feb 2006	- Lecture 1: Introducing ARC6700 + Brief for the Group Project
5	Thu, 9 Mar 2006	- Group Project Tutorial 1
9	Thu, 27 Apr 2006	- Group Project Tutorial 2
13	Thu, 25 May 2006	- Tutorial for Individual Essay
14	Tue, 30 May 2006	- ARC6700 Final Submission (Group Project + Individual Essay) Due 4:00pm

The area of Fargate has been the very heart of the City of Sheffield since the Victorian age. Like many places in the city, the original characters of Fargate are lost due to the contemporary urban changes. An initiative to improve the current state of the Fargate has been launched jointly by the Sheffield City Council and the Sheffield Society of Architects and Urban Designers. The Committee is now calling for a proposal of an urban space improvement scheme through the means of digital augmentation. Digital augmentation is defined here as an act of developing and deploying information technologies to resolve some or all of the spatial conflicts identified. You are invited to enter the competition by submitting an outline proposal in response to the current conflicts identified in a latest urban space analysis report, which can be downloaded from the website. Your proposal should be prepared as Web page(s) publishable through the competition's website. There is no specific web-page format to follow but your proposal should provide the following information content:

- 2D Plan/Section/Elevation delineating the outline design proposal in a 2D format;
- 3D Urban Form visualising the outline design proposal in a 3D manner; and a
- Narrative conveying the urban experiences engendered by the proposed digital augmentation

In addition, your Web page(s) should be accompanied by two essential digital files: (a) 2D plan/section/elevation CAD file, (b) 3D Urban Form CAD file.

Group Project Stage II – Digital Augmentation of Fargate - Sheffield: Detailed Design (30%)

The "Digital Augmentation of Fargate - Sheffield" competition has attracted a fair number of excellent proposals. All winning entries have been exhibited on the website published by the Sheffield City Council to launch the 2nd stage of the competition. You are cordially invited to

submit a 3D detailed design proposal by choosing to work on one of the winning digital augmentation outline schemes. To assist the reviewing process of the detailed design proposals by the Committee as well as the general public, please submit your design proposal to include the following information content:

- A VRML Model of the proposed design which can be uploaded and combined with the contextual VRML model as published on the Sheffield Urban Contextual Databank (SUCoD) platform;
- A set of Before vs. After digital images captured from the SUCoD contextual modelling platform; and
- A Project Report of no more than 500 words, presenting the key ideas/concepts underpinning the 3D detailed digital augmentation design.

Individual Essay of about 3000 words (40%)

Topics for the individual essay will be given out during Lecture 7 (4 May 2006).

e) Fargate Project: Conflicts Report

The following contains the original text, pictures and tables reporting the conflicts that I identified in Fargate Street, 2006, using the method known as "*reading spaces*", developed by Malard (1992) and adapted to be incorporated into this framework (see Chapter 2 on page 35). This material was handeded out to the students during the lecture which presented the framework developed in this research in 2006.

I. Introduction

This report aims to describe spatial conflicts at Fargate Street, Sheffield, UK, in order to provide a base for the design of IT augmented urban space devices, which would probably solve those identified problems. It will be used the method entitled as '*reading spaces*', which is described in Section 2. The Section 3 describes and analyzes the reading in terms of conflicts between spatial elements X activities (of people, their actions, needs and movements), relating them to qualities of place. The Section 4 presents a table in order to summarize the conflicts and qualities affected, permitting identification of their order of importance in the place concerned. Section 5 presents a conclusion assessing the applicability of digital technologies components as solutions to conflicts, depicting general aspects that could be considered in the design of an IT augmented solution.

This analysis was made in 2006, in the period spanning the 12th to 19th of January, including local observations and pictures. It is supposed to represent a *prima facie* depiction of the problems in the urban space of Fargate Street, deserving, just because this, more accurate survey in order to conduct a deeper analysis.

The area surveyed is indicated in the map of

on page 131, Volume I of this thesis, and the incidence of the conflicts is portrayed in the accompanying pictures. . Some conflicts where of a nature that could be presented in terms of their strength and frequency, and are analysed here only in comparison to the others, considering the totality of the urban space. This could be more reliable considering the time given to this survey, inviting others views in order to look more accurately at the street and examine it in depth.

II. The method

The starting point for this analysis is that the view that architectural space is 'equipment in which to dwell'. This means that its defects affect the qualities of dwelling. Therefore, when observing which physical elements of a place interact with people's activities in order to generate those qualities, it is possible to describe those defects in terms of missing spatial elements or their malfunctioning, in reference to the qualities of place.

On page 238 of this report there is a more detailed description of the qualities of place. These are *Territoriality, Privacy, Identity,* and *Ambience (TPIA)*.

The method can be summarised as follows:

a) Detecting a conflict between activities and space. All kinds of data about the conflict must be considered, such as drawings, photos, video footages, questionnaires and interviews with users, etc. Sometimes, it is possible to interpret a conflict only by seeing how the spatial elements are damaged, broken or threadbare. With this, it is possible to infer which actions have provoked that state, thus detecting the conflict.

b) The next step is to describe the conflict thoroughly, depicting the interaction between spatial elements and human activities, shifting the affected qualities.

c) Interpreting how the conflict interferes with the qualities of place concerned. This means describing the conflict in terms of *TPIA*, relating to the activities that take place in it. Normally, one conflict interferes across more than one quality. Therefore, it is useful to list the qualities in order to highlight how each quality has been affected by the conflicts described.

d) Associating a spatial element that is missing or malfunctioning with each conflict reported. Sometimes, more than one conflict originates from the lack of a single spatial element. Detecting this serves the pursuit of economy, since that element can solve more than one conflict.

e) In order to identify how some conflicts could be solved by means of the use of Information Technology, it will be considered a final analysis to check which probable solutions support the application of digital technologies components.

III. Description of the conflicts

All the conflicts were described in terms of a *need* versus *a spatial element or condition.* The titles given to the conflicts try to summarize them, subtending the words "*need of*" in the first sentence, describing the spatial element lacking. The description elucidates which qualities of the place are committed with the conflict, suggesting an eventual solution.

Conflict 1:
Transient Protection
X
Lack of canopy over the entrance to shops:

Figure 85: The need of protection X Lack of canopy

This conflict can be observed mainly when it suddenly starts raining and people are unable to find such protection. Moreover, it is possible to infer that people normally walk on the pavement seeking a sheltered path with an interesting to view, as close as possible to the shop windows instead of walking in the midst of the pedestrian area. Few shops at Fargate Street offer this feature to pedestrians. It is supposed that this phenomenon is related to people's need to understand the territorial codes by means of seeing marks on the pavement or sheltered areas. Acting as a transition surrounding every different core of territory, the canopies could confirm the main characteristic and function of the street - commerce. In the past, many more shops in Fargate (not to mention the milieu as a whole) adopted this resource.

Figure 86: Date unkown: High Street, at bottom of Fargate, Foster's Buildings in background including Nos 10-16, W. Foster & Son Ltd., Tailors, No 8, Kingdon & Son, Tobacconist, No 6, Boots Cash Chemist

The canopies offer a protection that can extensively block rain and wind. To do so, the height needs to be small, that means low placed shelters, lower than actually they are nowadays in some shops at Fargate. Figure 87 shows a canopy that is placed at a height that does not offer protection and blocks the view of the building.

Figure 87: The height at which this canopy is placed does not offer protection and block the view of the building.

When the canopy is too high and made of an opaque material, it blocks the view of the building and decreases the information one can gather through the facades. In order to solve this conflict, in the past shopkeepers used removable canopies as shown Figure 88.

Figure 88: Fargate looking towards High Street, c. 1885-1915

Those retractable canopies were placed at a good height in order to protect against diagonal rainfall and could be removed when it was sunny, thus avoiding blocking the entire view of the shop. One modern solution is the use of transparent material, thus reducing the loss of information, as shown in Figure 89.

Figure 89: Glassy Canopy at Fargate

Conflict 2:
Transition between territories
X
Lack of transitional space in the shops

Alexander (1979) puts forward a broad argument about the need for transitions between spaces. According to him, people need to experience the feeling of continuity between territories in order to understand the environment as a continuum. When this does not happen, the marked difference

between two territories is perceived as a defensive barrier, diminishing the sense of 'placeness', when people use the area as the edge of a path or simple external space.

Alexander (Alexander 1977) also mention that the transitional spaces between inside and outside play a fundamental role in the characterization of a building, determining how people understand its meanings and how it takes part in people's life. Chermayeff (1965) has produced an extensive study of transition spaces in housing, showing how it is important in regulating privacy.

Norberg-Schulz (1980) advert that treating the external space as an enemy is a typical attitude of "nouveau riche" people, and thus a contemporary social phenomenon. The new rich disrupt the linkage between the external place and the interior of their houses, furnishing the interior with 'posh' movables, which although "fine" are irrelevant, in order to achieve the ideal encapsulated in the saying "My home is my castle"; in other words, an overprotected house, that breaks down all natural integration and connection with the outside landscape. As consequence, the environment does not receive the attention it deserves.

The need to provide buildings with insulation in order to protect against the cold weather in the UK makes this conflict hard to solve in terms of building design, but there are a huge variety of potential architectural solutions available. However, few of these have been adopted in the buildings of Fargate.

Figure 90: Although not paying any attention to the architectural character of the street, this building in the High street has adopted the use of porticos in order to create a transition to the exterior.

Figure 91: As a consequence of the lack of transitional spaces, the presence of facades facing the public space results in poor and deserted external spaces.

Conflict 3:
Clear orientation
X
Lack of hierarchy in the public open space

When the connection between external spaces obeys some principles of design, people understand it better and can move through with better orientation, wasting less time and money (Lynch 1960), thus avoiding getting lost. Moreover, the identity of a place is affected by the structural pattern of the organization of its parts (Norberg-Schulz 1980). Rappoport (1977) calls this "spatial ordination" meaning the physical fabric of the territory, referring to the formal patterns including the symbolic properties that belong to the public realm. This ordination achieves its quality through the topological properties of the elements, which provide important relational meanings and significances across the territory (e.g., streets, squares, lanes and others with a strong meaning expressing the configurational qualities of the form). Hence, to a greater extent than the geometrical patterns of the elements of the environment, the relational properties of the physical elements (proximity, distance, contiguity, separation, laterality or elevation) are important when it comes to generating this ordination.

To analyse the spatial ordination in the milieu of Fargate Street, the public spaces were represented in white thus highlighting the focal points of the public realm (see Figure 92).

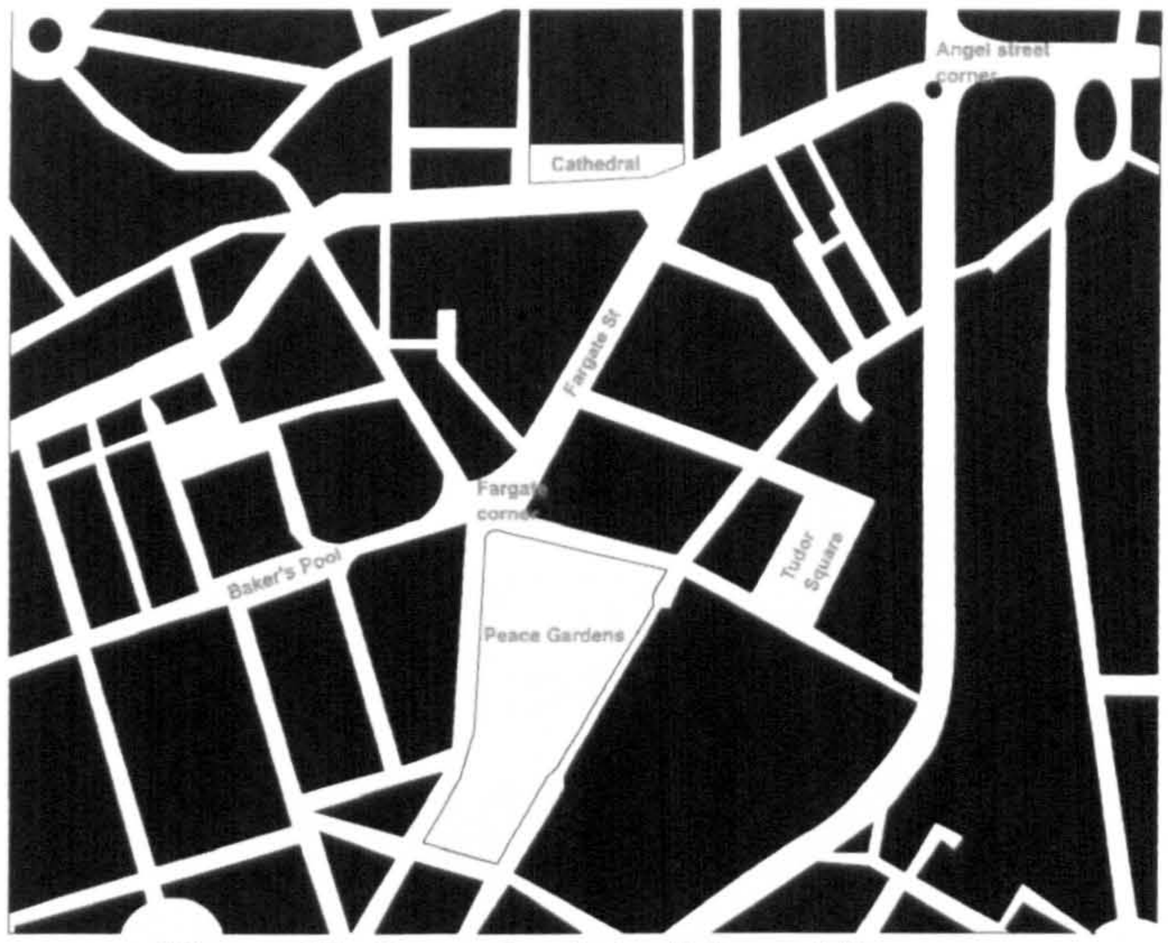

Figure 92: Central points of the public space

In the following the structure of the main paths was represented without the boundary of blocks and with probable perceptual limits, defining domains, as it can be seen in Figure 93.

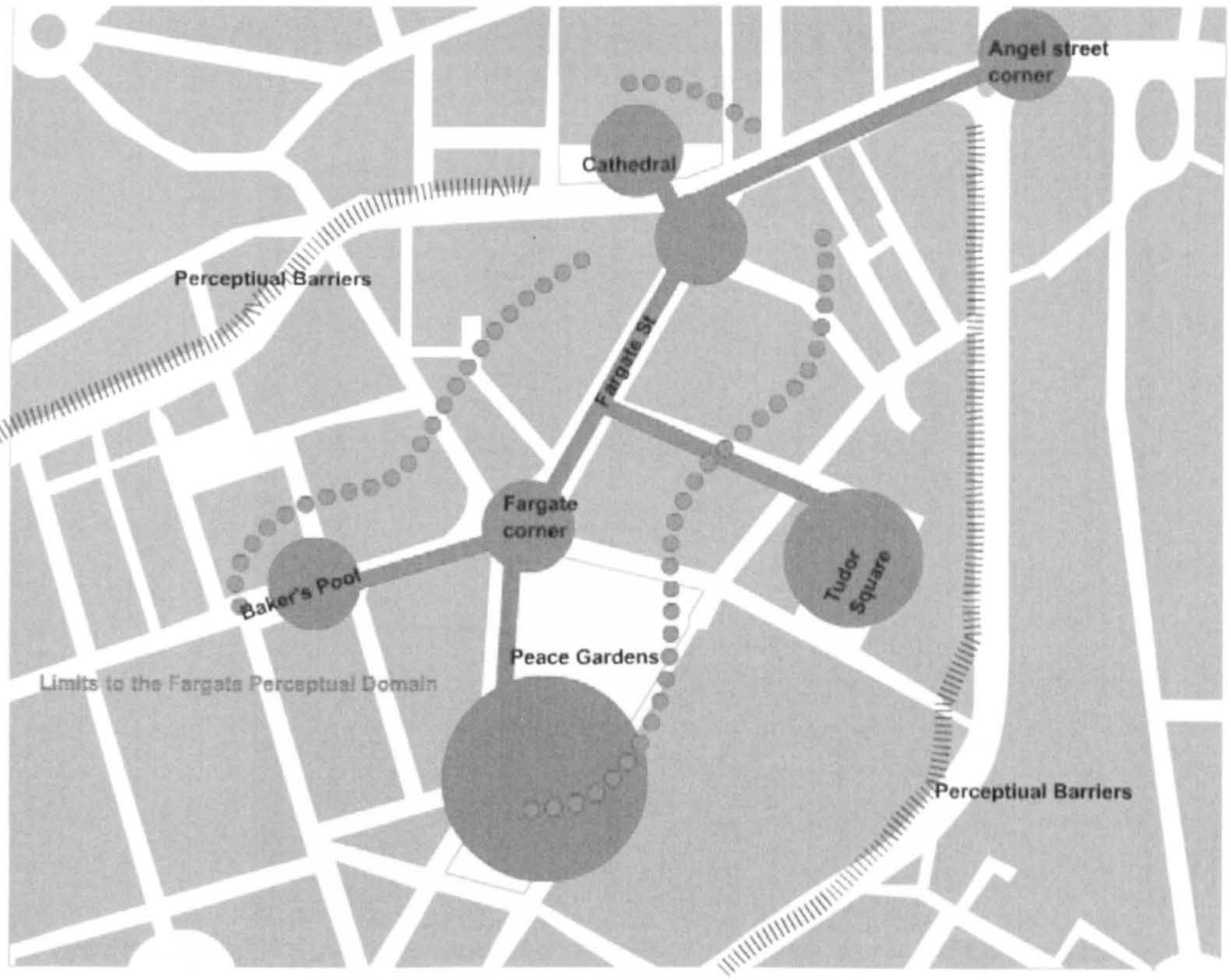

Figure 93: Fargate Perceptual Domains

As result, it is possible to infer that both corners of Fargate Street play a fundamental role in the perceptual structure of the place and both of them lack marks or easy readable urban forms in order to act as the beginning or end of the 'perceptual organizing course' that defines the Fargate perceptual domain. The sharp definition of those positions is urged, since the historical origin of the Fargate urban shape has been defined in the broad sweep of Sheffield history. Some old

pictures show the simple way of defining the urban enclosure adopted in the past, using decorative urban doors and marks, in order to make clear the identity and the territory of Fargate (Figure 94 and Figure 95).

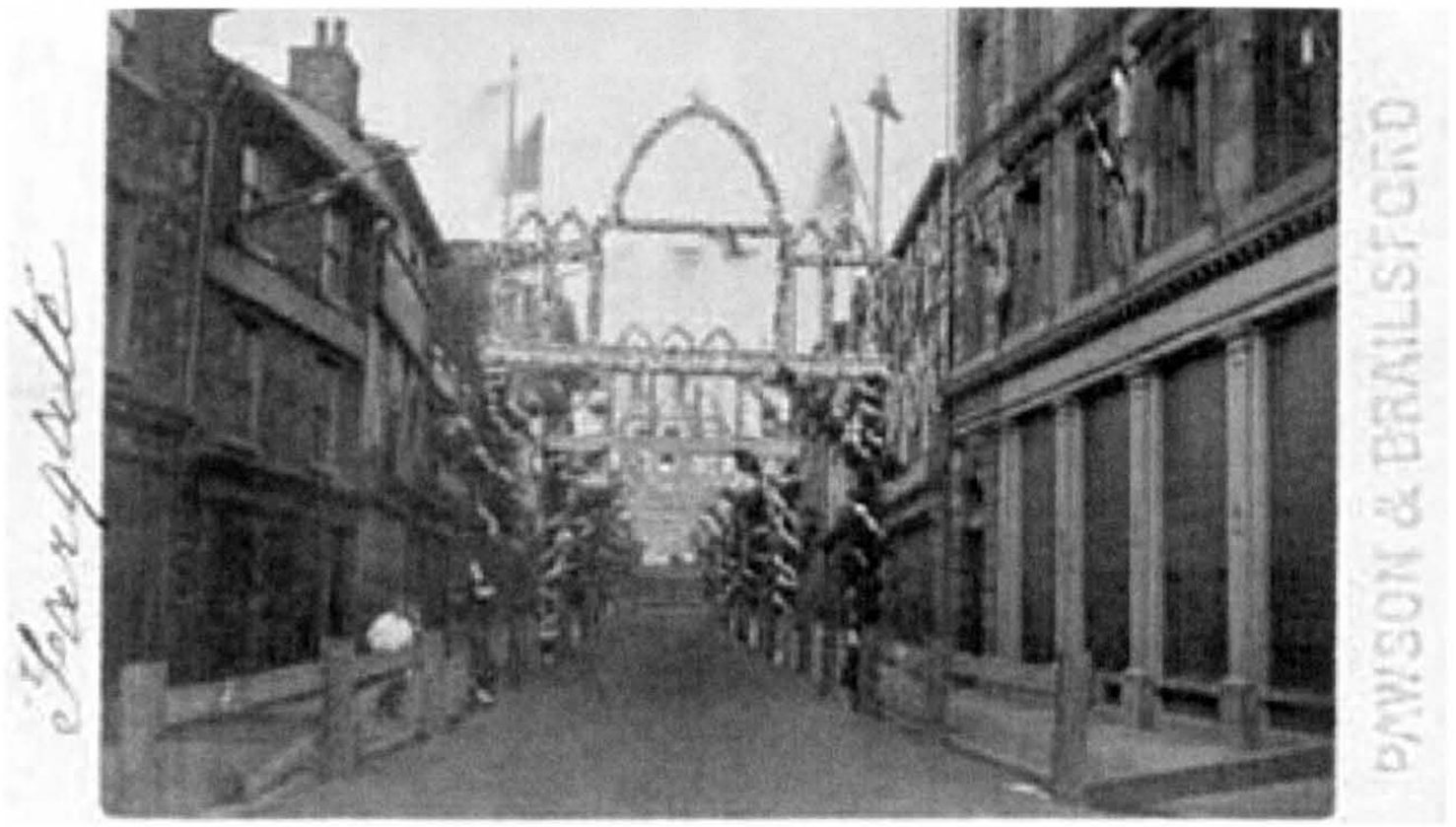

Figure 94: 1870: Royal Visit of Prince and Princess of Wales, Fargate

Figure 95: 1890: Decorative arch on Barker's Pool for the royal visit of Queen Victoria.

Figure 96: 1890: Fargate, decorated for visit of Queen Victoria

Furthermore, the sense of the hierarchy that exists between public spaces can be made visible according to the deployment of certain physical elements (Alexander, Christopher , Ishikawa *et al.* 1977) that allow one to understand local history, and, at the same time, the gradient of privacy. This means one can know how public or private areas come to be spaces and how to behave in them, what the codes are, and where the boundaries are. Ashihara (1970) also comments that there are two kinds of ordination along the public path: monumental or itinerant. In the *monumental ordination* of paths, each path terminates at a central point, which used to be a monument, building, square or sculpture. *The itinerant* one is related to the feeling of '*discovering the place*', and it can be very expressive, matching with the historical development of urban places such as Fargate.

However, none of those senses can be found in that street nowadays. In the past, the corner that connected Fargate to Barker's Pool had a sculpture of Queen Victoria (today in Endcliffe Park) and possessed a monolith erected in celebration of the jubilee (Figure 97 and Figure 98).

Figure 97: 1890: Town Hall Square and Jubilee Monolith; Fargate including Albany Hotel, Yorkshire Penny Bank and Carmel House; Surrey Street and Town Hall under construction on right

Figure 98: 1900: Town Hall Square looking towards Fargate; Queen Victoria Statue and Bank Chambers, left; Albany Hotel and Yorkshire Penny Bank, right

Conflict 4:
Elevated central point
X
Lack of defined centrality

This conflict can be deduced by analysing Figure 99 and Figure 98 with the inevitable conclusion that there is no physical element embodying a central point in the Fargate area. A central point (an area, urban element) allows people to have an entire view of the public domain. It plays a role as a natural meeting point, as well one to sense the local identity much more easily. In the past, some monuments served as a central point in this area.

Figure 99: 1900: A central point at Fargate area, Queen Victoria's Jubilee Monolith

Conflict 5:
Resting in public space
X
Lack of good benches

A bench, to succeed as a really useful item of urban furniture, beyond being ergonomically designed, needs to be situated in a correct position so it is possible for people who are seated on it to see of the surroundings across a wide perspective, as well as to be protected against the wind, providing sun in the winter and shade in the summer. *The Centre for Environmental Structure* (Alexander 1977) has determined the variables for such a bench, concluding that most bench positions in contemporary design do not meet such requirements.

In the Fargate area the positions of the benches obey a two-dimensional representation of the floor, without any other concerns related to the three requirements described. The result is low usage, resulting in empty benches almost all of the time. This conflict affects the local ambience.

Figure 100: Benches at Fargate: visually heavy, cold wet and empty.

To make the things worse, materials that give a thermal sensation of coldness (stone and steel) are used. In the winter, those benches are a challenge to pedestrians, entirely failing to justify the use made of very expensive materials since they don't provide any comfort.

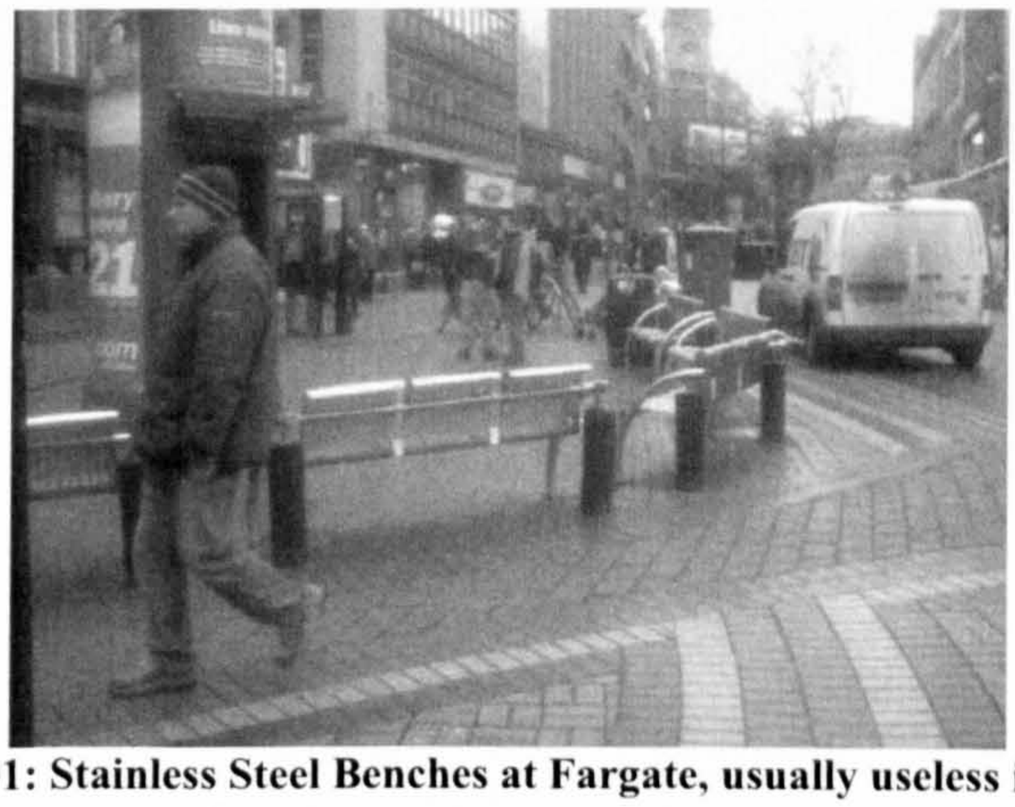

Figure 101: Stainless Steel Benches at Fargate, usually useless in winter.

Conflict 6:
Shops supply
X
Lack of service entrance

This conflict refers to the need to supply shops with goods and the lack of specific staff entrances. Some big shops can maintain their stocks by using other entrances, but most of the shops at Fargate need to unload their goods in the street itself. This conflict was solved at The Moor by using the back of the buildings as secondary entrances for the shops. This conflict affects the ambience, interfering with identity since it generates periods of disorder and conflicts with the pedestrian paths. Figure 101 shows a service car crossing the pedestrian path.

Conflict 7:
Circulation of cars
X
Lack of defined paths for cars

This conflict is connected with the previous one, involving here all the services required for the Fargate area that use motorized transport. It is described as affecting the same qualities, disturbing both the pedestrian passageway and the services that need vehicles in the area.

Figure 102: A truck manoeuvres through the pavement at Fargate street

Figure 103: Apologies for inconvenience.

Conflict 8:
Identity
X
Lack of uniqueness

This conflict refers most to the visual aspect of the place. Specifically, it refers to the surface of the street's enclosure and its internal elements. Shape, colours, dimensions and materials contribute to the creation of an impression of identity, extending this character to all the activities that take place at Fargate.

Redesigned as a pedestrian street only recently, Fargate has gradually lost its identity with the addition of new buildings over the years. New and strange shapes have been introduced and they do not present any complex formal correlations with the old buildings. The design of some modern buildings does not consider the decorative elements and governing proportions of the previous styles. As a result, the general impression is chaotic.

The need for uniqueness in urban form has been discussed broadly by Arnheim (1977), Lynch (1984) and Hertzberger (2000), and many others. This analysis considers the main point about urban forms to be how they can influence the apprehension of place. For instance, a simple aspect, such as size and repetition of elements (either decorative or constructive) can allow distances to be measured while a pedestrian is walking, thus enabling the faculties of spatial perception. This does not just mean style or others artistic considerations, but rather a coherence in the way the urban enclosure is perceived as a meaningful sequence. Arnheim (1956) mentioned the differences in the perceptive processes of sequences and the succession of elements perceived across time in the urban space. The former have potential meaning, whereas mere succession does not make any sense, in fact approaching to a condition of visual chaos. In Fargate Street, meaningless and strange forms have broken some sequences observable in the shapes of buildings.

Figure 104: Eclectic, post-modern and modern and a restoration.

Conflict 9:
Visual signs
X
Disorder

Many displays, signs and adverts are spread throughout Fargate Street, some of which are very hard to because of this visual disorder. This conflict makes the displays inefficient and causes disorientation, and damages the sense of identity as well.

Figure 105: Displays, signs and other information on the visible surface of Fargate.

Conflict 10:

Private use of urban equipment
X
Lack of defined territory for urban furniture

This conflict concerns the use of colours and textures on the ground of the street in order to define territories clearly. Fargate Street has many materials for doing this. However, they seem to obey only a geometrical pattern instead confirming the movements of people taking place.

Figure 106: Ceramic materials and colours of the ground

Programming public space requires using patterns on the ground as helpful coordinators of local movements. It has been suggested that the ground's marks play a role in defining the private-collective gradient (Ashihara 1970), as well as regulating the territories that surround each item of urban furniture. In Fargate, some of the shapes try to define those territories, but fail in the totality, as they seem to be coping only with the visual aspect.

Figure 107: Ground's shapes

Figure 108: Ground's shapes

On average, it is possible to asseverate that a re-design of the shapes could prove profitable, confirming the territories and organizing the areas according to the degree of privacy or kind of usage (thereby, improving the ambience).

Figure 109: Paths drawn on the floor

Ashihara (1970) mentions that creating a pattern modulation on the ground can help the organization of the design of transitions between places with different degrees of privacy. For the purposes of promoting a semi-conscious union between people in squares and open spaces in the public realm, the distance of 24 meters is important as it is the average distance at which one stops seeing the faces of others, and listening to their voices (Alexander 1977). Thus, a module of 12 x 12 meters can be a canon to a grid helping the design of such patterns. That means each 12x12 square will correspond to a different territory, helping to organize huge surfaces that lack meaning.

Figure 110: Huge surfaces on the ground without any meaning in Fargate

Conflict 11:

Communal Sense at night time
X
Lack of luminosity

This is very well known as a problem related to hyper-functionalism in cities. It corresponds to the division of time into productive cycles, one of which is at night, corresponding to the period of people's rest. It coincides with periods when there are empty spaces in the city centre, as people are normally sleeping at these times. However, the mistake in this logic is the assumption that everybody will use the city according to the rules dictated by hyper-functionalism. If urban life, with all its possibilities and varieties is not to be considered at the core of urban design, then it is false to assume that the design suits democratic purposes. As a matter of fact, this hyper-functionalism is in accordance with the interests of the economic life, assuming the existence of a miserable, robotic proletarian life amongst the citizens in order to make sure they are going to participate in the general consumerism. What happens at night-time is that in such abandoned and deserted spaces, surveillance is only granted by CCTV and thus they never succeed in being really safe. This conflict interferes with the qualities of privacy and identity in the places. Regarding the different lifestyles that exist in the UK, the urban space can be used late at night. To do so, the lampposts need to be more efficient and the lighting design needs to take into consideration a sense of public expression.

In Fargate a low level of luminosity at night will not suit this purpose, and as a result, the street falls into an abandoned state late at night. Even the lighting on the facades of the buildings is neither efficient enough to allow details to be seen nor give a sense of public space.

Figure 111: One of the few building with good illumination on its facades

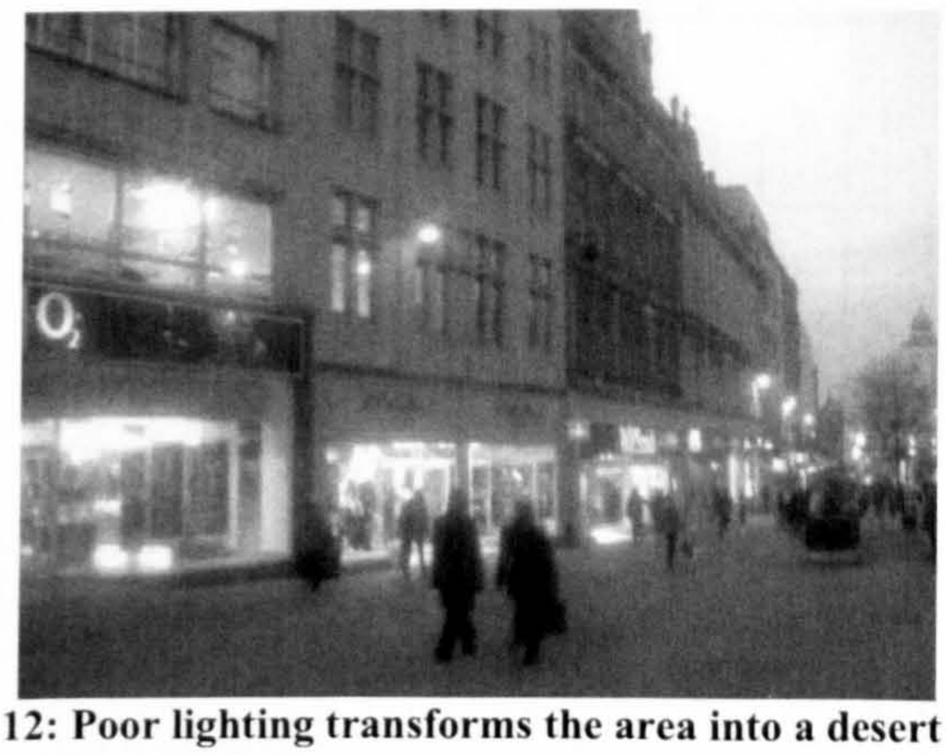

Figure 112: Poor lighting transforms the area into a desert at night.

Conflict 12:

Visibility of street precinct
X
Visual obstacles

This conflict is related to the conflict named "*Visual signs X disorder*". It can be said to be characterized by the disordered positioning of urban furniture in the street, which sometimes blocks a view of its precinct. This mainly interferes with the place's ambience and identity and the solution to this problem is to organize the positions according to an efficient and meaningful layout.

