IST - Village
Final report

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Abstract

This report describes the joint demonstration of 7 projects in the E3 IST clusters Interfaces and Enhanced Services and Signal Processing & Mixed Reality at the IBC (International Broadcasting Convention) on September 14-18, 2001 in Amsterdam. The participating projects in the IBC2001 were: MEGA, myTV, NexTV, OCCAMM, Openise, SAMBITS, and SoNG. The name of this project was Information Society Technology Village – IST Village. All participating projects addressed a part of the end-to-end chain for broadcast / broadcast service delivery. They represent the collaborative effort in R&D of 50 participating laboratories from industry, government and universities. The projects showed to the industry the potential of the European multimedia platform standard for development and exploitation of advanced interactive multimedia broadcasting. They gave an overview of the scala of applications that can be developed based on DVB-MHP and the use of MPEG-4, MPEG-7, TV-Anytime. Electronic Program Guides, tickers and interactive games are examples of such applications, while full Internet access opens the way to a multitude of integrated broadcast and Internet multimedia services.

Keyword list

Interactive TV applications, multimedia, DVB-MHP, MPEG-4, MPEG-7, TV-Anytime, Internet, IST projects, IBC2001, enhanced services, signal processing, mixed reality

Contents

1. Executive Summary

Seven R&D projects in the Information Society Technologies (IST) programme *Interfaces & Enhanced Audio-Visual Services* of the European Community demonstrated application prototypes for interactive TV and integrated broadcast and Internet services at the International Broadcast Conference (IBC, September 2001) in Amsterdam. These projects represented the collaborative effort in R&D of 50 participating laboratories from industry, government and universities. The results were shown in the IST – Village at the IBC2001.

The projects showed to the industry the potential of the European multimedia platform standard for development and exploitation of advanced interactive multimedia broadcasting. They gave an overview of the scala of applications that can be developed based on DVB-MHP and the use of MPEG-4, MPEG-7 and Internet technology. EPGs, tickers and interactive games are examples of such applications, while full Internet access opens the way to a multitude of integrated broadcast and Internet multimedia services.

The participating projects were:

- **MEGA**: Multisensory Expressive Gesture Applications

- **myTV**: Delivers Anytime

- **NexTV**: From technology to experience

- **OCCAMM**: Interoperable security for a larger digital market

- **OPENISE**: Open Platform for Enhanced Interactive Services

- **SAMBITS**: Combines MPEG-2, MPEG-4, MPEG-7, DVB-MHP and Internet for interactive multimedia broadcasting

- **SoNG**: MPEG-4 platform for I-TV, wireless and the Web.

All projects addressed a part of the end-to-end delivery chain. Whereas SAMBITS considers the overall chain, including the tools for on- and offline multimedia production, NexTV investigates new program concepts in which viewers are involved in the program creation and affect the content of the program. The myTV platform enables consumers to have access to content and services at their convenience, independent of the moment of broadcasting. OCCAMM addresses the problem of open architectures and interfaces for on-line access to digital content with IPR protection and management, seen as an evolutionary process from today's piecemeal initiatives to full-fledged multimedia. SoNG develops building blocks for the next generation of portals and demonstrates in a real-time application how they allow a more natural access to services. OPENISE develops an open end-to-end platform for the support of advanced networked multimedia services with high quality content retrieval and streaming, over broadband, Quality-of-Service enabled IP (Internet Protocol) core and access networks. MEGA shows advanced concepts on how people can interact with expressive programmes.

The CommonDemo@IBC2001 was organized as a project which consisted of 3 work packages and a management team of 3 people. These work packages were: Overall project management and co-ordination (Maddy Janse, Philips Research, Coordinator: NexTV project), Theme development and thematic integration of demo's (Gerhard Stoll, IRT, Coordinator: Sambits project), and Technical coordination and logistics (Ronald Mies, KPN Research, Partner in NexTV and Sambits projects). The communication with the participating projects was done via the project coordinators or their proxies. The projects were responsible for the quality of their demonstration and for the content of their presentation materials.

The IST-Village presented the convergence of technologies in a concise and attractive way. The importance of open standards in the domain of integrated broadcast and Internet multimedia services was highlighted. Over 2000 visitors came to the IST-Village stand.

2. Project Description

2.1. Objectives

The objectives of the CommonDemo@IBC2001 were:

- To demonstrate the achievements of the projects in the E3 IST clusters Interfaces & Enhanced Services and Signal Processing & Mixed Reality, Action Line IV.4.2 and IV.6.2 in a unified way at the IBC2001 in Amsterdam, September 14 –18, 2001.

- To communicate the strengths of collaboration in European R&D projects for advancing the state-of-the art in interactive digital television and multimedia services.

- To present the core research results of the participating projects in relation to the development of open standards and their importance for the development of enabling technologies for the end-to-end service chain. The themes for the CommonDemo were

  - MPEG-4/ MPEG-7, interactive/enhanced DVB-MHP services,

  - Service delivery platforms and receivers for enhanced broadcast services,

  - Applications, business models, and content protection,

  - Content creation tools and their requirements for the end-to-end broadcast chain.

2.2. Description

Seven projects in the E3 IST clusters Interfaces & Enhanced Services and Signal Processing & Mixed Reality, i.e., the projects MEGA, myTV, NexTV, OCCAMM, OPENISE, SAMBITS and SoNG are working on the future platforms for interactive audio visual services. These projects contribute to the further development and evaluation of open standards, such as, MPEG-2, MPEG-4, MPEG-7, MPEG-21, IPMP, TV Anytime, DVB-ETSI, IETF, W3C (VRML), XML, OPIMA and SDMI in the broadcast and Internet domain. Delivery platforms based on open standards for the production, delivery and consumption of multimedia content are core to these projects. They all address a part of the end-to-end delivery chain. These projects presented their achievements at the IBC2001 which was held at the Amsterdam RAI International Exhibition and Congress Centre, The Netherlands, from 14 to 18 September 2001. The IBC (International Broadcast Convention) exhibition is one of the world's premier broadcast media events. The exhibition features over 1000 companies which demonstrate state of the art technologies. The IBC provides a very good opportunity to disseminate knowledge to the international technical community and to demonstrate the potential of converging and emerging technologies for development of interactive and immersive broadcast applications.

The E3 IST projects demonstrated their achievements covering the full range of the end-to-end delivery chain and the advancements of the state-of-the art for interactive multimedia services in the broadcast domain. They emphasised the exploitation potential of open standards, such as, MPEG-4, MPEG-7, OPIMA and MHP for developing the frontiers of interactivity and personalized aspects of multimedia broadcast and services, for delivery platforms and receivers for enhanced broadcast services, and for open IPMP architectures. The demonstrations addressed the newest developments at the start- and end-point of the chain, i.e., the content creation and production tools and systems, and the end-user interfaces and applications.

3. Participating Projects

3.1. MEGA (Multisensory Expressive Gesture Applications)

The project aims at developing research and novel applications involving non-verbal expressive gesture applications. The objectives are to implement humanistic theories of non-verbal communication and to analysis/synthesis artistic expression in dance and music. The applications envision artistic performances, using audio, video, sensing, and cooperative distributed environments technology.

The MEGA project is centred on the modelling and communication of expressive and emotional content in non-verbal interaction by multi-sensory interfaces in shared interactive mixed reality environments. In particular the project focuses on music performance and full-body movements as first class conveyors of expressive and emotional content. Main research issues are the analysis of expressive gestures (i.e. analysis of the expressive content conveyed through full body movement and musical gestures), the synthesis of expressive gesture (i.e. the communication of expressive content through computer generated expressive gesture, such as music performances, movement of virtual as well as real (robotic) characters, expressive utilization of visual media), the strategies for mapping the data coming from analysis onto the multimodal output.

Project web site: http://www.megaproject.org

Partners are:

- DIST - University of Genova, Lab of Musical Informatics, Genova, Italy.(Coordinator)
- DEI - University of Padova, Padova, Italy
- IPEM - University of Ghent, Ghent, Belgium
- KTH - Royal Institute of Technology, Department of Speech Music and Hearing, Stockholm, Sweden
- Uppsala University, Department of Psychology, Uppsala, Sweden
- Telenor, Oslo, Norway
- Generalmusic, Cattolica, Italy
- Consorzio Pisa Ricerche, Pisa, Italy
- Eidomedia, Genova, Italy

3.2. myTV (Personalized services for digital television)

The objectives of the MyTV project are to develop, standardize, implement, validate and demonstrate a consumer platform with built-in local storage, for personalized services in digital broadcasting and broadband communication. This platform enables consumers to have access to content and services at their convenience, independent of the moment of broadcasting. A second objective is to develop new services exploiting this platform. Appealing examples include the ability to turn local storage into a personalized television channel, non-linear browsing of television content, interactive and targeted advertising, and easy navigation through the massive amount of content offered. The third objective is to provide true interoperability, both across different service providers and across different box manufacturers. Therefore contribution to and adherence to standards is another important objective of the myTV project. The myTV project demonstrates new options for future television. Through its active involvement in the TV Anytime Forum it proposes new solutions, and validates them by developing implementations on MHP based personal video recorder platforms. myTV makes TV Anytime's slogan "Watch what you want, when you want" happen for the user. The following features will create this experience:

- *Personalized TV channel*: Using automatic recording based on your user-profile the system will automatically record programs that you like, thus giving you a virtual channel with programs that fit your interest.
- *Trailer recording*: When a trailer of a program is broadcast, just pressing the record button will make the system record the program for you whatever the broadcast time and channel will be.
- *Group recording:* Broadcasters and service providers can provide a grouping of programs such as *the best movies this week* or *this year's programs about the environment* making it easy to record many interesting programs in one instant.
- *Remote programming:* Via the Internet the system can be controlled, allowing you to select programs for recording. Additionally indirect access is possible by navigating to web pages of e.g. broadcasters and

selecting to send a suggestion for an interesting program to your system.

