

DECLARATION BY PHILIPPE GERIL

I, Philippe Geril, hereby declare the following to be true to the best of my knowledge, information, and belief.

1. I am over twenty-one (21) years of age, and I am fully competent to make this declaration. I make this declaration based on my personal knowledge or confirmation with other responsible personnel with knowledge of the information below.
2. I was the European Branch Manager of the Society for Computer Simulation International (SCS) from September 1985 to July 1994. I was also the co-founder of the FV European Simulation Societies.
3. I was the co-founder and executive director of The Society for Computer Simulation Europe Bvba (Ltd) ("SCS Europe Bvba") from July 1994 to December 2002. SCS Europe Bvba served to promote the use of computer simulation and modeling as a problem solving, cost, and time-saving tool in academia and industry, and encompassed topics like AI, Concurrent Engineering, Multimedia Applications, Food Technology, and Computer Gaming.
4. As part of its ordinary course of business, SCS Europe Bvba created and organized several computer simulation conferences ("SCS Conferences"), including, for example, the EUROMEDIA and GAME-ON conferences, ESM (European Simulation Multiconference), ESS (European Simulation Symposium), ECEC (European Concurrent Engineering Conference), and MESM (The Middle Eastern Simulation and Modelling Conference).
5. It was the regular business practice of SCS Europe Bvba to edit, make available, and publish the proceedings of the SCS Conferences, and as further described in the paragraphs below.
6. Papers peer-reviewed by an international program committee that were subsequently accepted for an SCS Conference were collected together for the conference's proceedings. An ISBN number for the conference proceedings would be requested from the SCS head-office in San Diego, California ("SCS San Diego"). After receipt of the ISBN, the edited contents and separate covers (designed by SCS Europe Bvba) were collated and printed in Ghent, Belgium as books (each a "Conference Proceedings Book").
7. After printing, the Conference Proceeding Book was shipped to the corresponding conference site for distribution to attendees at the start of the conference. At the conference, each attendee received one printed copy of the Conference Proceedings Book, which was included in their registration fee.

8. Another copy of each Conference Proceedings Book was kept at the SCS Europe Publishing House (Germany) for post-conference purchase in Europe and the United States. In Europe, detailed information, as to contents, location, and editors, about each Conference Proceedings Book was posted on the SCS Europe Bvba website where the aforementioned information about the book could be downloaded and a printed copy could be ordered for a fee. Each Conference Proceedings Book was indexed online at, for example, ISI-Thomson Reuters Web of Knowledge, IET, and SCOPUS Elsevier Engineering Village, where it could be found through keyword and author search capabilities.
9. Each Conference Proceedings Book was advertised for purchase in a yearly publications catalogue created by SCS San Diego ("SCS Publications Catalogue"). The SCS Publications Catalogue was also mailed to SCS Europe Bvba for distribution at conferences in Europe.
10. As part of its ordinary course of business, SCS Europe Bvba publishes each Conference Proceedings Book and makes them available to both conference participants and to the general public for purchase.
11. I have been asked to certify the publication, publication date, and dissemination of *Palmtop Computers for managing Interaction with Immersive Virtual Heritage* ("Benini"), by Luca Benini, Maria Elena Bonfigli, Luigi Calori, Elisabetta Farella, and Bruno Ricco, attached as Exhibit A, which is a true and correct copy of Benini.
12. Benini underwent the process described above and was published in the Conference Proceedings Book for the EUROMEDIA'2002 Conference for the 7th Annual Euromedia Conference, held April 15-17, 2002 in Modena, Italy. An excerpt of the final program for the EUROMEDIA'2002 Conference, listing Benini in the table of contents, is attached here as Exhibit B.
13. Benini was published in the Conference Proceedings Book for the EUROMEDIA'2002 Conference and distributed to all attendees of the EUROMEDIA'2002 Conference, no later than April 15, 2002, according to the process described above.
14. The Conference Proceedings Book for the EUROMEDIA'2002 Conference including Benini was available to the general public for order and purchase in the SCS Publications Catalogue and on the SCS Europe Bvba website for purchase (printed copy) after the conference, according to the process described above.