Figure 113: Visual chaos: how many types of urban furniture are visible in this picture? They are so many that they even block the view of each other and of the precinct of the Fargate corner.

IV. Table of affected qualities of place at Fargate Street

Legend:
T=Territoriality; P=privacy; I=Identity; A=ambience;
L=Local; G=general;
M=Morning; A=Afternoon; N=Night

Conflict Name	Affected quality				Location		Frequency			Element or condition missing
	T	P	I	A	L	G	M	A	N	
Transient Protection X Lack of canopy in the entrance of shops:	x		x			x	x	x	x	Canopy or other protective element;
Transition between territories X Lack of transitional space in the shops	x	x	x			x	x	x		Transitional areas at shop entrances;
Clear orientation X Lack of hierarchy in the public open space		x	x	x	x		x	x	x	New design and layout for pavement;
Elevated central point to X Lack of defined central point	x		x	x	x		x	x	x	A central point, a monument, sculptures, or fountains;
Resting in public space		x		x	x		x	x		Benches;

X ***Lack of good benches***									
Shops Supply ***X*** ***Lack of service entrance***				x		x	x	x		Urban solution or equivalent to the problem of supplying shops;
Circulation of cars ***X*** ***Lack of defined path to cars***				x		x	x	x	x	Pathways for cars;
Identity ***X*** ***Lack of uniqueness***			x			x	x	x	x	Shape of the buildings;
Visual signs ***X*** ***Disorder***	x		x	x		x	x	x	x	Visual communication ordered;
Private use of urban equipment ***X*** ***Lack of defined territory to urban furniture***	x	x	x		x		x	x	x	Satisfactory layout for urban equipment and furniture;
Communal Sense in night time ***X*** ***Lack of luminosity***	x		x	x		x			x	New Lighting project;
Visibility of street precinct ***X*** ***Visual obstacles***			x		x		x	x	x	Cleaning visual obstacles or increasing visibility;

Table 38: Affected qualities of Fargate place

V. Conclusion

The spatial elements or conditions missing are:

- Canopies or other protective elements
- Transitional areas in front of shop entrances
- New design and layout to the street surface
- Central point (a monument, sculptures, or fountains)
- Benches
- Urban solution or equivalent to the problem of supplying shops
- Pathways for cars
- Re-shaping of the buildings
- Ordering visual communication
- Re-layout of urban equipment and furniture
- New Lighting project
- Getting rid of visual obstacles or increasing visibility.

Obviously, this list takes an illustrative approach and refers to some missing elements or conditions in order to clarify each problem-conflict. For instance, the condition named "re-shaping the buildings" is apparently impossible given economic constraints. However, it reveals the root of the problem, which is the disordered mix of different shapes that serves to diminish the sense of local identity.

In order to determine how these solutions can be implemented by using Information Technology, it will be useful to return to the concepts of place with an understanding of how people receive and deal with information in order to create the qualities of territoriality, identity, privacy and ambience. The key assumption is this: it is possible to review the concept of place in terms of

information and the technology applied to it that generates those qualities. Therefore, in order to accomplish this we must first enquire after the meaning of Information Technology.

f) Framework in 2006

The following text is the original summary of the framework that was distributed to the architects taking part in the "*Interactive Urban Visualisation Modelling*", module from the Master Course of Architecture at the University of Sheffield, spring semester of 2006, together with the Fargate Street Conflicts Report (see page 217).

I. Identifying Conflicts

a) Objects in the world

According to Heidegger (1962) the objects in the everyday life are as follows:

Objects Present-at-hand: these are material (natural) objects. When you ask the question "what is this for?" the answer will be: this is not for anything; a stone, for example, is just a stone. They are found in nature in their natural state, and they have specific properties that define what they are. Only when one uses labour to transform them do they receive new attributes and become a new kind of material. A chair is for sitting on, but the wood that a chair is made from is only the wood itself, it is not 'for' anything; it has no particular purpose. The wood is a present-at-hand object, and the chair is a ready-to-hand object.

Objects ready-to-hand: utilitarian objects. When you ask the question "what (that thing) a hammer is for", the answer will be: a hammer is for hammering. As their names suggest, they are made for specific purposes, and their meaning is only valid inside a given cultural set.

Objects ready-to-hand have attributes and qualities beyond those that came from the material that they are made of. In fact, they are *equipment*. Therefore, to know the essence of a particular item of *equipment*, one needs to ask: "what is it for?" ; the answer to this question will constitute the essence of the equipment.

b) Objects as equipment

The significance of a particular piece of equipment can only be gauged via comparison with other equipment. The totality of the equipment makes sense of the individual item when it refers to other equipment. Therefore, the verbal formula 'in-order-to' is the structural reference that assigns equipment to the context of other equipment.

Heidegger mentioned a quality named "*circumspection of equipment*", which means that we do not make sense of the equipment per se, but rather on the basis of the totality of references in which its meaning is immersed. By using equipment it enters the 'ready-to-hand' mode of being, becoming transparent – we use it while focused on something else. We experience this mode of being in things when they become unnoticed in the midst of activity.

At play, at work, engaged in family or social activities, fully absorbed – in a focal moment, living life at its best, the world is fundamentally revealed in its readiness-to-hand. The world, as the

totality of references, is the primary ready-to-hand entity. Yet as we are in the world, we simply disregard the basic evidence that we are involved in a significant whole.

c) Conflicts as means to detect defects

Only when something breaks down and is not functioning normally, do we experience the coming to the forefront of our attention of some of these relationships. If and when equipment is perceived transparently and we find something that does not function "*the way it ought to*" we perceive the equipment as obstructive; we observe that something is missing; and we perceive it in a different way. When the equipment loses its characteristic availability, we turn our conscious reflective attention to it – we analyse it to diagnose the cause, we observe its properties and characteristics, test it, and so forth. The equipment turns into a present-at-hand object (a natural object), and makes it explicit to us what it is that makes equipment ready-to-hand (utilitarian); references that make the equipment function in its referential whole become explicit. We discover its unsuitability not by looking at it and establishing its properties, but rather by the circumspection (how the equipment disappears from our consciousness and becomes transparent in day to day life) of the situations in which we use it.

When ready-to-hand entities breakdown, what they refer to becomes obvious. When equipment cannot be used, this implies that the constitutive assignment of the "*in-order-to*" to a "*toward-this*" has been disturbed. When an assignment has been disturbed – when something is unusable for some purpose – then the assignment becomes explicit. The context of equipment is lit up, not as something never seen before, but as a totality constantly sighted beforehand in circumspection.

When a breakdown occurs, we stop our activity and begin to reflect on the nature of that equipment. *How is it constructed? For what purpose? Of what is it made? How does it function? Can it be improved?* Through theoretical reflection, the equipment is revealed in a new way, as something present-at-hand (a natural object), as a definitely occurrent entity (presently occurring). In this situation, our ongoing activity breaks down and we do not just stare at the object, but engage ourselves in a new activity: theoretical reflection. The breakdown has deprived the context of that equipment, and the context is now a background that enables one to address the equipment in terms of its properties.

d) Space as equipment

If we consider space as an object that can be transformed by labour, then it is 'ready-to-hand' equipment: it is an 'architectural space'. As a natural object, space could be described in terms of its physical and chemical properties, but as a utilitarian object, the architectural space as equipment can be understood only in terms of its qualities. But, what are the qualities of an architectural space?

The question is now - since we consider architectural space as a 'ready-to-hand' object i.e. equipment – what is the architectural space for? The answer is: it is for dwelling in. People transform the natural space into equipment to support the actions of their everyday lives. So, in order to recognize when that equipment has a defect, we need to ask how the qualities of the architectural space fail to support dwelling. Therefore, the next step is to understand the qualities of architectural space.

Despite not knowing each quality separately we already know that together those qualities help human beings to dwell. Now we need to describe these qualities in terms of human activities, essentially focussing on qualitative specifications in order to describe dwelling. This means, we need to describe them in terms of the existential human condition i.e. the simplest way to exist and cope with the world.

How do the qualities of a place appear? According to Korosec-Serfaty (1985), the starting point is human existence. This provides the lived experience of certain phenomena, from which originate the spatial circumstances of existence: the experience of an exterior/interior, visibility and appropriation. From those existential phenomena, it is possible to say that we transform spaces into places, giving them their qualities of place (chart 1):

e) Territoriality:

This is the process by which an area (aerial, terrestrial or aquatic) is maintained in order to preserve and protect a person or group. The actions taken to protect an area are termed territorial behaviour. Territorial behaviour includes all the devices that use the space with that aim. The territorial quality is related to human purposes when humans give a sense of appropriation to the space, generating marks to identify place boundaries. At the same time, it generates marks delineating the space, thus granting identity: showing to the members of a community, who lives there, how to recognize the limits of their activities. The dominant group rules the social interaction inside a territory in order to improve its defence. The spatial elements of territoriality permit an easy identification of the violation of boundaries by outsiders, and easy internal communication concerning any invasive event taking place inside the territory. The sense of 'owning' a territory can be provided by some patterns of behaviour, meaning that to posses an area means knowing how to use the cultural set of 'communications' that exists between the people that live there; that is to say, their codes, accents, ways of dressing - all the elements that we understand to compound their personal behaviour and sense of collective identity. The invasion of a territory can be both physical or visual, and each receives a different type of protection. Barriers and physical distance can be used for the former kinds, whilst visual barriers are appropriate for the latter. The maintenance of territoriality is related to the degree of visibility inside it, permitting the detection of invasive behaviour.

f) Privacy:

This is the selective control of access to a person or a group. It can be described as a control process involving interpersonal events, permitting participation in social life, controlling (by means of denial or permission) the web of relationship established by the social collective. Desirable levels of privacy can be established by means of spatial, verbal and cultural behaviour. Normally, the common sense of privacy is obtained by using spatial elements to separate activities, or even using time, scheduling activities in order to separate them. The patterns of privacy inside a cultural set may change with time, and normally the ruling culture constructs behavioural rules in order to govern the correct expression of actions inside a public space.

g) Identity

This is the conjunction of beliefs, ideas, and the general qualities that make us able to sense that we are at the same time unique and able to share social life values. Individually, identity promotes differentiation and individual distinction. Collectively, it provides elements that the individuals recognize as patterns (behaviour in the space) that allow the integration of a person into a group. So, identity involves both the individual domain and the public domain. The concern about preserving a place's identity is shown by the efforts taken to maintain and reveal the unique elements of a place. This involves a previous intentional idea of what to express (the identity), the elements of which are unique, and why, and it expresses consciously the maintenance of its identity. Other mechanisms can be used to express the identity of a place, such as rules affecting people's behaviour.

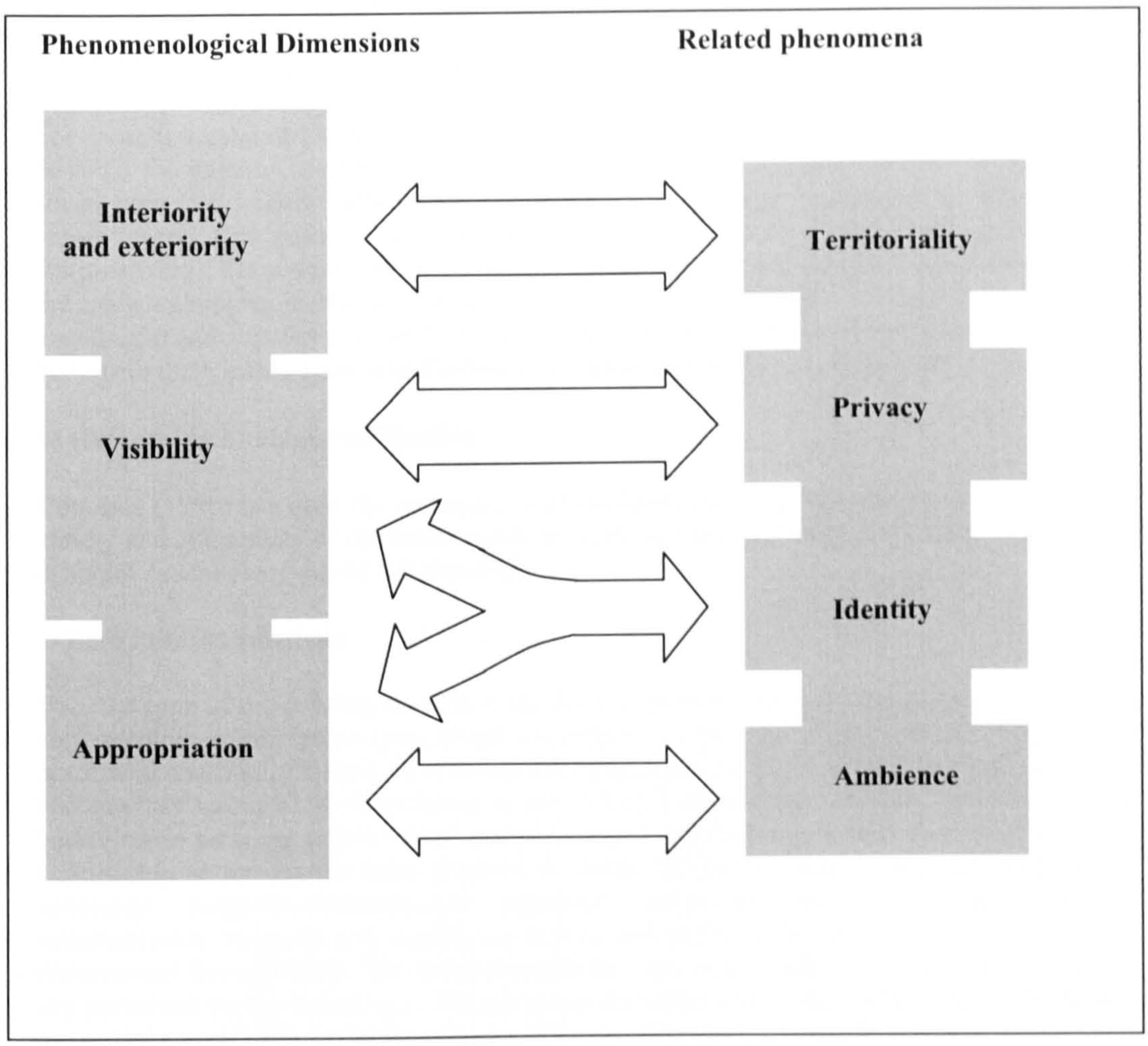

Table 39: Phenomenological (existential) dimensions and their relation to the spatial qualities of place.

h) Ambience

This quality is related to all those aspects that turn a place into an enjoyable space. It touches the subjective dimension, in which one can experience emotional responses to a place. To observe this quality we need to interpret how people are willing to maintain the space

Those qualities are described in many authors, such as in Rapoport (1977) , Korosec-Serfaty (1985), Relph (1976), Altman (1980) and many others who have studied the qualities of place.

II. Information Technology

a) Essence of Information Technology

Communication is primarily about the coordination of commitments to act (Flores 1998). The Cartesian tradition thinks of communication as the transfer and processing of information, but, overcoming this restraint it is possible to consider that, beyond being used to transfer information, language does other things. Austin shows that human beings do not normally act in the world by simply transferring, disassembling, and reassembling basic things. We can transfer, assemble, and

disassemble things using communication, but we almost always do that by also changing the status of things within the community. In this sense, communicative acts are the means by which we normally change statuses by creating new identities, duties, rights, affects, and values.

For most it seems obvious that information technology has made all sort of new arrangements possible for humans to continue to construct increasingly complex systems of coordination and social ordering, without which systems contemporary society would not be able to exist in its present form. This point of view assumes that technology and society co-constitute each other (Introna 2005). They represent the condition of each other's possibility for being. Technology is not the artifact alone but is also the technological attitude or disposition that made the artifact appear as meaningful and necessary in the first place. However, once in existence artifacts and the disposition that made them meaningful also discloses the world beyond the mere presence of artefacts.

b) Human / technology relationship

Don Ihde (1990) has used the resources of phenomenology to give a rich and subtle account of the variety and complexity of the relationship between humans and technology. Ihde characterizes four different *I-technology-world* relationships.

c) Embodiment relations

The first type of relationship he calls embodiment relations. In this case technology is taken as the very medium of subjective perceptual experience of the world thus transforming the subject's perceptual and bodily senses. In wearing my eyeglasses, I do not just see through them - they also become 'see through.' In functioning as that which they are, they already withdraw into my own bodily sense as being a part of the ordinary way I experience my surroundings. He denotes this relationship as having the form *[I-glasses]-world*. He further argues that this relationship has a necessary 'magnification/reduction structure' associated with it. Embodiment relations simultaneously magnify and amplify or reduce and place aside (screen out) what is (and is not) experienced through them. The moon through the telescope is different from the moon in the night sky perceived by the naked eye. The person at the other end of the online chat is made present to me across a great distance at the expense of being reduced to text on the screen.

d) Hermeneutic relations

The second type of human/technology relation is what he calls hermeneutic. In this type of relationship the technology functions as an immediate referent to something beyond itself. Although I might fix my focus on the text or the map, what I actually see (encounter) is not the map itself but rather immediately and simultaneously the world it already refers to, the landscape already suggested in the symbols. In this case the transparency of the technology is hermeneutic rather than perceptual. As I become skilled at reading maps they withdraw to become for me immediately and already the world itself. He denotes this relationship as having the form *I-[map-world]*.

e) Alterity relations

The third type of human/technology relations Ihde calls 'alterity' relations. In these relationships technology is experienced as a being that is otherwise, different from me - technology-as-other. Examples include things such as religious icons and intelligent robots (the Sony dog for example). In my interaction with these technologies they seem to exhibit a 'world of their own.' As I engage them they tend to disengage me from the world of everyday life and point to the possibility of other worlds, hence their pervasiveness in activities such as play, art and sport. He denotes these as having the form *I-technology-[world]*, indicating that the world withdraws into the background and

technology emerges as a focal entity with which I momentarily engage—as I play with my robot dog for example.

f) Back grounded relations

Ihde also recognizes a fourth type of human/technology relation in which technology is not directly implicated in a conscious process of engagement on the part of the human actor. Ihde refers to these as background relations. Examples include automatic central heating systems, traffic control systems, and so forth. These systems are 'black-boxed' in such a way that we do not attend to them yet we draw on them for our ongoing everyday existence. They withdraw as ongoing background conditions. Although he does not designate it as such, one might formalize these relations in the form: *I-[technology]-world.* These invisible background technologies can be powerful in configuring our world in particular ways and yet escape our scrutiny.

g) Types of Humans / Technology relationship on forming a place

The next step, in order to develop a methodology, is to look for which human/technology relationship matches with the phenomena of a place. This means looking at what the relations *'embodied', 'hermeneutic', 'alterity'* and *'backgrounded'* have to do with the creation of a place in terms of its essence, that means the external/internal definitions, its visibility terms, and its appropriation in terms of suiting human purposes.

The concept of *embodied relations* between human beings and technology could be a tool to understand how the sense of interiority/exteriority deals with information. Considering the visibility and correlated physical phenomena related to privacy, it is possible to understand the codes that interpret the interpersonal controls in order to create a private or public realm, matching an interpretation (*hermeneutic basis*) of this dealing. The *identity and alterity* phenomena seem to be interrelated as well. Such study is presently ongoing, and it is therefore somewhat premature to systematise any theory about it at this juncture.

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g) Fargate Project Rationale

The following is the original text presented by the architect students to the Fargate Project, in 2006:

The city centre of Sheffield is an area of varied activities unlike any other city in UK. The Fargate area marks the central landmark of the city. The identity of this landmark is due to this diverse mix of activities.

Problem

The Sheffield City Centre, at present, can only be identified by the local activities as it has no prominent feature of its own. The locals are unable to relate themselves with the space due a lack of an existent landmark in this space. Even the activities in the centre are widespread and are not concentrated in a particular zone. People use this space for general activities such as meetings, shopping, walking through the space etc., which can be performed in many other similar spaces around the city. Thus, activities have to be concentrated and of particular interest to the local communities related to the space. The shops and retails in the area are normally close in the evenings at around 6 o'clock which makes the local spaces inactive at this time. The city centre in general should be livelier and attract people at this time of the day. Thus, the main aim here would be to make the social activities pursued in the evening at the city centre active by introducing various entertainment based activities.

Solutions

The main objective of this project would be to improve the Fargate areas by the use of 3D visualization techniques and digital augmentation. The combination of these ideas would help solve various conflicts listed above, through the introduction of new modes of multimedia communication in this area. The result of this technique will help to provide an interactive information relating to Sheffield in general an Fargate in particular. The main idea of this project is to create a landmark in the Fargate area which portrays the identity of Sheffield in general and yet highlights the development of modern technology in this area. At one end of this interactive wall is the circular Information kiosk. This kiosk displays information about city of Sheffield, places of interest, its industrial history and also about the city council. The kiosk also contains an interactive map in the central portion which provides information about directions to various places in Sheffield from the city centre. The kiosk then unfolds into a series of displays panels along the full length of Fargate Street. These displays panels are located on a light weight wall , which has a free flowing form. These interactive displays panels have multiple functions which are provided for different kinds of activities that occur in the space. In the central area of this street the wall gives way to a 3D Photo Capture Ring. This 3D ring comprises of a 20 cameras located at 30 feet about the grounding, all of which will focus on the central area. The camera meant to capture the activities happening in the central area for different times of the day. This ring concentrates the local activity into this central area and can also be used to form a digital archive of the activities that occur in this space during the night. Finally, ate the other end of the street, the panels terminate into a info-board which displays general information like weather time and also the images captured in the 3D ring.

h) Fargate Project Drawings

The following is a sequence of snapshots taken from screens of the multimedia elaborated by the architects to Fargate Street.

Figure 114: Initial screen to Fargate Project Presentation.

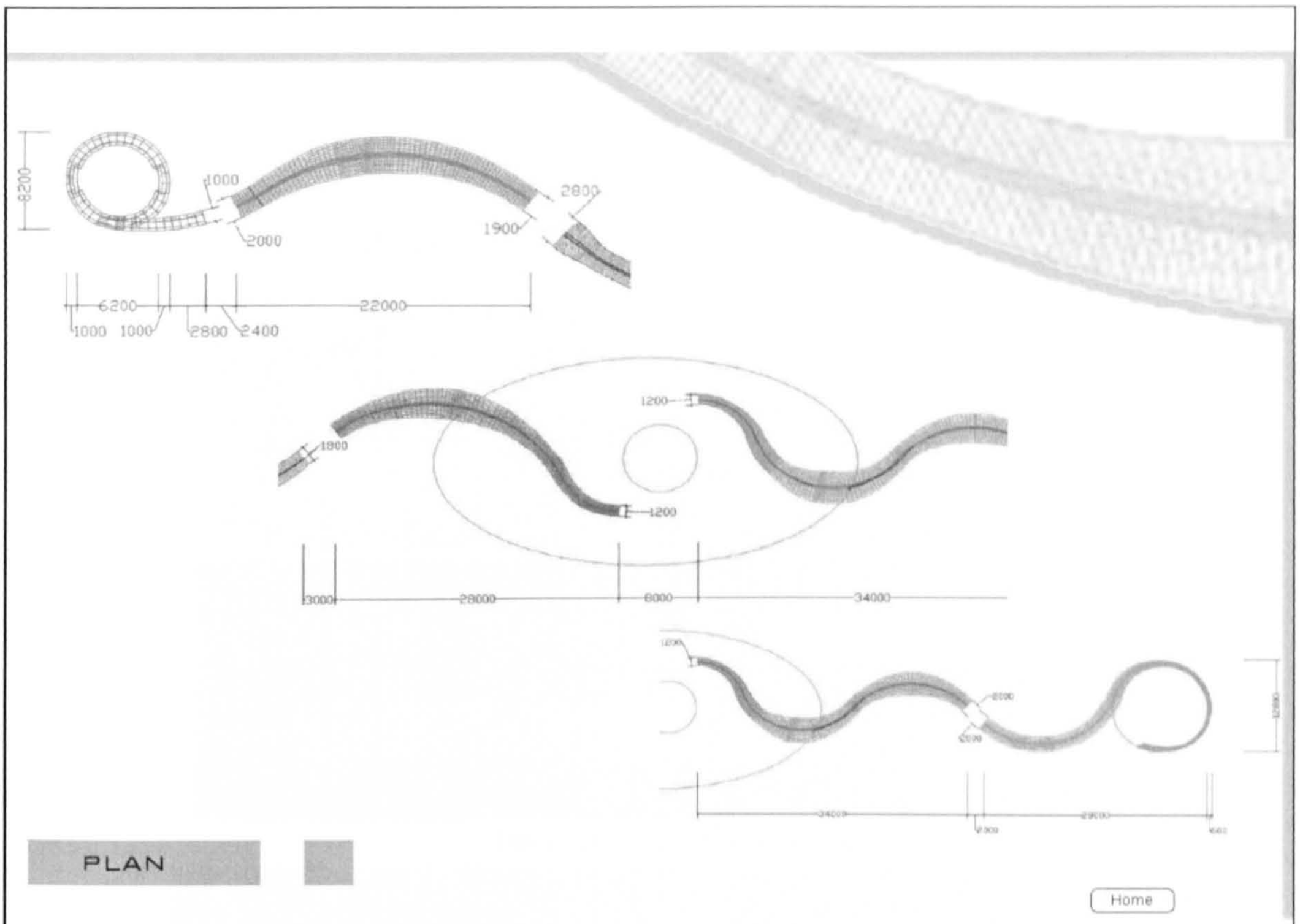


Figure 115: Plan view with general details of the multimedia panels.

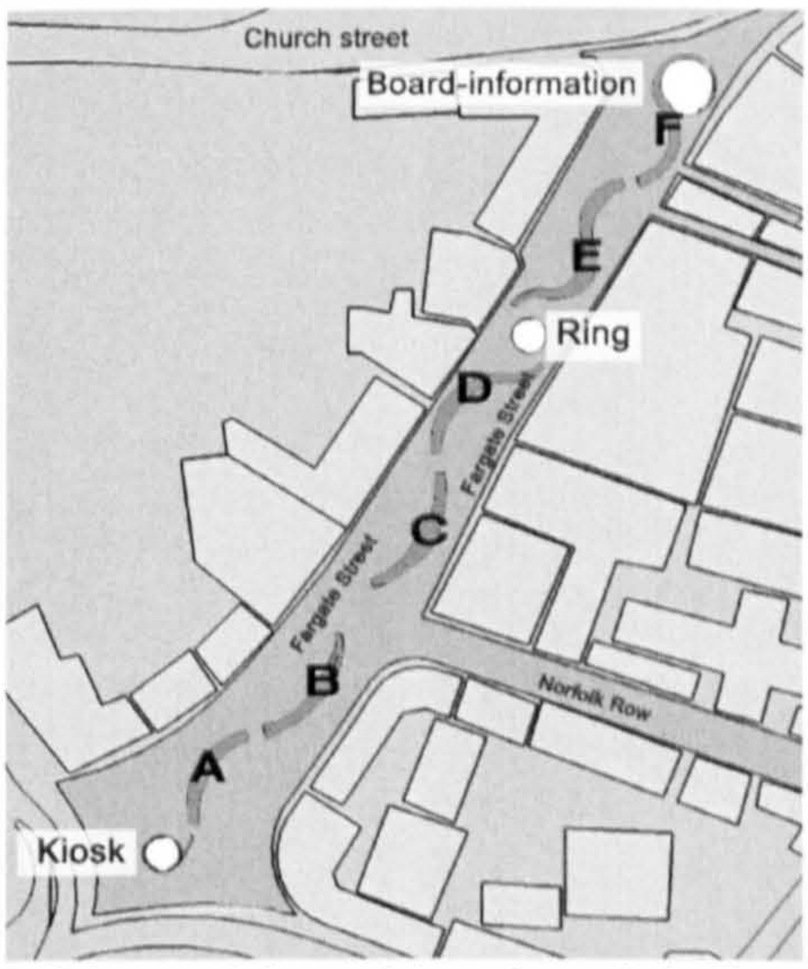


Figure 116: Scheme of the position of panels in Fargate Street.

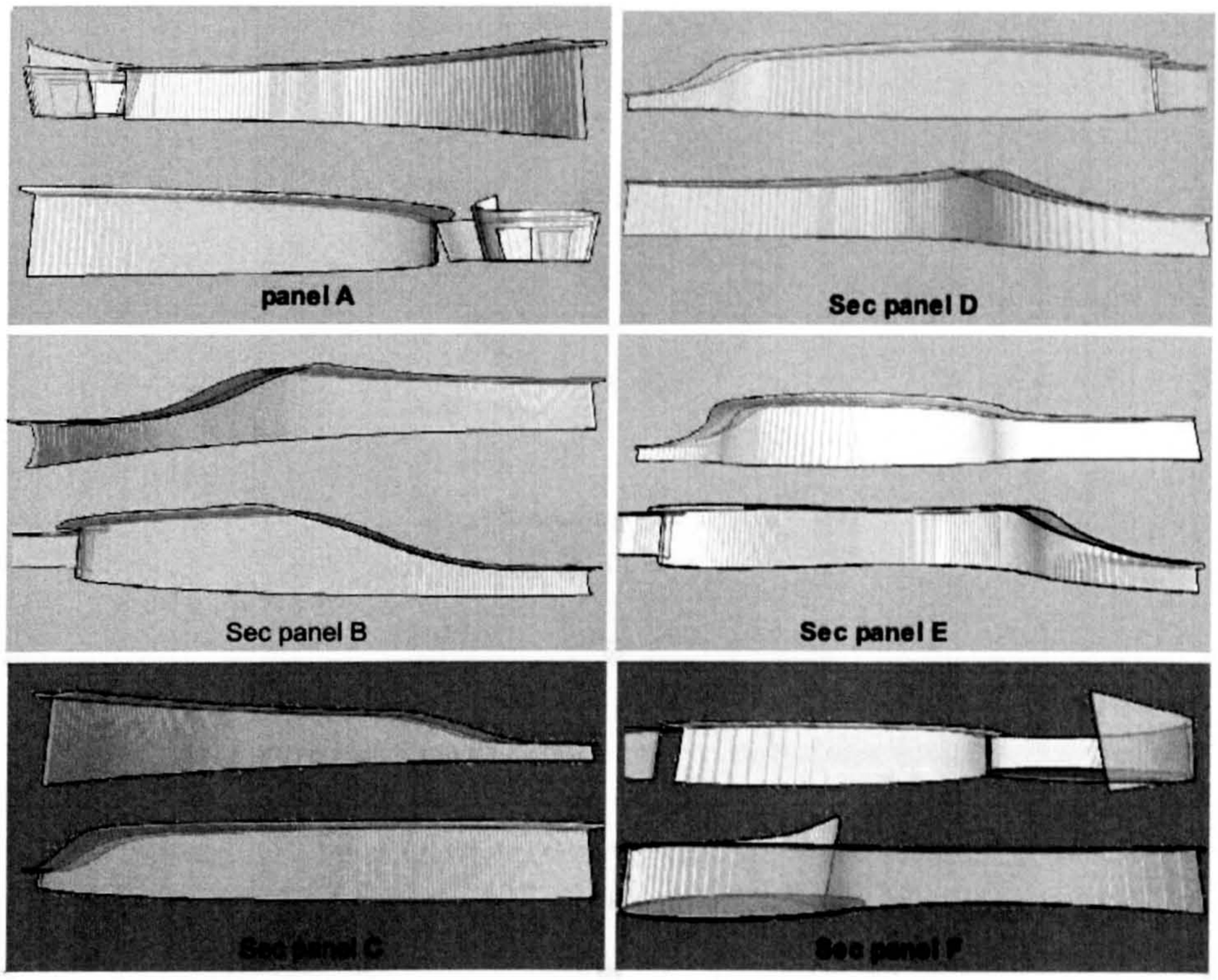


Figure 117: Elevation of the panels.

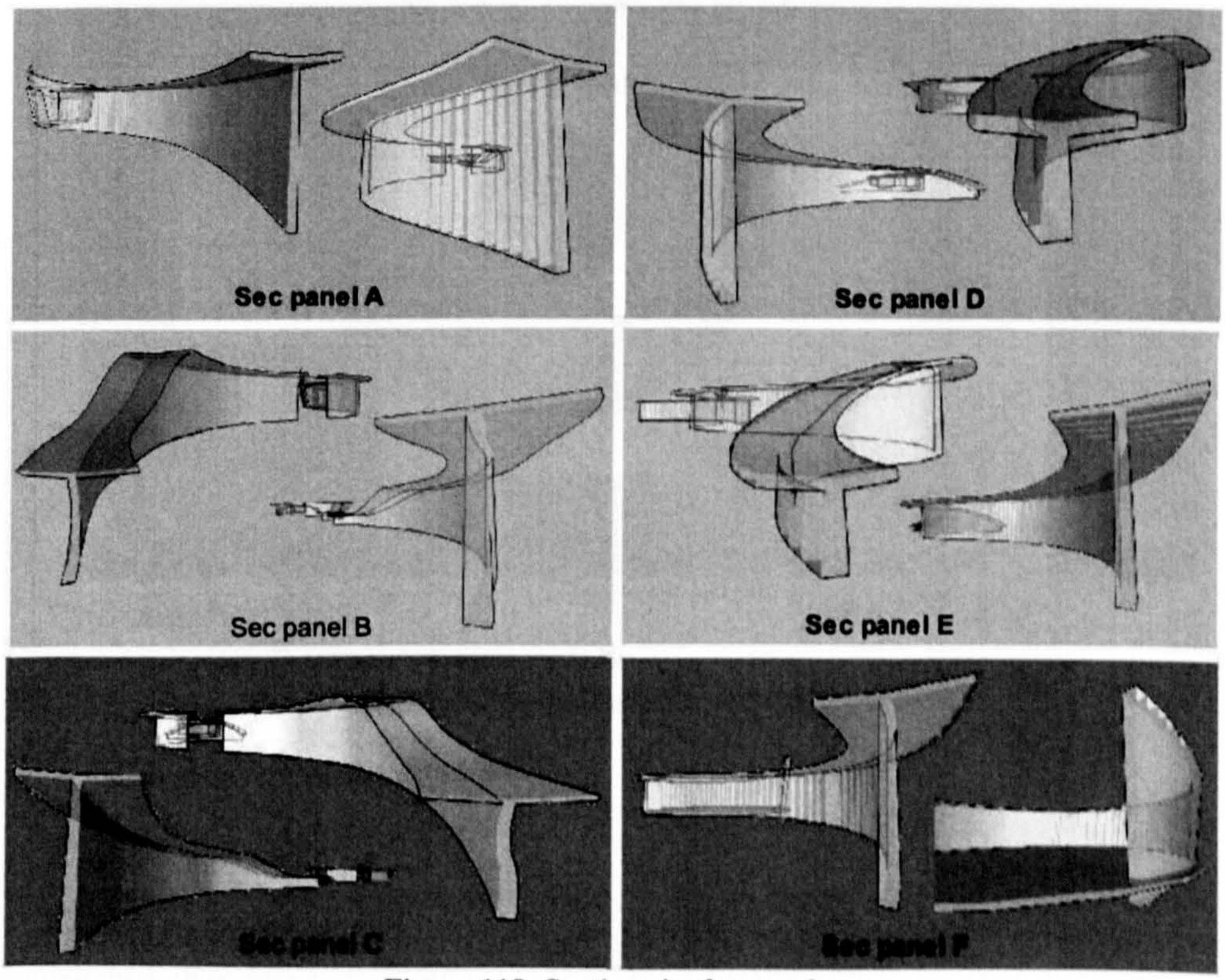


Figure 118: Sections in the panels.