- *Browsing stored content:* Programs that have been recorded can be easily browsed. Information about the program will help you decide whether to play it back or not.

The myTV project effectively combines TV-Anytime's solutions for local storage and 3rd party meta data services with MHP. The system relies on content reference identifiers (CRIDs) that are being standardized in the TV-Anytime Forum. Using CRIDs it becomes possible to uniquely refer to TV content allowing to select a program for recording before broadcast time and date are known. Furthermore it allows for sending a CRID from a web site to the personal video recorder.

Project web site: http://www.extra.research.philips.com/euprojects/mytv

Partners are:

- Philips Research (co-ordinator),
- Nokia Corporation,
- BBC- British Broadcasting Corporation
- NOB – Nederlands Omroepproduktie Bedrijf
- RAI – Radiotelevisione Italiana
- University of Ljubljana
- NDS

3.3. NexTV (New media consumption in Extended interactive TeleVision environment.)

Conventional media consumption mostly takes place in a broadcast fashion (magazines, television etc.) and the business models associated with it are well practiced. The web has introduced an interactive form of consumption that necessitates totally new business models that are beginning to be mature. It is inevitable that broadcasting industry will augment today's ways of consuming content, e.g. by adding navigation support, storage, etc. For the above mentioned reasons the purpose of the project is two-fold: 1) Carry out studies on the additional business models that will be made possible by the proposed extensions to the broadcast scenario, as mentioned above. 2) Develop an experimental set up to create the services and consume them on a consumer platform and verify the business models they should support.

The objectives of the NexTV project are to carry out studies on new business models for interactive digital television that are made possible by new multimedia technologies, to produce the technical specification for an end-to-end system which integrates the technologies needed by the above business models (e.g. MPEG-2, HTML, MPEG-4, XML, etc.), to contribute this specification to international initiatives (MPEG, IETF, DVB, W3C), to develop and extend software for the creation, delivery and consumption of the new interactive services, to create applications which demonstrate the new services and validate the tools, and to validate the overall results of the project through an end-to-end experimental set up.

The NexTV project demonstrated interactive applications by using MPEG-4 and interactive DVB-MHP platforms. One application, TOONS, is a digital interactive storytelling application for children. This application was developed in an iterative process in which input from users was elicited to provide input for the development of scenarios which formed the basis for the creation of content to make the different storylines for the application, i.e., an interactive content engineering process. This user-driven application explored what can be accomplished on the MPEG-4 platform and on the MHP platform, with regard to actual user involvement and interactivity. In other words, how far can we get in satisfying the user-generated requirements with the available technology and tools? Another characteristic of this application is the use of tangible user interface devices for interaction with the system and the content. The second application, myGuide, is an interactive program guide for the general audience. This application provides personalised TV entertainment and information, integrates Internet and broadcast on the receiver, and provides E-commerce links via the TV. This application showed the seamless integration of broadcast/ narrowcast and webcontent at the client site. It combines widespread media formats and provides multiple concurrent providers for one client. Part of the technology for this application was provided by the 3D SoNG player which was developed in the SoNG project. The application scenario for the myGuide application was also demonstrated on an ATSC platform to show the scope of the NexTV technology.

Project web site: http:// www.extra.research.philips.com/euprojects/nextv

Partners are:

- Philips Research (co-ordinator)

- ICSTM - Imperial College of Science Technology and Medicine

- T-Nova Berkom

- FhG FOKUS

- Optibase

- TILAB – Telecom Italia Lab

- NSSE - Sony Service Centre Europe

- KPN Research

- Sun Microsystems

- ETRI - Electronics and Telecommunications Research Institute

- NOB - Innovatie

- France Telecom R&D

3.4. OCCAMM (Open Components for Controlled Access to Multimedia Material)

The OCCAMM project addresses the problem of open architectures and interfaces for on-line access to digital content with IPR protection and management, seen as an evolutionary process from today's piecemeal initiatives to full-fledged multimedia. The activity concentrates on developing enabling tools for the controlled delivery and consumption of multimedia information over networks, as well as setting up prototype applications and services based on the selected technologies to prove their effectiveness. To that end, a test platform will be constructed which will incorporate state-of-the-art content protection tools into a secure infrastructure compliant to the specification of international standard bodies, including OPIMA, SDMI and MPEG. Trials will be conducted with this facility, involving real end-users both in the home and in schools, to validate innovative business models for the benefit of market operators.

The main objectives of the OCCAMM project are: 1) to specify and develop a series of enabling tools and components, compatible with emerging open standards (OPIMA, SDMI, MPEG), which will handle the controlled access, delivery, consumption and rights management of multimedia information; 2) to establish a number of commercially-driven applications utilizing the aforementioned tools, which will deliver the needs of all participants in the above business; 3) to define and monitor performance levels in trial environments for such applications, and to point out additional actions needed for subsequent full and successful commercial exploitation. The developed trial facility aims also at representing a European test-bed where new pieces of technology specified by the main standardization fora in the field of content protection can be assessed and a co-ordinated European input to standard bodies can be provided.

The aim of the OCCAMM demonstration was to emulate a realistic user experience on an OPIMA-enhanced set-top box. The message that was conveyed was that OCCAMM is in control of all the key technological components that are needed to set up an open security infrastructure in a broadcast environment, and that such components are available for exploitation.

Project web site: http://sharon.cselt.it/projects/occamm

Partners are:

- TILAB

- SIA

- EdV

- EPFL

- FhG

- CRL

- Philips Research

- ADETTI

- KPN

- Avanti

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3.5. OPENISE (Open Platform for Enhanced Interactive Services)

The OPENISE project aims to define, develop and experiment with an open, scalable platform for the delivery of enhanced interactive services, featuring both natural and synthetic content types. After an analysis of emerging multimedia technologies, the project will develop two major applications in different scenarios, giving access to high quality content retrieval and streaming (MPEG2/MPEG4), as well as virtual worlds (based on MPEG4 and VRML extensions), relying on an innovative application, content and streaming platform. To support applications efficiently, the project will specify and integrate a broadband platform featuring advanced QoS capabilities as well as fast access technologies (ADSL/ADSL Lite/Broadband Wireless). Application, content and network components will be integrated in a prototype laboratory platform to finally perform service/technical experiments aimed at evaluating the project platform performance with regard to end-user, service and content provider requirements.

The objectives of Openise are to develop an open and scalable platform for the support of advanced networked multimedia services with high quality content retrieval and streaming (MPEG2/MPEG4) including innovative multi-user communication capabilities. To define/prototype a high performance application and streaming platform. To define/author advanced applications carefully designed to exploit the platform, as well as to create a realistic, friendly and interactive end-user experience. To study/implement protocols and technologies for the network delivery platform, ensuring efficient support of QoS, IP Multicasting and fast access on copper (xDSL) and radio (Radio P-MP). To integrate/set-up application, content and network components in laboratory platforms. To define/perform service/technical experiments to evaluate the project platform performance with regard to end-user, service and content provider requirements. Openise deals with the wedding of MPEG4 with IP/QoS protocols, and is setting up an end-to-end streaming platform to demonstrate it. Except the Client and Streaming Server part, three multimedia applications were demonstrated that showed these functionalities. The applications concerned: a guided tour in virtual archeological monuments, a cine store, interactive VOD, and an interactive conference

Project web site: http://www.ist-openise.net
Project partners are:

- Thales Broadcast Multimedia (Co-ordinator)

- France Telecom R&D

- CEFRIEL

- FHW

- Compaq

- NTUA

- INRIA

- Orckit

- Siemens ICN

- Videotime

- T-Nova

3.6. SAMBITS (System for Advanced Multimedia Broadcast & Information Technology Services)

SAMBITS brings MPEG-4 and MPEG-7 technology to the broadcast industry and the related Internet services. The project will be able to provide multimedia services to a terminal that can display any type of general interest integrated broadcast/internet services with local and remote interactivity. This is a cost-effective solution that is of immediate commercial interest because it is using the technological Internet and DVB broadcast infrastructure already in place. SAMBITS will develop a multimedia studio system and demonstrate integrated (Internet and DVB Broadcast) services using consumer-type terminal demonstrator. The technological basis for the system will be MPEG-2/-4/-7 where contributions will be made to the standards. Standardized systems are recognized to be advantageous for horizontal markets (e.g. increased competition). SAMBITS develops methods for service providers to integrate MPEG-2, MPEG-4 and MPEG-7 data.