If requested, I will appear for a deposition on this declaration. I declare under penalty of perjury under the laws of the United States of America that the foregoing statements, made on my knowledge, information and belief, are true and correct.

Executed on: ___ March 20th 2025 _____

A handwritten signature in blue ink, consisting of a stylized 'P' followed by a horizontal line and a small dot.

Philippe Geril

Exhibit A

SCIENTIFIC PROGRAMME

MEDIATEC

MULTIMEDIA ON THE GO

PALMTOP COMPUTERS FOR MANAGING INTERACTION WITH IMMERSIVE VIRTUAL HERITAGE

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KEYWORDS

Realtime Systems, 3D Interfaces, Virtual Heritage, Palmtop Computer

ABSTRACT

The paper aims at exploring the potential of using portable devices in managing interaction in (semi)Immersive Virtual Reality (IVR) systems reconstructing cultural heritage objects and environments. The main advantage in this innovative mix of technologies is that portable devices are easily handled and enable a friendly interaction to the majority of users, with a reduction in learning time needed for accessing the contents. Moreover in a Virtual Heritage context, portable devices offer the opportunity to visualize, in a un-invasive way, sources – i.e. photos, drawings, plans, texts, etc.- necessary to validate virtual reconstructions and to explain to the user the real cultural value of the virtual world (s)he is visiting.

INTRODUCTION

Interaction is a fundamental part of any application designed for a Virtual Environment (VE). User interaction in IVR and Augmented Reality environments has traditionally been based on specialized interface devices (Brooks 1999) (gloves, 3-D joysticks, etc.). Even though these devices are specifically tailored to IVR interactions, they are subject to several limitations. First of all, most of them are connected to stationary appliances through wires (tethered), thereby limiting the freedom of movement in the VE. Moreover, these devices are designed and produced for a relatively small niche market, and therefore they cannot leverage the substantial industrial engineering effort, design optimisation, ergonomics tuning that are routinely performed for electronic appliances destined to the consumer market. As a result, Virtual Reality (VR) interfacing devices are either extremely expensive (as in the case of high-end military or industrial VEs), or they are plagued by substandard quality, performance, availability. Finally, the average user of computing and electronic equipment is not familiar with VR interfacing devices, because of their limited market penetration, at he/she might experience a steep learning curve when first entering a virtual reality environment.

Palmtop computers are rapidly becoming widespread: for instance, the recently released IPAQ PocketPC has reached the million-sold in less than a year, and an even deeper market penetration has been reached by lower-end PDAs, such as PALM products. Such a wide, and rapidly expanding, user basis implies two highly desirable consequences: first, a large number of people are familiarized with PDA interfaces; second the price of these devices is rapidly decreasing, while at the same time their quality, reliability and usability is improving. The most common PDAs are portable, lightweight and enhanced with fast processors, RAM and ROM capabilities, supporting complex tasks such as the visualization of colored graphical bi-dimensional and three-dimensional objects, multimedia audio and video applications, etc. Additionally, almost all palmtop computers of the last generation on the market today feature wireless networking capabilities: they are compatible with IEEE 802.11b wireless LAN cards, and more wireless interfaces (GPRS modems, Bluetooth cards) are becoming available.

Interaction through palmtop in immersive and semi-immersive VEs is not a new research direction. Fitzmaurice, Zhai and Chignell explored how virtual reality theories could be applied towards palmtop computers. Their project, “Chameleon”, suggested that effective navigation and search could be supported by palmtop virtual reality, in rich and portable information spaces (Fitzmaurice et al. 1993). An interesting contribution was made by Watsen, Darken and Capps. They investigate the contention between 2D and 3D interaction metaphors and involved the use of a 3Com PalmPilot handheld computer as an interaction device to the VE, allowing the use of 2D widgets in a 3D context (Watsen et al. 1999). Another work by Wloka and Greenfield describes a user interface metaphor - the virtual tricoder - visually duplicating a 6-degrees of freedom input device in a VE (Wloka and Greenfield 1995). The JAIVE Project (Hill and Cruz-Neira 2000) extends previous effort integrating wireless networking, utilizing Java™ and accommodating custom designed interfaces.