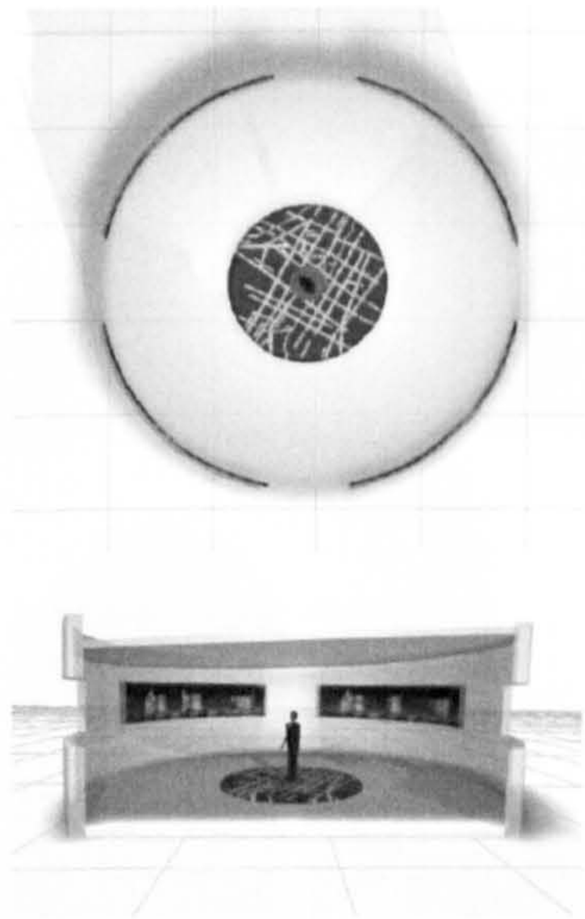


Figure 119: Plan and section of the Multimedia Kiosk.

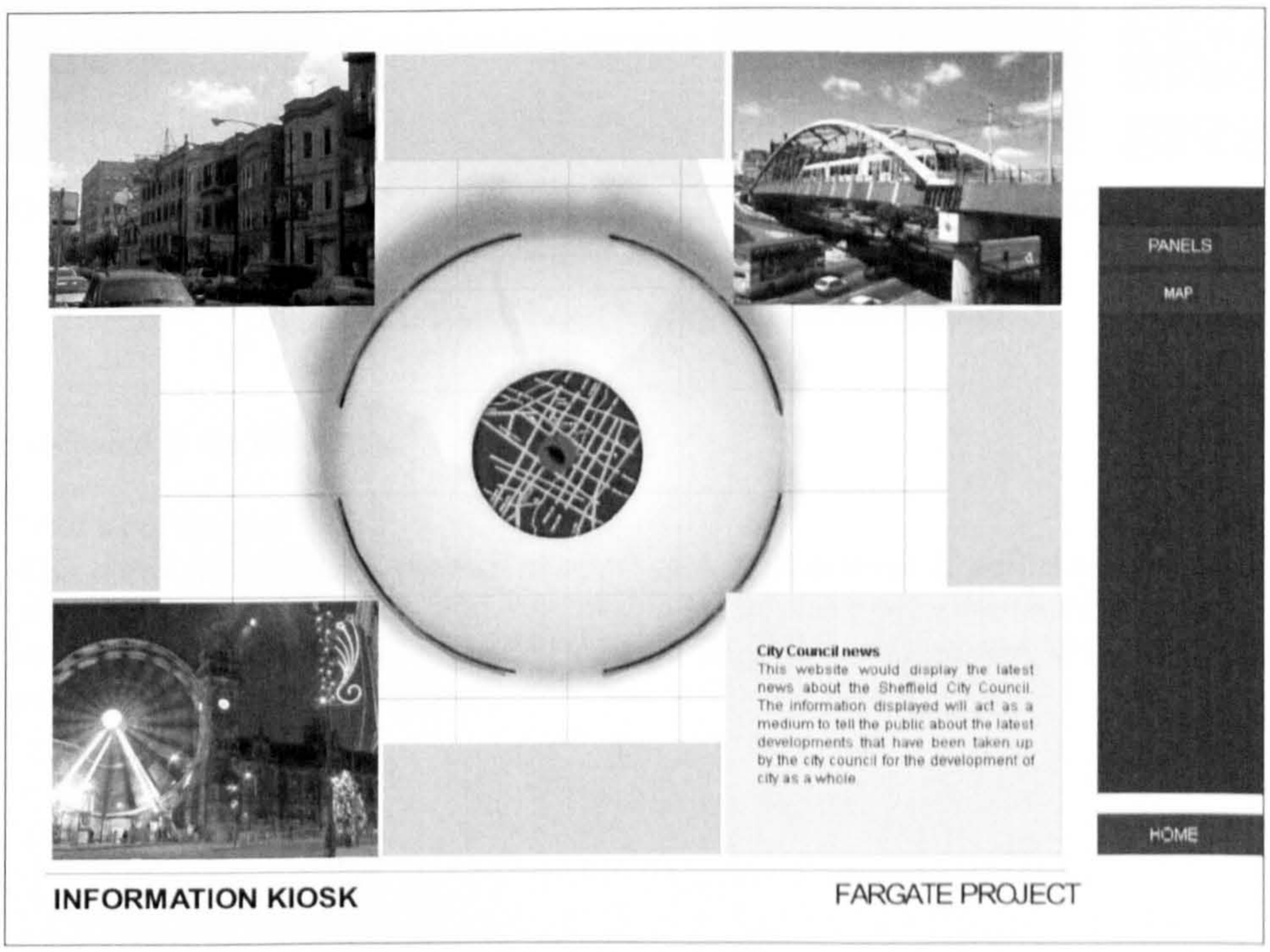


Figure 120: Kiosk Panel functions: site of City Council.

The text included is the following:

> "*City Council news*
> *This website would display the latest news about the Sheffield City Council. The information displayed will act as a medium to tell the public about the latest developments that have been taken up by the city council for the development of city as a whole.*"

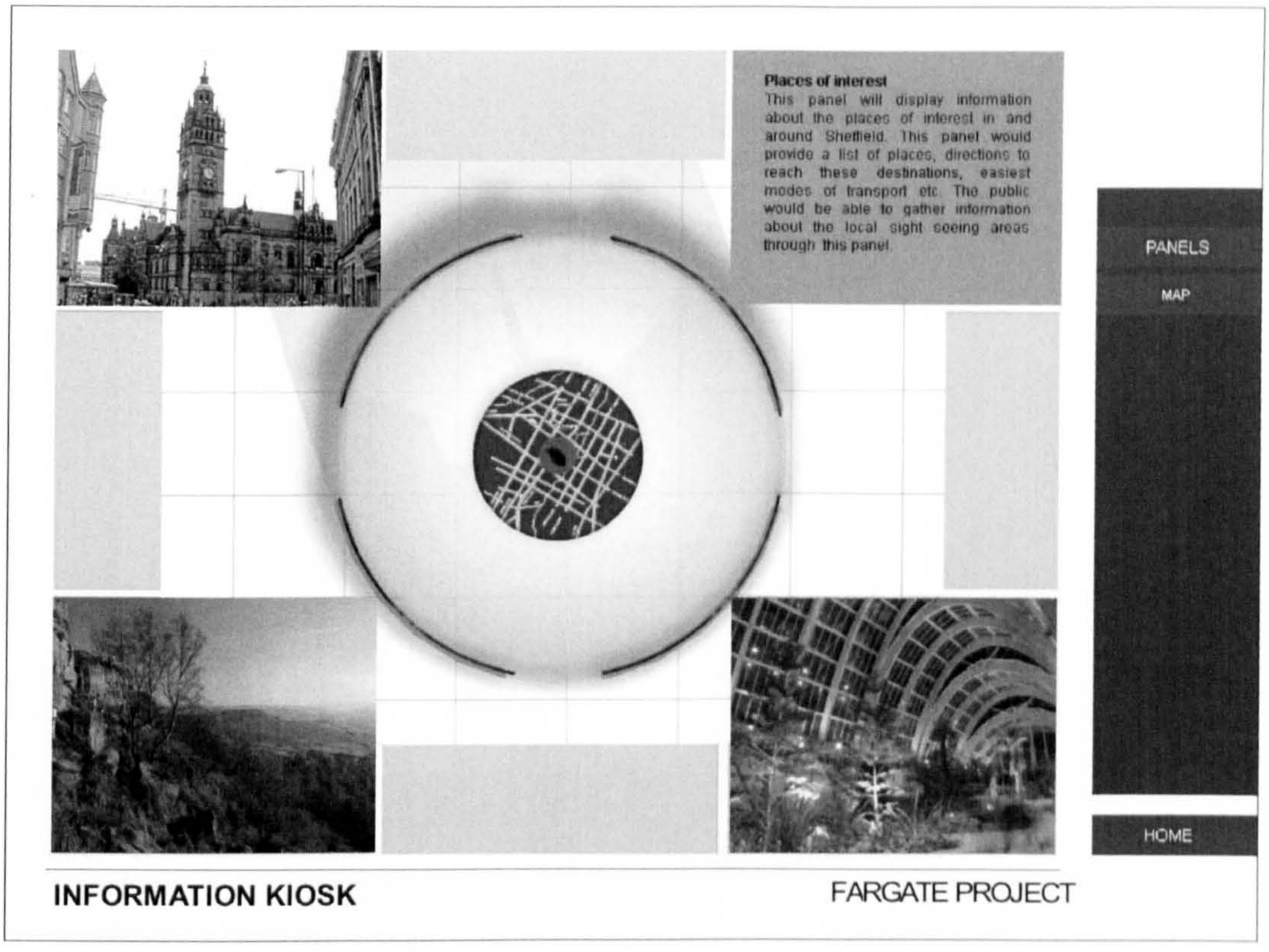


Figure 121: Kiosk Panel functions: places of interest

The text included is the following:

> "*Places of interest*
> *This panel will display information about places of interest in and around Sheffield. This panel would provide a list of places, directions to reach these destinations, easiest modes of transport, etc. The public would be able to gather information about the local sight seeing areas through this panel.*"

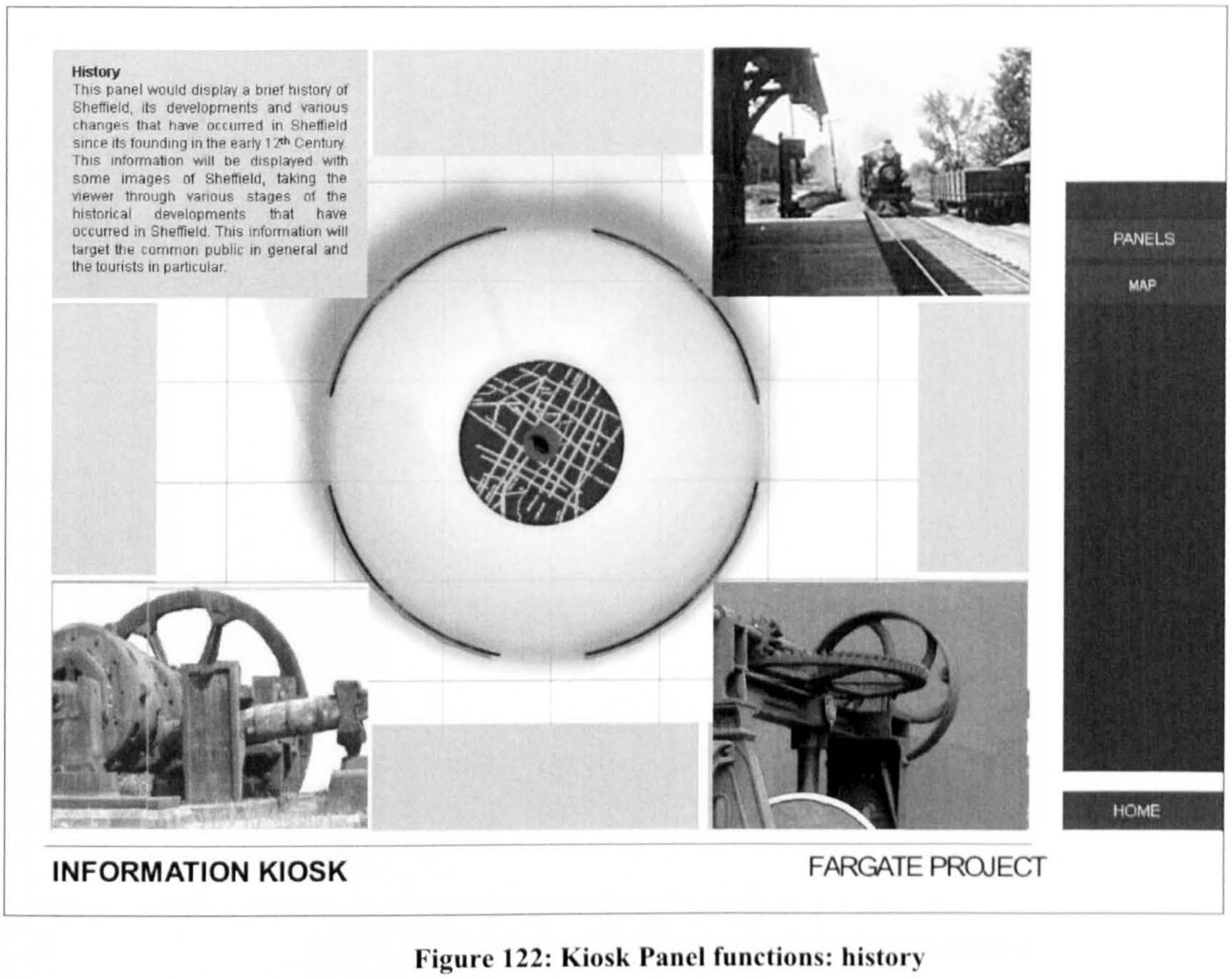


Figure 122: Kiosk Panel functions: history

The text included is the following:

"*History*
This panel would display a brief history of Sheffield, its developments and various changes that have occurred in Sheffield since its founding in the early 12th Century. This information will be displayed with some images of Sheffield, taking the viewer through various stages of the historical developments that have occurred in Sheffield. This information will target the common public in general and the tourists in particular".

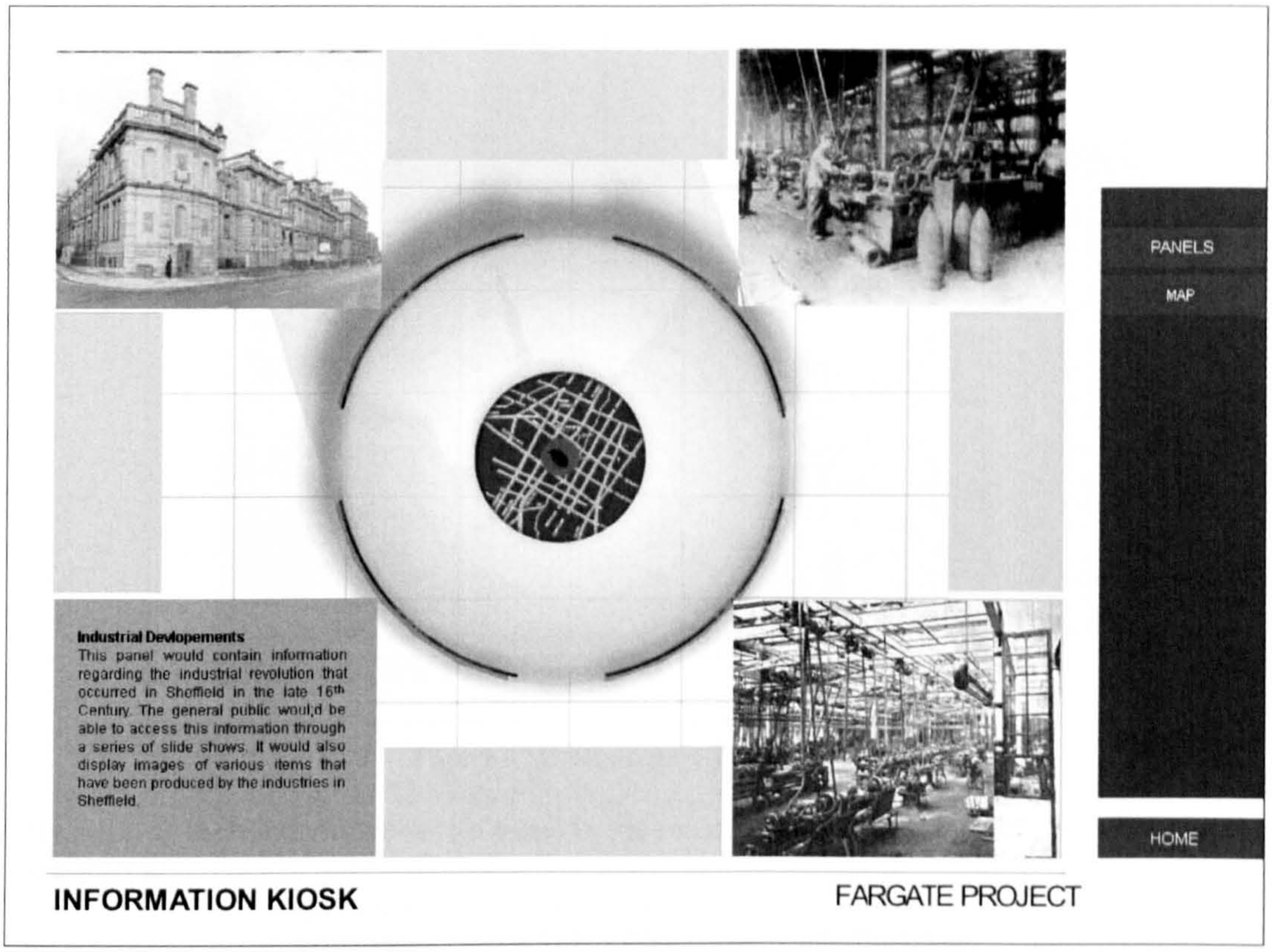


Figure 123: Kiosk Panel functions: Industrial developments

The text included is the following:

> "*Industrial Developments*
> *This panel would contain information regarding the industrial revolution that occurred in Sheffield in the late 16th century. The general public would be able to access this information through a series of slide shows. It would also display images of various items that have been produced by the industries in Sheffield.*"

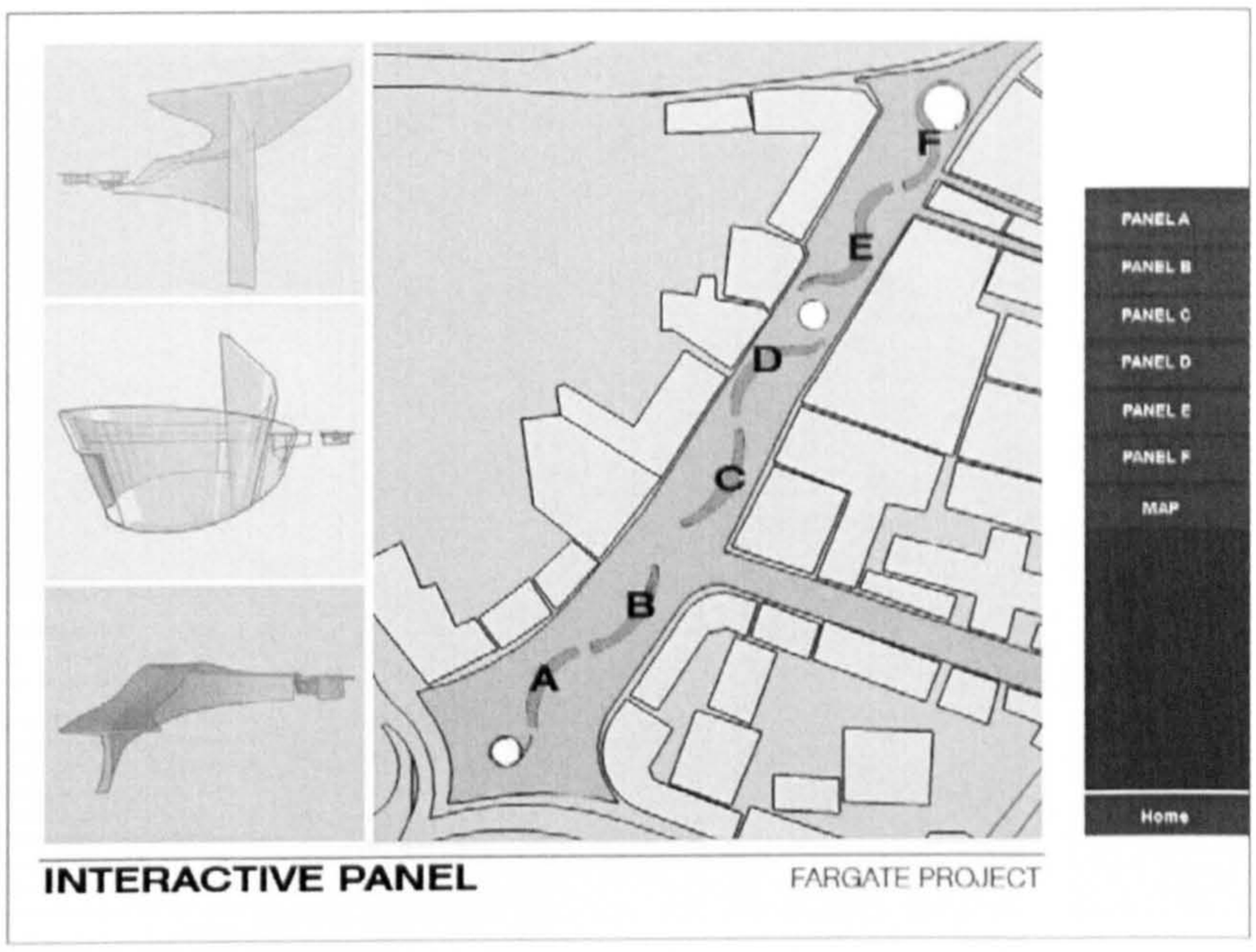


Figure 124: Interactive panels of Fargate.

By clicking each letter relative to a panel in the screen shown in Figure 124, the following pictures are shown:

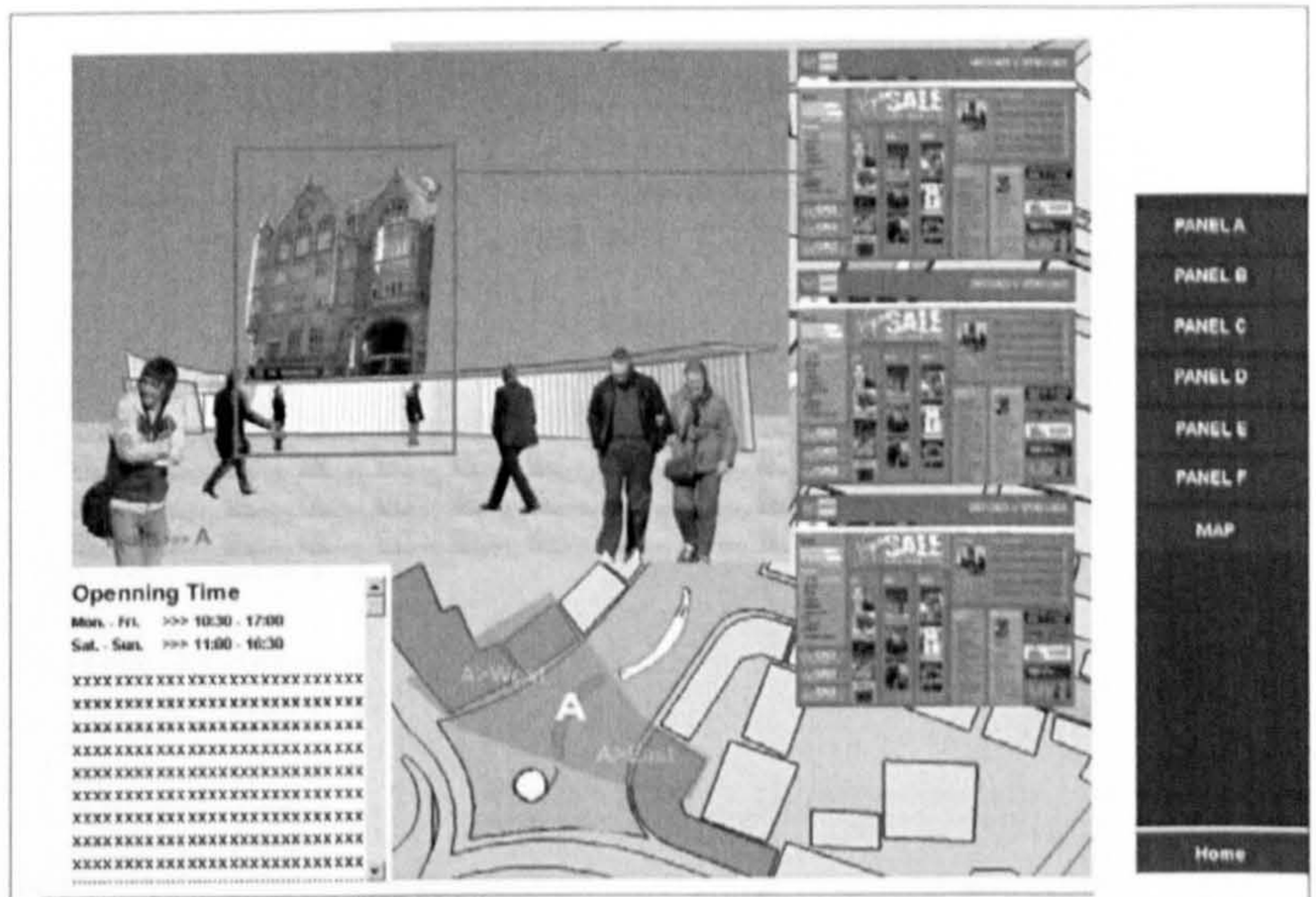


Figure 125: Panel "A" presents, in front of a building, a display which shows information about the shop lodge there. The shop website is linked in the same screen.

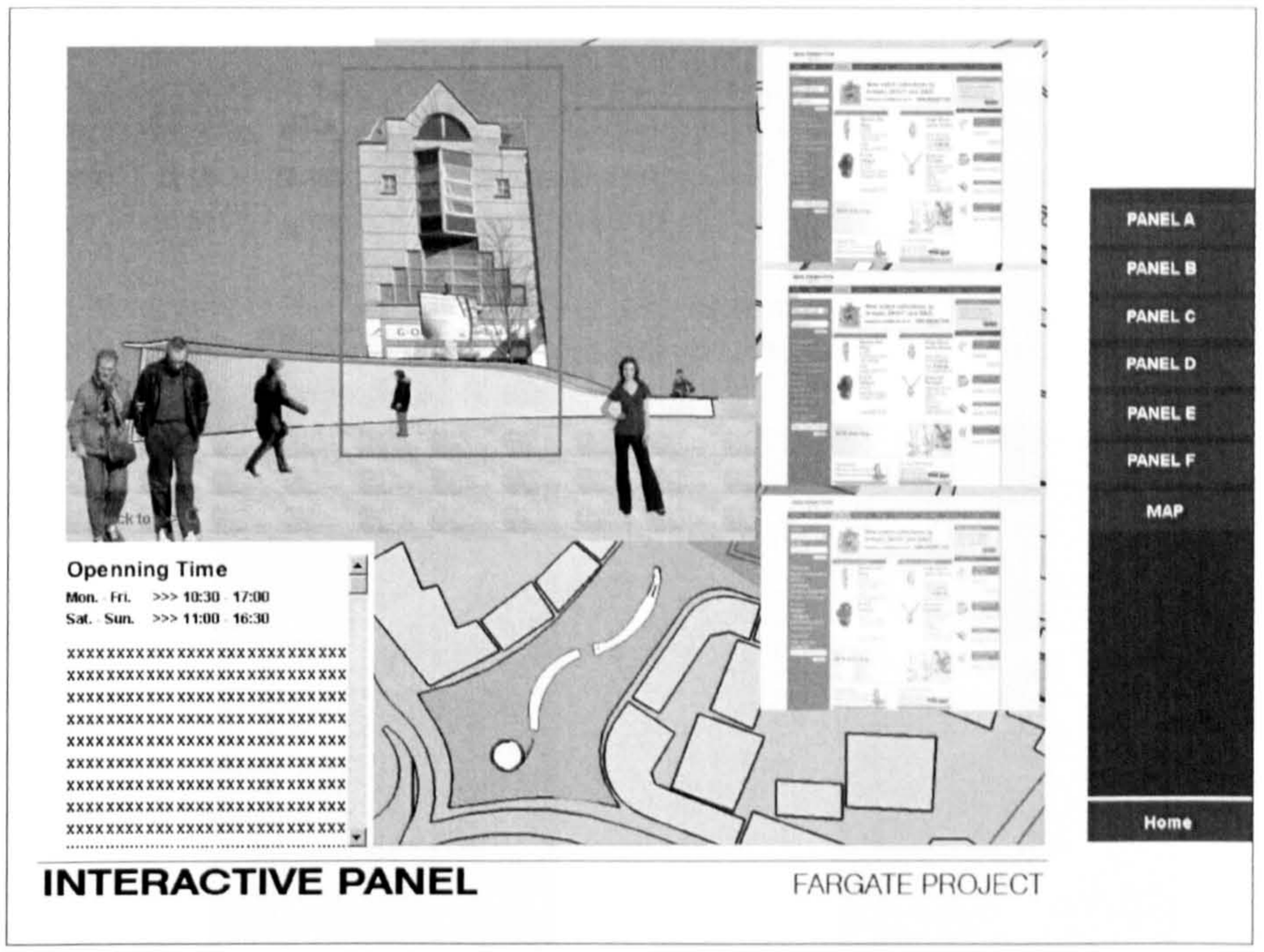


Figure 126: Example of the links between the building and the website of the shop lodge in it. Other local Information, as the opening times, is included.

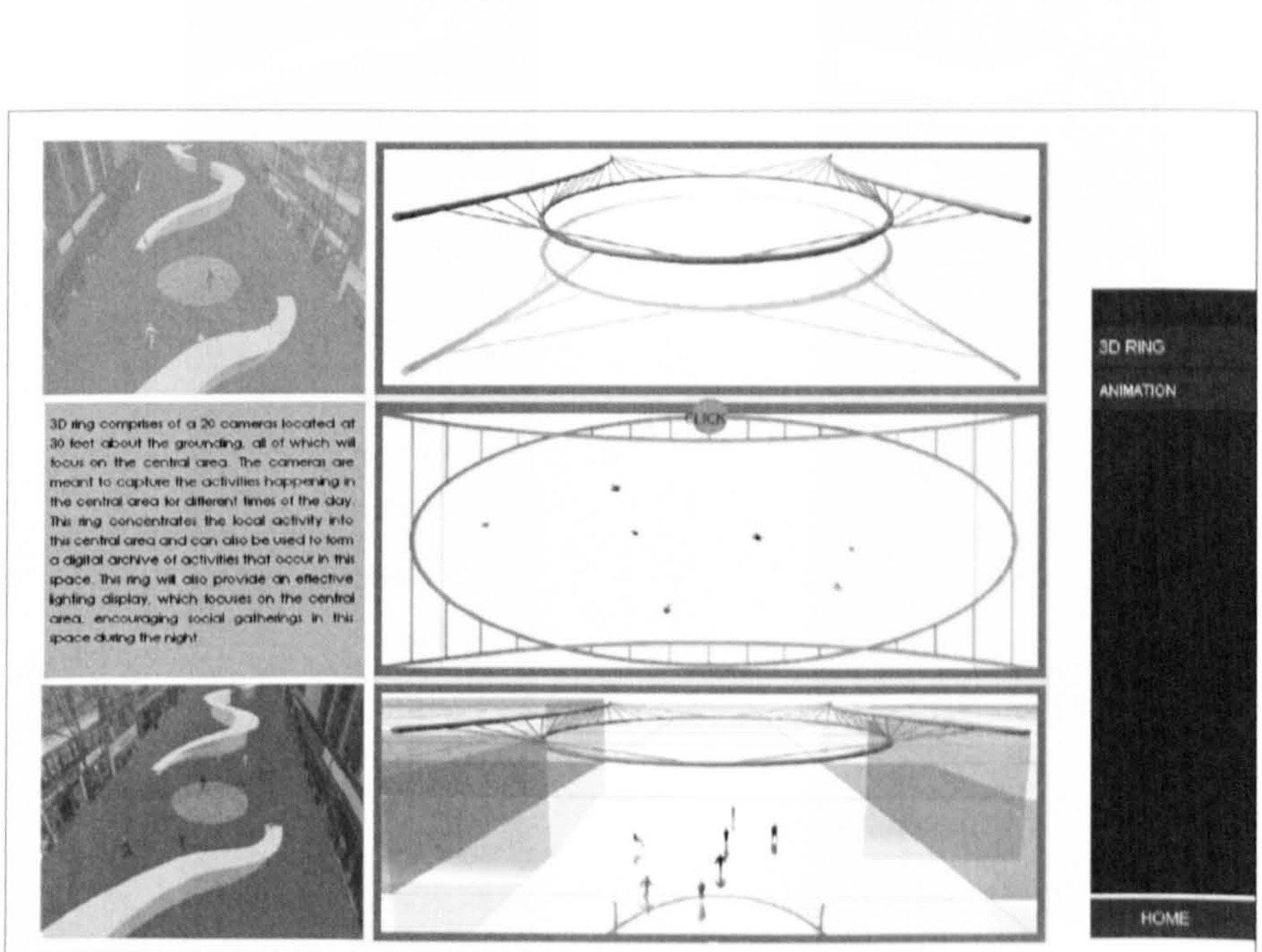


Figure 127: The Photo Capture Ring

The text included is the following:

> *"3D ring comprises of a 20 cameras located at 30 feet about the grounding, all of which will focus on the central area. The cameras are meant to capture the activities happening in the central area for different times of the day. This ring concentrates the local activity into this central area and can also be used to form a digital archive of the activities that occur in this space. This ring will also provide an effective lighting display, which focuses on the central area, encouraging social gatherings in this space during the night."*

Also this screen presents an animation of the cameras video-shooting the central area, moving around the ring when the orange dot is clicked and another of the visualization of that movement. The following pictures are related to that:

Figure 128: Contact Sheet of the Ring animation.