The objectives of the SAMBITS project are to provide DVB broadcast with complementary Internet services and vice versa. The linkage will enable the consumer a personalized and easier access to multi media applications like E-commerce, training, information and broadcast retrieval. The project targets to develop - studio technology (offline and real-time) for interactive multimedia services based on MPEG-4 and MPEG-7, including synchronizing broadcast and Internet content, - terminal technology for integrated interactive broadcast/Internet exception (successfully compose different types of multimedia content), - service examples for tests with a user panel for customer acceptance. SAMBITS provides Europe with a lead in creating these services and will act as the major European contributor to the MPEG-7 standard (as well as DVB) for human interaction in combined broadcast and Internet applications.

SAMBITS deals with the overall broadcast chain, including, production, postproduction, multiplexing transmission and reception. Two parts were demonstrated at the IBC' 2001, the studio production site as well as the receiving terminal site.

Project web site: http://www.irt.de/sambits/

Project partners are:

- IRT
- EBU UER
- Brunel University
- BBC
- Heinrich-Hertz-Institut für Nachrichtentechnik
- KPN Research
- Philips Research France
- Queen Mary University of London
- Siemens
- Telenor
- FhG IPSI
- Bayerischer Rundfunk

3.7.   SoNG (Portals of Next Generation)

Portals is a new term, synonymous with access point to resources and services on the Web. Typical services offered by portals include directory of resources, search facility, news, e-mail, phone, map information, and sometimes a community forum. These services generally rely on point-and-click on structured information like characters, still pictures or 2D graphics. The project investigates, develops and standardizes the building blocks for the next generation of portals. These building blocks include existing Web technologies, but also 3D computer graphics elements as in computer games, intelligent agents embodied in realistic avatars, new user-friendly interfaces and real-time audiovisual communications.

The project demonstrated how these EW technologies, integrated in a sample e-commerce application, allow an easier and more natural access to resources and services. The objectives of SoNG are to develop building blocks for the next generation of portals and to demonstrate in a real-time application how they allow a more natural access to services. The building blocks are: 1) shared, dynamic and real-time virtual spaces; 2) Animation of realistic synthetic faces and bodies; 3) Software agents capturing human characteristics and learning user profiles; 4) Intuitive interfaces for navigation and interaction in information spaces; 5) Delivery of information with QoS monitoring. The application is an E-commerce application allowing navigation in synthetic real sites populated with shops. In these sites, users can inspect goods, communicate with virtual or real humans and make transaction. It will develop the application as follows: 1) Specification of application and user requirements; 2) Application development, with the latest release of the technology platform. Feedback to the technology platform developers; 3) Test and validation of the application in a realistic environment. Feedback to the application and technology platform developers.

Project web site: http://www.octaga.com/SoNG-Web/

Project partners are:

- France Telecom R&D (co-ordinator)
- FhG IMK
- GET
- ICSTM
- Inria
- RUS
- Siemens
- Telenor R&D
- T-Nova, Berkom

4. Organisation & planning

The CommonDemo@IBC2001 was organized as a project which consisted of 3 work packages and a management team of 3 people. These work packages were:

- Overall project management and co-ordination (Maddy Janse, Philips Research, Coordinator: NexTV project). The activities concerned the overall management, taking care of the relationships and communications between projects, project partners, and the Commission, and being the liaison between outside parties and subcontractors for booth design and building and the project partners.

- Theme development and thematic integration of demo's (Gerhard Stoll, IRT, Coordinator: Sambits project). The activities concerned working out the thematic topics of the demonstrations, acquisition of the thematic contributions of the participating projects and dissemination and communication of results to IBC audience.

- Technical coordination and logistics (Ronald Mies, KPN Research, Partner in NexTV and Sambits projects). The activities included the coordination and implementation of the demo's of the participating projects, the logistics for building up the demo's, the equipment, the practical and daily arrangements of the booth.

Communication with the participating project was done via the project coordinators or their proxies. The projects were responsible for the quality of their demonstration and for the content of their presentation materials.

The overall planning of the operation is shown in table 1. Guidelines and instructions were made for the projects to deliver their information in a timely fashion and of the required quality. The design and building of the stand and the publication of presentation materials, flyers and flat panel presentations, was outsourced. One of the major objectives was to provide a professional appearance and a uniform look and feel to the overall stand. One of the first measures to achieve this was to create a name for the endeavour, i.e., **IST-Village**, in which individual projects could maintain their individuality while the cohesion and relation between the projects was emphasized.

Designing the IST-Village was quite a challenge for the design company as they had to accommodate seven different customers on a relatively small booth surface (120 m2). It is much more common for such organisations to have one large customer in one booth. Furthermore, our research projects had totally different requirements with regard to equipment and importance of showing the technical details than, for example, commercial organisations. The proportion equipment space to floor space was for the IST Village 4-5 times as large as for other stands. Also the number of people staffing the demonstrations during the event was 4–5 times as large as for other stands. The major goal for the IST-Village was to disseminate the results of collaborative R&D projects. This is quite a different mission than attracting prospective clients.

Two formal meetings were organised with all the project coordinators to tune the operation. In addition, the project team had extensive communication, mainly by email, phone and visits to the design company.

The financial organisation of the operation was initially carried by one organisation, i.e., Philips. A proposal was submitted to the Commission and granted. All participating projects were asked, i.e., the coordinating partner, for a financial contribution. Each project coordinator was advised to divide the costs over the partners of their project.
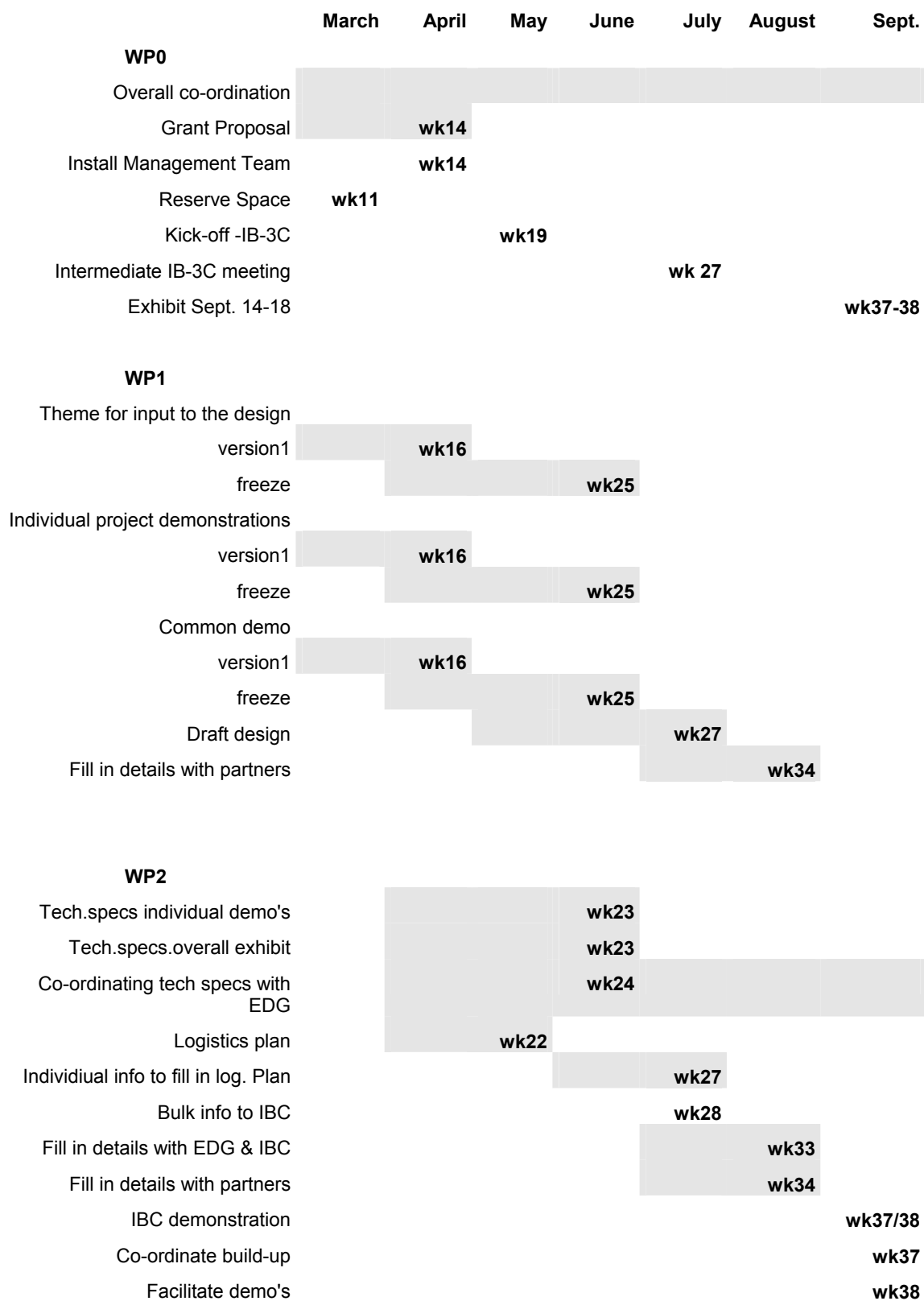
	March	April	May	June	July	August	Sept.
WP0							
Overall co-ordination							
Grant Proposal		**wk14**					
Install Management Team		**wk14**					
Reserve Space	**wk11**						
Kick-off -IB-3C			**wk19**				
Intermediate IB-3C meeting					**wk 27**		
Exhibit Sept. 14-18							**wk37-38**
WP1							
Theme for input to the design							
version1		**wk16**					
freeze				**wk25**			
Individual project demonstrations							
version1		**wk16**					
freeze				**wk25**			
Common demo							
version1		**wk16**					
freeze				**wk25**			
Draft design					**wk27**		
Fill in details with partners						**wk34**	
WP2							
Tech.specs individual demo's				**wk23**			
Tech.specs.overall exhibit				**wk23**			
Co-ordinating tech specs with EDG				**wk24**			
Logistics plan			**wk22**				
Individiual info to fill in log. Plan					**wk27**		
Bulk info to IBC					**wk28**		
Fill in details with EDG & IBC						**wk33**	
Fill in details with partners						**wk34**	
IBC demonstration							**wk37/38**
Co-ordinate build-up							**wk37**
Facilitate demo's							**wk38**