Also in Cultural Heritage field a lot of work has done to research innovative technologies for presenting cultural heritage sites with IVR and new interaction techniques using map based interaction metaphors. A research at the Fraunhofer Institute tried to apply some innovative

metaphors in the immersive VR presentation of the cathedral of Siena (Behr et al. 2001).

The contribution of this work is the development of an hardware/software system for PDA-based interaction with IVEs realized in the field of Virtual Heritage (VH): Virtual Reality applied to Cultural Heritage. The software, that runs on PocketPC, is a Java based interface, which guarantees platform independence in appearance and operation, compatibility with other and new computing devices, to accommodate development and integration of new interaction types. In particular we introduce the use of maps for a 2D representation of the 3D world that help the user not to lose the perception of her/his position in the virtual world. Another contribution of our work is that PDA map-based interaction is performed through wireless LAN networking, exploiting the standard 802.11b, in existing IVEs realized by CINECA Vis.I.T lab with Performer/Vega in the field of Cultural Heritage within Nu.M.E., MU.VI and Pompeii “Casa del Centenario” projects (see <http://www.cineca.it/visit/Researches/tecbec.html>).



Figure 1: Pictures from Nu.M.E. (a), Pompeii Insula del Centenario (b), MU.VI. (c) VEs.

This paper is organized as follows. Section 2 presents interaction Techniques individuated as specific for Virtual Heritage. Section 3 shows the main features of the proposed system. Section 4 describes the architecture of the distributed system that manages the interaction between the portable terminals and VEs visualized in CINECA's Reality Center named *Virtual Theatre* (<http://www.cineca.it/visit/virtualtheatre.html>). Finally, section 5 concludes the paper and sketches the ongoing and future research directions.

INTERACTION TECHNIQUES FOR VIRTUAL HERITAGE

Virtual Heritage (Addison 2000) applications target a large and diverse user basis, ranging from scholars, which may gain better insight on the details and the overall structure of an archaeological site, to the general public of a virtual museum. For the vast majority of these users, we cannot expect any significant exposure to advanced VR environments and their specialized interfaces. The relatively long learning time of the “rules of interaction” may prevent active fruition by most users, and limit the VR experience to a passive virtual tour of an archaeological site, under the control of a single, well-trained operator. Even if rapid

learning could be achieved (possibly thanks to effective real-life metaphors), the high cost and uncertain reliability of most VR interface devices may impose unacceptable operation cost for any mass-fruition facility, thereby strongly limiting the potential user basis of a virtual heritage environment. To address these issues, we propose the adoption of standard, consumer-market wearable interactive terminals, such as palmtop computers (Pocket PC and PDAs), as the preferred interfacing device with IVEs (Hill and Cruz-Neira 2000) in the field of Cultural Heritage. The use of portable terminals can in fact increase effectively the possibilities of interaction in IVEs, delegating the management of the principal interaction techniques to remote systems. This enables from a side to preserve the presence sense of the user (Hill and Cruz-Neira 2000), from the other to supply him with a tool for the visualization of cultural heritage data during the virtual experience.

Once defined the input devices - PocketPCs and PDAs - and the semi-immersive output device - Virtual Theater - the next step in designing the interface system is to identify which kind of interaction techniques are considered more useful in immersive virtual heritage applications.

In the field of 3D User Interfaces (3DUIs) the basic interaction tasks are: navigation, selection/manipulation and system controls (Kwon and Choy 2000). Navigation refers both to movement from place to place (*travel*) and decision making procedures to move in the VEs (*wayfinding*); Selection and Manipulation are respectively the specification of virtual objects and specification of virtual objects properties; finally System controls refers to the possibility to change the system state or the interaction mode. These basic interaction tasks can be combined to create more complex interaction tasks, some of which specific to an application domain. Among the most important Virtual Heritage (VH) specific interaction tasks: (i) spatial and time context defining, (ii) guided navigation, (iii) cultural information accessing. These tasks are outlined in the following subsections.