Finally, these following pictures were taken from the animated walk-through in the extension of Fargate Street:

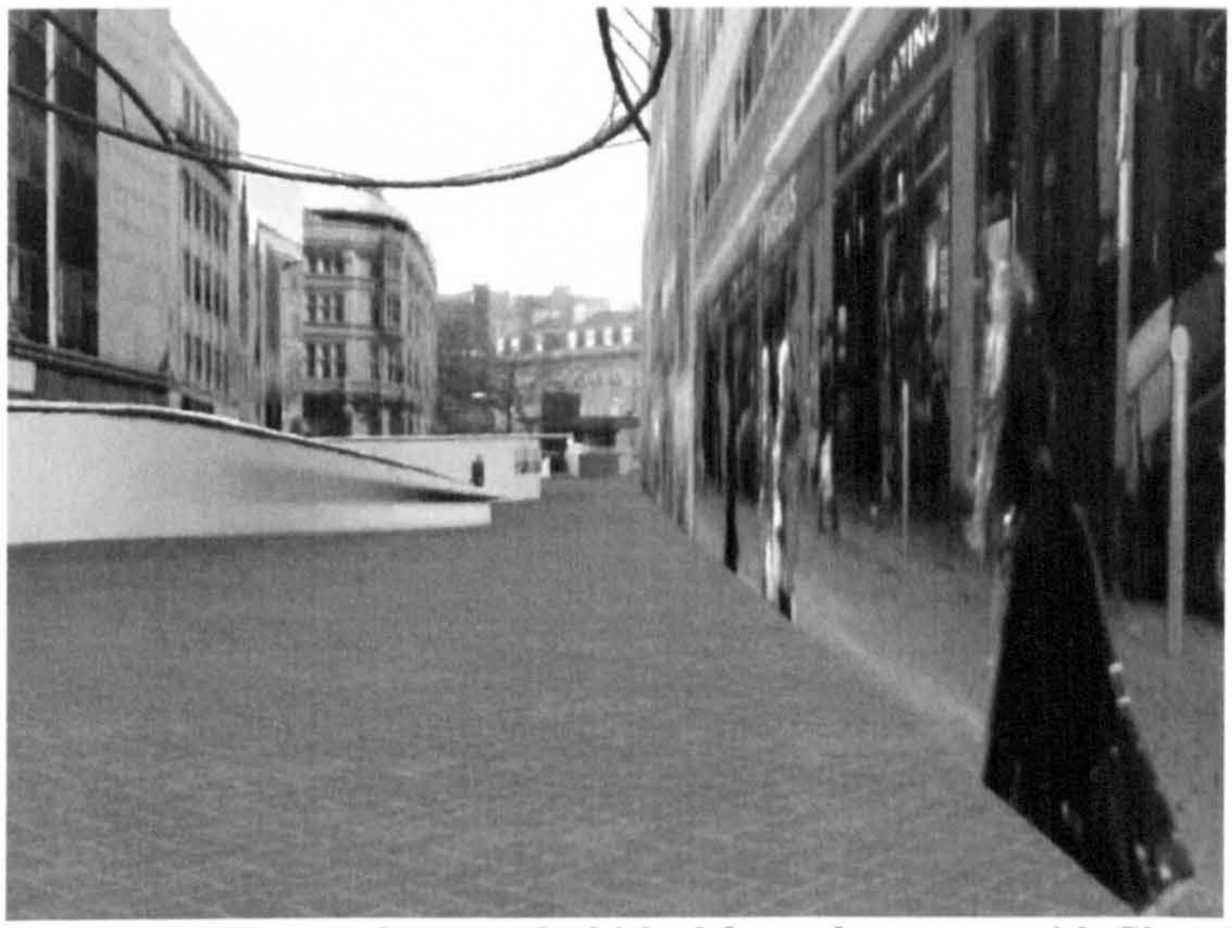


Figure 129: View of Fargate Street refurbished from the corner with Church Street.

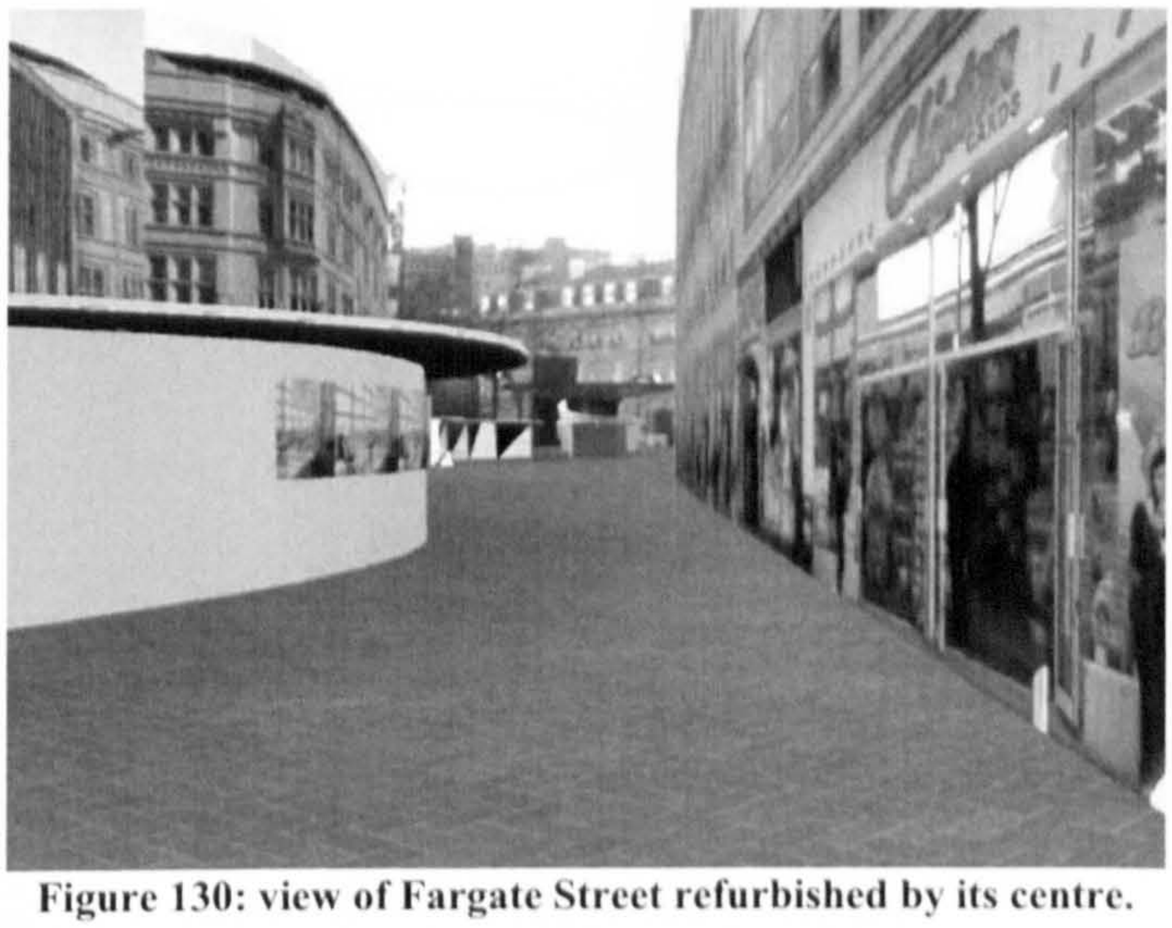


Figure 130: view of Fargate Street refurbished by its centre.

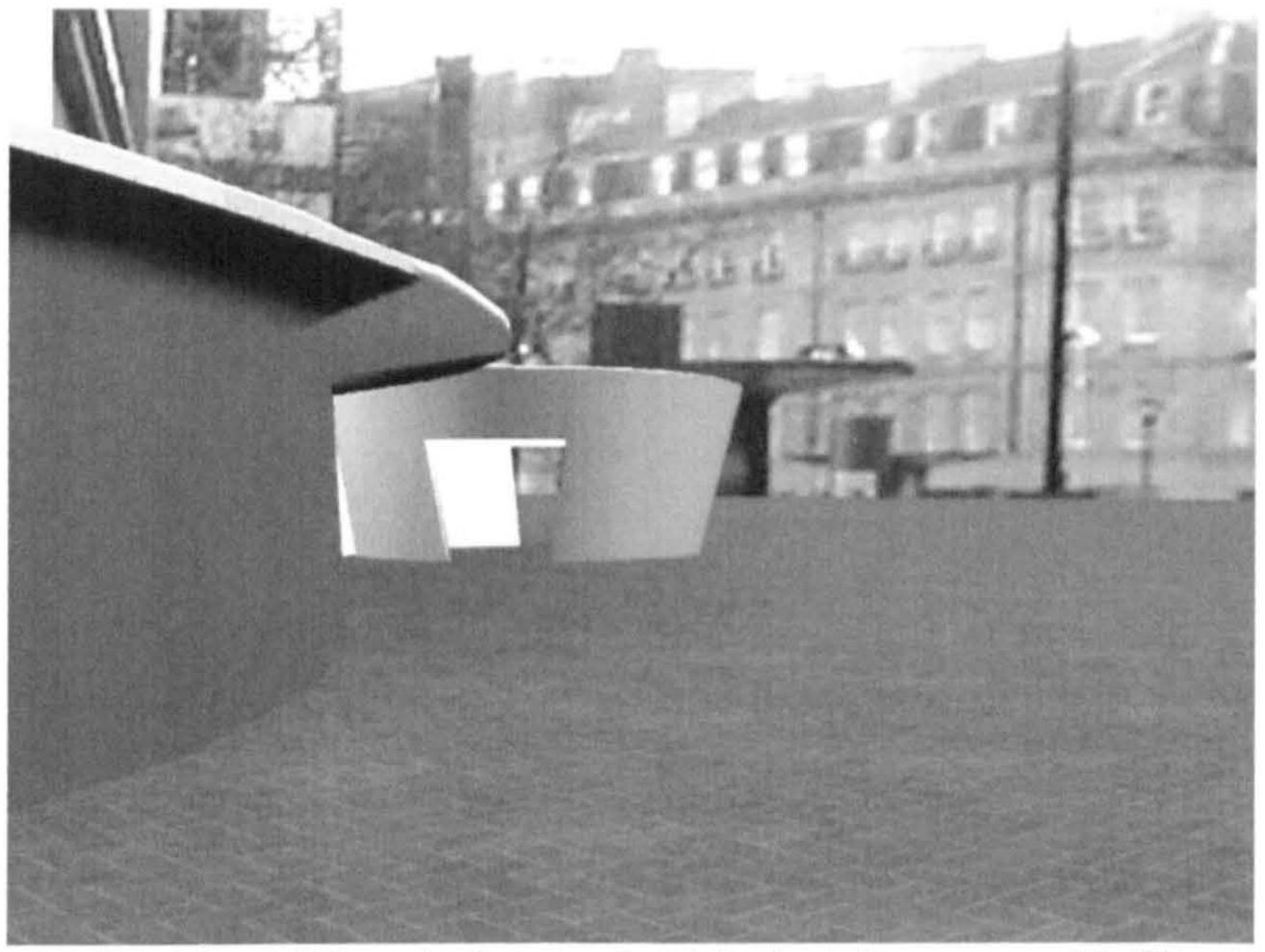


Figure 131: View of Fargate Street refurbished, at the corner with City Hall.

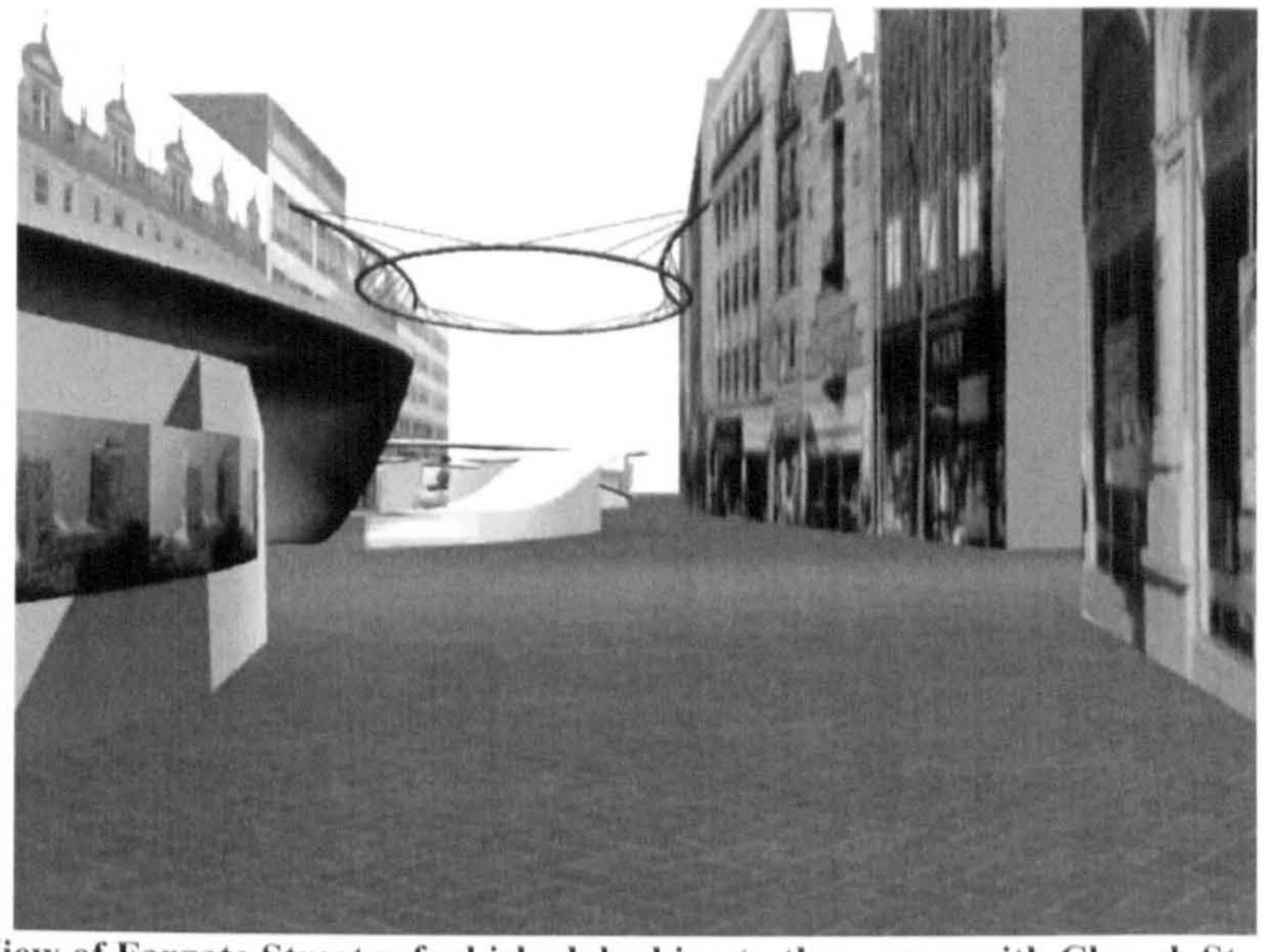


Figure 132: View of Fargate Street refurbished, looking to the corner with Church Street, envisaging the Photo Capture Ring in the middle.

i) Framework in 2007: Tables IT in place

The following tables correspond to the amendments made in the framework in the year of 2007, as it is reported in Volume I, section 7.5 of Chapter 7 on page 171.

Component to sense the place	Microprocessors process programs, remember information, and perform calculations.	Territoriality interiority and exteriority	Privacy visibility	Identity Visibility	Identity Appropriation	Ambience Appropriation
		Related to Interiority when they are spatially spread in order to store and deliver information about delimited areas, interiors, fences, limits.	Related to visibility when they offer access to information about position, regarding implementation of data to represent graphically invisible situations that can interfere with privacy, approximating to invasion, absence, invisible invasion, etc...	Microprocessors embedded in elements of the place can store information about those elements. Would be more efficiently recognized by visual magnification or textual reference, potentially interfering with local identity.	Microprocessors could gather, process, and offer information about how some physical elements have been set up (moved, changed, appropriated, etc), enabling knowledge about how people use them to appropriate of the elements of place.	Microprocessors could gather information about user preferences, recording and calculating which situations have occurred, feeding others devices with information that help to customise the Ubicomp system.
		Example: In the '*In-Building Navigation Project*', microprocessors are used to help mapping building interior to inform the user where to go. (Huy Nguyen 2007) See http://www.cs.washington.edu/education/courses/cse477/projectwebs99au/groupi/	Example: Many applications can be designed, such as those similar to the '*Cricket Indoor Location System*', so as to sense the movement of target points using fixed microprocessors. The moving points become visible, showing potential invasion or intrusion into each territory. See http://oxygen.csail.mit.edu/index.html.	Example: '*The Laboratory for Intelligent Structural Technology* '(*LIST*) at the University of Michigan has developed many applications in which microprocessors and sensors are embedded in walls, structures and even inside the human body to monitor their conditions. Such technology could be easily translated to place elements. In some cases, the microprocessor could contain information about the element in which it is embedded to help visual identification, recognition and so on. See http://www.wimserc.org/	Example: The applications displayed at '*The Laboratory for Intelligent Structural Technology* '(*LIST* and the related Centre of Microsystems at http://www.wimserc.org/) are helpful to suggest that microprocessors can grab information about user modifications in the environment or set up of new arrangements of functions inside a place.	Example: Microprocessors integrated in systems can cope with monitoring the interior conditions of rooms and gathering data about the preferences of users. See http://oxygen.csail.mit.edu/index.html
Component to sense the place	**Sensors** detect action, measure physical quantities such as temperature, pressure or loudness and convert it into an electronic signal of some kind.	Related to interiority, for instance, when they are able to sense whether a moveable element is inside or outside a pre-established territorial delimitations.	Sensors are related to privacy by sensing proximity, invasion, thus permitting surveillance, and informing when an action is needed to react against invasion.	Sensors could permit identification of visible users according their tag. They could also Permit users to identify specific elements according to specific concerns.	By the use of 'gesture sensing' technology, they could Sense mechanical movements, adjustments in order to tune the system, distinguishing how the user appropriates the place.	These could integrate systems in order to sense changes in temperature, pressure, light, when the user tunes the system, allowing information about how the user appropriates the place to be gathered. These would permit the creation of collections of info about those variables in order to trigger actions.
		Example: See Cricket Indoor Project at http://nms.lcs.mit.edu/projects/cricket/	Example: This feature is extensively examined in the *In-Building Navigation Project,* http://www.cs.washington.edu/education/courses/cse477/projectwebs99au/groupi/. Other numbers of sensors indistinctly sense approximation and are commonly used in lifts, automatic doors and other devices.	Example: Once a user has a tag, a specific sensor to that tag can inform of his presence and exchange information, making the place '*more visible*'. It could support systems that deliver tourist information according to the interests of the users, identifying the	Example: Projects like the '*Easy Living Project*' (http://research.microsoft.com/easyliving/) look at all sorts of records of users' activities in order to facilitate interaction with controlled switches in an intelligent room.	Example: Associated with software configuration, users' records about the appropriation of of elements of place could facilitate interface contact, as it can be seen in the themes developed in the *Microsoft Socio-Digital Systems Group* at Cambridge (*http://research.microsoft.com/sds/*).

to sense the place	actors.	These detect territorial invasions and give information about how to behave, which territorial codes should be observed and about territorial limits.	what to hide or to show when representing graphically information about elements of place.	selection of specific types of information about what is being seen, so the local identity can be depicted according to user concerns.	about specific modifications occurring in the appropriation, such as info about the usage of physical elements	users with special needs, such as disabled people, about access, secure paths, age restrictions on users, etc.
		Example: A tagging situation can be seen in the surveillance process using electronic tags to sense the position, as is depicted at http://www.xtagltd.co.uk/xtag_faqs.html and http://indoorlbs.com/ld232.html	Example: Cards, tickets, bars codes, e-tags and others can select which resources will be available to a service, as in many commercial situations. (see an example of I-button at http://www.loelee.co.uk/2001/klmm/useibox.html)	Example: The User-Oriented *Pedestrian Navigation Service (utopian)*, developed by the University of Münster, is a location based service for recreation facilities and gastronomy offers combined with a navigation service for pedestrians. Because of tags, shops and services become visible. http://utopian-online.de/	Example: Tags can specify which users would have access to specific services and spaces in the place. This can be considered as a resource (energy, water, etc) saving measure in many situations when these are not needed for all the users.	Example: *RFT (Radio Frequency Transmitters)* are already used to assist disabled people in some services in UK. The tag, in this case, is the device for receiving the related information. (some similar mechanism can be seen at http://www.apogeeindustries.com/RFID.htm)
	Communication Links can form ad hoc network of devices	A set of elements from a place could be established in the form of links so as to act as delimiters, defining interiors.	Physical elements that grant visibility can be networked and can trigger actions to block or control privacy.	Physical elements can retain a certain level of flexibility in terms of location, inside a visual field defined by the linkage among them.	Former configurations of physical elements can be detected. New configurations can be memorized and stored.	Linkage established can reveal users appropriation and preferences.
		Example: Some resources provided by *Crossbow Hardware* Platform permits intermittent and ad hoc linking to create a web between devices. See http://www.xbow.com/Products/productdetails.aspx?sid=245	Example: At http://www.xbow.com/Products/productdetails.aspx?sid=245 it is possible to see examples on Environmental/Agricultural Monitoring and Analysis.	Example: In some instances, a set of linked devices can make the visibility of a node inside the boundaries created by the links visible and 'tangible'.	Example: In projects such as the '*easy living*' (http://research.microsoft.com/easyliving/) furniture and user habits can be memorized as clusters linked together within the interior.	Example: A sequence of devices used in a room can, by linking ad hoc, communicate the user's behaviour. Easy living project mention such strategy. (http://research.microsoft.com/easyliving/)
Component to modify the place	**Actuators** alter a system's state when it is triggered by appropriate conditions. They translate electronic signals into physical actions.	Actuators can affect the territory by opening or closing elements of enclosure, adjusting it according to specific local requirements (movable walls, ceilings and canopies, floors, internal directions, fences, delimiters, all in form of servomechanisms)	Openness and visual barriers can be controlled by servomechanisms.	Elements of place can be positioned for better visibility by the use of actuators. Visual identifiers can inform about local identity according to the schedule of activities in the place.	Actuator can provide adjustments of physical elements according to conditions demanded by user habitation, their weight, physical efforts required, movements, etc.	Actuators can be used in self cleaning technologies, auto-adjusting comfort conditions, such as '*brises*', wind-breaks, sound barriers, etc.
		Example: Simple automatic doors connected to sensors; automatic bollards controlled by software.	Example: Liquid crystal glassing can act as actuators integrated into an IT system. http://www.glassonweb.com/glassmanual/topics/index/crystal.htm The Building *L'Institut du Monde Arabe* by Jean Nouvel is also a notable example.	Example: Building *L'Institut du Monde Arabe* by Jean Nouvel.	Example: The site http://brl.ee.washington.edu/Research_Active/Haptics/Haptics_Index.html provides many devices to regulate conditions to do with user interaction.	Example: The *L'Institut du Monde Arabe* can be regarded as appropriation since the façade suits the lighting requirements of the interior.
Component to modify the place	**Controls** make it participatory.	Controls need to be easy to manipulate inside the territory, with distinctive identification, resulting in easy recognition of the group that belongs to the interior. The gestures and movements they make could be regarded as a form of territorial behaviour.	Position and state of the controls can be designed in order to avoid revealing internal preferences to the outside world.	Control Positions need to be discrete so as not to interfere with the visible elements	Position and accessibility needs to be "readable" as universal adoption. Preferences about states previously set by users can be recorded.	Controls position needed to permit simultaneous human contact regulation through vision of elements controlled (windows, doors, bridges, fences). Optional states of control, instead of 'on' and 'off' only.
		Example: Systems of control for car parking can be connected interactively with information about available places.	Example: The operation of a control suggests some recognized body poses and gestures, revealing the operations.	Example: The appearance of buttons and handles can interfere with identity.	Example: Too many buttons and switches transformed the household videocassette recorder in a standard emblem of incomprehensibility.	Example: Controls that do not give feedback are uncomfortable and cause distress when it comes to ascertaining which levels were achieved, for instance, in dimming the heating or controlling sound.
Component to represent the place	**Displays** spreads out.	Displays in headsets can provide readable info in the territories. Confrontation of displayed information with territorial bypassed view can inform about uses, codes and limits.	Cristal liquid displays can control opacity; control of the number of angles displayed from an interior. Visual information about interiors can be brought outside.	Displays can depict information about history, physical characteristics, functional details, warnings, etc.	Displays can improve the understanding of physical changes of elements by showing degradation according to time, uses, etc.	Displays can create an interface for the control of elements involved in environmental comfort, accessibility, etc.
		Example: A small glass can be seen at http://www.microemissive.com/, which permits the aforementioned superimposition.	Example: Headsets used exclusively by one user, creating a kind of privacy.	Example: Headsets and screens can be used as to make visible structures which would be impossible to see without them.	Example: Intelligent scan can provide identification of recognizable patterns in the display.	Example: Displays with touch sensitive screens can parallel other devices in order to provide greater interactiveness.
Component to modify the place	**Fixed locations** track mobile positions.	Limits can be defined concerning the '*tracking position method*', permitting identification of location of the interior and purpose.	Mobile positions can be track[illegible] from outside, thus detecting invasions.	A sequence of fixed points can be coded as part of the specific context for a particular meaning in local identity.	Users can be tracked regarding their use of big areas or paths which are related to traditional local activities.	Detecting mobile points related to the movement of users can reveal fluxes that could overwhelm paths or roads, for instance.

		Example: Solutions developed by the company Wherify at http://www.wherifywireless.come exemplify the principles abovementioned.				
Component to represent the place	**Software** models situations.	Software can represent correct position to tagged objects or persons.	Three dimensional representations of physical positions can simulate closed relations, as in 3d virtual chatroons.	Software can represent physical contexts by the scrutiny of characteristics and properties.	Software can represent the temporally defined appropriation.	Software can represent data about the adjustments made to devices by people to achieve greater ambience.
		Example: Electronic tags and respective software such as those developed by wallmartstores.com.	Example: Second life software at http://secondlife.com/	Example: The software used to programme the façade of the museum Kunsthaus, Graz, Austria.	Example: Receiving input about the number of users, software can determine whether other resources would be needed.	Example: Software can store preferences in terms of user sets.
Component To represent the place	**Tuning the place**	The limits of an interior can be defined by more accurate tuning of the Ubicomp system.	Visible elements controlled by the Ubicomp system can be related to the process of tuning, thus affecting the level of privacy.	Limits defined by better tuning could be associated with visible marks, signs and emergency exits.	Tuning of the system can be regarded as the preferred way of balancing the Ubicomp system, thus becoming a factor of identity.	The 'tuning' process can be recorded in components that reveal people's appropriation.
		Example: Moveable enclosures can demarcate a crowded interior by 'tuning' its internal area with the number of people inside.	Example: 'Tuning' with the local activities can determine whether openness will be available according to the degree of privacy required in the scheduling of activities.	Example: Tuning is essential in the control of LCD displays embedded in glasses used to block sun light.	Example: A moveable structure can be controlled by tuning the efforts with the charges caused by its appropriation. Example: Carbon Tower project by Peter Testa. See http://archrecord.construction.com/innovation/2_Features/0310carbonfiber.asp	Example: The control of air can be achieved by tuning the openness according to the amount of Carbon Dioxide inside a room, as can be seen in the '*living glass*' project at http://www.thelivingnewyork.com/lg.htm

j) Campus Project: Educational Outcomes 2007

The following is the original text to introduce the theme of the exercise in ARC6700 Interactive Urban Visualisation Modelling, spring semester 2007. This text was modified into the text of the section "Campus Project: Project Brief 2007" on page 264 after adjusting it to module.

ARC6700 Interactive Urban Visualisation Modelling - 2007
Information Technology in the Project of Public Areas

Overview

This exercise comes from the hypothesis that Information Technology (IT) can help to qualify urban places when it is strategically applied. digital technologies components are considered here as electronic gadgets that permit the communicational interaction between different points in the space. They interact by exchanging information gathered about situated activities. In this process, they cope with different functions like sensing changes in the environment, coding it, processing and transmitting it. digital technologies components have specific spatial properties which permit their integration with activities and topology of the places. When organized in systems considering activities and spatial elements of the place, digital technologies components can act strategically, invigorating the place.

An urban place is defined as a space where the conjugation of physical properties and human activities has produced qualities as territoriality, privacy, identity and ambience. As far as those qualities can be regarded as situated processes of communication, it is reasonable to think that a system of digital technologies components, strategically planned in the space, can help solving spatial problems. As human activities in the place exchange information within located circumstances, then specific spatial configurations of IT components will be required.

In this exercise it will be studied strategies towards the design of IT applications in refurbishment of urban areas. A theoretical framework will provide conceptual terminology that is supposed to be used in the rationale of the project, as well in all discussions related. Discussion in groups and tutorials during the term will focus on the related content.

Context

The University of Sheffield was invited by an IT Company to use their products and services in order to apply IT components invigorating an public area inside the campus. In case of success, in the future the company will use this experiment as a case study that will figure in their commercial portfolio. It has been even offered to the university the opportunity to design and produce specific gadgets and embedded applications, to study their potential industrialization. As a counterpart, the University will be in charge of the physical recast required.

You were called to design a first study to this project, specifying how IT components will be used and which spatial changes will be required to invigorate a place at the campus. Hence, it is expected that you define:

How the place and its activities will be supported by IT (strategic IT plan);
Which physical modifications will support those IT applications (physical project) in the urban design.

Criteria

In order to budget future applications, the company has asked the University for Criteria to justify the application of IT in this situation. Thus, the School of Architecture has helped by defining that only problems detected in terms of conflicts between activities (that happen in the area) and the spatial elements that support it (their lack or malfunctioning) will be in the scope of this project.

To assure an affordable future usage of IT, you will be asked to justify your solutions in those terms, describing them in a Rationale when presenting the results.

Chosen Urban Area

The chosen area is the space between the *Students Union Building* and *Alfred Denny* buildings in the campus of the University of Sheffield. That space is divided by the concourse bridge which supports a segment of Western Bank Road. According to the interpretation of each student, the considered area can be larger as represented in grey colour in the Figure 133.

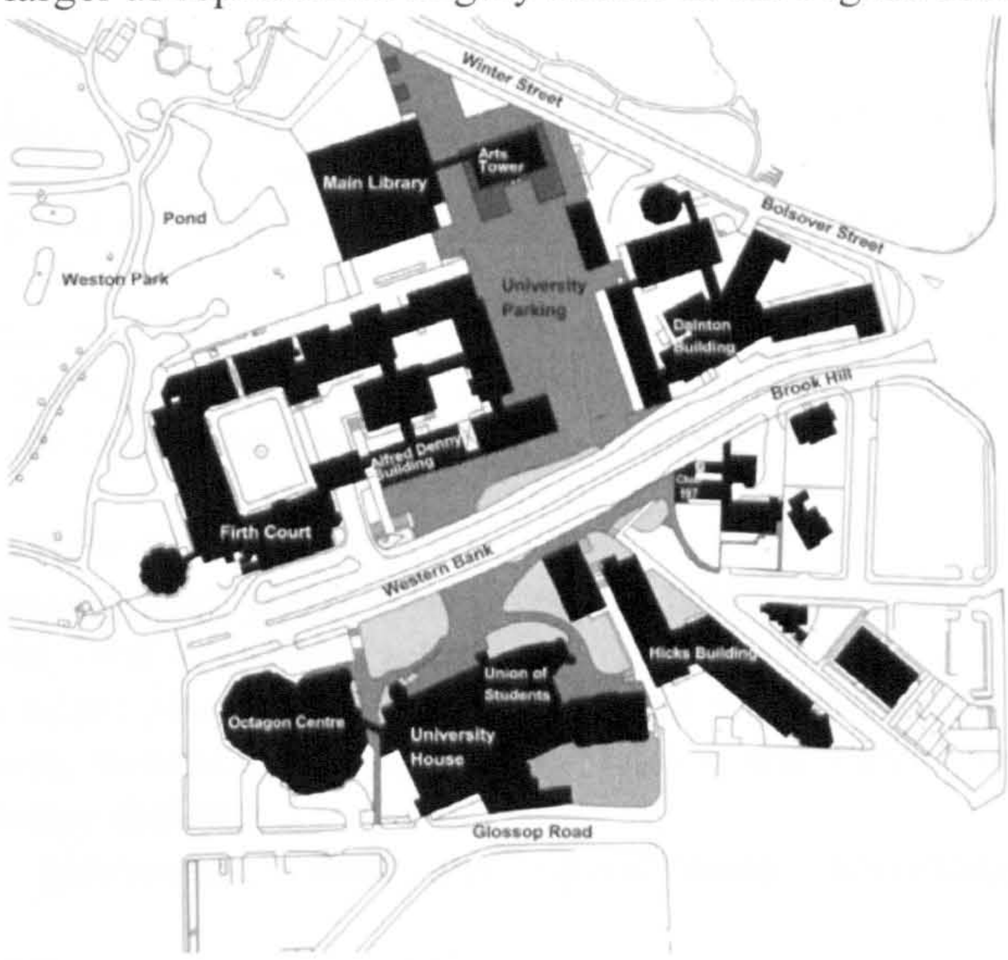


Figure 133: In Grey, the chosen area.

Some inferences about the existence of general spatial problems affecting the place's qualities can be taken by direct observation:

(a) There are not spatial delimitations in the territory of the target area and it probably causes problems in people's orientation, also originating difficulties in the occupation of the territory by distinct social groups. It follows that, unsuccessfully, groups try to appropriate the space but their presence is not frequent as to print an identity over the place.
(b) Various entrances and many others options of circulations elements surround the area and reinforce its character of temporary people's permanency.
The lack of an identifiable central point and a clear hierarchy of the exteriors also contribute to this situation, resulting in an undefined territory which sometimes is crowded and frequently is desert. This situation leads to a increasing surveillance;
(c) Physical transitions from the interiors to the exterior are made difficult as a result of the protection against the cold weather and the shape of the buildings without habitable and suitable

spaces of transition to social activities. The existent transitions regard only to functional circulation.
(d) In the ground floor, visual connections are also rare, resulting in isolation of the interiors from the external area, contributing to weaken even more the continuity from the exterior to the interior.

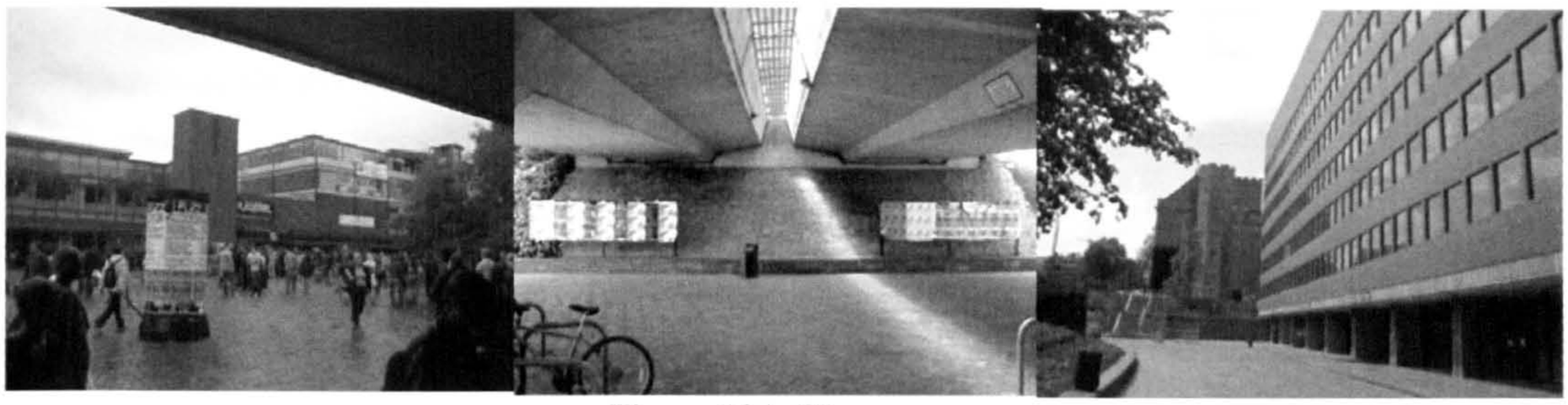


Figure 134: Chosen area

Expected outcomes:

A ***strategic IT*** *plan*, an ***urban design plan*** and a ***Rationale*** are expected as outcomes to this exercise. Their elements are specified as:

Elements to be present in the strategic IT plan:
In adequate scale, *a sheet could contain all drawings* (plans, sections, perspectives, charts and schemes) representing the clear understanding of:
All the elements created and utilized, as devices, fixed gadgets, wearable devices, portable or other movable units;
Schemes of connections, perennial and temporary webs, strategic fixed points and other spatial attributes related to the connection, interaction and transmission of information;
Scenarios that describe the user behaviour and a foreseen result;

Elements to be present in the urban design:
In appropriate scale, *another sheet could have drawings* (plans, sections, perspectives, charts and schemes) representing the clear understanding of:
All the spatial elements of the place, emphasizing those which have been modified or built;
Urban furniture as litters, benches, lamps, gardens fences and other important elements to be complemented by landscape design;
Ground details and pavements, with the specification accordingly to the purpose.