Table 1: Timetable of the operation

5. Results

The IST-Village presented the convergence of technologies in the domain of enhanced broadcast services in a concise and very attractive way. The importance of open standards for the development of services and platforms was highlighted. New interactive end-user applications challenging the state-of-the art of tools for implementation and highlighting the potential for new services and new business roles were presented. Open standards, such as, MHP, MPEG-4, MPEG-7, OPIMA, IPMP, SDMI, TV Anytime, for innovation and advancement of the European multimedia industry were communicated in a concerted way from a truly international perspective and with active participation of the R&D divisions of the key industrial stakeholders to the industrial technical community in the broadcast and multimedia service domain, i.e., to the people who are instrumental in exploitation of the research results of shared-cost RTD projects.

5.1. Some statistics

The IBC2001 listed 800 exhibitions. 36000 people visited the IBC2001. This was less than previous years due to the events of September 11, 2001. 2000 visitors came to the IST village stand. Note, that the stand was listed in the IBC brochure under the name EC IST enhanced Services and was located in a rather far corner of the premises. For each projects about 500 flyers were distributed (see separate file with the PDF files of the flyers). In addition to the IST Village, the myTV, NexTV and Sambits projects distributed press releases (see Appendix). The Sambits projects was featured in the IBC Daily. MyTV was featured within the context of an issue on TV-Anytime in the IBC Daily. 2-4 people were staffing each project on a daily basis.

5.2. Experiences

An important effect of the IST Village was the transfer of knowledge between the participating projects. Nearly a week of exposure and working together is very effective to achieve this in harmony. All projects had ample opportunity to communicate with representatives of industry, i.e., broadcast industry, manufacturers of broadcast and service delivery equipment, theatre and cinema directors, motion capture specialists, interactive television companies. The feedback from those visitors was very positive and provided many useful suggestions for follow-up. For the projects, it also proved to be a good environments for some semi-testing of their application scenario's.

The professional look of the booth attracted a lot of people and caused a surprise effect, i.e., people don't expect this from researchers. It was also very different from the usual stands in the New Technology Campus. Working together with professional stand designers and professional stand builders resulted in an exposition which appealed to a much larger audience than just the research community. The stand provided enough space for people to meet and conduct 'off-line' discussions.

Working with professional stand builders took a lot of the organisational burden away from the projects. A lot of practicalities were taken care off and the project staff could concentrate on their demonstrations and their audience.

6. Conclusion

The participation to the IBC was a success for all participants and an excellent way to disseminate the results of the participating projects. It was a good venue for technology transfer between projects and creation of synergy amongst the wide variety of participating organisations.

The formula that we used resulted in a 'small investment, high gain' result, since the costs could be divided over all the participating project partners (over 50 organisations). A major risk is the dependency of the projects on each others performance. That is, one failing or under performing project could spoil the complete exhibition. A fallback scenario is advised. Furthermore, an operation like participating in a common demo reveals weak points of participating projects with regards to management and clarity about financial responsibilities. Note that one of the partners has to carry the financial risks.

A good organisation with a project management team is crucial. The minimum requirements regarding skills and experiences are: experience with public relations, affinity with technical designs, good contacts with IBC organisers, experience with managing large projects, and understanding engineers and researchers. A team of three persons for a full time effort of 3-4 months is the minimum. In sum, the IST Village at the IBC2001 was a great success for all involved and worth repeating.

7. Financial Report

Cost statement IBC			
Part A – Expenditure/eligible costs:	(in euros)	Part B – Revenues:	(in euros)
(a') costs of staff assigned to the operation		(a) direct revenue expected from the operation	
(b') travel and subsistence expenses for staff involved in the operation		(b) contribution by the applicant	
(c') cost of equipment, land and immovable property (rent, purchase)		(c) contributions by other organisations (please specify)	16,500.00
(d') cost of consumables and supplies	9,370.00	(d) contribution requested from the Commission	99,000.00
(e') any other direct costs:	19,020.87	(e) estimated bank interest generated by the grant requested over the period of implementation of the operation	31,811.52
- Stand construction	92,460.65	(f) where applicable, other contributions by the Commission for the same operation (please specify)	
- Rent exhibition space	26,460.00		
(f') general costs charged to the operation			
TOTAL ELIGIBLE COSTS	147,311.52	TOTAL	147,311.52

Other sources of finance,

The consortia participating in this IBC exhibition will all contribute an equal share;

Project:	Project leader:	Contribution (euro):
SAMBITS	Gerhard Stoll	16,500.00
MyTV	Gerhard Mekenkamp	16,500.00
OCCAMM	Stefano Dal Lago	16,500.00
OPENISE	Marco di Concetto	16,500.00
SONG	Olivier Avaro	16,500.00
MEGA		16,500.00
Total		99.000.00

Declaration by the applicant:

I, the undersigned, certify that the information given in this application is correct.

Person responsible in the applicant organisation for the technical operation:

Name: Dr. Maddy Janse

Function: Senior scientist

Signature: Date: 28 June 2002

Person responsible in the applicant organisation for the financial operation:

Name: Peter Huiskes

Function: Financial manager

Signature: Date: 28 June 2002

8. Appendix A: Press releases

IST - Village

European Union R&D projects in the IST programme *Interfaces & Enhanced Audio-Visual Services* show their newest results building on MHP and integrating MPEG-2, MPEG-4, MPEG-7 and Internet technologies.

At the International Broadcast Conference (Westhal, stand 3.111) in Amsterdam, seven R&D projects in the Information Society Technologies programme of the European Community demonstrate application prototypes for interactive TV and integrated broadcast and Internet services. These projects represent the collaborative effort in R&D of 50 participating laboratories from industry, government and universities.

The projects show to the industry the potential of the European multimedia platform standard for development and exploitation of advanced interactive multimedia broadcasting. They give an overview of the scala of applications that can be developed based on MHP and the use of MPEG-4 and MPEG-7. EPGs, tickers and interactive games are examples of such applications, while full Internet access opens the way to a multitude of integrated broadcast and Internet multimedia services.

Using MPEG-4 for A/V-Streaming makes it possible to transport media objects in a flexible way and with accurate timing of their presentation. Furthermore, the composition of media objects can be customized and the interaction can take place in the scene. Also, new media objects (2D, 3D) can be locally created.

MPEG-7 gives the basis for advanced applications for content retrieval, navigation and querying by users. TV Anytime makes it possible for viewers to watch programmes in the way they want and when they want it.

All projects address a part of the end-to-end delivery chain. Whereas SAMBITS considers the overall chain, including the tools for on- and offline multimedia production, NexTV investigates new program concepts in which viewers are involved in the program creation and affect the content of the program. The myTV platform enables consumers to have access to content and services at their convenience, independent of the moment of broadcasting. OCCAMM addresses

the problem of open architectures and interfaces for on-line access to digital content with IPR protection and management, seen as an evolutionary process from today's piecemeal initiatives to full-fledged multimedia. SoNG develops building blocks for the next generation of portals and demonstrates in a real-time application how they allow a more natural access to services. OPENISE develops an open end-to-end platform for the support of advanced networked multimedia services with high quality content retrieval and streaming, over broadband, Quality-of-Service enabled IP (Internet Protocol) core and access networks. MEGA shows advanced concepts on how people can interact with expressive programmes.

The IST-Village gives a glimpse of the future by giving demonstrations and scenarios that make full use of the advantages of open standards and the use of the new European standard for the multimedia home platform.

The IST-Village participating projects are:

- **MEGA**: Multisensory Expressive Gesture Applications

- **myTV**: Delivers Anytime

- **NexTV**: From technology to experience

- **OCCAMM**: Interoperable security for a larger digital market

- **OPENISE**: Open Platform for Enhanced Interactive Services

- **SAMBITS**: Combines MPEG-2, MPEG-4, MPEG-7, DVB-MHP and Internet for interactive multimedia broadcasting

- **SoNG**: MPEG-4 platform for I-TV, wireless and the Web.

For more information on these projects visit:

www.cordis.lu/ist/ka4/vision/home.html

Philips Research

Press information

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Fax: +31 40 2744947

Amsterdam, September 14, 2001 / 010901

Philips and myTV partners bring TV-Anytime to life

World's first complete prototype system represents important milestone towards personal video recorders based on open standards.

At the International Broadcast Conference in Amsterdam (Westhal, stand 3.111), Philips Research and its partners in the European project myTV[*)] today showed the world's first prototype of a personal video recorder (PVR) system based on TV-Anytime open standards. PVRs with local storage will revolutionize the way people watch television, as broadcast times and schedules become irrelevant. Trailer recording, group recording, remote programming and segmentation offer broadcasters and content providers new ways to attract and keep their viewers. Open standards, as being developed by the TV-Anytime forum, are essential for a strong evolution of this new business.