Spatial and Time Context Defining

To interpret Cultural Heritage data it is very important to understand their historical context both in terms of time and space. In particular in the field of Virtual Heritage the historical context can result determinant in underling originality and beautifulness of a building, a pictures, a sculptures, etc. and in recreating a connection with the real word that is always the main key for the communication process for virtual representations. Moreover, temporal context is important in order to understand how a artwork was modified over time or how it appeared different comparing it with similar pieces of the same time; while spatial context is important to understand how the real word around an artwork looks like, or, especially in the case of virtual reconstruction of buildings or of virtual archaeology, how different were the landscape and territory all around.

Interaction tools for helping users to understand the historical context can be the following:

- A “time bar” to select the historical period in which the users wish to take their virtual visit. Generally the user begins with the virtual reconstruction of the artwork as it is nowadays and travels backward in time (Bonfigli et al. 2000a).
- A “2D map” in which the users visualize their position and orientation in the virtual world (Bonfigli et al. 2000a), which regions can be reached by their current position (Behr et al. 2001), etc.

Both these tools are particularly suitable for the screen of a PDA.

Guided Navigation

Often virtual reconstruction of artworks have both the purpose to better understand their nature and to communicate a particular understanding that has already been reached. Moreover, due to the fact that there are physical limits to the scene complexity manageable by a VR system, there is no doubt that it is impossible to model all the 3D objects in a virtual scenario with the same precision or going into details in the same way.

Guided navigation enables the user interface designer to implicitly suggest fine views as well as details modeled better than others in order to give prominence to them or to underline a particular aspect of the virtual artwork.

Guided navigation of a VE can give users the possibility to select privileged point – e.g. on a 2D map (Behr et al. 2001) and to run automatic tours. This is a useful interaction task technique to provide the users with a quick overview of the virtual environment and of its objects, helping people to acquire spatial knowledge that is a fundamental requirement for obtaining wayfinding (Elvins et al. 1997).

Cultural Information Accessing

In order to avoid the risk of realizing misleading Virtual Heritage it is fundamental to connect VEs with all the background research material that lies under the virtual reconstruction activity. Thus, users will visualize models that are not only nice and realistic, but also historically accurate (Bonfigli and Guidazzoli 2000).

From the interaction point of view, when selecting a virtual object in the VE, the users should have the possibility of visualizing all the historical or archaeological sources (images, photos, written texts, etc.) that justify, validate and authenticate the reconstruction of that object in that particular way.

SYSTEM FEATURES

In CINECA’s Virtual Theatre, wearing stereoscopic glasses, a user can experience a “physical” immersion in VH environments: the area of Bologna City center from 13th century to nowadays (NuME VE), a typical middle-class Italian house that changes during the 20th century (MUVI VE), an house in Pompeii before and after the eruption of the Vesuvio (“Insula del Centenario VE), etc.

Moreover, according with the interaction techniques individuated in section 2, (s)he can interact with the User Interface (UI) of our system, visualized on the PDA. The UI features a two-dimensional map abstraction of the VR world, augmented with various navigation controls: eight arrows to more intuitively navigate in the environment, a time bar, and some buttons to enable an automatic tour and to change the VE draw status (see figure 2 below). Future works will include the capability to visualize in a browser multimedia data referring to the sources that justify the virtual reconstruction of single objects.

Interacting with the 2-D map reproducing the top view of the VE, the user is able to specify his/her movements and viewpoint changes. In particular the 2D map enables the user to visualize his/her position in the virtual world with a red rectangle and the direction of observation with a green rectangle (Bonfigli et al. 2000a) and includes the possibility to reach privileged viewpoint represented with colored dots. Moreover four arrows realizes the metaphor of moving forward, backward, left and right the avatar in the VE as if it is walking into it; and four arrows are used to turn around and to look up and down (Behr et al. 2001). This navigation mode is flexible towards curiosities and specific interests of the users.

The time bar (Bonfigli et al. 2000a) consists of a text field showing the year on display and a bar with a cursor showing the time line. Each time a year is entered in the text field or when the cursor is moved, the immersive VE is dynamically updated.

Finally, three buttons enable respectively the setting of a guided tour through the VE and the change of draw modes switching between textures and no textures and between solid and wire.