Elements of the Rationale:
Illustrated description (text, maximum 3000 words) of the identified conflicts which the project is addressing to, including justifications and all elements to the perfect understanding (Justification of solutions given, describing the role of IT in the activities)
Final analysis of general solutions in terms of place's qualities achieved.

Stages and related topics

Some educational objectives express stages of the exercise:
(a)Understanding the place:
Architectural attributes (dwelling), qualities of place (TPIA), Topology of the components of place (Centrality, enclosure, internal area, internal directions, entrances)
(b)Understanding IT components:
Types, topology and potential interference over place's qualities;
(c)Analysing the place:
Detecting Conflicts between activities and spatial elements in a given place;

Interpreting the conflicts detected as communication interferences (over the qualities of the place) in terms of information;
(d)Synthesizing solutions:
Planning the IT system of components that will help to solve the detected problems;
Designing physical changes to support the IT system planned;
Designing schemes of IT systems applied, specifying their functioning;
(e)Presenting the project, elucidating the new scenarios.

k) Campus Project: Project Brief 2007

The following is the original text of the course outline handed out to the architects of the discipline ARC6700 Interactive Urban Visualisation Modelling, 2007.

MArchStudies (Advanced Architectural Studies) • MSc (Computer Aided Environmental Design) •
School of Architecture, The University of Sheffield
ARC6700 Interactive Urban Visualisation Modelling
Course Tutor: Dr. Chengzhi Peng (c.peng@shef.ac.uk, Room 14.21, Arts Tower)
Auxiliar Tutor: Renato Cesar Ferreira de Souza
Spring Semester 2006/07, Thursdays, 2:00pm; Room 15.9a, Arts Tower
Course website: sucod.shef.ac.uk/arc6700/2007

Days of lecture and tutorials

2	Fri, 16 Feb 2007 - Lecture 1: Introducing ARC6700 + Brief for the Group Project
3	Fri, 23 Feb 2007 - Methodology for the Group Project
5	Fri, 09 Mar 2007 - Group Project Review 1
6	Fri, 16 Mar 2007 - Group Project Review 2
9	Fri, 27 Apr 2007 - Group Project Review 3
11	Fri, 11 May 2007 - Group Project Review 4

Group Project – Digital Augmentation of a University Campus Space (60%)
An initiative to improve the current state of the Concourse space has been launched jointly by the University of Sheffield and Delta Comm (a telecommunication company specialised in locative media technologies). The initiative now calls for a proposal of a campus space improvement scheme through the means of digital augmentation. Digital augmentation is defined here as an act of developing and deploying appropriate Information Communication Technologies (ICT) to resolve the spatial deficiencies/conflicts identified in an area. You are invited to submit a design proposal, specifying how ICT elements may be used and which spatial changes will be required to invigorate the Concourse space. Hence, it is expected that you define:

(1) How the campus space and its activities can be better supported by a Strategic Digital Augmentation Plan;
(2) What Physical Modifications are needed in the area to implement the strategic digital augmentation plan;

There is no specific presentation format to follow but your outline design proposal should provide the following information content:

- The Spatial Deficiencies/Conflicts of the campus area;
- A Strategic Outline Design of Digital Augmentation in response to the spatial conflicts identified;
- Detailed Design of the Digital Augmentation Components;
- Illustrations conveying the new spatial experiences engendered by the digital augmentation scheme.

Group Project Review 1 (09 March): Spatial Deficiencies/Conflicts Analysis + Initial Strategy
Group Project Review 2 (16 March): Detailed Strategic Digital Augmentation Plan and its Components
Group Project Review 3 (27 April): Detailed Design of the Digital Augmentation Components
Group Project Review 4 (11 May): From the Details back to the Strategy

Individual Essay of about 2000 words (40%)
Topics for the individual essay will be given out during Lecture 5 (27 April 2007).

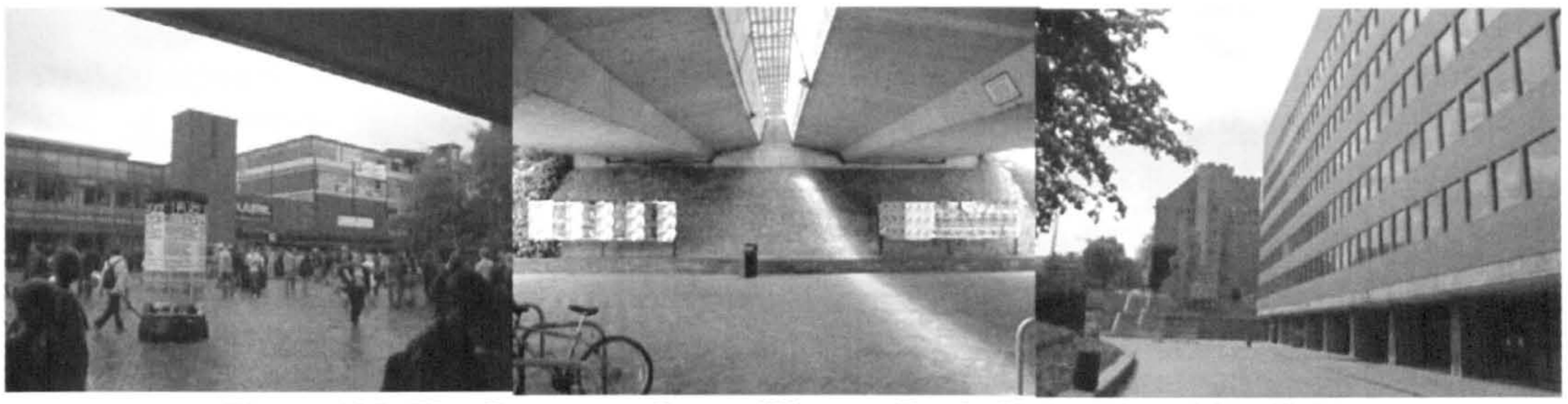


Figure 135: The Concourse Space, Western Bank, University of Sheffield

The chosen area is the space between the Students Union Building and Alfred Denny Buildings on the campus of the University of Sheffield. The space is currently divided by a concourse bridge which supports a segment of Western Bank. Depending on how the space is interpreted, the considered space for digital augmentation can be as large as the greyed area on the map below.

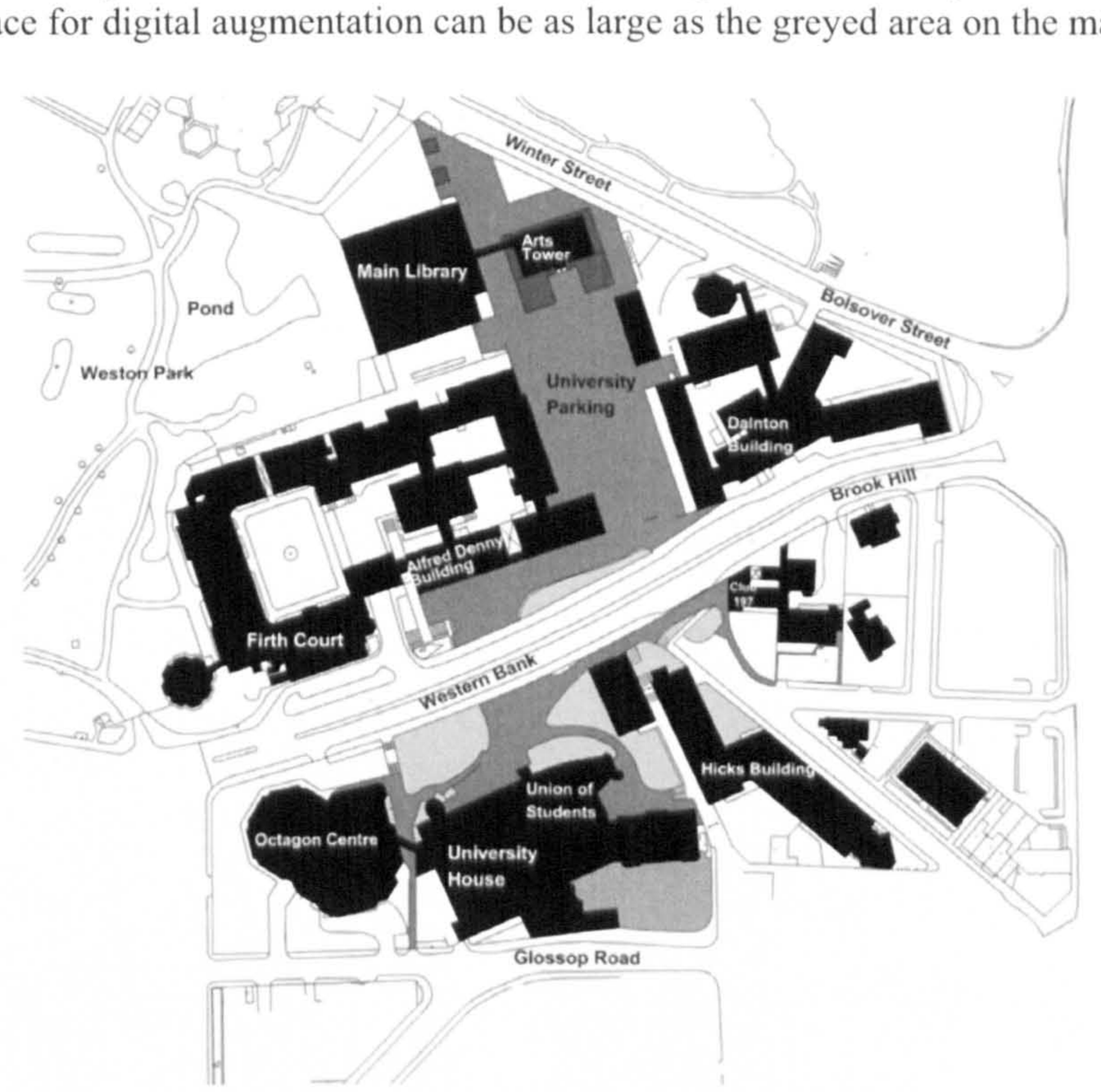


Figure 136: Area of the Campus Project

The following are some suggestions regarding how general spatial problems or conflicts affecting the qualities of a public place may be observed directly:

a) There are not spatial delimitations in the territory of the target area and it probably causes problems in people's orientation, also originating difficulties in the occupation of the territory by distinct social groups. It follows that, unsuccessfully, groups try to appropriate the space but their presence is not frequent as to print an identity over the place.

b) Various entrances and many others options of circulations elements surround the area and reinforce its character of temporary people's permanency.

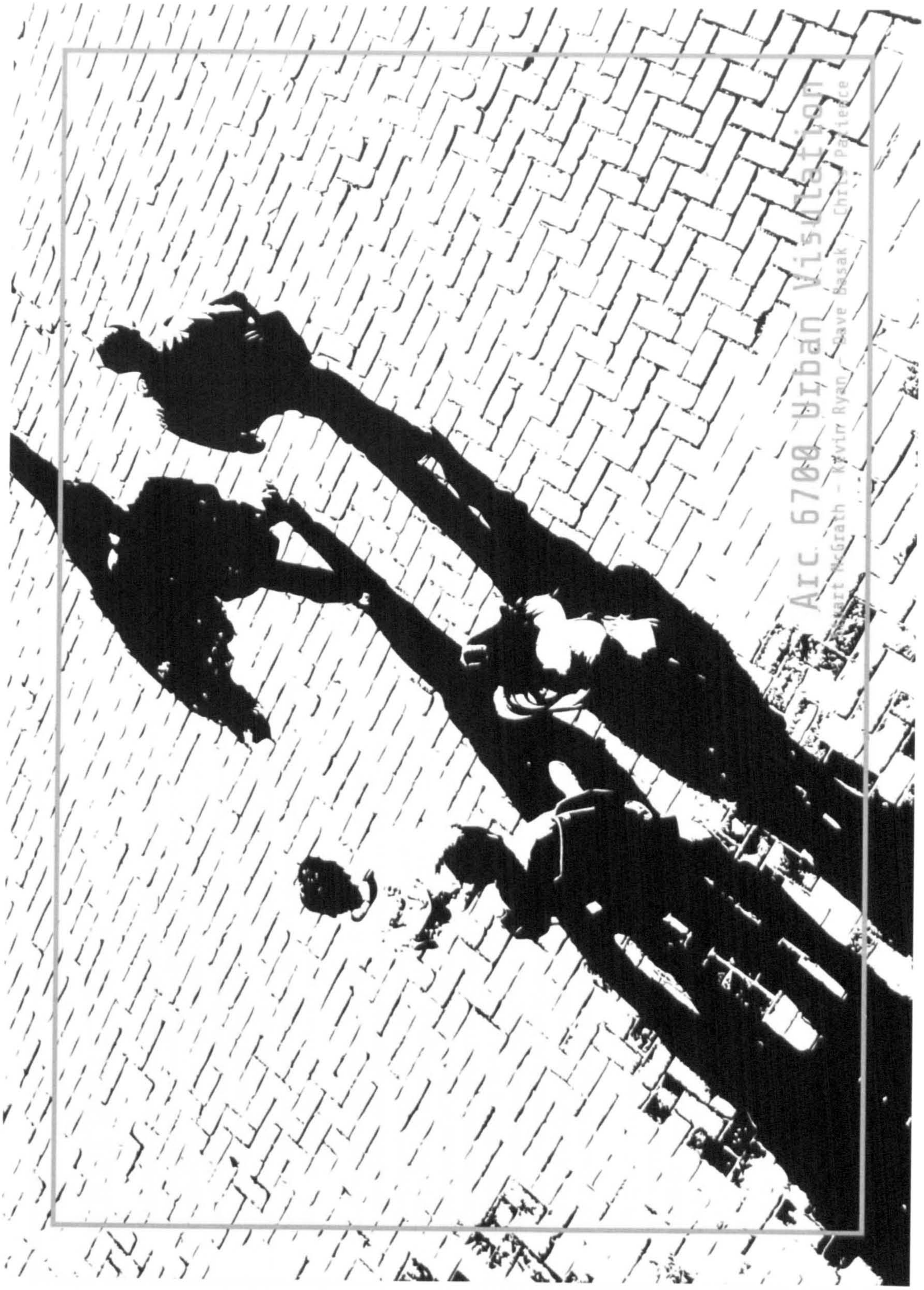
c) The lack of an identifiable central point and a clear hierarchy of the exteriors also contribute to this situation, resulting in an undefined territory which sometimes is crowded and frequently is desert. This situation leads to an increasing surveillance.

d) Physical transitions from the interiors to the exterior are made difficult as a result of the protection against the cold weather and the shape of the buildings without habitable and suitable spaces of transition to social activities. The existent transitions regard only to functional circulation.

e) In the ground floor, visual connections are also rare, resulting in isolation of the interiors from the external area, contributing to weaken even more the continuity from the exterior to the interior.

I) Campus Project: Group I

The following is a sequence of drawings and texts of the initial ideas to the project elaborated by the architects of Group I to the Campus of the University of Sheffield.


Arc 6700 Urban Visi
Chris Pierce
Matt McGrath - Kevin Ryan - Dave Basak

introduction

The University of Sheffield has launched a joint initiative with telecommunications company Delta Comm to improve the current condition of the concourse space at the university's main campus. The initiative calls for proposals for the space to be improved by means of digital augmentation, which is defined as an act of developing and deploying appropriate Information Communication Technologies (ICT) to resolve spatial deficiencies and conflicts identified in an area.

Centrality, horizontal and vertical directions, enclosure, internal area and entrances are components of place and those components are defined by events that happen in the space. ICT solutions can integrate with a place and become as much a component of place as any of these physical constraints. Therefore strategically integrated IT components can invigorate a space, enabling users to interact better with their immediate environment, and engaging them in the place. What this project intends to achieve is to invigorate the concourse area and engage the users of the space, solving spatial conflicts and integrating IT components to improve the spatial qualities of the site.

We spent time observing the site, identifying key routes, activities and spatial conflicts and using the framework we described the conflicts in relation to TPIA. We found that normally each conflict could be categorised under more than one quality and even perhaps that this overlapping helped us to identify the spatial conflict and then its solution. Once we had identified the conflict and its affected qualities, we identified the spatial elements missing that we felt were the cause of the conflict. In this section we also found that sometimes more than one conflict originated from the lack of a single spatial element, meaning that a single solution could be suggested to resolve multiple spatial conflicts.

In order to design IT gadgets to augment the concourse space we first needed to consider how spatial qualities are currently affected and how they could be improved by IT solutions. We began the project by identifying the main spatial deficiencies in the concourse space with the use of a framework designed by Renato Cesar Ferreira de Souza in which conflicts are categorised into the elements of a place: territoriality, privacy, identity and ambience. Using these four qualities as the basis for identifying conflicts in the concourse space, we categorized each problem using one, some or all of them to decide exactly what was deficient about the space and how this could be combated using ICT solutions. These qualities are each described by de Souza as such:

Territoriality: Process in which an area is maintained to preserve and protect a person or group.

Privacy: The selective control of the access to a person or a group.

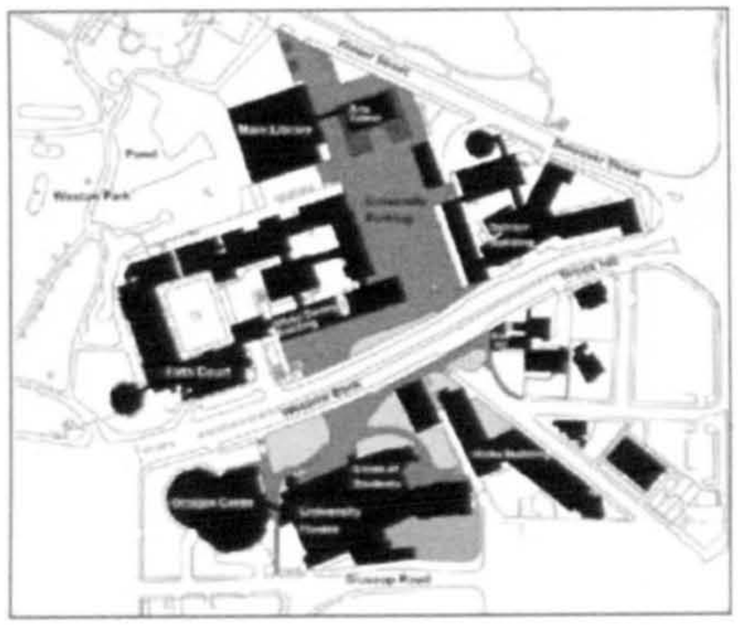
Identity: The conjoint of beliefs, ideas, and general qualities that make us sense that we are at the same time unique and able to share social life values.

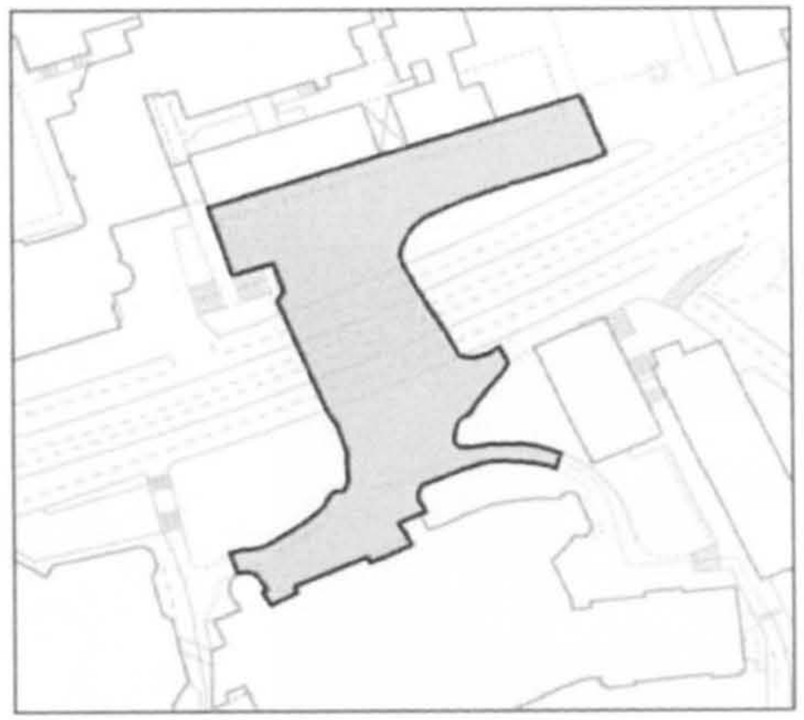
Ambience: This quality is related to all those facts that turn the place into an enjoyable space. It reaches a subjective dimension, in which one can experience emotional responses to a place. (de Souza, 2007)

site analysis

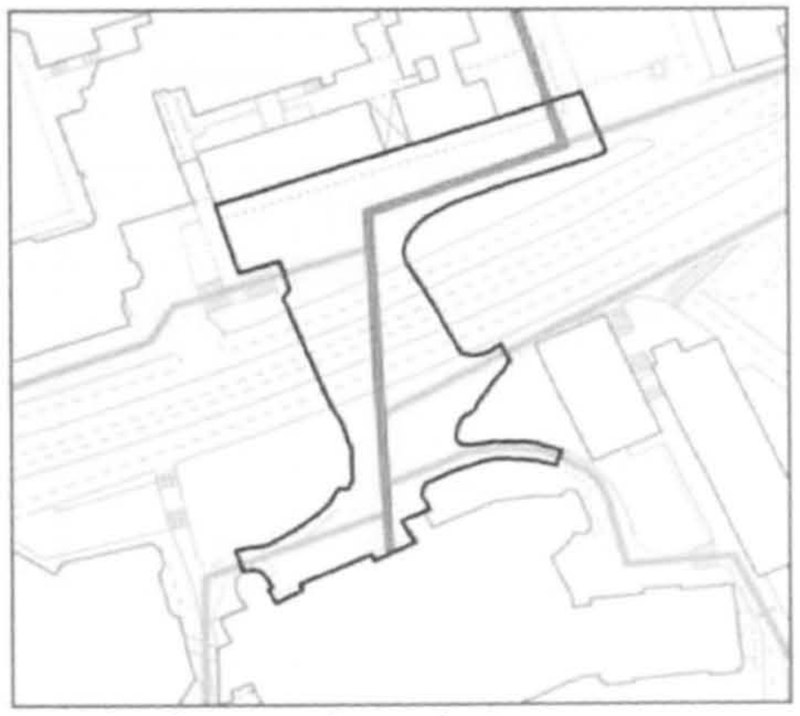
The site for this project is the area between the Students Union Building and the Alfred Denny on the Sheffield University Campus. The space is divided into two main spaces by a large concrete concourse bridge which dissects the space into two/three spaces. The area under this bridge tends to be an intermediate space which relates to neither of the spaces on either side of the concourse. The spaces themselves are mostly used as routes from A to B with very little people staying in these spaces as the spaces are no very attractive to stay for any extended period of time.

The site itself is dissected in many different ways by the number of routes through it. From our study of the site we have found that one primary route exists through the site with upwards of four other secondary routes existing. The primary route (in Red) is mainly from the Arts Tower/library to the Students Union building where most of the student facilities are. The secondary routes (in Oraange) vary between the entrances/exits shown in the diagrams below.





Perceived site area



Perceived routes through site

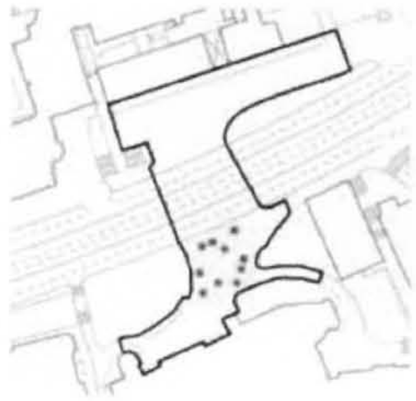
problems

As the space under the concourse and either side are spaces with lots people travelling through people tend to only experience this space as a transitory one with no one group occupying the space or claiming ownership of it for any extended period of time as a result there are many different conflicts within the spaces.

The Concourse Bridge – The concourse bridge divides the two spaces either side and has created a space beneath it that is dark and uninviting although it does provide shelter and a small amount of seating but this doesn't encourage passers by to linger for any period of time. There is a distinct lack of seating under the concourse with no attraction to spend any prolonged period of time there.

Categorization / name	Conflict description	Affected Qualities				Spatial elements missing that cause conflict
		T	P	I	A	
flyover	The space beneath the flyover is dark and uninviting. Provides shelter but doesn't encourage passers by to linger Also divides the spaces on either side	x		x		lack of informal seating Lack of interaction between both sides of the space

Flyering / Flypostering - as the space has a high turnover of people and is on a main route on campus it is no surprise that if any promotion is to be done it will happen here. The problem of Flyering is an annoyance in the space with the traveller or even people sitting down occupying the space being constantly harassed by people promoting the "new club night/film/shampoo etc" - to most people this is a nuisance. This combined with the illegible (fly)posters on throughout the space makes it a not very attractive place to spend any degree of time in. The augmentation of the space will have to deal with these problems and set up a cohesive system to promote events merging Flyering and Flypostering.



Categorization / name	Conflict description	Affected Qualities				Spatial elements missing that cause conflict
		T	P	I	A	
Flypostering	posting of bills underneath flyover			x	x	Lack of a cohesive system to promote events to go alongside flypostering
Flyering	People handing out flyers outside union building and around flyover		x		x	Lack of a cohesive system to promote events

Social Space – social spaces are badly needed in the areas to encourage people to spend time there. Currently there is very little seating in the spaces and the shelter of the concourse bridge is not being exploited to it full affect on rainy days. More seating must be provided in the spaces especially under the concourse bridge.

Categorization / name	Conflict description	Affected Qualities				Spatial elements missing that cause conflict
		T	P	I	A	
social facilities	People are not encouraged to stop and socialise. The area perhaps suffers from having numerous entrance/exits	x		x	x	Lack of informal seating. A café at ground level of the Stoddard building would create a more cohesive 'square'.

Location of the Bike Racks – under the concourse there are several bike racks – as shown in photograph where it is a good idea to have the bike racks in a sheltered area here they obstruct main routes through the site and also encourage people to cycle through the space thus creating another hazard to be dodged/avoided. In the augmentation of this space we believe if the bike racks were spread out towards the entrances exits the space currently used could be put to better use.

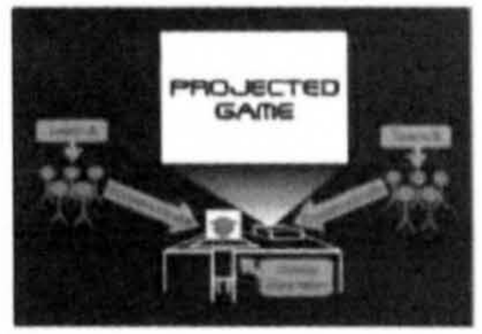
Categorization / name	Conflict description	Affected Qualities				Spatial elements missing that cause conflict
		T	P	I	A	
Bikes	bike racks underneath flyover	x		x	x	Bike racks could be removed and dispersed to entrances to clear central area

Alfred Denny Building – the Alfred Denny Building is situated on the opposite side of the space to the Students Union Building but has neither the life (people outside) or amenities of the union build thus creates a one sided space with everyone traveling across the space towards the union. The faceless, reflective glass wall at ground level could be augmented to achieve a more balanced space with some amenities shared between the buildings e.g. – coffee shop.

Categorization / name	Conflict description	Affected Qualities				Spatial elements missing that cause conflict
		T	P	I	A	
Blank wall of Stoddard building	faceless, reflective glass wall without activity at ground level	x		x	x	Amenity at ground floor of Stoddard building (eg. Café)

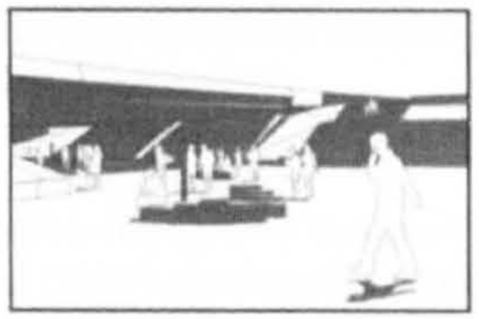
proposed solutions

1 project gaming space

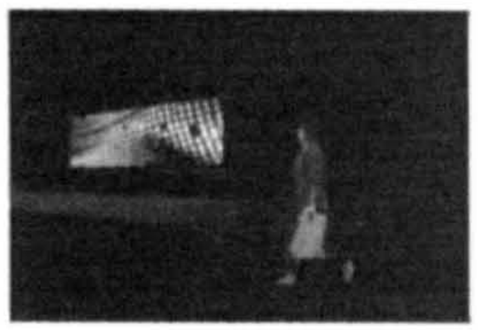


2 interactive facade

3 bluetooth advertising

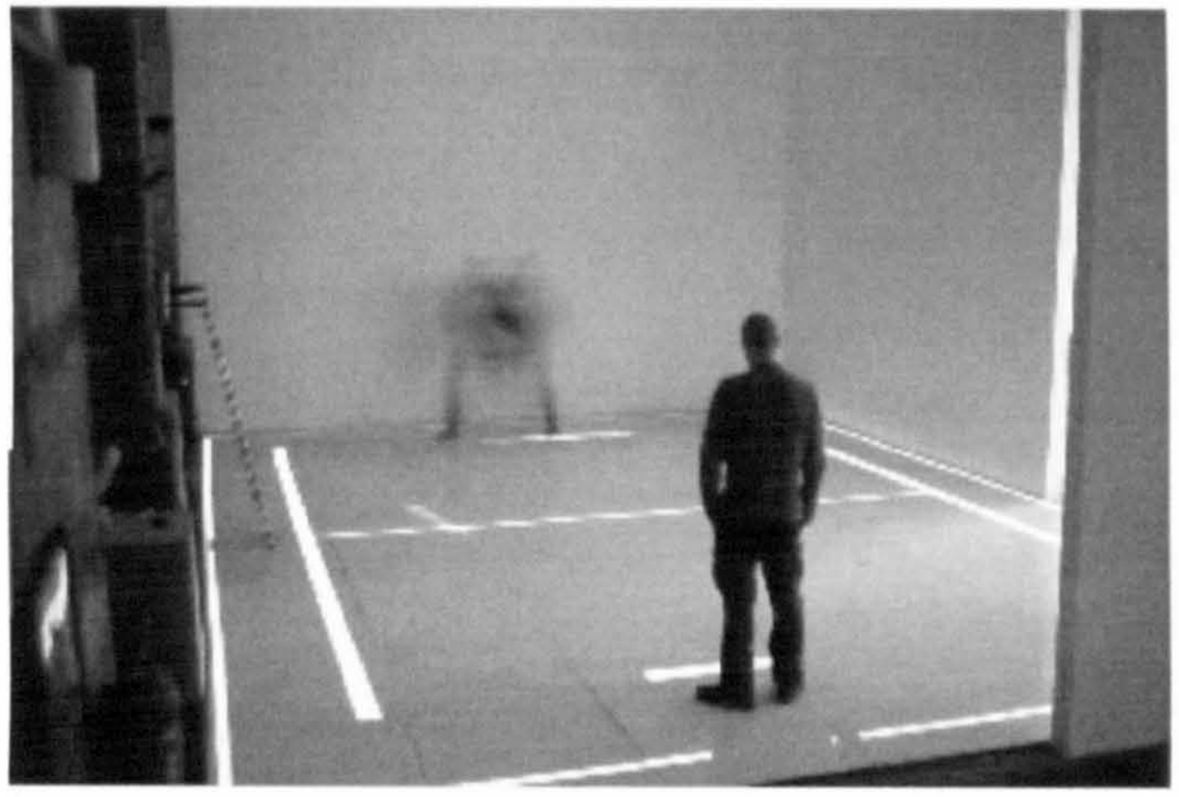


4 electrical screens



projected gaming space

11



Jan-Peter E. R. Sonntag
ratio agendi#3 - PONG
Interactive teletennis in real space

concept

I propose to use the space as a (projected) Games Arena to make the area more fun to the users and to make the area a focal point not just of the surrounding site but the University as a whole. Once the hardware and software are up the space has the ability to change games from day to day/week to week. The games will deal with the perceived problems of the site and harness them to the full potential such as:
(a) Territoriality between the spaces on either side of the flyover could be exploited with one side/team playing the other in a series of games – thus linking the two sides in a common interest - so encourages face-to-face social interaction.
(b) The flyover space underneath provides ideal conditions for projected screens as there is no direct sun light
(c) The transient user could also be engaged in the game as they walk through and perhaps could even be persuaded to stay and join the game

The settling up of a game system will also encourage people to use the space at all times of the day.

Projected Games are designed to be played by people gathered together in teams (or individually) against each other.

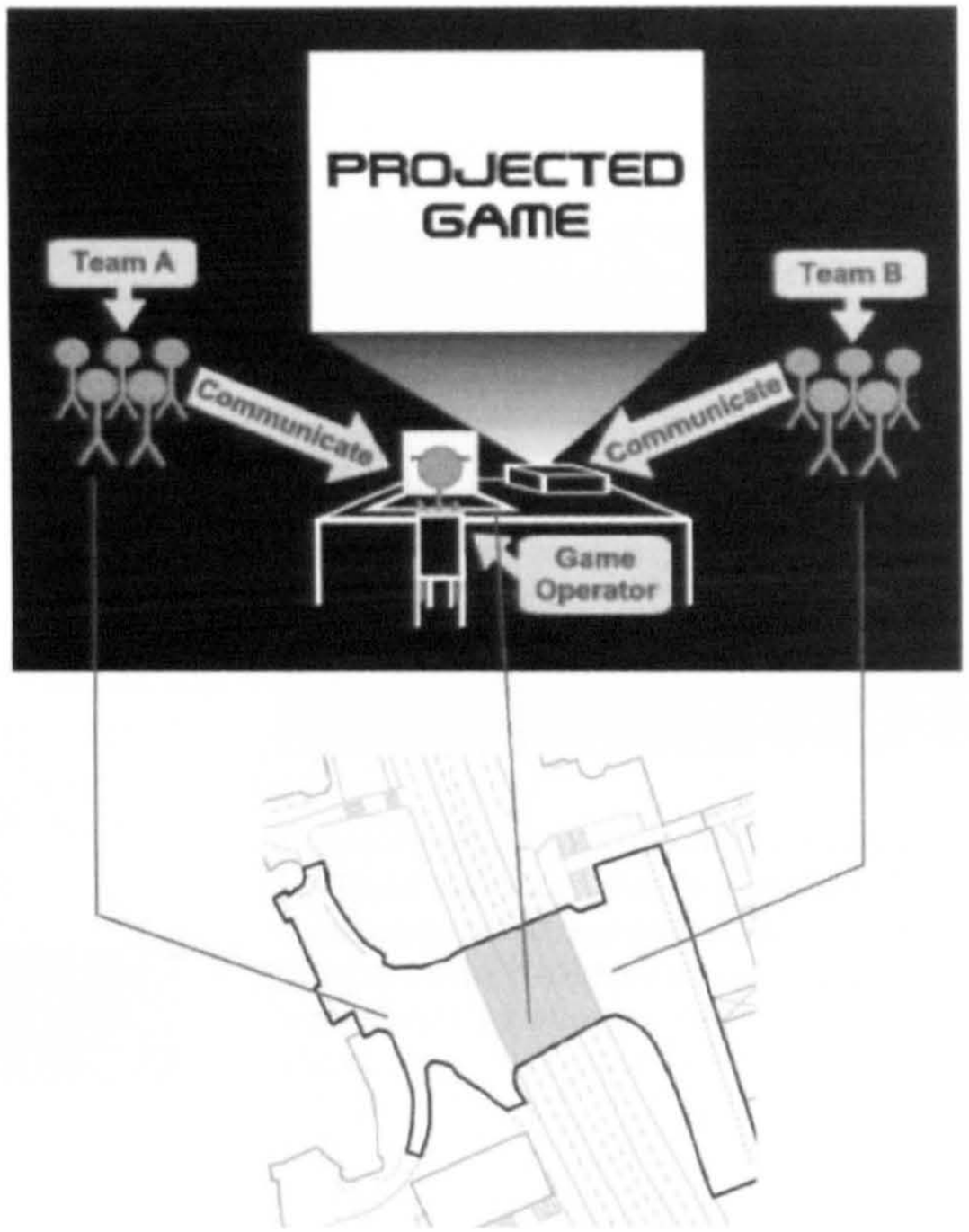
The players can then view the game projected up on a big screen, interact with each other in the team during the game and simply communicate the actions they wish to take within the game to the person operating the game on the computer.