PVRs automatically select and store TV programmes according to viewers' preferences by analyzing content descriptions ('metadata') broadcast along with TV programmes and comparing these to the preference profile of the user. Proprietary PVRs, where the consumer device and metadata service form a closed system, have been deployed for some time. The TV-Anytime forum, consisting of 160 parties covering the entire broadcast chain (content creators, broadcasters, service providers, telecommunications companies and manufacturers of consumer devices), is developing open standards for the end-to-end signalling necessary to enable PVRs. This will enable consumers to explore and acquire a much wider range of TV content from a variety of sources, including new online interactive services.

Defining and demonstrating standards

The myTV project, led by Philips Research, takes a leading role in defining and demonstrating TV-Anytime standards. It proposes new solutions and validates them by developing prototype applications. myTV makes TV-Anytime's slogan "watch what you want, when you want" happen for the user. The prototype PVR now developed is the first complete TV-Anytime system and as such an important milestone in the creation of this standard.

The demonstrator is a PVR driven by TV-Anytime data delivered within a digital video broadcast (DVB-MHP) signal or provided by one of a number of Internet servers. The system demonstrates many new options for future television. Examples are trailer recording (when a trailer of a programme is broadcast, just pressing the record button will make the system record the programme whatever the broadcast time or channel will be), group recording (for example recording all the programmes in a series at one push of a button), remote programming (controlling the system via the Internet or mobile phone, or receiving suggestions for interesting programmes via broadcasters websites), a personal TV channel (creating a virtual channel by automatically recording programmes that match the user's interest profile) and segmentation (allowing the predefined non-linear use of recorded content). In addition, tools were developed which allow easy browsing through stored content and help the user to decide whether he wants to play a programme back or not. Within the project, Nokia developed a PVR based on TV-Anytime, which runs on top of the Nokia Mediaterminal and the Open Standard Terminal Platform (OST). This demonstrates the true interoperability of the TV-Anytime standard.

Downloadable applications

BBC, NOB and RAI have developed applications that can be downloaded to the PVR, showing that users have the freedom to choose applications from various broadcasters. The BBC application offers easy navigation and a profile based virtual channel. The NOB and RAI applications allow access to items in

news programmes in the way users want. The University of Ljubljana developed a website with information about television programmes and the option to send a record command to the PVR by clicking on a programme. This shows that third parties have the opportunity to act as service providers by using TV-Anytime open standards.

New markets

Open standards, such as being developed and shown in this project, are essential for a strong and rapid evolution of this new market. They allow users to access all programme information, recommendation and automatic programming services they want. Furthermore, by combining TV-Anytime, MHP and local storage, an even broader range of new applications is created, for example targeted advertizing and subsequent purchasing via the return channel.

) myTV is an IST project sponsored by the European Union and led by Philips Research. Cooperating partners are Nokia, British Broadcasting Corporation (BBC), Dutch Broadcasting Services Corporation (NOB), RAI Radiotelevisione Italiana, University of Ljubljana and NDS.

More information on myTV is available from http://www.extra.research.philips.com/euprojects/mytv/
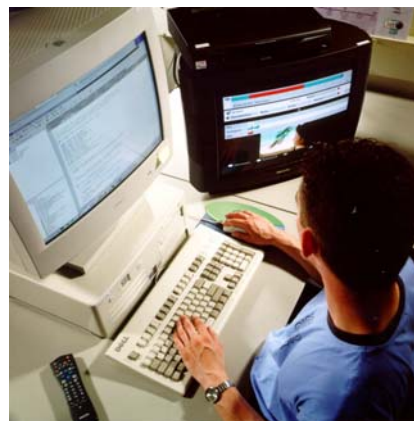
Development of the user interface

Philips Research is part of Royal Philips Electronics. Besides the main laboratory in Eindhoven, The Netherlands, there are Research laboratories in France, Germany, the United Kingdom, Italy, Belgium, Taiwan, China, India, and the United States of America (collectively some 3,000 people). Philips Research concentrates on investigating promising options for innovations, which are turned into new or improved products of the Philips product divisions. About 0.9% of sales of Philips is spent on these corporate research activities, while total R&D efforts amount to approximately 7,3% of sales.

More information on Philips Research on: www.research.philips.com

Royal Philips Electronics of the Netherlands is one of the world's biggest electronics companies and Europe's largest, with sales of EUR 37.9 billion in 2000. It is a global leader in color television sets, lighting, electric shavers, color picture tubes for televisions and monitors, and one-chip TV products. Its 212,390 employees in more than 60 countries are active in the areas of lighting, consumer electronics, domestic appliances, components, semiconductors, and medical systems. Philips is quoted on the NYSE (symbol: PHG), London, Frankfurt, Amsterdam and other stock exchanges. News from Philips is located at www.news.philips.com

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Philips Research

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Amsterdam, September 14, 2001 / 010902

Philips and NexTV partners demonstrate interactive TV programme creation

Project explores applications and business models of interactive digital television using new multimedia technologies

At the International Broadcast Conference (Westhal, stand 3.111) in Amsterdam, Philips Research and its partners in the NexTV[*)] project today presented a number of prototype applications for interactive television. A spectacular example is a story telling application for children, which engages them in the process of telling and enriching stories through television broadcast by providing them with the means for exploration, manipulation and creation of content. The application offers several decision points, story lines, characters, etc. Children can choose between these story elements during the actual broadcast and create a story to their own liking. The NexTV project develops new concepts for interactive TV based on the combined technical possibilities offered by MPEG-4, DVB-MHP (Digital Video Broadcast – Multimedia Home Platform) and the Internet.

Digital television opens up numerous new opportunities for making television more personalized and interactive. By integrating the interactivity of the Internet and the established position of the TV set as consumers' primary source of information and entertainment, applications can be devised ranging from advanced electronic programme guides, interactive advertizing or on-line shopping, to gaming and interactive shows. These kind of services and applications are rapidly emerging, especially with the recent launch of the DVB-MHP platform.

The NexTV project aims at exploring attractive new concepts for consumer applications that use this increased design freedom. The project investigates business models for interactive television applications, produces the technical specifications to realize them, and contributes to international standardization initiatives to facilitate the build-up of the necessary protocols and infrastructure. Practical demonstrations are created to validate the developed tools.

Create your own story

By offering multiple video streams and applying decision points throughout a programme, it is possible to create personalized TV programmes. The NexTV demonstrator has implemented this in the interactive story telling application TOONS, where children can choose their favourite characters or a story line and add other story elements during the broadcast. The application is realized using MPEG-4 and MHP technology. In this type of application, users interact with the content, within one programme. The realization for the children is perceived as: *What you see is not what I see, but we receive the same programme.*

Another example is an interactive programme guide which provides integrated access to TV and the Internet, offers personalized recommendations and enables E-commerce links via the TV. Users can shop in a virtual shopping centre and communicate with sales agents via a back-channel. On the same system, users can receive broadcast and web content from different service providers and in different formats, thus providing easy access to the rapidly increasing amount of information and entertainment offered. In this type of application, users interact with programmes and services.

Integration

An important aspect of the project is to provide specifications that allow for integration between standards which now target specific applications, such as MPEG, IETF, DVB-MHP, W3C, Web3D, XML. In this

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way, we pave the way to a full exploitation of the exiting opportunities offered by the advent of digital television.

*) NexTV is an IST project sponsored by the European Union and led by Philips Research. Cooperating partners are Imperial College of Science Technology and Medicine, T-Nova Berkom, GMD Fokus, Optibase, Telecom Italia Lab (TILAB), NSSE – Sony Service Center Europe, KPN Research, Sun Microsystems, Electronics and Telecommunications Research Institute (ETRI), Dutch Broadcasting Services Corporation (NOB), France Telecom R&D. More information on NexTV is available from http://www.extra.research.philips.com/euprojects/nextv
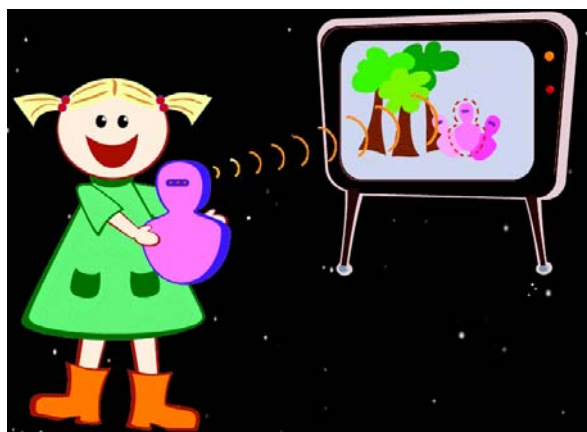
Digital interactive story telling with the TOONS application

Philips Research is part of Royal Philips Electronics. Besides the main laboratory in Eindhoven, The Netherlands, there are Research laboratories in France, Germany, the United Kingdom, Italy, Belgium, Taiwan, China, India, and the United States of America (collectively some 3,000 people). Philips Research concentrates on investigating promising options for innovations, which are turned into new or improved products of the Philips product divisions. About 0.9% of sales of Philips is spent on these corporate research activities, while total R&D efforts amount to approximately 7,3% of sales.