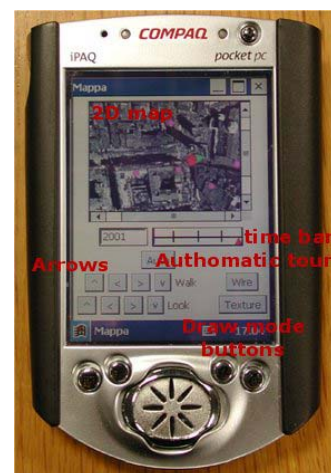


Figure 2: The User Interface Developed for Interacting via PDA with the Nu.M.E. VE

The choice of Java technology for the UI implementation guarantees cross platform design of the VR interaction application. There are several reasons for that. First, the palmtop computing market is rapidly evolving, and we need to guarantee rapid porting to new platforms as they become available on the market. Second, platform independence may

enable end-users to download the application on their own PDAs as they enter the VR environment, thereby minimizing the learning curve and greatly enhancing the availability of the service.

SYSTEM ARCHITECTURE

The main purpose of this project is to deploy the hardware and to develop the software infrastructure needed to support PDA-based user interaction within a semi-IVR environment. The main components of the interactive system, shown in Figure 3 below, are: (i) the portable terminals, (ii) the wireless network, consisting of network interface cards (NICs) and base stations (that last one connected to the wired LAN of CINECA), (iii) the virtual theatre at CINECA and (iv) the client-server software that runs on the terminals (client component) and on the virtual reality engine (server component). That basic infrastructure implements the UI depicted in section 3.

The study has been performed using a PocketPC hardware platform, the Compaq iPAQ 3630, with a 320 x 240 resolution TFT color screen, 32Mb RAM and 16Mb ROM memory, running WindowsCE 3.0. The iPAQ was used with IEEE 802.11b High Rate standard wireless LAN interface working at 11 Mb/s. We tested our application with both wireless bridge for Ethernet networks and PC cards from Lucent and from Cisco.

The Wireless LAN card was setup using a given IP address but a test was made also using the Dynamic Host Configuration Protocol (DHCP), that means that the IP address is "leased" for predetermined periods of time.

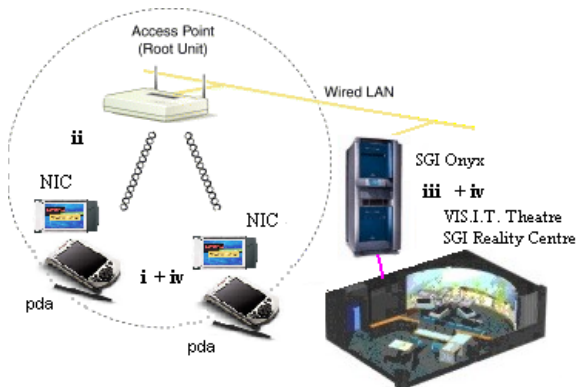


Figure 3: Components of the Interactive System: Portable Terminals(i), Wireless Network(ii), Virtual Theater (iii), Client-Server Software (iv).

Platform independence has been guaranteed by implementing the client-side software developing the code with Java™ 2 Software Development Kit (SDK), v.1.3.1 and using Jeode Runtime, a Java virtual machine optimized for the PocketPC and WindowsCE platform. As of today all the Java Virtual Machine for WinCE and PocketPC support only AWT classes (not Swing classes for example), this was a limitation in building our GUI.

The server side of the application and the test of performances were realized in the VIS.I.T. Theatre, SGI Reality Center. The hardware platform consist of an Onyx2 with 3 graphic pipelines each with 64 MB texture memory and 8 processors MIPS R10000.

Client/Server Software Design

The current software implementation consists of a client component and a server component. Those two parts communicate through TCP/IP sockets. TCP guarantees reliable delivery of messages, while UDP makes no guarantees. TCP can be slower, and therefore less suitable for real-time communication than UDP. In the case of our application, however, the very simple kind of information transmitted, namely only numeric data representing coordinates, enables the choice of the more reliable, TCP protocol.