Projected Games could also be played on an interactive white board in a similar fashion. The simple operation of Projected Games is illustrated in diagram shown

Easily identifiable components within the game (to aid communication between the players and the operator)

Highly customisable games to suit your specific needs and environment

The number of players that can play the game are limited by the number of people that can see the screen, so if the game is projected onto a big screen, potentially hundreds of people could play together!

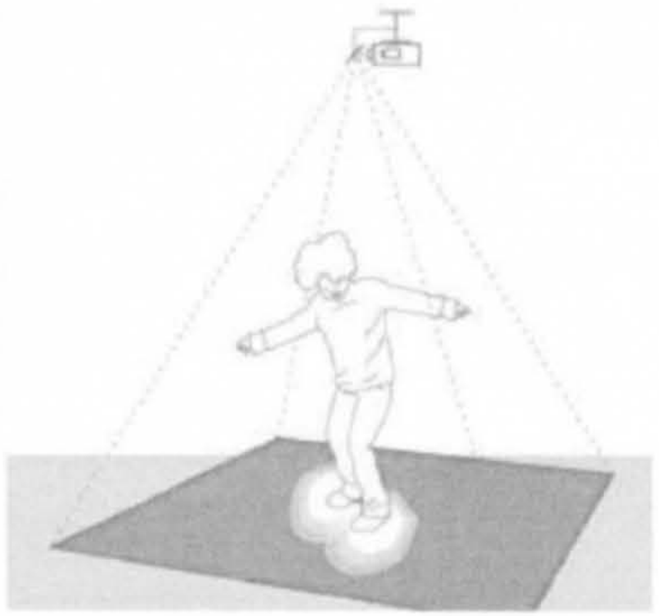


precedents

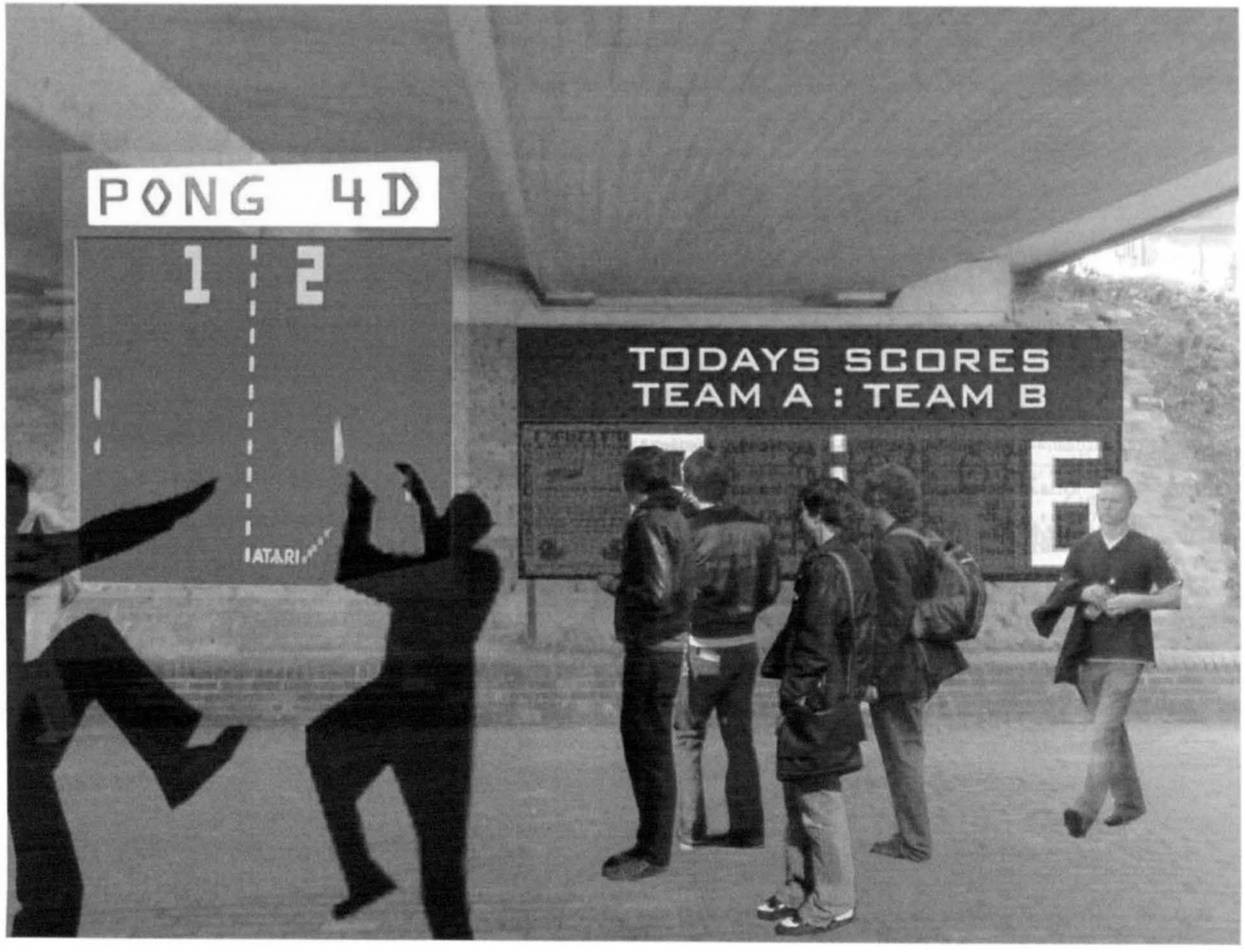
feedtank.com

Dance Floor Moves is a colorful, projected, interactive floor that can be installed anywhere. When a person moves over the floor, it reacts.

At night when there less people are using the space interactive projections can be used to enrich the quality of the area. The projector can be fitted so it can swivel down at night to light up the surface of the ground.



Dance Floor Moves been displayed on side walks, in entrance ways, in clubs, and for special events. The graphics and interactions are completely customizable, and incorporate logos, text, photos, sound and video.



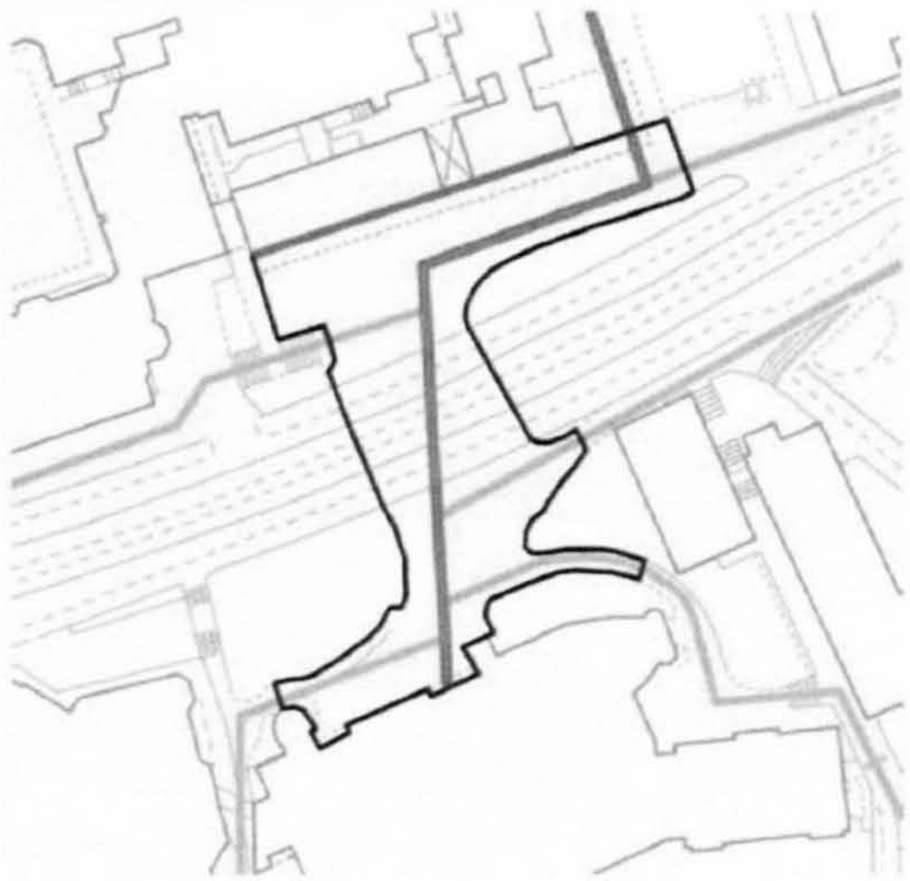
Scheme Visualised on Site

interactive facade

concept

The Alfred Denney Building is an imposing 1980's building in red brick with mirrored glazing, the overall appearance is rather faceless and gives little indication of what happens inside. It's scale and imposing nature creates an enclosure between the student's union building and itself, creating a square beneath the flyover space. Upon investigating the site it became apparent that the area outside the Alfred Denney building was very well used by pedestrians, but that very few users actually stopped around this area. We felt that a lack of activity on this side of the flyover was the result of there being no activity at ground level in the Alfred Denney building and a simple solution may be to suggest that a café or a coffee bar should be incorporated into the space at ground level, thus giving the space life. However with there already being good food and drink facilities in the students union, along with the new addition of the information commons building, we felt that this may be too simplistic a solution, and would also be unnecessary given the adequate facilities already outlined.

The main routes through the site and the affected area (in blue)



Problem – Alfred Denney building

Issues – The façade of the building is imposing and lifeless, whilst a lack of activity or interactivity means that this part of the concourse takes on a lifeless quality

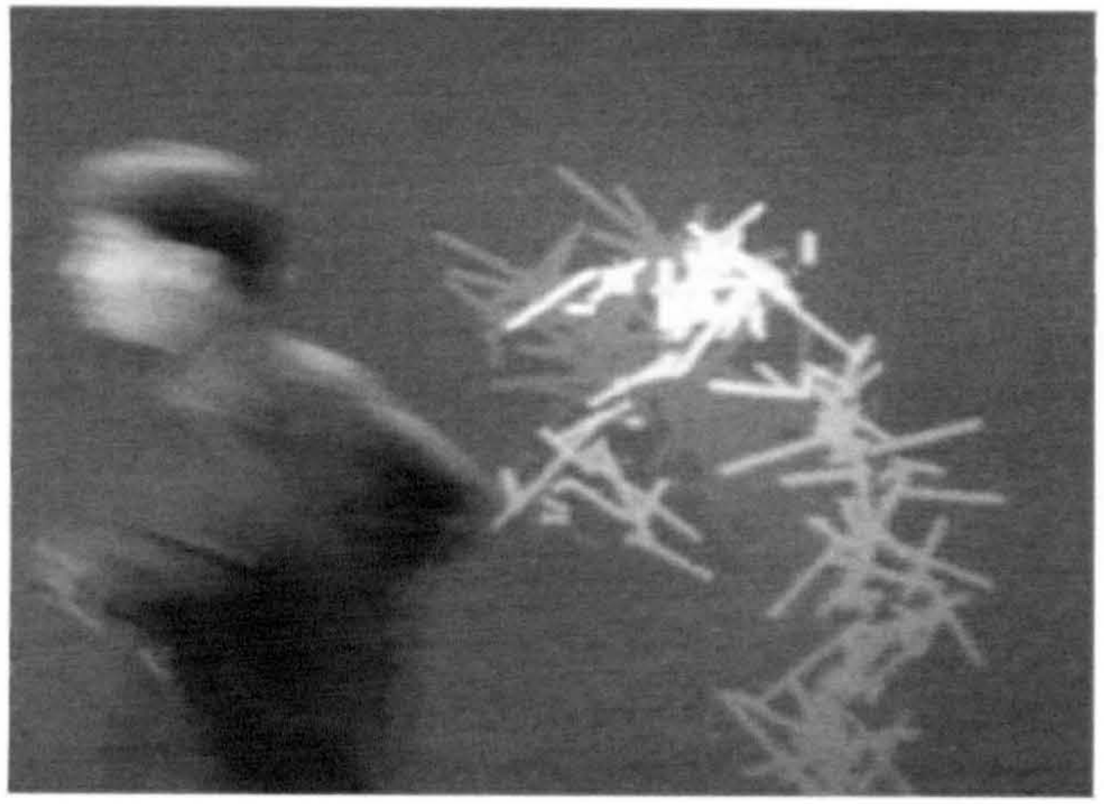
Affected Qualities – Territoriality, Individuality, Ambience

Proposed System

We wish to propose a digital installation that will both inform people on the site, whilst being responsive and interactive as well. The installation is also to be visually striking and abstract in the way i t visualises information so that it looks as much like an art piece as a giver of information. We feel that it is important that the installation can be adapted so that the displays can be changed in order to keep the piece interesting for the users of the site. This means that the installation has to have the capacity to be used in different ways, meaning that its form must be simple so that it can work as a blank canvas.

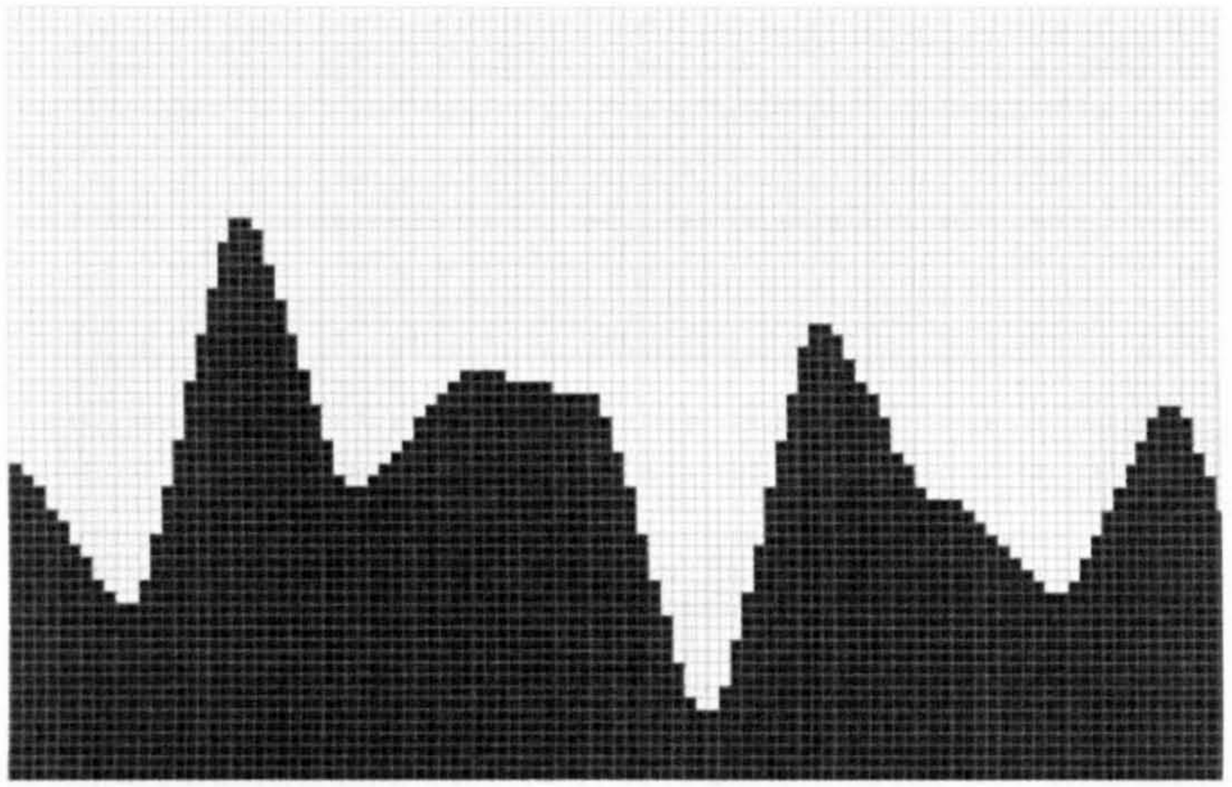
precedents

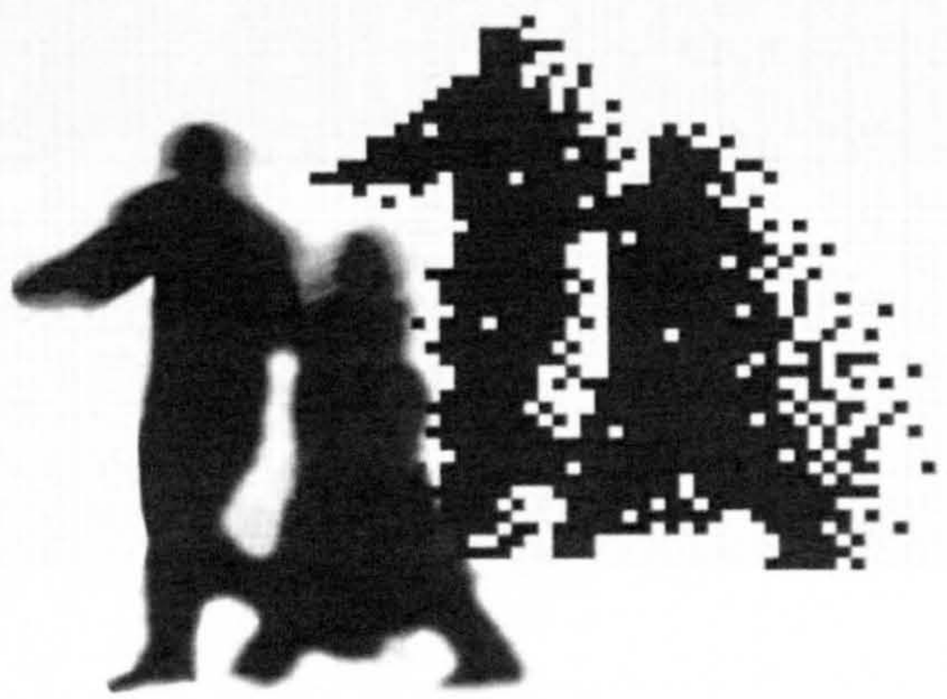
Christian Moeller's 'Bitwalls' designed for Elbe and Bielfield in Germany in 2002 were part of Moeller's efforts to create facades that could act as archectonic surfaces and as image carriers. He developed mechanical pixels that could change from black to white quickly and inexpensively, whilst also being reliable and without the excessive power uses of LCD displays. For Elbe he designed a 10 metre high pillar onto which was displayed pixelated digital film footage taken from the banks of the River Elbe.



Camera Music/Kinetic Shadows - Interactive particle display at Spiral/ Wacoal Art Center in Tokyo, 1997, Christian Moeller

The installation uses a motion detection system fed by a video camera. The moment an observer moves in front of the installation, his figure is abstractly traced by a particle pattern. The gravitational center of this swarming pattern moves over an invisible audio grid. Depending on the quadrant of the matrix in which the gravitational center of activity is located, the audio system generates a particular sound.

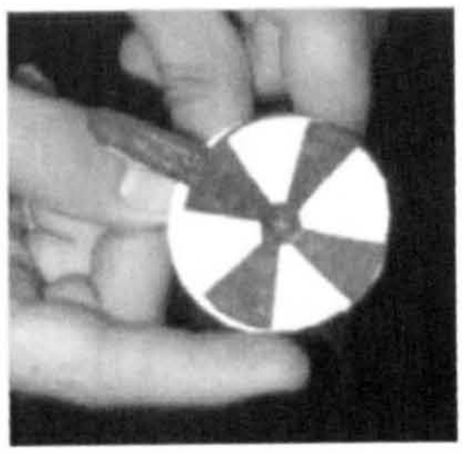


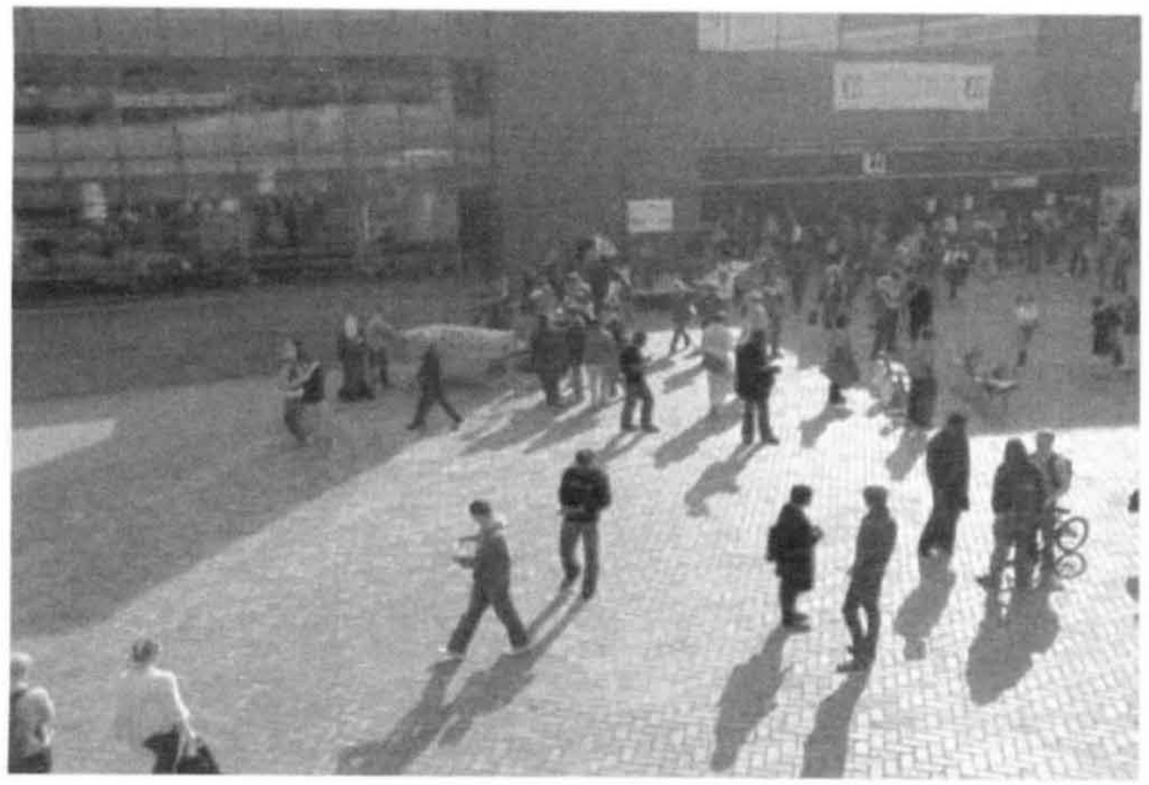


We propose to install a visual representation of the users of the site, with a visualisation screen housed at the ground floor of the Alfred Denney Building giving information about where people are on site and how they are occupying space. Using a simple electronic counting device fixed to the entrances of all the buildings around the concourse, it will be possible to obtain live and accurate data of how many people are in each building at any one time. These counters would also be housed at the entrances to the site, giving an accurate reading of exactly how many people are on site at any one time and also where they are on the site as well. This would be displayed on a large screen that uses electromagnetic hinged panels, similar to the ones used by Christian Moeller for his project in Bielfield. These have a permanent magnet that swings on its vertical axis, producing either a black or white surface and would be ideal for use in a project such as this because the pixelated quality achieved is perfect for the rising and falling of a graph to show occupancies.

On the wall directly above the screen would be housed a video camera, linked directly to the screen, making it possible to display a pixelated version of what the camera sees, most notably passers by. This will mean that when a person walks past the display a digital 'shadow' is cast onto the screen, making the façade interactive and stimulating for the users of the space. This means that the screen can either work as an giver of information, in terms of the way it can track users of the site and display the information visually, or it can work as an interactive display, giving life to that side of the concourse space.

19





bluetooth advertising

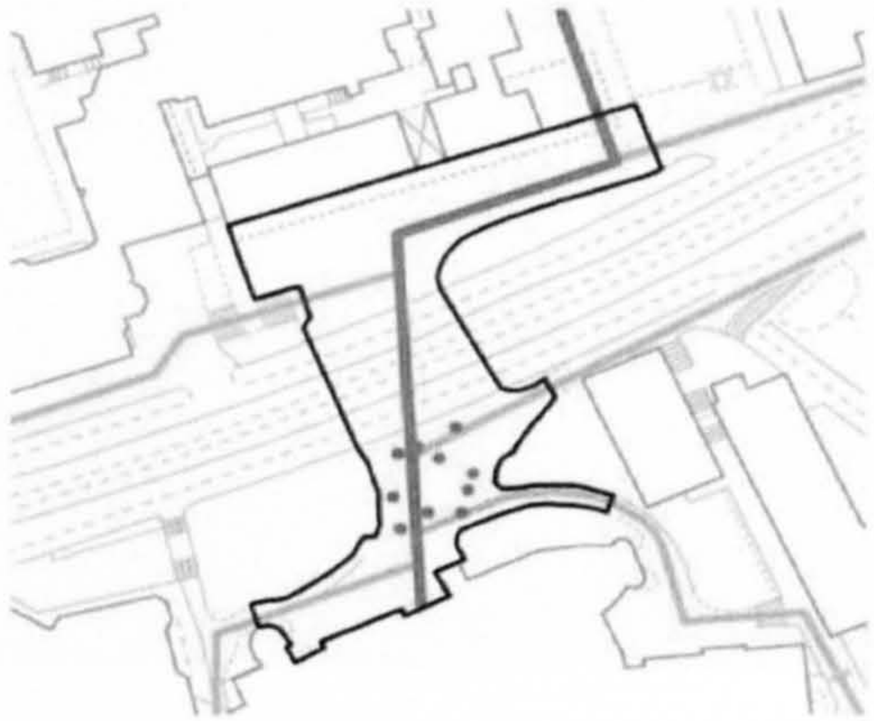
concept

Flyering has become a major problem in the concourse area. The shear amount of individuals trying to push their flyers during the busiest parts of the day has turned the space directly outside the student's union into a battle ground for advertising.

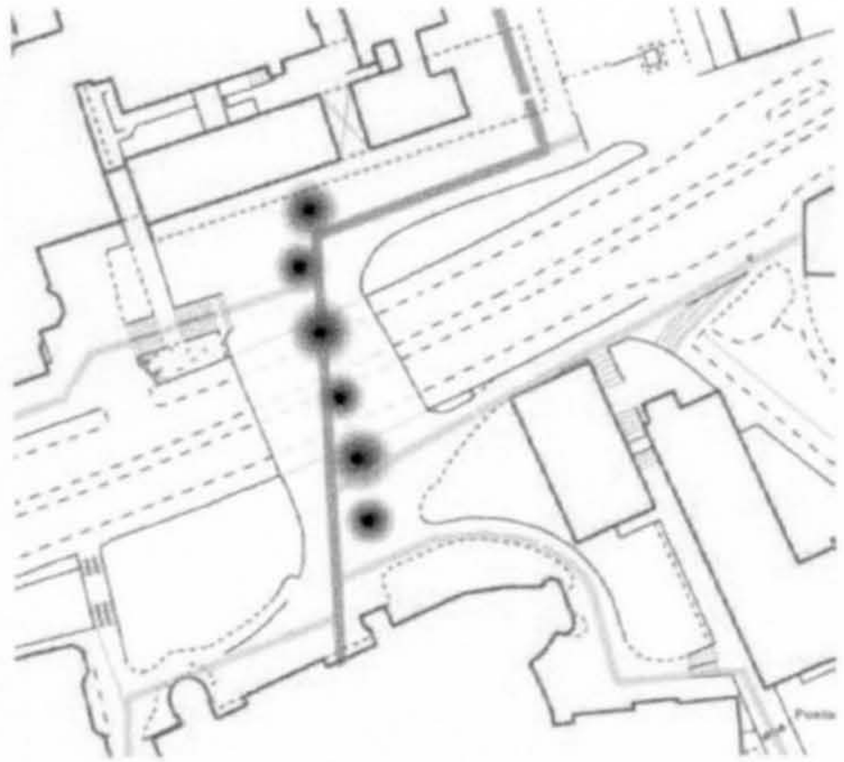
The concourse is the main crossing point for many routes between the major university buildings and its importance as a key space has led to a large number of people advertising directly outside the student union, the majority of this is done through flyering. Other activities directly relating to the lives of the students also occur around the concourse, becoming the area of focus for political events during the union elections.

At a smaller scale the flyering would not be a problem although it has got out of control forcing other activities away. It becomes impossible to move between the union and other buildings without turning away the people advertising .

Another problem is the lack of discrepancy there is between the information handed out and the people who want to hear it. leading to many of events going unnoticed by the people who would want to attend them. This has led to it becoming a very inefficient way of advertising, leading to individuals becoming more forceful in their flyering techniques further distancing people from using the concourse for any other more social activities.



The routes and current position of flyerers



Transmitters along the main route to replace flyerers

Problem- Flyer-ing

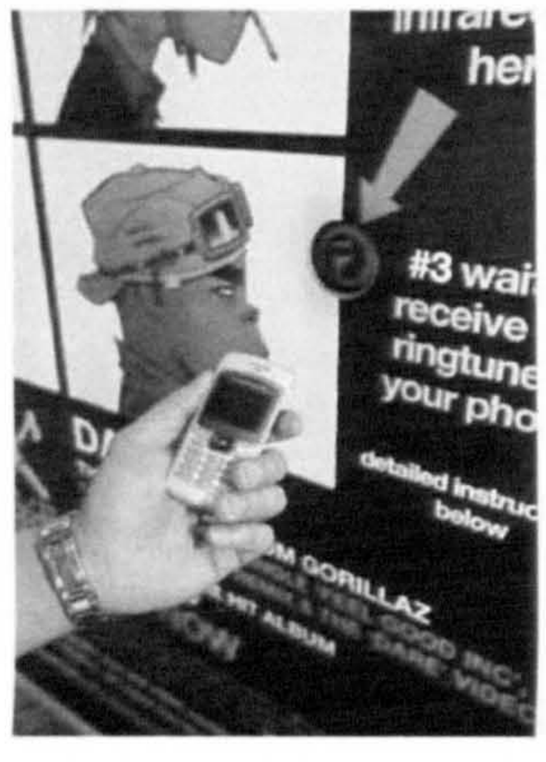
Issues
- Invasive use of space
- lack of discrepancy
- Removes options for other activities to take place
- Creates a large amount of paper waste

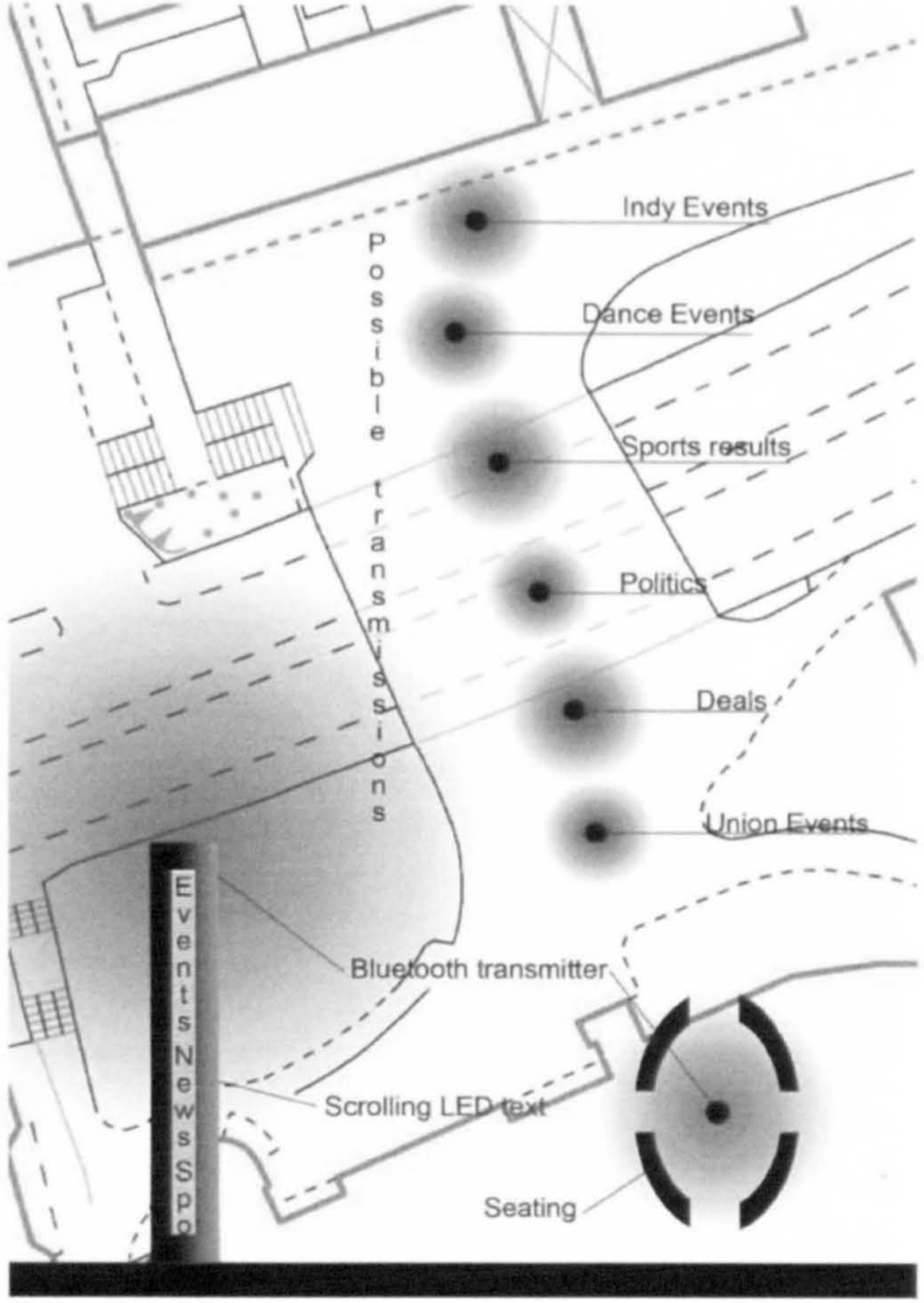
Proposal – To install a system which replaces the flyerers, allowing individuals to decide what information they receive, while supporting alternative uses for the space.