More information on Philips Research on: www.research.philips.com

Royal Philips Electronics of the Netherlands is one of the world's biggest electronics companies and Europe's largest, with sales of EUR 37.9 billion in 2000. It is a global leader in color television sets, lighting, electric shavers, color picture tubes for televisions and monitors, and one-chip TV products. Its 212,390 employees in more than 60 countries are active in the areas of lighting, consumer electronics, domestic appliances, components, semiconductors, and medical systems. Philips is quoted on the NYSE (symbol: PHG), London, Frankfurt, Amsterdam and other stock exchanges. News from Philips is located at www.news.philips.com

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Press information

Amsterdam, September 14, 2001 / 010901

SAMBITS brings MPEG-4, MPEG-7, DVB-MHP and Internet together for interactive multimedia broadcasting

World's first prototype system represents important milestone towards integrated broadcast and Internet architecture for interactive audio/visual-services based on open standards.

At the International Broadcast Conference in Amsterdam (IST-Village in Westhal, stand 3.111), IRT and its partners in the European IST project SAMBITS*) showed today the world's first prototype of an integrated broadcast and Internet concept for interactive audio/visual-services based on open standards, such as MPEG-2, MPEG-4, MPEG-7 and DVB-MHP. SAMBITS "System for Advanced Multimedia Broadcast and Information Technology Services" developed a new system architecture for production, transmission and reception of integrated broadcast & Internet services. As one of the major goals this project demonstrates the substantial enhancements possible to the broadcast when integrating the multimedia standards MPEG-4 and MPEG-7 into the broadcast technology. The joint utilisation of DVB and the Internet for making content available to the user opens new applications with a personalised viewing experience.

SAMBITS "System for Advanced Multimedia Broadcast and Information Technology Services" deals with future multimedia-broadcast platforms for interactive audio/visual-services, which are based on open standards. The IST project has developed an integrated architecture for the production, transmission and reception of conventional digital TV broadcast services combined with multimedia broadcasting and the Internet. SAMBITS addresses the complete end-to-end delivery chain, including tools for on- and offline multimedia production. One of the major achievements of this project has been to base the implementation on the MPEG-4 and MPEG-7 standards integrated into the DVB-MHP (Multimedia Home Platform) broadcast technology to provide a range of integrated broadcast and Internet multimedia services. It significantly contributed to the further development and evaluation of the open standards MPEG-7 and DVB-MHP.

SAMBITS allows to demonstrate to the broadcasters, most of whom are also offering internet services, the integration of MPEG-4 and MPEG-7 standards as part of their multimedia services both for MPEG-2 broadcasting and internet applications.

- The services consist of high quality video based broadcast services enhanced by multimedia elements and interactive personalised information retrieval through the Internet.

- Web-based content including streaming content, which belongs to the service, can be routed either via the Internet or broadcast delivery channel.

- Indexing the content by MPEG-7 enables the consumer to search for related content on the current broadcast, on local disc, and even on the Internet .

- The user is able to make interactive choices and manipulations by selecting 2-D or 3-D MPEG-4 objects or by entering textual responses.

- All these services are delivered to and displayed on an off-the-shelf terminal platform implementing the DVB-MHP standard.

The SAMBITS demo at the IST-Village provides an insight into future service scenarios, which will be enabled by new interactive systems, toward deeper user-participation through local and remote interactivity and understanding of user's preferences.

Two scenarios have been selected for the demos at IBC'2001:

- Interactive Eurovision Song Contest 2001 (Production: EBU, Bayerischer Rundfunk and IRT)

The interactive audio and video broadcast of the Eurovision Song Contest 2001 contains all the key programme elements, the main programme in MPEG-2, songs of former winners, introduction to the countries, voting for the countries, background information about EBU and so on. The scenario calls for a video "live" feed from a backstage camera, as well as for a large amount of supporting text, images and audio/video clips related to the Eurovision Song Contest including a 3D "hall of fame" created by MPEG-4 BIFS.

- Dinosaurs Science (Production: BBC)

This scenario was taken from one 11-minute 'act' of a TV series, produced by the BBC ("Walking with Dinosaurs"). The excerpt which will be shown at IBC'2001 has been employing a range of methods, such as generating web pages, adding video clips, and providing other supporting material, such as a video and key signal of a sign-language interpreter.

A typical SAMBITS scene, with main TV program, MPEG-4 3D-Navigation and news ticker

*) SAMBITS is an IST project sponsored by the European Union and led by the Institut für Rundfunktechnik GmbH (IRT). Partners are Bayerischer Rundfunk (BR), British Broadcasting Corporation (BBC), Brunel University, European Broadcasting Union (EBU), Fraunhofer Institut für Integrierte Publikations- und Informationssysteme, Heinrich-Hertz-Institut GmbH (HHI), KPN Research, Philips Research, Queen Mary, University of London, Siemens AG and Telenor AS,

More information on SAMBITS is available from www.irt.de/sambits/.

About IRT: *The Institut für Rundfunktechnik GmbH (IRT) is the research and development center of the public service broadcasters in Germany (ARD, ZDF, DLR), in Austria (ORF) and in Switzerland (SRG/SSR). The IRT, which was founded in 1956, is a non-profit company and employs about 200 persons. The R&D work is managed within five business areas: audio Broadcasting, television, broadcasting coverage, collaborative research, and R&D services. For further information, see www.irt.de*

Contact: **FOR IMMEDIATE RELEASE**

Gerhard Stoll   IST-Village, Stand 3.111

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SAMBITS @ IST-Village

New multimedia-broadcast architecture for interactive audio/visual-services based on DVB-MHP

Some of the current European EC projects on Interfaces & Enhanced Services as well as Signal Processing & Mixed-Reality are showing their systems at the ISTV "Information Society Technologies Village" (Stand 3.111). One of these projects, **SAMBITS** "System for Advanced Multimedia Broadcast and Information Technology Services" deals with future multimedia-broadcast platforms for interactive audiovisual-services, which are based on open standards for production, delivery and consumption of multimedia content. SAMBITS addresses the complete end-to-end delivery chain, including tools for on- and offline multimedia production and contributes to further development and evaluation of open standards, such as MPEG-2, MPEG-4, MPEG-7, DVB-ETSI and MHP in the broadcast and Internet domain.

The IST project **SAMBITS** has developed an integrated architecture for the production, transmission and reception of conventional digital TV broadcast services combined with multimedia broadcasting and the Internet. One of the major achievements of this project has been to base the implementation on the MPEG-4 and MPEG-7 standards integrated into the DVB-MHP (Multimedia Home Platform) broadcast technology to provide a range of integrated broadcast and Internet multimedia services.

The **SAMBITS** Multimedia Studio Technology includes tools for off-line and real-time design of new interactive multimedia services. These allow insertion of MPEG-4 content to provide local and remote interactivity and MPEG-7 metadata allowing easy and personalised access to additional content. With this technology integrated services can be created for access to broadcast and multimedia content in a synchronised way or independently.

The **SAMBITS** Multimedia Terminal Technology is based on DVB-MHP and allows for personalised access and usage of broadcast and or Internet information. This is done through integrated broadcast and Internet reception at home and a return-channel through the Internet, allowing for personalised additional information. Emerging technologies such as MPEG-4 are used to effectively compose and render heterogeneous multimedia content. MPEG-7 with query construction and searching is used to access additional programme-related information.

SAMBITS allows to demonstrate to the broadcasters, most of whom are also offering internet services, the integration of MPEG-4 and MPEG-7 standards as part of their multimedia services both for MPEG-2 broadcasting and internet applications.

- The services consist of high quality video based broadcast services enhanced by multimedia elements and interactive personalised information retrieval through the Internet.
- Web-based content, which belongs to the service, can be routed either via the Internet or broadcast delivery channel.
- The services allow to access information from remote or local storage.
- The user is able to make interactive choices and manipulations by selecting 2-D or 3-D MPEG-4 objects or by entering textual responses.
- All these services are delivered on a common terminal platform based on the DVB-MHP standard.

The SAMBITS demo at the IST-Village provides an insight into future demonstration scenarios, which will be enabled by new interactive systems, toward deeper user-participation through local and remote interactivity and understanding of user's preferences.

Two scenarios have been selected for the demos at IBC'2001:

- Interactive Eurovision Song Contest 2001 (Production: EBU, Bayerischer Rundfunk and IRT)
The interactive audio and video broadcast of the Eurovision Song Contest 2001 contains all the key programme elements, the main programme in MPEG-2, songs of former winners, introduction to the countries, voting for the countries, background information about EBU and so on. The scenario calls for a video "live" feed from a backstage camera, as well as for a large amount of supporting text, images and

audio/video clips related to the Eurovision Song Contest including a 3D "hall of fame" created by MPEG-4 BIFS.

- Dinosaurs Science (Production: BBC)

This scenario was taken from one 11-minute 'act' of a TV series, produced by the BBC ("Walking with Dinosaurs"). The excerpt which will be shown at IBC'2001 has been enhanced with the intention of delivery using a range of methods, so the generation of web pages, additional video clips, and other supporting material, such as a video and key signal of a sign-language interpreter.