The Client-side block diagram is shown in figure 4 below. The higher level is a Java based GUI, realized with AWT classes, that runs on palmtop computer. This choice allows us to use familiar Windows, Icons, Menus and Pointer controls (WIMP). The UI on the client is designed in order to emphasize usability and short learning curve, especially for specifying movements on the third dimension on a two-dimensional representation of the virtual environment.

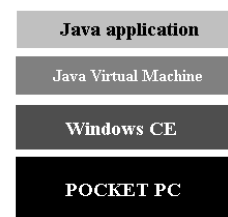


Figure 4: Client Block Diagramme

The reconstruction of the spatial context on the PDA is performed loading a simplified 2D map of the 3D reality and placing it in a canvas, able to capture events, in the higher part of the screen.

After receiving the request from the client to initialize the system, the server provides the client with correct data – i.e. image and virtual world coordinates - needed to set up the map itself. The resulting 2D map is different according to the VE projected in the Virtual Theater.

Interacting with the UI on the PDA, the user can create three kinds of change requests in the IVE projected in the Virtual Theater: (i) change system status (clicking the buttons named *wire* and *texture* or the button named *auto*); (ii) change the time period (interacting with the time bar); (iii) change camera's position and orientation (interacting with the 2D map or with the arrows).

By touching the screen with the pen, a different event is generated and handled by a method of the Java application. Each method sends to the server, through a socket, a numeric identifier in order to specify the type of the request. It is worth noting that when requesting a change in time the

client has to append to the service identifier the information concerning the year, while requesting to change camera's position and orientation (s)he has to append to the service identifier a 6-dimensional vector that includes world coordinates (x , y , z) and the three angles: heading - the rotation about the Z axis - pitch - the rotation about the X axis - and roll - the rotation about the Y axis. In the case of interacting with the arrows this vector will be managed by the server in order to increment current camera's position and orientation, while, in the case of interacting with the 2D map, the vector includes directly new absolute camera's position and orientation.

The server component consists, in its highest level, of a C application in which the socket is opened and data received from a client are given as parameters to different specific Vega functions that cause the real-time rendering engine to provide the desired reaction to user request. The server-side C application that implements the socket connection and the real-time visualization of the IVE in the Virtual Theatre is built as a layer on top of Vega and OpenGL Performer: high-performance multi-process rendering graphic libraries that fully exploit the computing power of the graphic supercomputer Silicon Graphics Onyx2 to provide the necessary characteristics of realism and immersion. The system diagram (that include Irix Operative System and OpenGL graphic libraries) is shown in figure 5 below.

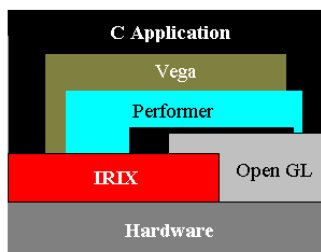


Figure 5: Server Block Diagramme

ONGOING AND FUTURE WORK

There are many directions for future research. Ongoing work focuses on adding more control movement capabilities on the client/server system to provide more freedom in navigating the IVE.

In future work we plan to expand features, adapting the application to multi-user presence. The navigation interface will be augmented with a set of controls that will allow the user to receive personalized information on various details of the scene. The availability of additional information (such as visualization of written commentary, pictures, audio captioning, etc.) will be made visible on the map by special icons. In this part of the project we will design several multi-user interaction modes.

ACKNOWLEDGMENTS

Authors wish to thank Prof. Francesca Bocchi (Bologna University): scientific director of the NuME Project, Prof. Daniela Scagliarini Corlaita (Bologna University): scientific director of the Insula del Centenario Project, Prof. Donatella Vasetti, Dott. M. Chiara Liguori (Bologna University) scientific and technical directors of the MUVI project.