Systems – The system will incorporate the already very established and simple interactive element of Bluetooth massaging. Transmitters will be placed along the concourse replacing the flyerers with a less invasive and more direct form of advertising.
By using mobile phone technology a large majority of people will be able to access the information without the expense of having to buy new hardware devices.
The system will allow the user to control the information they receive by separating the advertisements into relevant groups, allowing users the option to down load specific messages relating to their interest, benefiting them and the advertiser.
Bluetooth can also be transmitted selectively as it can cover small designated areas, from 1 to 100 metres, and has to be accepted by the user to receive the information.

precedents

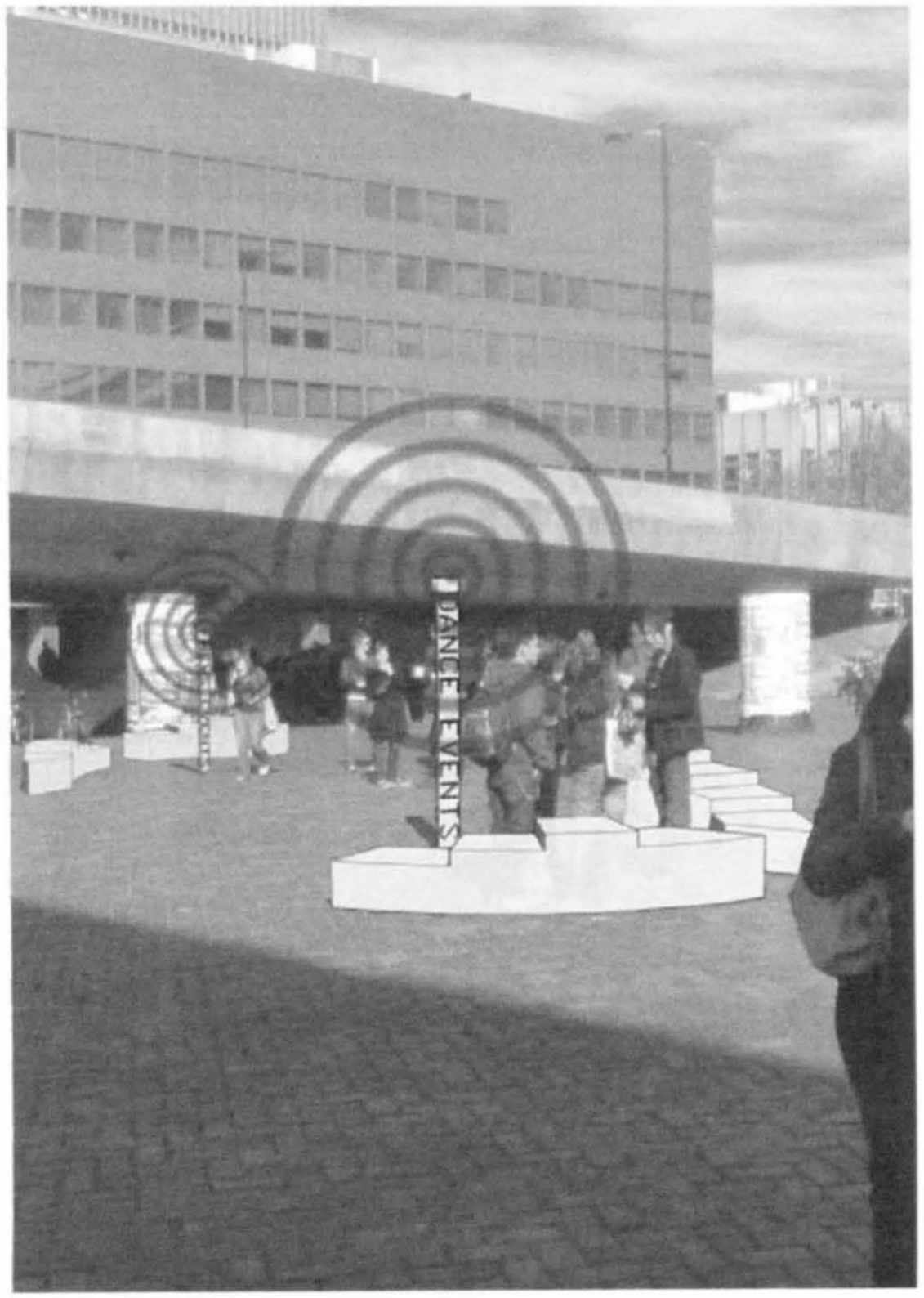
The use of Bluetooth technology in advertising is already widely accepted as a low cost and efficient alternative to WI-FI in low demand solutions. By specifying a Bluetooth network over that of a WI-FI the costs will be kept to a minimum it will also allow most owners of mobile pone handsets the opportunity to access the information without any extra cost. The images on this page show how Bluetooth technology has already been used for advertising.
Bellow left; Hypertag's technology allows consumers to access information directly from poster adverts and signs, via their mobile phones.
Left; Opel and LuxGSM use Bluetooth in the same way to market in Belgium and Luxembourg
Bellow; this technology being used in the concourse to advertise for a new film



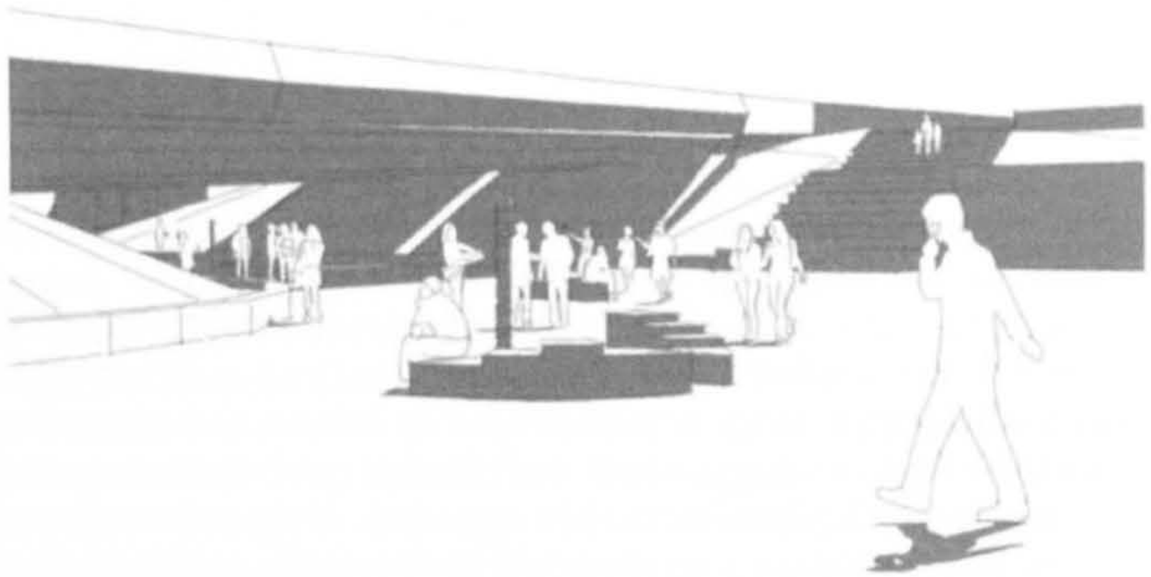


strategic plan

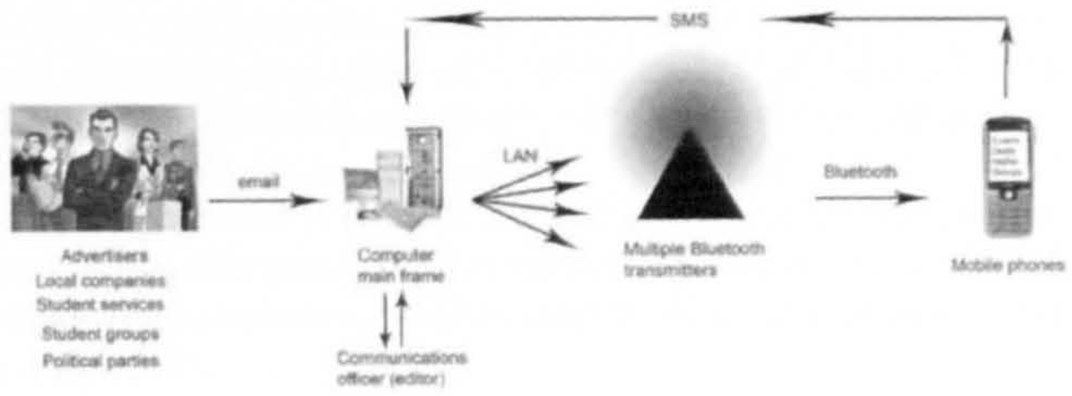
The system primarily replaces the people who flyer in the concourse area, although the transmitters will also incorporate a ring of seating around them. The idea will be that each transmitter will relay different topics of information, for example one could be sending out the times and dates of live music events in Sheffield while another could be sending out the sports results and another information about possible union events. The topics of transmission will be displayed on the transmitter posts, these will also light up the routes between the concourse at night.
By dividing up the advertisements into different topics the system will allow individuals to specify what information they receive by just entering the area of transmission defined by the seating arrangement.
The proposal is designed to encourage other more social activities to take place in the concourse, the system will encourage people with similar interests to gather in the same area, this will facilitate socializing and public conversations between the users who would of otherwise have never been in close enough proximity to meet.
The image bellow shows how the seating is arranged in a sociopetal positions to encourage the face to face meetings between the users, the transmitter creates a focus for the activity as well as being a sign post for the type of information being transmitted.

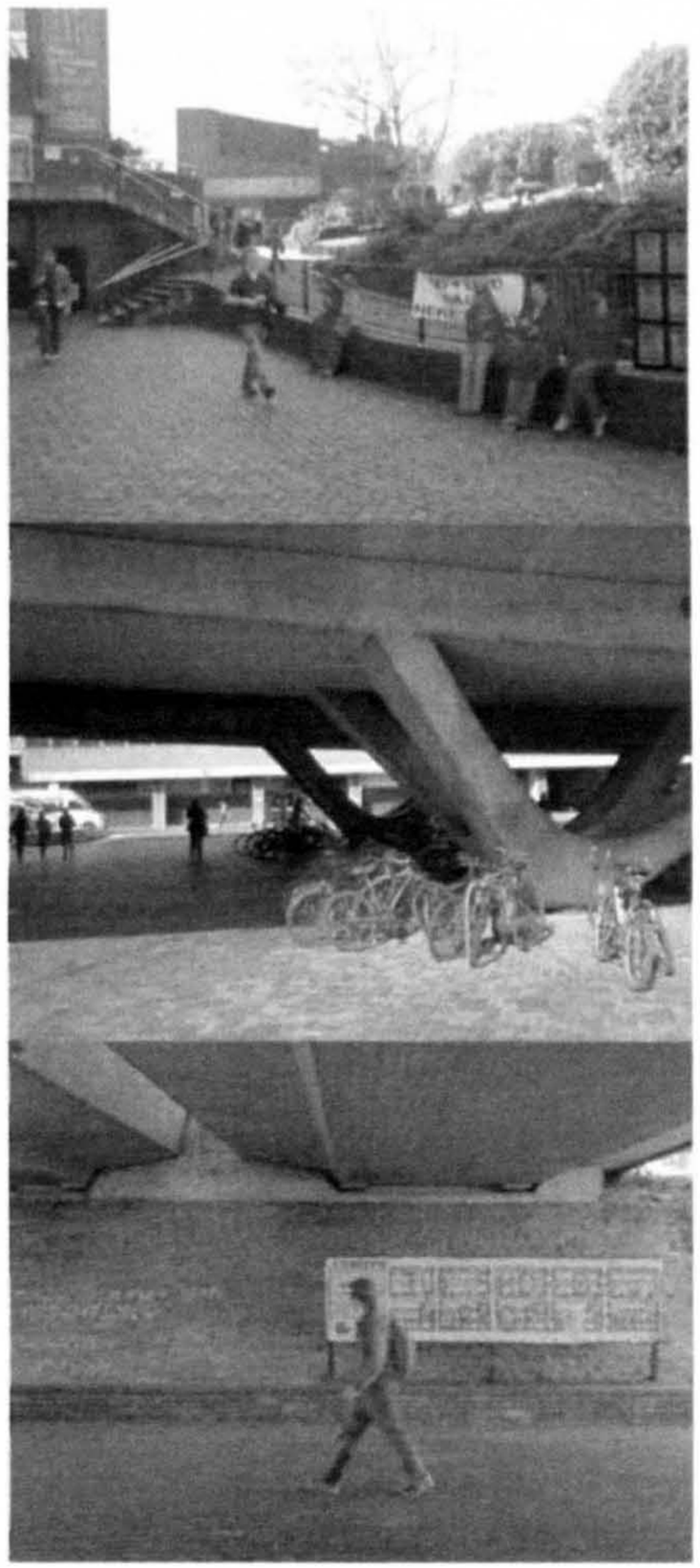


proposal



The system will be regulated by an individual elected by the members of the student union (the communications officer), it will be their job to gather the relevant information, programme it into the system which relays it to the transmitters. The scheme could also be financially beneficial to the university and the advertisers, saving money on printing the flyers while encouraging more selective advertising.

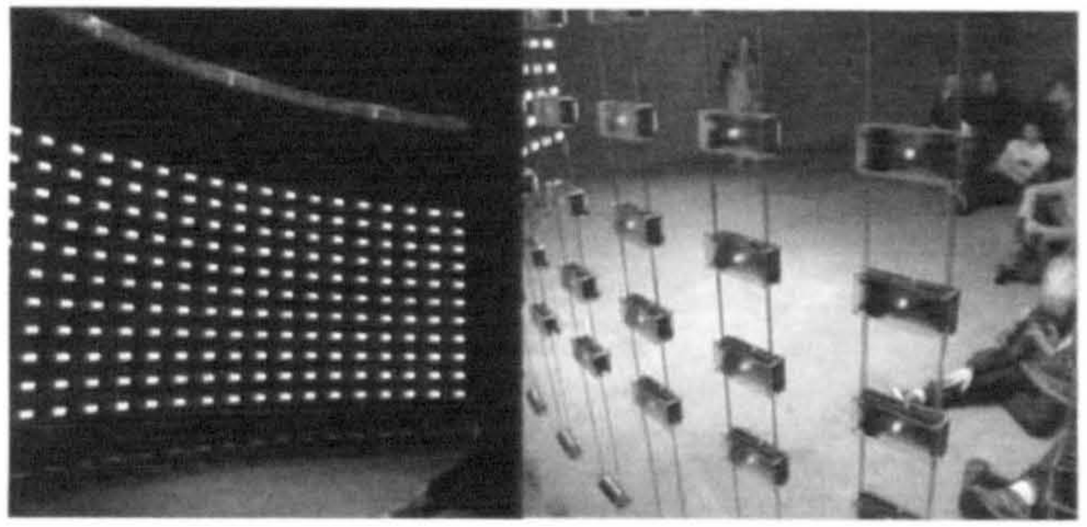




electrical screens concept

The underpass has adverse effects on the daily operation of the concourse as a whole. At present it is used primarily as a bicycle storage area, which prohibits its function as a through-route between the Arts Tower and the University Union building. It is also used as an advertising platform for University events and activities. The lack of defined function has created an indeterminate space, which fails to fully exploit the potential of any specific use. Users appear to approapriate their own use of the space. Although not intentionally designed for seating, the walls on either side of the underpass provide points to stop and sit in an sheltered environment. The space define its function through responding to present activities and assisting in promoting new ones. Users need to be able to identitfy and undertand the space, allowing the underpass to become functionally interdependent with the user.

The proposal will exploit is role as a pedestrian passage-way and s space that can facilitate events. The bicylce storage will be re-located, allowing better access and creating a more definate route through the concourse. Due to the extensive flow of pedestrians through the zone, its role as an advertyising platform should be promoted. This will create a space that not only operates as a route, but also as a destination for accessing and communicating information. To facilitate an increase in static users, the space will provide a more efficient seating strategy. By attracting people to this zone, the disassocaition between each side of the underpass can be reduced, and in-turn create a more coherent use use of the overall site.

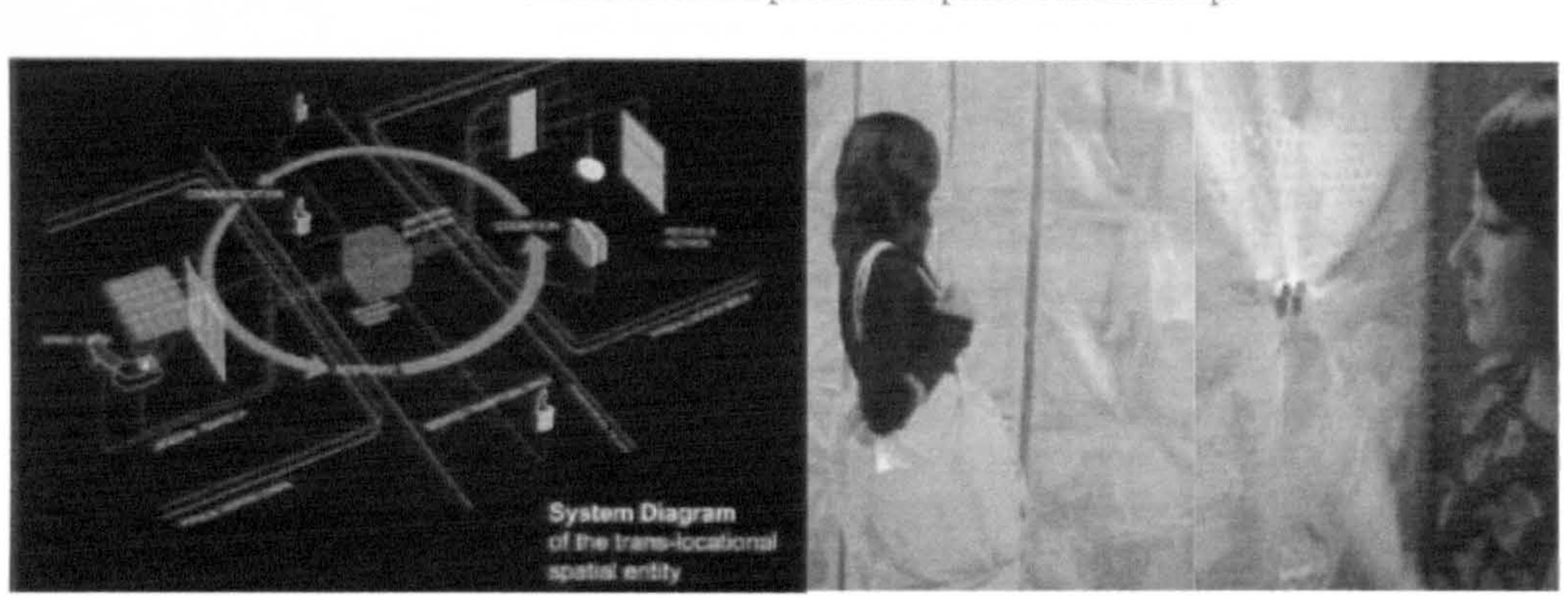


The Listening Post [above] visualises and vocalises fragments from the vast range of conversations being carried on in thousands of Internet chatrooms, bulletin boards and other public forums. It explores ways of translating data into sound. The texts are read by a voice synthesiser and shown on 200 small electronic screens. It explores ways of communicating data through interaction with the user.

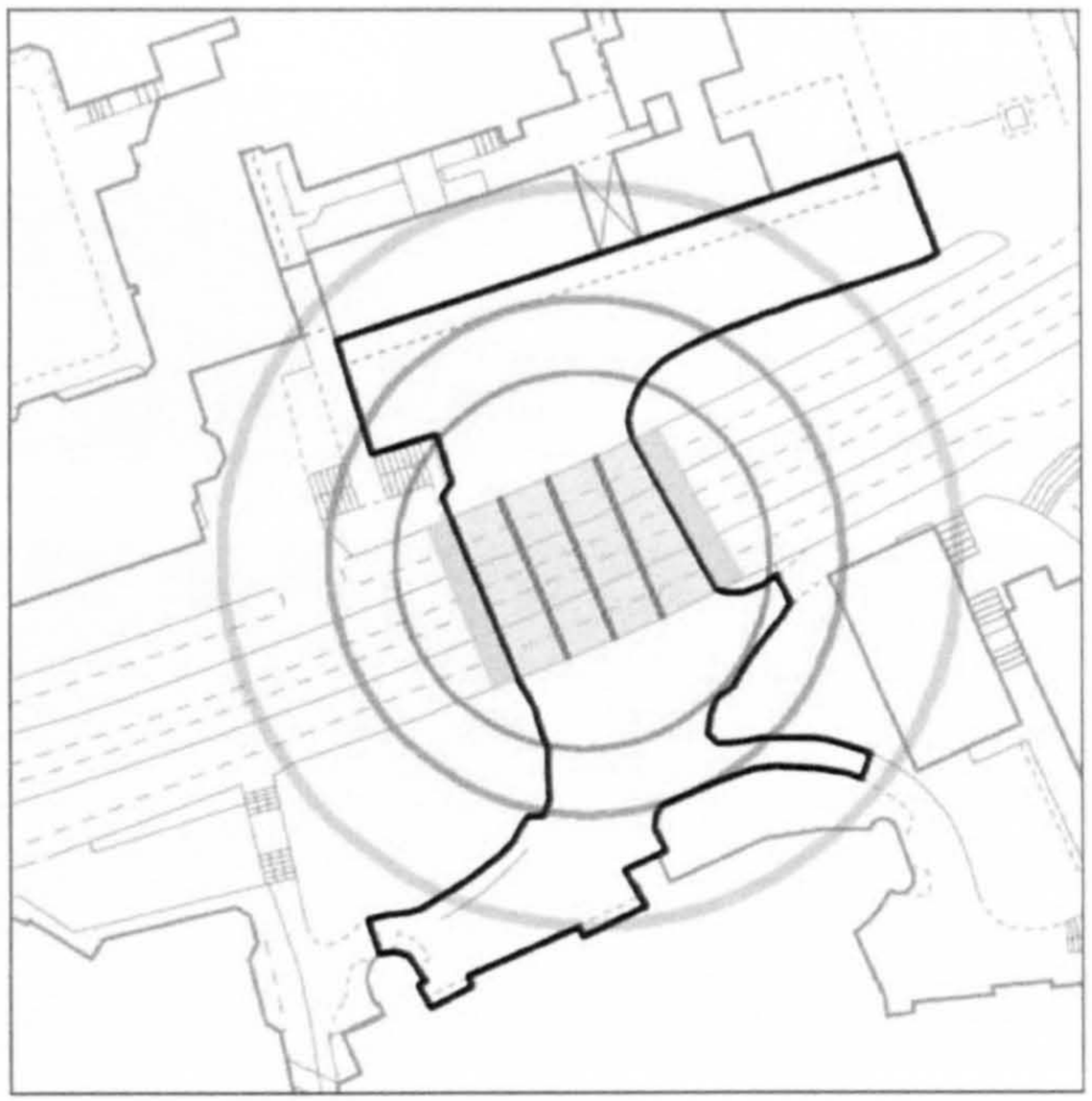
precedents

The proposal will focus upon promoting interaction between the user and information through digital media.

The project Meta L Hyttan by Tobi Schneidler [below] allows changing stories to be told depending on the identity of the user. The visitor points the torch light at hotspot identified on a screen, an invisible infrared signal travels from it to the hotspot. This identifies the visitor and his or her choice of lamp to the system in the background, which can then automatically trigger the various local media events linked to the zone. It allows the possibility of extending real-life environments with the help of interactive media and interfaces that link the physical space to digital information. Control signals, streamed media, sensors, output devices and computers are linked to an invisible system, but the effects inform a profound spatial relationship.



strategic plan



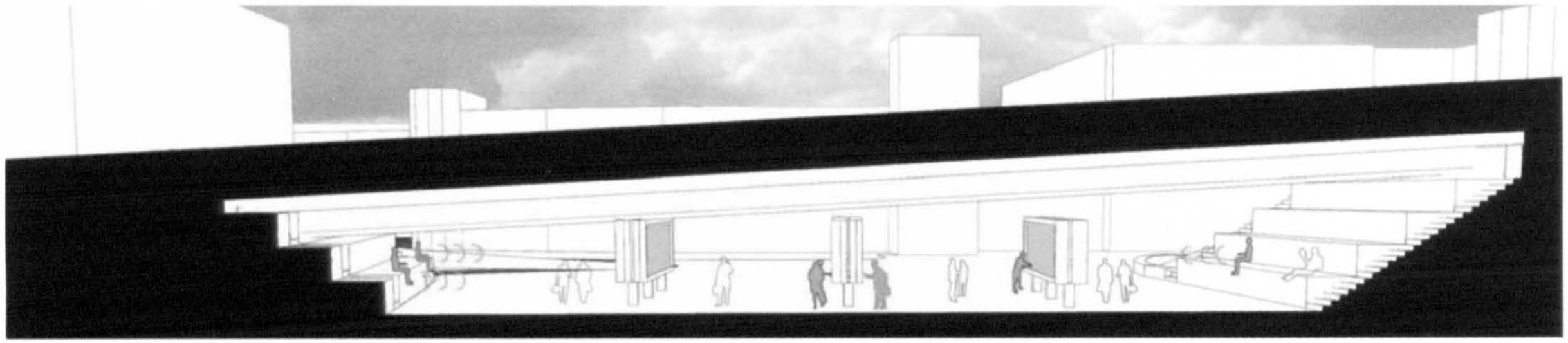
The proposal will consist of three electronic screens that span the width of the underpass on the concourse. They will act as an interactive information point at the centre of the concourse, creating a more cohesive environment, both physical and virtual. As a primary passage-way on the site, the electronic screen act as platforms to communicate information. The outer screens will communicate 'by-chance' information whereas the central one will act as an information point with more possibilities for interaction. This will assist in streaming the majority of pedestrian flow on the outer streams, whereas the central stream will remain more static.

Seating on either side of the underpass will allow users to stop in front of the screens without being impeded by passers-by. This will enable people interact with the screens via bluetooth with laptops, in a more secure space away from public routes. The screens will display message boards via bluetooth and internet connections, enabling blogs, public debate and event advertising. The whole union will be able to connect to the screen via bluetooth, merging physical and virtual environments. For example, two users could have a public discussion from opposite sides of the University.

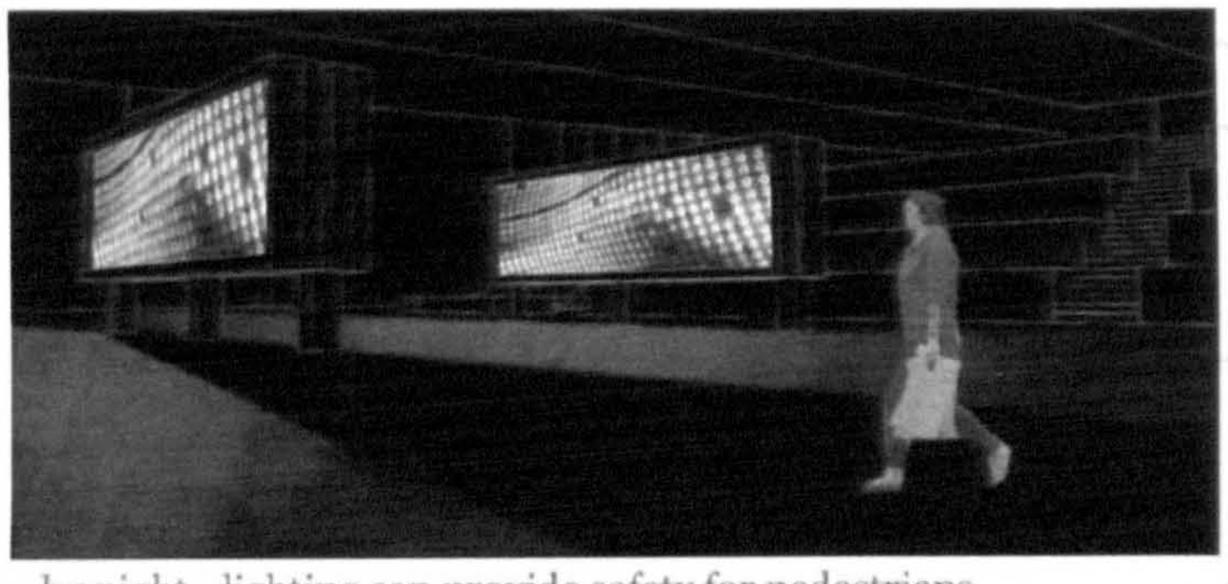
The central screen will have the facility to exhibit different interactive systems. Experiments with touch, sound, light and photographic technology will be encouraged. It will operate as an exhibition board for interactive technologies.

proposal

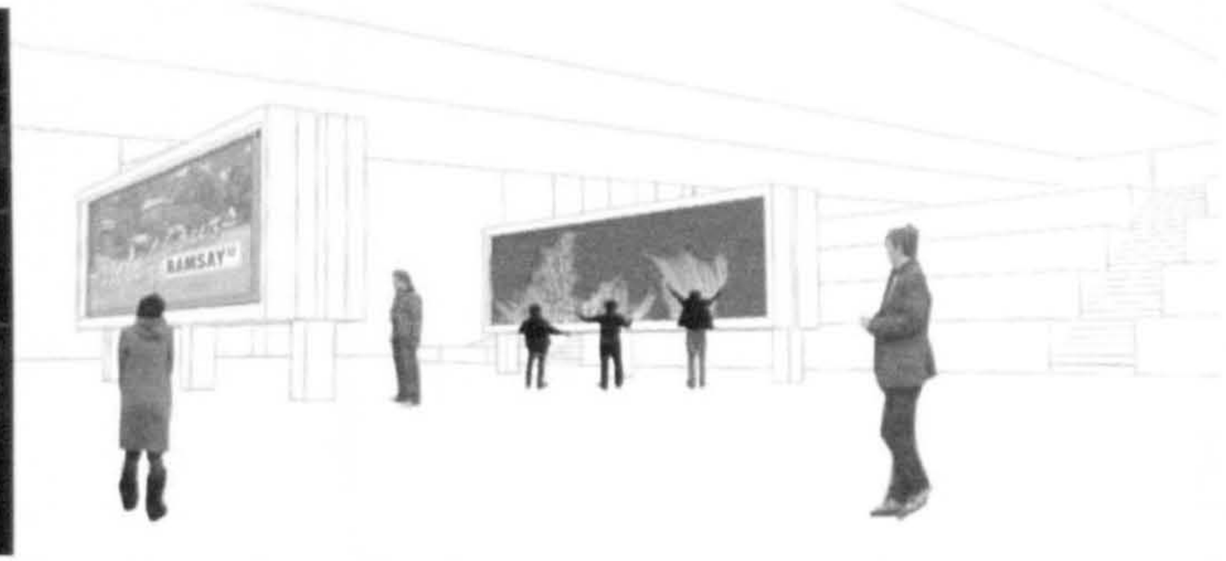
The electronic screens will facilitate multiple forms of interaction;
Physical - by means of touch screen and installations that react to movement
Visual - displays television programmes and films. Chat rooms, blogs and event advertising are also shown
Virtual - bluetooth and internet connection enabling chat rooms, blogs and other information to be sent directly to the screens.



section through underpass showing physical and virtual use of screens and the design of the seating



by night - lighting can provide safety for pedestrians



day - physical, visual and virtual interaction with the screens

m) Campus Project: Group II

The following is a sequence of drawings and texts of the initial ideas to the project elaborated by the architects of Group II to the Campus of the University of Sheffield.

MODULE ARC6700
Interactive Urban Visualisation Modelling

ICT Enabled Urban Experiences "the case of the University of Sheffield Concourse"

Group members:
Abhay M. Patil
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Rotimi Assani
Sathish Kumar

May 2007

School of Architecture
The University of Sheffield

Non ICT design solution	Functions	Possible Locations
Landscaped seating areas	Reduce the speed of pedestrian traffic during summer non-examinations periods	Students Union Bldg
Change in paver block colour in selected areas to demarcate areas for speeches, pamphlet distribution etc. An alternative would be to have special lighting under these focal areas to differentiate them from other access zones	Demarcate and define areas for speeches, pamphlet distribution etc	Vantage points within either side of the concourse.
Façade mounted retractable projection screens.	Serve as a projection surface for the movies, graphic art, tec	Both buildings on either ends of the concourse.

Solutions:

Place definers: Place definers would be installed at strategic locations to share and communicate information as follows:

Location- to help locate new users who are not much familiar with the spaces and functions around. Also share information about various shops and student union activities regarding opening and closure timings, etc.

Sheffield City Links- would be linked to the Sheffield city council to share information regarding transport routes, history, maps, etc.

Transportation- linked with various transport agencies like trains, bus service, taxi service, etc

Information transfer- downloadable digital data such as maps, directions, etc. via USB or Bluetooth devices or as text free of charge or through printouts for some nominal charge.

Advertisements- some form of advertisements can be incorporated which would offset initial cost of maintenance and installation of the devices.

Scheduling- it can serve to advertise future events and users of the concourse maybe on a weekly basis thus anticipating the participation of the users as per their interest, need and availability.

Networked Display screens: these would be screens managed by the University Information Systems providing various important information as follows:

Information such as available workstations at various places like the Information Commons, Libraries can be made available with the use of these screens.

Various adverts and events can be loaded on the display screens getting the information of various places available all in one place.

Some screens can be reserved for students to display their samples of works such as art objects, paintings, sketches, etc.

ICT Enabled Urban Experiences- "the case of the University of Sheffield Concourse".

Introduction/ Interpretation of the Brief:

Information Technology is seen and experienced a lot more than we actually realize in our daily urban experiences. Right from reading news with the use of e world to using mobile phones and attending laser shows, it is experienced and accepted almost regularly. The information Technology can be explained as development, installation and implementation of information through technological medium. It is in short exchange of thoughts, messages, or information, as by speech, signals, writing or behaviour. We come across various examples of ICT interventions in Urban Environments of today right from reading the bus timings for travel to using latest mobile phones with video conferencing and 3G technology. Use of these systems is seen a lot in airports, railway stations, public spaces, etc. in a more interactive way. The main aim of this report is to analyse these mediums of information sharing and relating it to a context which is the University of Sheffield Concourse. The general problem areas are observed and tried to solve these with simple ICT interventions without modifying the basic character of the space and complicating things for the users.

Site Analysis:

The site is composed of the main pedestrian spine linking the Union of Students and the University Building on the south with Firth Court to the west and the university parking to the north via the Alfred Denny building. Serving as the major thoroughfare for students and university staff, the site offers a mix of qualities which this paper aims to highlight and analyse.

Utilising a method proposed by Ferreira de Souza R .C. (2007), spatial elements will be highlighted and analysed through four paramount qualities:

1. Territoriality
2. Privacy
3. Identity
4. Ambience

For the scope of this paper, the authors of this report will limit the definition of the above mentioned qualities as to those defined by Ferreira de Souza R .C. (2007).