These scenarios are implemented as "walk through" demonstrations, which show the particular functionalities and features of the SAMBITS system.
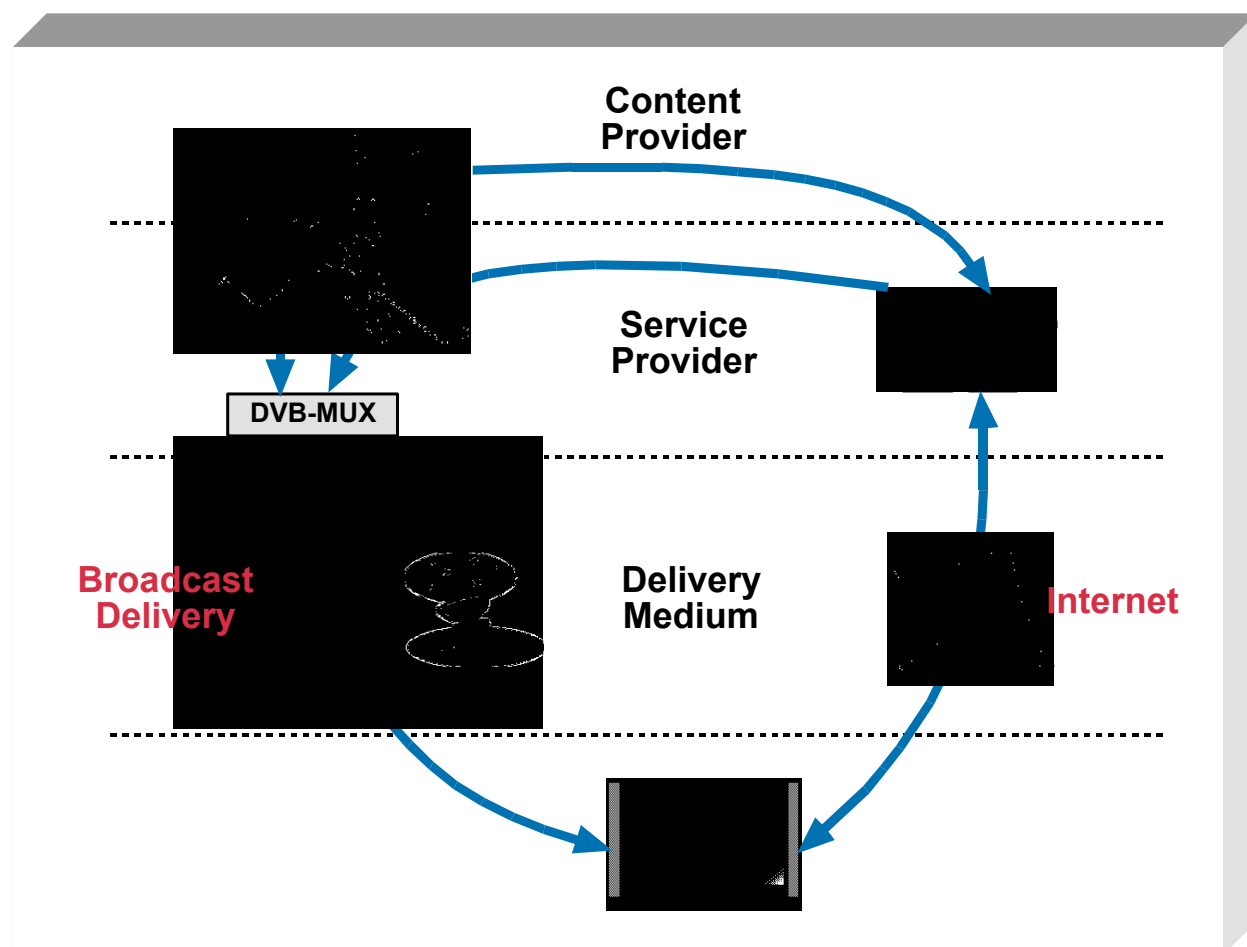
SAMBITS Architecture

9. Appendix: Project Flyers

Project Flyers: see pages 32 - 47

PARTICIPATING PROJECTS

MEGA (IST-20410)
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WWW.MEGAPROJECT.ORG

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SONG (IST – 10192)
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ISTV

INFORMATION SOCIETY
TECHNOLOGY VILLAGE

Projects in the E3 IST clusters:

Interfaces & Enhanced Services
Signal Processing & Mixed Reality

ist
information
society
technologies

ISTV - INFORMATION SOCIETY TECHNOLOGY VILLAGE

The ISTV -Information Society Technology Village- presents a joint demonstration of several projects in the IST clusters Interfaces & Enhanced Services and Signal Processing & Mixed Reality.

THE PARTICIPATING PROJECTS ARE:

MEGA: MULTISENSORY EXPRESSIVE GESTURE APPLICATIONS

MyTV: PERSONALIZED SERVICES FOR DIGITAL TELEVISION

NEW MEDIA CONSUMPTION IN EXTENDED INTERACTIVE TELEVISION ENVIRONMENT

OCCAMM: OPEN COMPONENTS FOR CONTROLLED ACCESS TO MULTIMEDIA MATERIAL

OPENISE: OPEN PLATFORM FOR ENHANCED INTERACTIVE SERVICES

SAMBITS: SYSTEM FOR ADVANCED MULTIMEDIA BROADCAST AND INFORMATION TECHNOLOGY SERVICES

SonG: PORTALS OF NEXT GENERATION

These projects deal with future multimedia platforms for interactive audiovisual services. They contribute to the further development and evaluation of open standards, such as MPEG-2 to MPEG-21, TV Anytime, DVB-ETSI, IETF, W3C and SDMI in the broadcast and Internet domains.

Multimedia delivery platforms based on open standards for the production, delivery and use of interactive multimedia content are core to these projects.

All projects address a part of the end-to-end delivery chain. Whereas SAMBITS considers the overall chain, including the tools for on-line and off-line multimedia production, NexTV investigates new programme concepts in which viewers are involved in the programme creation and affect the content of the programme.

The MyTV platform enables consumers to have access to content and services at their convenience, independently of the moment of broadcasting.

OCCAMM addresses the problem of open architectures and interfaces for on-line access to digital content with IPR (Intellectual Property Rights) protection and management, seen as an evolutionary process from today's piecemeal initiatives to full-fledged multimedia.

SonG develops building blocks for the next generation of portals and demonstrates in a real-time application how they allow a more natural access to services.

OPENISE develops an open end-to-end platform for the support of advanced networked multimedia services with high-quality content retrieval and streaming, over broadband, QoS (Quality of Service)-enabled Internet core and access networks.

MEGA explores user participation through expressive gesture and enhanced non-verbal communication, including music, human body movement, and the understanding of user's preferences and mood

The ISTV provides an insight into future demonstration scenarios, which will be enabled by these new interactive systems.

In addition, business models and evolving business roles are addressed for the different key actors of the end-to-end chain.
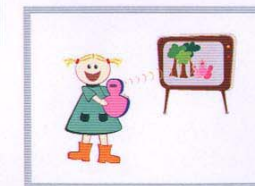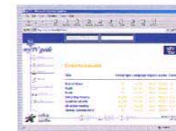
TV-Anytime

"Watch what you want when you want"

TV-Anytime will allow viewers to watch programms in the way they want and when they want. Viewers will be able to explore and acquire TV content from a variety of sources, including traditional broadcast and new on-line interactive services - for presentation at any time. TV-Anytime will combine the immediacy of television with the flexibility of Internet.

The specifications defined by the TV-Anytime Forum will enable applications to exploit local persistent storage in consumer electronics platforms. Focusing on interoperable end-to-end systems, from content creators through service providers to consumers.

WWW.TV-ANYTIME.ORG

Multimedia Home Platform

The Multimedia Home Platform (MHP) defines a generic interface between interactive digital applications and the terminals on which those applications execute. This interface decouples different provider's applications from the specific hardware and software details of different MHP terminal implementations. It enables digital-content providers to address all types of terminals ranging from low-end to high-end set-top boxes, integrated digital TV sets and multimedia PCs. The MHP extends the existing, successful DVB open standards for broadcast and interactive services in all transmission networks including satellite, cable, terrestrial and microwave systems.

WWW.MHP.ORG

COOPERATING PARTNERS

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NOKIA CORPORATION — NOKIA

BBC - BRITISH BROADCASTING CORPORATION — BBC

NOB - NEDERLANDS OMROEPPRODUKTIE BEDRIJF — Nederlands Omroepproduktie Bedrijf nv

RAI - RADIOTELEVISIONE ITALIANA — Rai

UNIVERSITY OF LJUBLJANA

NDS – (ASSISTANT PARTNER) — NDS

Public project website
http://www.extra.research.philips.com/euprojects/mytv/

myTV is an IST project (number 11702) sponsored by the European Union.

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MyTV
DELIVERS TV ANYTIME

MY TV

myTV project description

The myTV project demonstrates new options for future television. Through its active involvement in the TV-Anytime Forum it proposes new solutions, and validates them by developing implementations on MHP based personal video recorder platforms.

myTV makes TV-Anytime's slogan "Watch what you want, when you want" happen for the user.

THE FOLLOWING FEATURES WILL CREATE THIS EXPERIENCE:

Personalized TV channel: Using automatic recording based on a user-profile the system will automatically record the programs that you like, thus creating a virtual channel with programmes that fit your interest.

TRAILER RECORDING:

When a trailer of a programme is broadcast, just pressing the record button will make the system record the programme for you whatever the broadcast time and channel will be.