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Exhibit B

FINAL PROGRAM



2002



2002



15-17. April 2002
Modena, Italy

Organized by



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DAIMLERCHRYSLER

...T... Systems



DGINFSO

Contents

General Information	4
Conference Location	4
How to get there.....	4
Badges	5
Badge Tags	5
Registration.....	5
Conference Proceedings.....	5
Meeting Rooms	6
Internet Connection	6
Need Help?	6
Social Event and Lunches.....	6
Best Paper Award.....	7
Paper Legend	7
 Quick Program Overview.....	 8
 Scientific Program.....	 11
 Sunday, April 14	 11
Monday, April 15.....	12
Tuesday, April 16	19
Wednesday, April 17	28
 Conference Locations.....	 31
 SCS Info	 33

The Conference Hotels:

The participants are staying at:

Hotel Milano C.so Vittorio Emanuele II, 68 Tel. +39.059/223011 Fax: +39.059/225136	Hotel Europa C.so Vittorio Emanuele II, 52 Tel. +39.059/217721 Fax: +39.059/222288	Hotel Canalgrande C.so Canalgrande, 6 Tel. +39.059/217160 Fax: +39.059/221674
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1.3 Badges

Each registrant will receive a name badge upon registration. The badge, must be worn in order to be admitted to the technical sessions, lunches and social event.

1.4 Badge Tags

Extra tags for the social event and lunches are available from the registration desk.
Price: (or equivalent in another currency) for extra tickets

conference dinner:	40 EUR
lunch	30 EUR

1.5 Registration

The Euromedia-ECEC'2002 Registration Desk will be open for information and registration:

Sunday, April 14 5.00 p.m. to 6.45 p. m. at CAFFE CONCERTO
Monday, April 15..... 8.30 a.m. to 5.00 p. m. on the 2nd Floor
Tuesday, April 16 8.30 a.m. to 5.00 p. m. on the 2nd Floor
Wednesday, April 17 8.30 a.m. to 9.00 on the 2nd Floor

1.6 Conference Proceedings

Each fully paid registrant will be provided with a copy of the Conference Proceedings (printed format) **This is NOT applicable to students who are not authors.**
(Extra copies, are available on a cash and carry basis at special rates during Euromedia'2002-ECEC2002)

Price:(or equivalent in another currency) for an extra copy

EUROMEDIA'2002 Proceedings	50 EURO
ECEC'2002 Proceedings	50 EURO
Other books & CD's	see desk

Monday, 15th April 2002

HALLWAY

Registration

08.30 - 09.00 -- 09.15 - 17.00

ROOM A

09.00 – 09.15

**Opening ECEC 2002- EUROMEDIA2002 and
Welcome**

Welcome Address

**Dr. Marco Roccetti
Univesity of Bologna
Euromedia'2002, General Conference Chair**

**Dr. Uwe Baake
T Systems, Latin America
ECEC'2002 General Conference Chair**

**Philippe Geril
Director SCS Europe**

Tuesday, 16th April 2002

ROOM B- 14.00-15.00

E-BASED LEARNING, TRAINING AND BUSINESS I

Chair: Johan Opsommer, Belgacom, Brussels, Belgium



WEBTEC-9

E-Universities Business and Technology: (An Australian Viewpoint)

Penelope Goward, Matthew Warren and Shona Leitch 7

WEBTEC-5

Development of a Web-based Classroom Training System, VRCATS, for the Operation and Maintenance of Nuclear Power Plants in Korea

Myeong-Soo Lee, Sin-Yeoll Park, Jin-Hyuk Hong, Yong-Kwan Lee, Seong-Il Song, Sang-Chul Lee, Se-Jin Park and Kwang-Hyun Kim 11



ROOM C- 14.00-15.30

MULTIMEDIA ON THE GO

Chair: Jeanne Schreurs, Univ.Limburg, Diepenbeek, Belgium

MEDIATEC-3

An XML-based Framework for Content Adaptation

Sam Lerouge, Boris Rogge, Rik Van de Walle and Jan Van Campenhout 175

MEDIATEC-8-LCD

Adapting Mobile Multimedia Applications to changing End-User Preferences

Robbie de Sutter, Boris Rogge, Dimitri Van De Ville and Rik van de Walle 180

MEDIATEC-1-O-SL-LCD

Palmtop Computers for managing Interaction with Immersive Virtual Heritage

Luca Benini, Elisabetta Farella, Bruno Riccò, Maria Elena Bonfigli and Luigi Calori..... 183

15.30 - 16.00

COFFEE BREAK