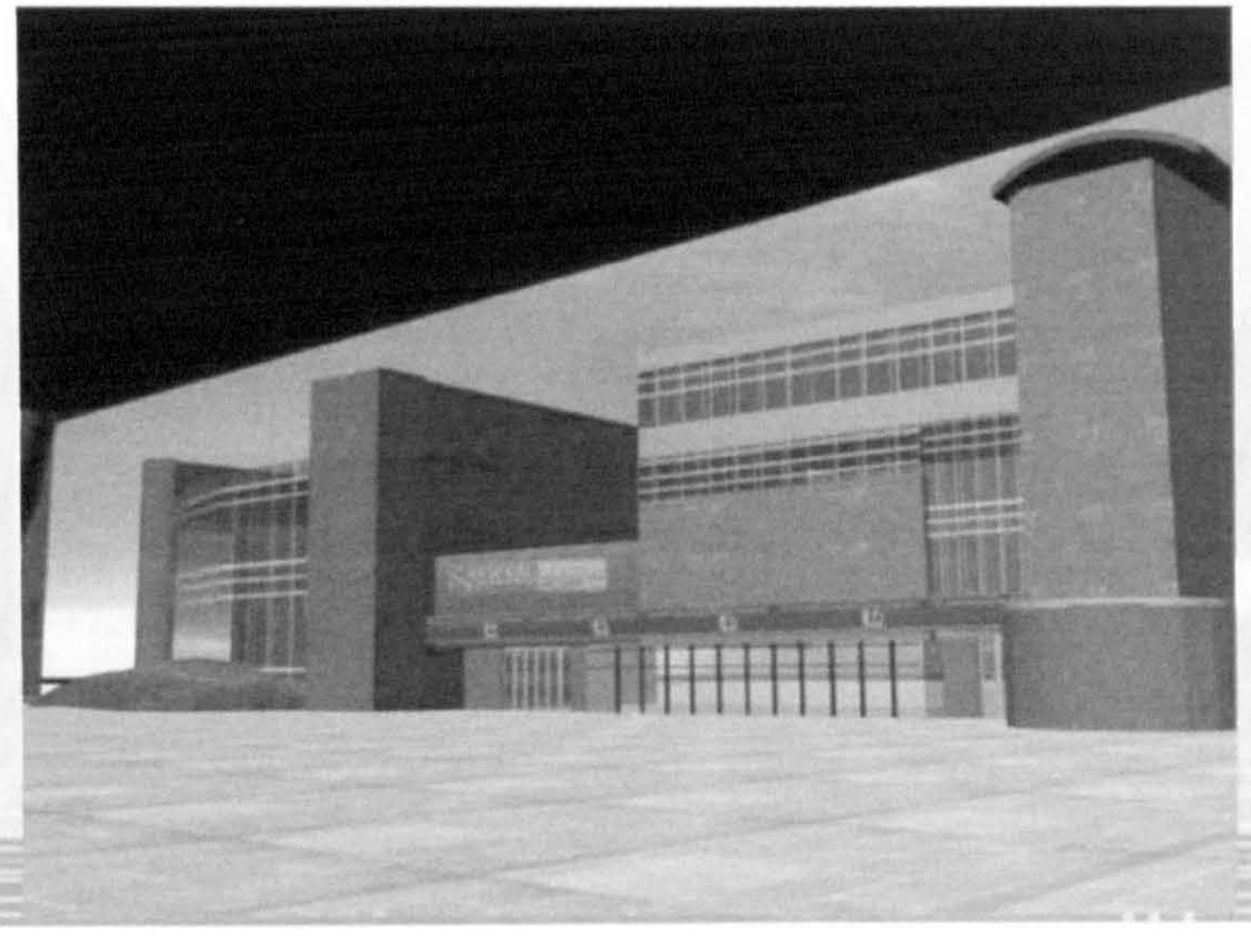
1. Territoriality - The process in which an area is maintained in order to preserve and protect a person or group.

2. Privacy - The selective control of the access to a person or group. It can be equated to a control process of interpersonal events denying or permitting to take part in a web of relationships established by the social collective.

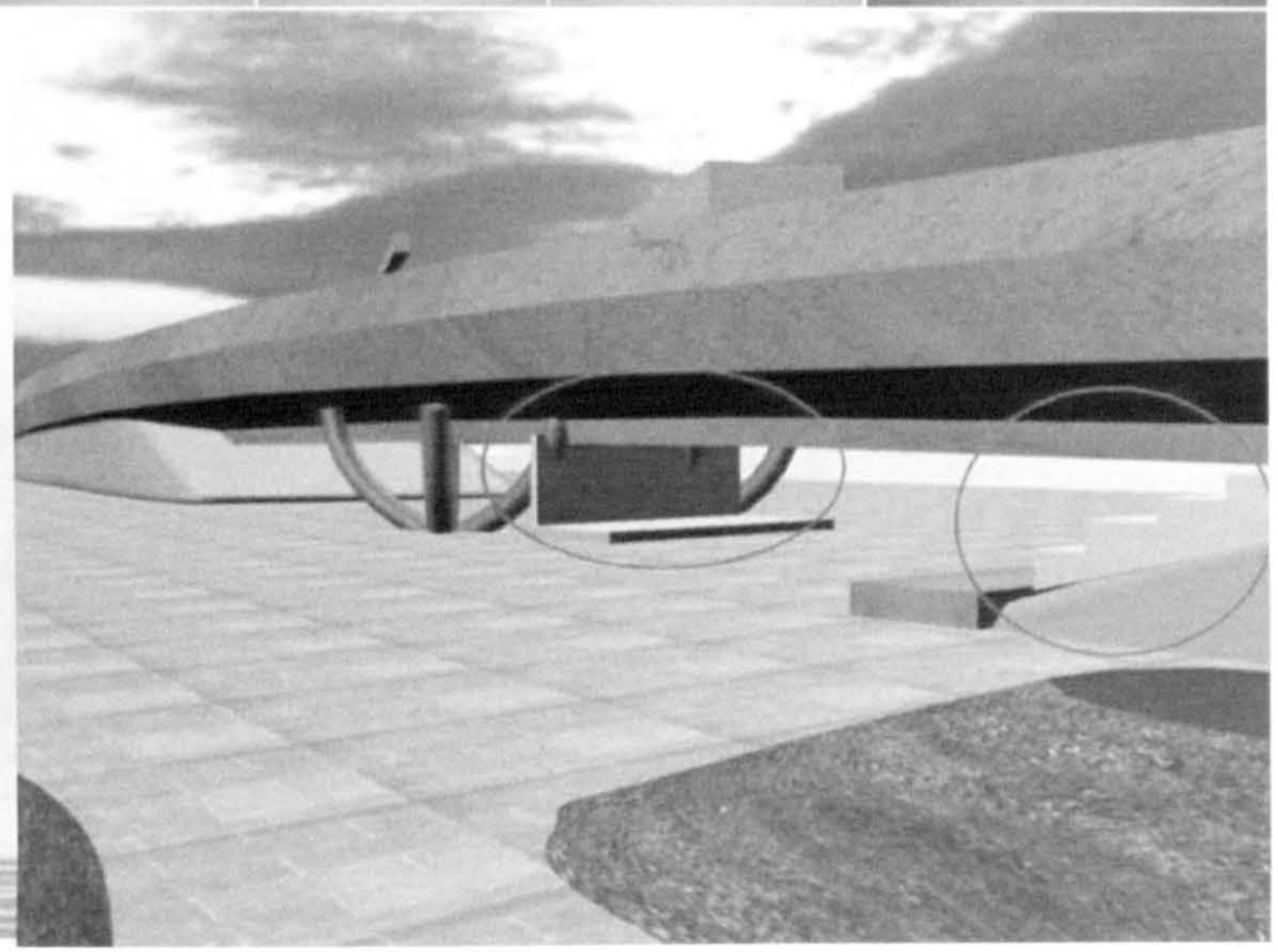
3. Identity - It is the dual belief, idea or general quality(ies) that makes sense of the concept of one being able to share life values at the same time reserve the right to be unique. Individually, identity promotes differentiation and individual distinction. Collectively it gives elements the individual recognises as patterns to integrate a person into a group.

4. Ambience - This quality is related to all those facts that turn the place into an enjoyable space. It reaches a subjective dimension in which one can experience emotional response to a place. to a place.

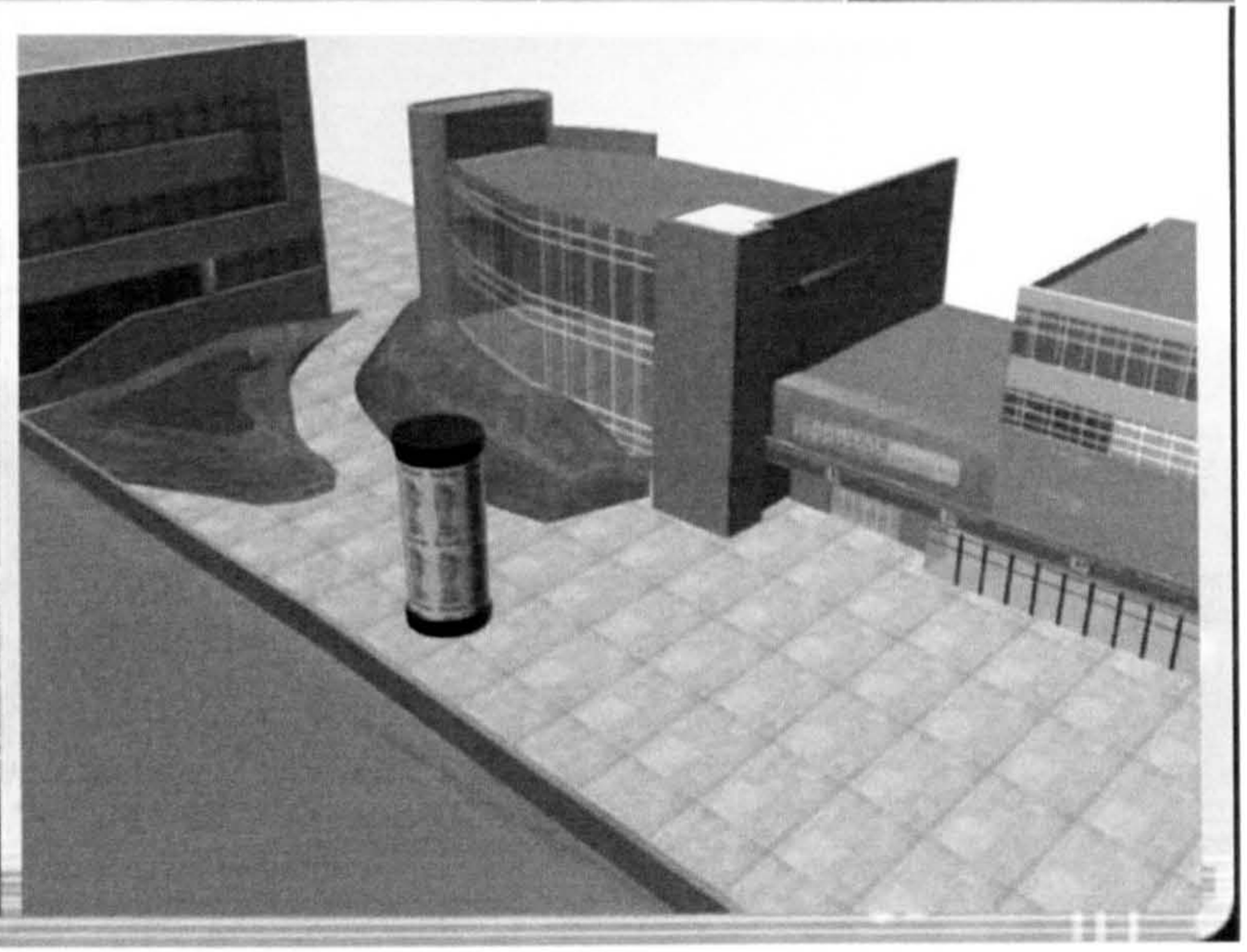
The area under consideration is highlighted in the following diagram and for the ease of understanding and resolving the entire process of site analysis and trying to find solutions for better functioning of the space, the site has been divided into various spaces and zones shown in the sketch as follows:



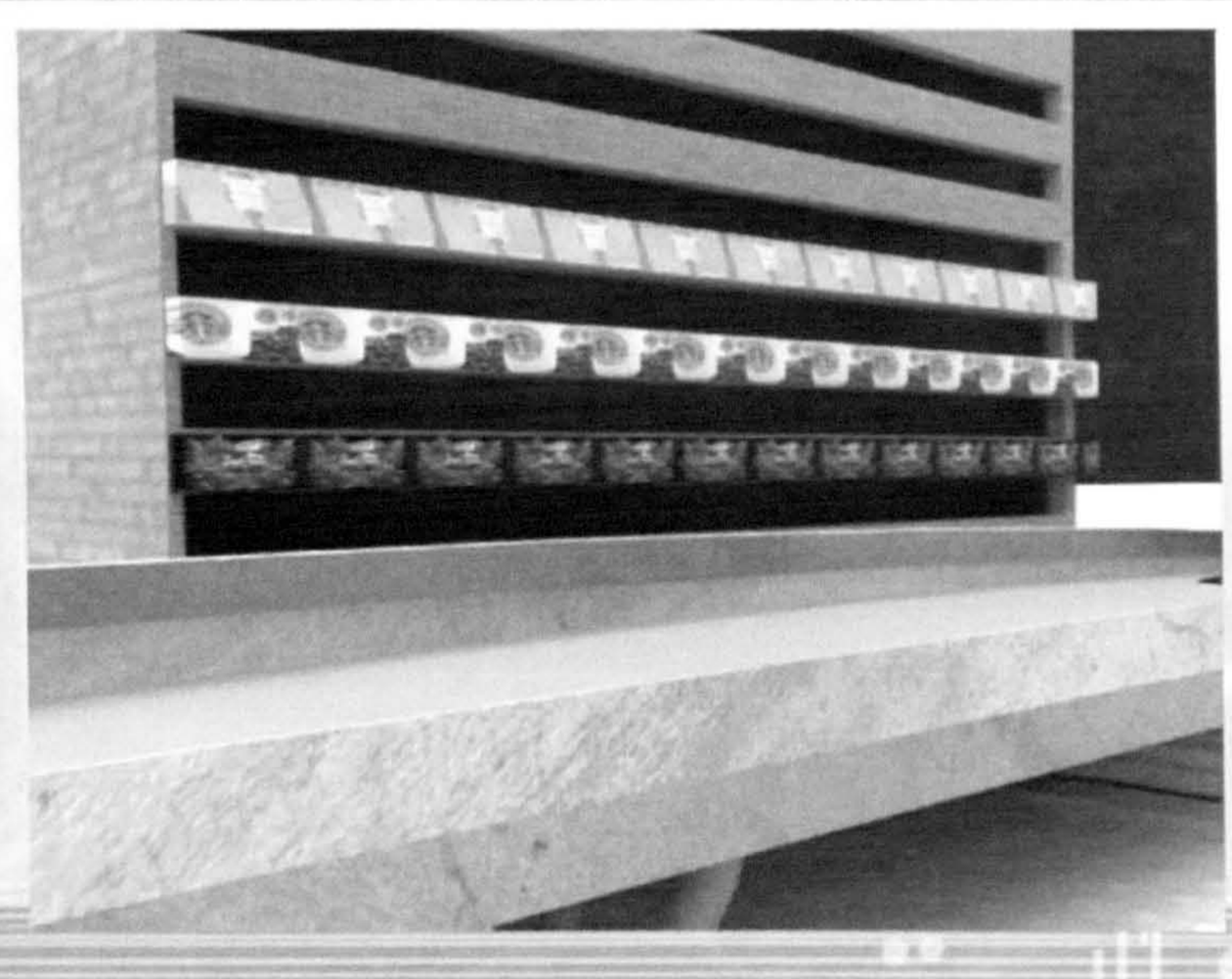
AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
1	Movement patterns	Lack of distinct movement zones results in a chaotic impression of random human passage.	X		X	X	Non existent route markers along the route.



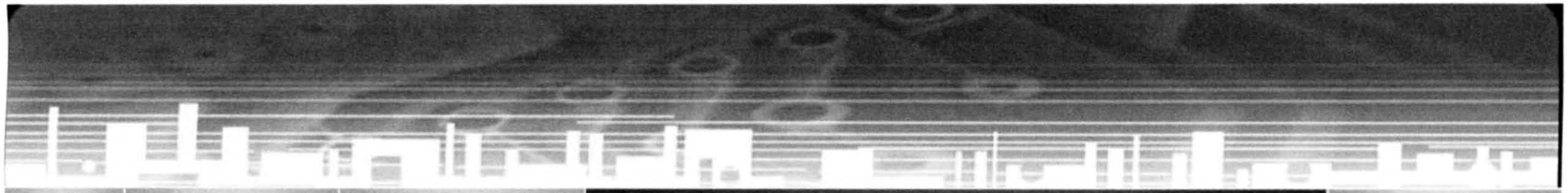
AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
2	Uninviting soft landscaping areas	The landscaped zones fall short of serving as a force of attraction for passers by.	X	X	X	X	Lack of seating/reclining areas, restrictive border design.



AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	**PRIVACY**	**IDENTITY**	**AMBIENCE**	
3	Weak sense of place under the overpass	This area is left Drab and uninspired, it serves a purely utilitarian purpose	**X**	**X**	**X**	**X**	Lacks a strong visual and spatial reference.



AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
4	Inadequate signage	Signage is inconspicuous and thus hardly noticed.			X	X	Bold signage establishing a sense of place and direction. .

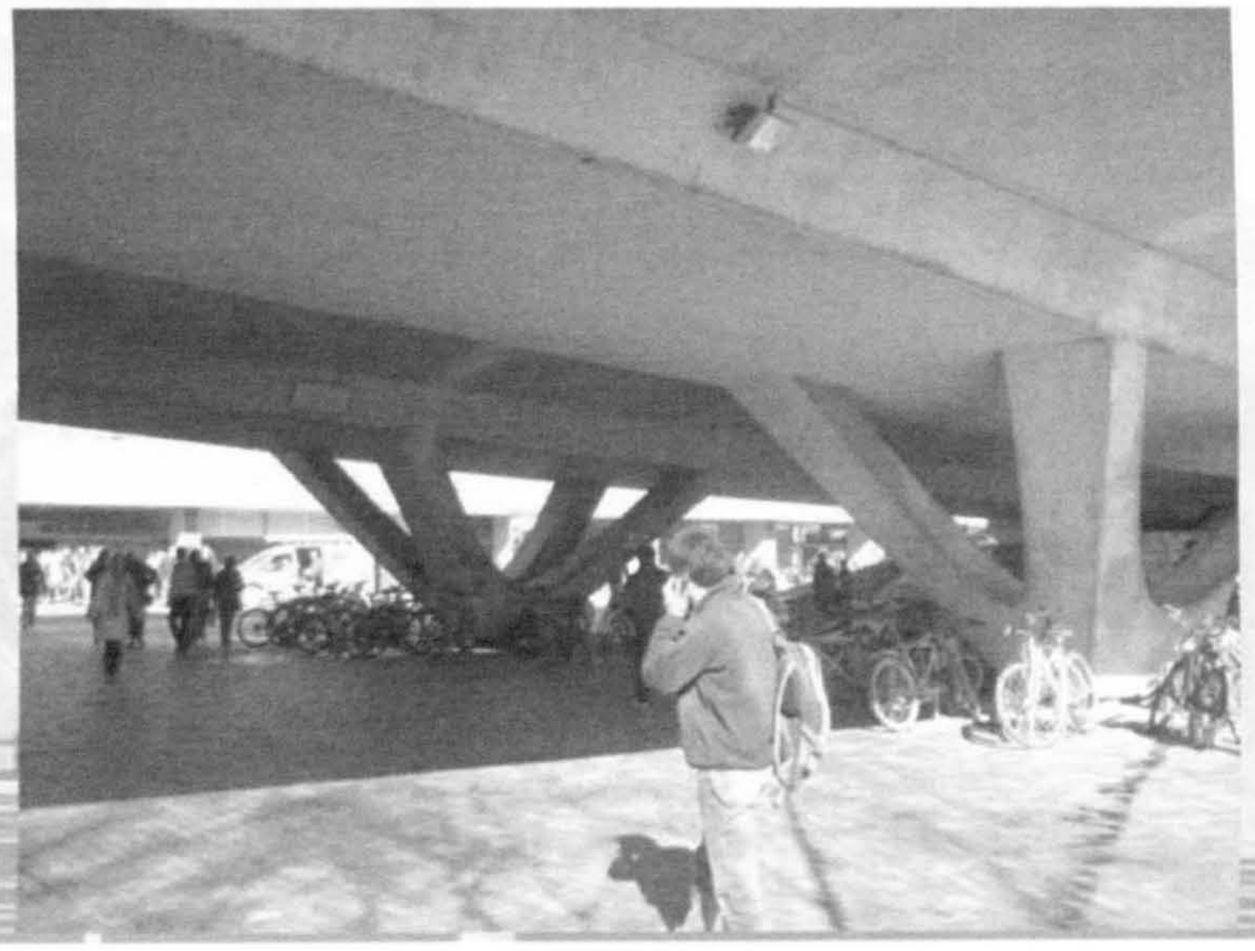


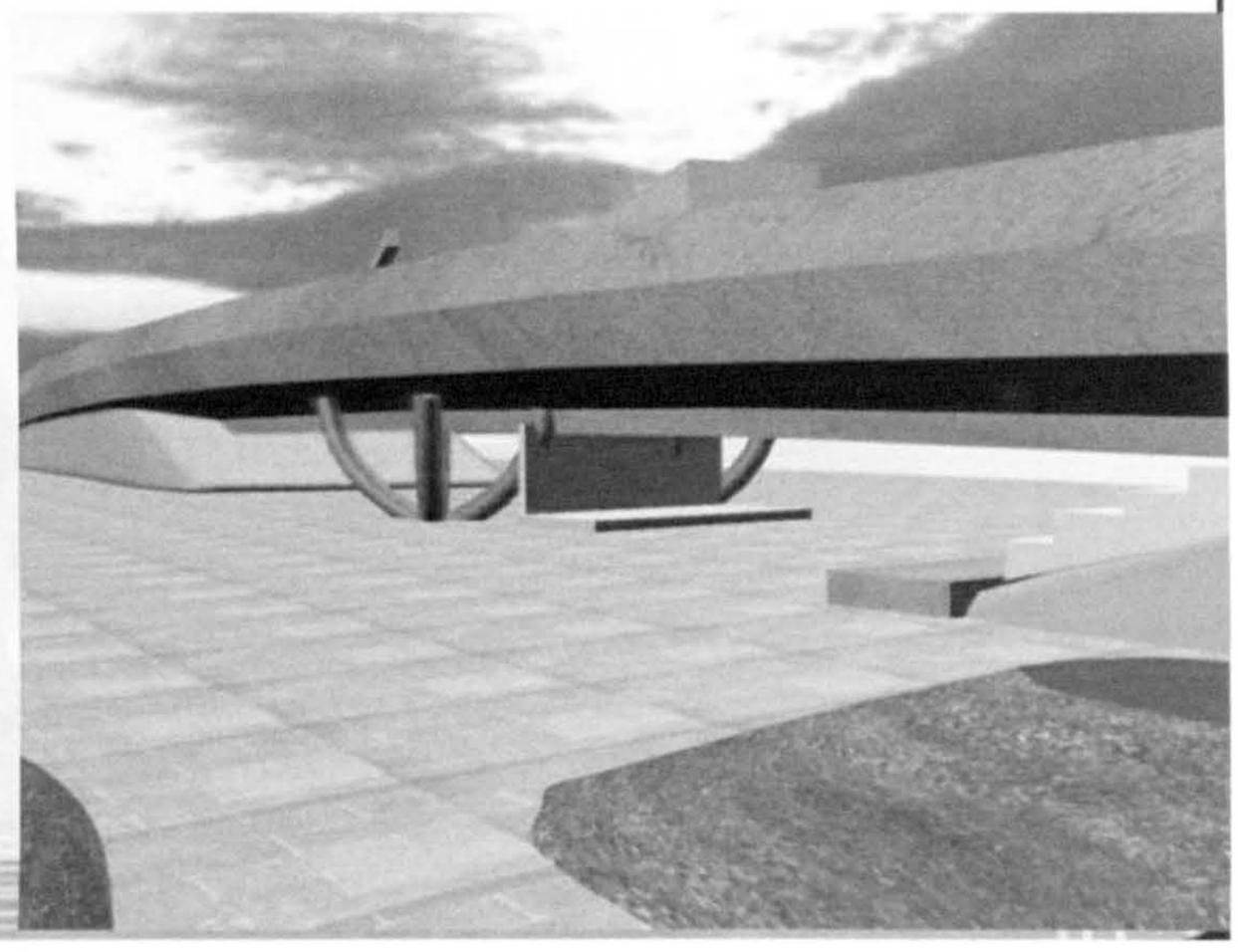
AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
5	Under utilization of space	Inappropriate use of space under the overpass	X		X	X	Bold use of space or design that grants the space a sense of place.

AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
6	Lighting Levels	Dark zone shuts out the opportunity for visual exploration	X			X	Creating a brighter ambience for the zone. Or utilizing the dark area in a positive and creative manner.

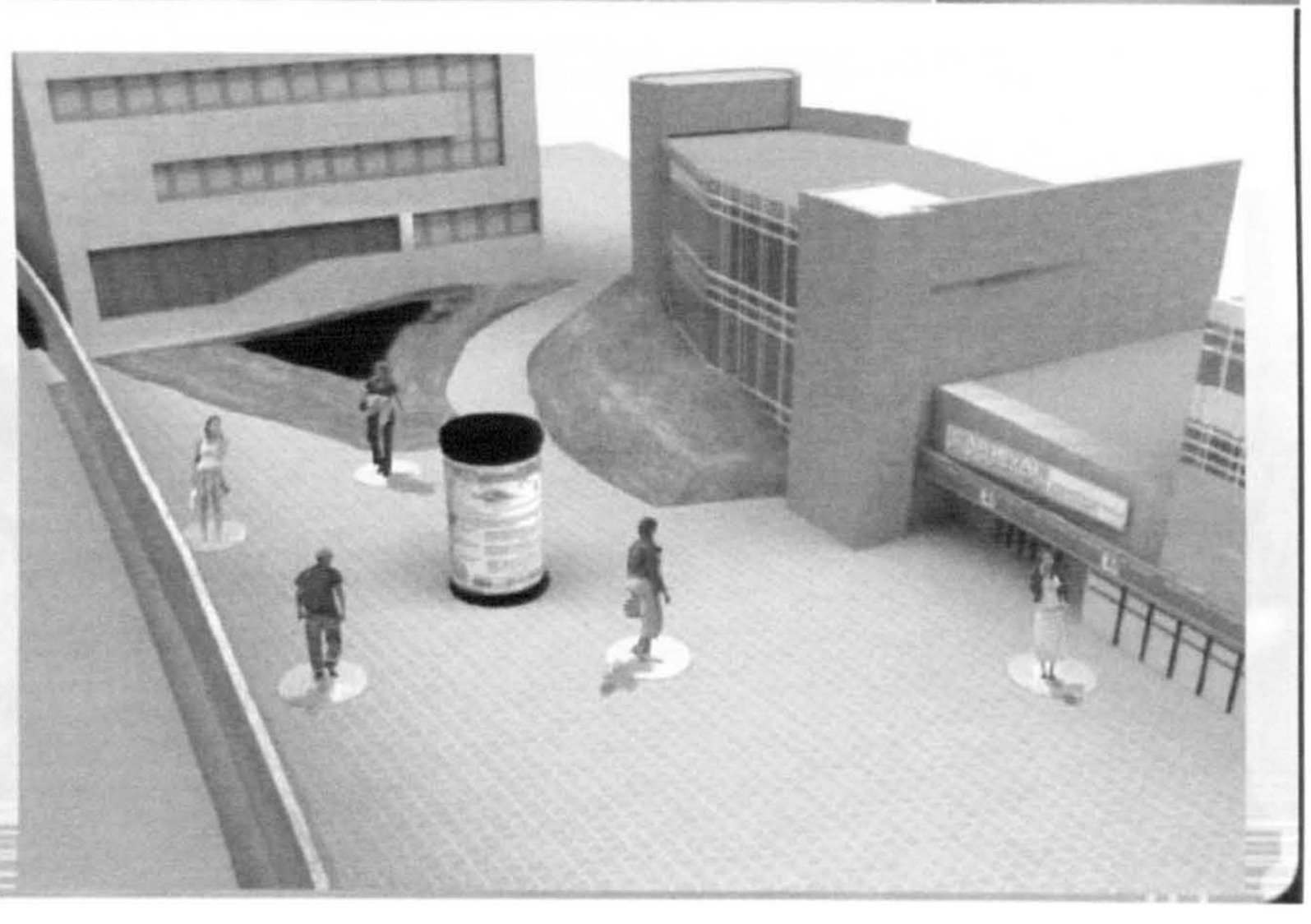
AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
7	Isolated Zones	Bereft of human presence or interaction.	X	X		X	Requires activity fostering human socialisation

AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	**PRIVACY**	**IDENTITY**	**AMBIENCE**	
8	Nocturnal safety of passers by	The area remains deserted by night	**X**		**X**	**X**	Lighting strategy, security measures, nocturnal use of the zone.

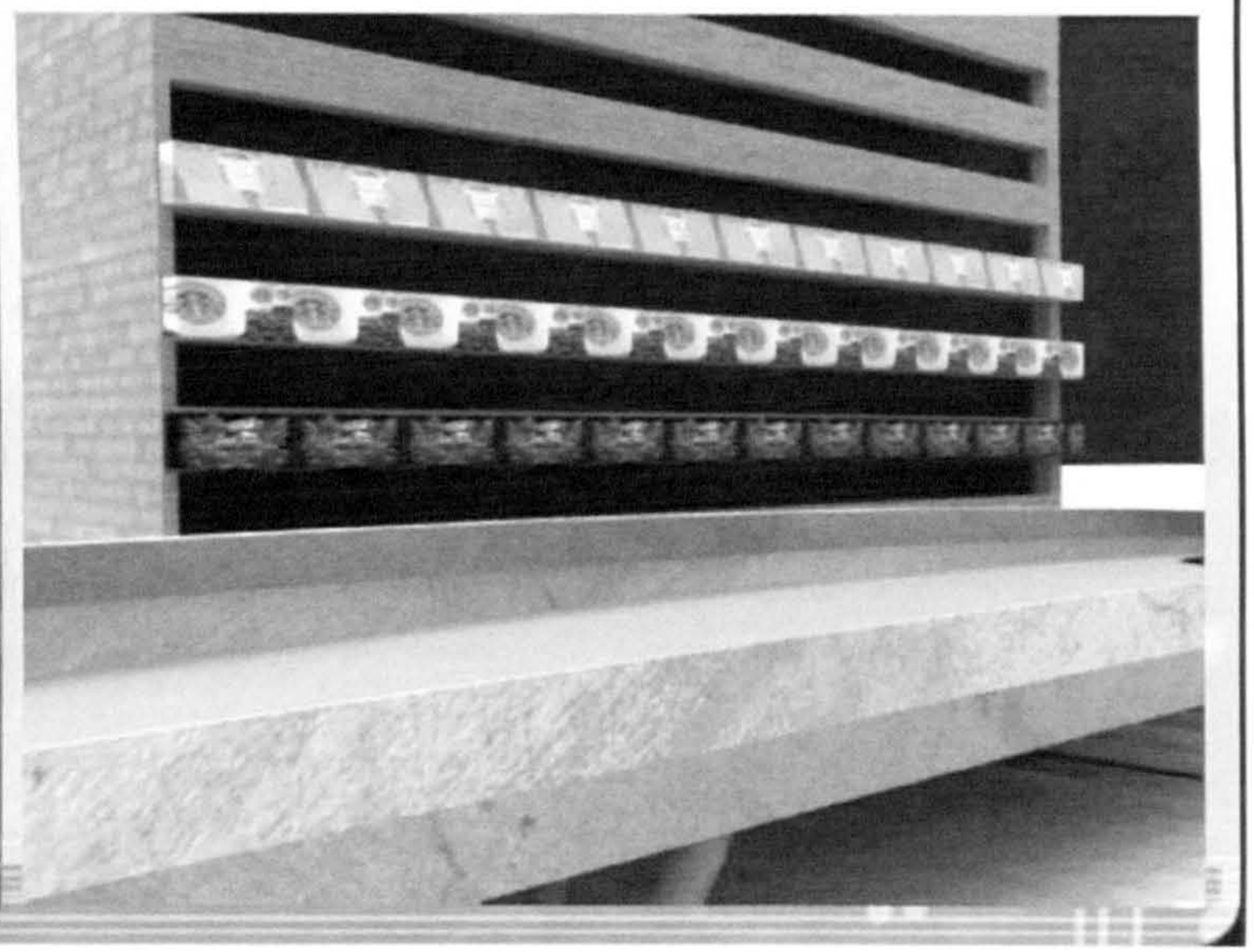




AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
9	Flyer distribution	People handing out leaflets outside the Union of Students Building		X		X	There lacks a cohesive system to promote events and disseminate information.



AREA	CATEGORIZATION / NAME	CONFLICT(S) DESCRIPTION	AFFECTED QUALITIES				SPATIAL ELEMENTS MISSINGTHAT CAUSES THE CONFLICT
			TERRITORIALITY	PRIVACY	IDENTITY	AMBIENCE	
10	Blank façade of the Stoddard building	Bare façade. Sparse human activity at the ground level.	X		X	X	Responsive design features on the façade. Amenities to foster diverse activity.



Aided by the analysis method proposed by Ferrira de Souza R C (2007), the analysis process generated an array of strengths and weaknesses that were highlighted in the conflicts description column. The affected qualities column and the spatial elements column enabled the analysis exercise to generate keywords that summed up the case study of the site. A metaphoric platform was created for possible thematic solutions. The fourth column afforded the opportunity to generate prescriptive phrases that enforced the use of keywords such as;

Transition
Chaotic
Interaction
Public vrs Private
Cohesion
Seamless
Focal points, Geni loci

Further utilization of the analysis table for the positive and desirable attributes was carried out. As a result of the TPIA analysis, a thematic platform using the following five key attributes was developed.

Seamless
Interaction
Promotion / Preservation
Vibrancy
Dynamism

Thus the following theme was generated; *a seamless and interactive information corridor preserving and protecting a vibrant dynamic university atmosphere.*

From each attribute design concepts were developed through various means including architectural interventions, ICT interventions, social interventions outdoor art and landscaping interventions. To ensure that our design concept was set in the context to the site, several parameters where considered, namely

1. The various user groups most likely to use the site

2. The role of ICT in the context of the user, campus as entity and the City of Sheffield in which the university was located.

3. Most advantageous locations of various design interventions.

4. The passive use of design features, materials and geometry to aid in arriving at the thematic concept without overriding key positive qualities already existing on the site.

5. The use of visualisation, namely 3D computer models of the built up site to ascertain major buildings in terms of access, congregation spaces, views and possible before and after scenarios.

The above exercise was tabulated as shown below.

Attributes	Concepts
1) Seamless	Multiple activity strips within one movement corridor (penetrative spaces)
2) Interactive	Social Interaction Information Retrieval Outdoor art and signage
3)Promote/Preserve	Ensuring the preservation and promotion of the existing geni loci (spirit, ambience of the existing site.)
4) Vibrancy	Screen Images Music Speeches Vending allocations Appeals, protests, leaflet sharing Exhibiting new events and products
5) Dynamic	Functions that vary with Time of day – day and night Seasonal- summer, spring , autumn and winter Time of semester- early period, mid-semester, exam period
User Groups	**Concepts**
1) Seamless	Persons familiar with the layout Persons unfamiliar with the layout
Persons Familiar	Distinct movement corridor for busy times Transient browsing (inquiring students, teaching and university staff.)
Unfamiliar Persons	Visitors Person seeking information or guidance

Possible Functions	Possible Functions	Intended Location
Place Definer	Information retrieval unit: 1. Gives Present Location 2. Information about surrounding buildings and their functions. (in the case of the students union all the shops and their opening times, available workstations and their locations etc) 3. Linked to the Sheffield City Council (maps, history , transport links) 4. Transport companies (Rail, Bus, Tram , Taxi and Train) 5. Download digital data such as maps, directions in USB format, Bluetooth format or as a text free of charge. Or print off the above info for a small charge.	Students Union Bldg
Networked Display screens	6. Serve as an advertisement platform to offset initial costs. 7. Scheduling system to advertise future users of the concourse on a weekly basis. (Therefore one can anticipate activities of interest and be present on the scheduled day to listen or contribute to the event.) - Information relevant to students such as free workstations at the I.C. or libraries can be loaded on the display screens intermittently. - Adverts for events or products can be loaded on the screens. - Students can loads sample arts and music videos for ratings via the place determiners. (ie a student run crit session for passing viewers)	Alfred Denny Bldg

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