GROUP RECORDING:

Broadcasters and service providers can provide a grouping of programms such as the best movies this week or this year's programms about the environment making it easy to record many interesting programms in one instant.

REMOTE PROGRAMMING:

Via the Internet the system can be controlled, allowing you to select programms for recording. Additionally indirect access is possible from webpages of e.g. broadcasters and selecting to send a recording suggestion for an interesting programme to your system.

BROWSING STORED CONTENT:

programms that have been recorded can be easily browsed. Information about the programme will help you decide whether to play it back or not.

THE SYSTEM

Personal Video Recorders with local storage have the potential to change the way people watch TV drastically. Broadcast times become irrelevant to the viewers.

For broadcasters and content providers, trailer recording, group recording and remote programming offer new ways to lock their viewers. Furthermore it enables targeted advertising, exploiting the return channel and offering new applications via MHP.

The system relies on content reference identifiers (CRIDs) that are being standardized in the TV-Anytime Forum. Using CRIDs it becomes possible to uniquely refer to TV content allowing to select a programme for recording before broadcast time and date are known. Furthermore it allows a CRID to be sent from a web site to the personal video recorder.

The myTV project effectively combines TV-Anytime's solutions for local storage and 3rd-party metadata services with MHP.

RESIDENT NAVIGATORS

In the myTV project, Nokia and Philips each have developed their own version of a Personal Video Recorder demonstrating true interoperability of the TV-Anytime standard.

The resident navigators of Philips and Nokia

DOWNLOADABLE NAVIGATORS

Via MHP broadcasters can send their own applications to each PVR. Within the myTV project, four of such applications have been developed.

BBC NAVIGATOR
- Easy navigation
- Profile manager
- Virtual channel

BBC INTERACTIVE PROGRAMME APPLICATION
- Non-linear viewing
- Choosing segments

NOB SEGMENTED LATEST NEWS
- Automatic latest news recording
- Choosing segments

RAI NAVIGATOR
- Display DVB-Service Information
- Select channels
- Start other MHP applications

Cooperating partners

Philips Research
Prof. Holstlaan 4
5656 AA Eindhoven
The Netherlands

Contact person:
Maddy D. Janse
E-mail: maddy.janse@philips.com
Phone: +31 40 27 42863
Fax: +31 40 27 44918

PHILIPS

ICSTM - Imperial College of Science Technology and Medicine

T-Nova Berkom

··T··Nova·

GMD Fokus

GMD FOKUS

Optibase

optibase

TILAB - Telecom Italia Lab

TELECOM LAB

NSSE - Sony Service Centre Europe

SONY

KPN Research

kpn research

Sun Microsystems

Sun microsystems

ETRI - Electronics and Telecommunications Research Institute

ETRI

NOB - Innovatie

Nederlands Omroepproduktie Bedrijf nv

France Telecom R&D

france telecom

Public project website:
http://www.extra.research.philips.com/euprojects/nextv

NexTV
New media consumption in Extended interactive TeleVision environment

From technology to experience

MPEG-4 scene

Configuration of characters

Interaction with content

TV Virtual Shopping Centre

NexTV is an IST project (number 11288) sponsored by the European Union

ist
information society technologies

NexTV
From technology to experience

The NexTV project develops attractive concepts for consumer applications that demonstrate the viability of combining Internet and broadcast technologies.

Two interactive applications have been developed, which use MPEG-4, interactive DVB-MHP (Digital Video Broadcasting - Multimedia Home Platform) and web technology. These applications are focused on the delivery and use of interactive content.

NexTV

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DELIVERY OF INTERACTIVE CONTENT: myGUIDE

The myGuide application is an interactive programme guide for a general audience. The application provides personalized TV entertainment and information, integrates web and broadcast on the receiver, and provides E-commerce links via the TV.

Users can choose content from different service providers and of different formats. Broadcast/narrowcast and web content are seamlessly integrated at the client side. Different media formats are combined in MyGuide and there are multiple concurrent providers for one client.

The integration of technologies is demonstrated on the MHP-DVB platform and on the ATSC (Advanced Television Systems Committee) platform.

Myguide

MyGuide Platform overview

Video Object

3D Object

Video back plane
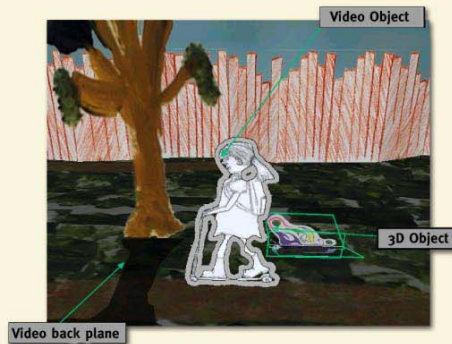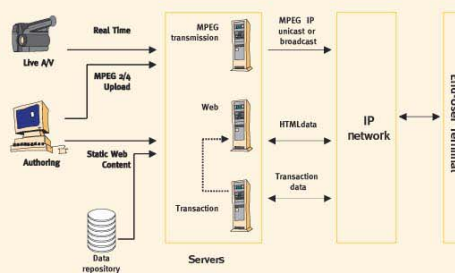
USE OF INTERACTIVE CONTENT: TOONS

The TOONS application is a digital interactive story-telling application for children based on the technical possibilities offered by MPEG-4 and MHP technology.

The application was developed in an iterative process in which users provide the input for the development of the interactive story. The intereactive story consists of several different story elements, such as decision points, story lines and characters. The children can choose between these story elements during the actual broadcast and create a story to their own liking.

The interaction with the story takes place via playful, tangible devices, such as an iPac or even more toylike devices.

NexTV KEY BENEFITS

DELIVERY OF INTERACTIVE CONTENT - myGUIDE

- Users have portals for accessing various services and content.

- Users of the interactive programme guide can receive:
  - information about schedules of programmes from third parties
  - personalized content based on their preferences
  - personal advertisement based on the programme that is being viewed

- Users can shop in the virtual shopping centre and communicate with sales agents via a back-channel.

- Efficient and timely delivery of services is accomplished by means of the seamless scene composition of MPEG-2-encoded and MPEG-4-encoded visual information.

USE OF INTERACTIVE CONTENT - TOONS

- Users have tangible devices to interact with the multimedia content within a programme.

- Users can participate in the TOONS programme to create their own personal experience.

- Users can:
  - modify, change and control the content
  - make their personalized version of the story
  - give input to the development of the story
  - configure the look of the characters in the story

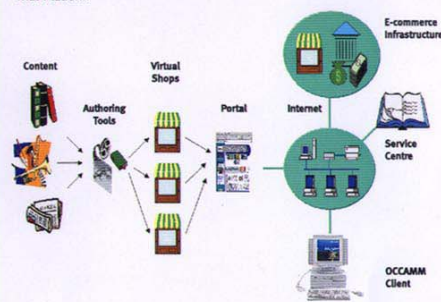- Interactive MPEG-4 multimedia objects are used to facilitate the user experience.

Development Approach
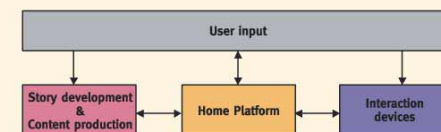
The OCCAMM approach is being validated through a series of practical trials with 'real life' users in consumer, business-to-business and educational contexts.

The first system demonstration is planned for the end of 2000, with trials going on throughout 2001. Content will include music, multimedia teaching material and photographs.

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Trial Platform

PARTICIPANTS:
OCCAMM is a joint effort between major European technology companies, research centres and service providers.

FIND OUT MORE...
OCCAMM's unique features will benefit content providers, e-tailers, portals, telcos and others involved in online content distribution - as well as making the user experience seamless and transparent. Contact us for more information on what OCCAMM does, and how it may be of use to you.

A collaborative project part funded by the European Commission under the Framework V IST Programm

OCCAM

OPEN COMPONENTS FOR CONTROLLED ACCESS TO MULTIMEDIA MATERIAL

OCCAMM
Open Components for Controlled Access to Multimedia Material

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PROTECT YOUR RIGHTS...

Advanced online distribution services, such as music download or video on demand, need to manage and protect their valuable content at all points in the system.

Only authorised users should have rights to access content, and appropriate payment should be made for such rights.

BENEFITS:

- Users access content without worrying about different security technologies used by different providers.

- Services are not tied to particular platforms (PC, set top box etc).

- Users can connect via IP, broadcast, wireless networks etc.

- Access to content by "hacking" the underlying platform is inhibited.

- "Dangerous" content cannot interfere with the user platform.

Content Distribution Chain
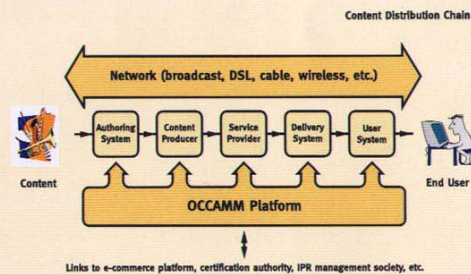
... A TRULY OPEN SOLUTION

OCCAMM is developing a software tool set, in line with MPEG, OPIMA & SDMI open standards, to control access, delivery, use, rights management and payment of multi-media content.

For the first time, this will allow inter-operability between security components, freeing end users and service providers from being 'tied in' to proprietary solutions.
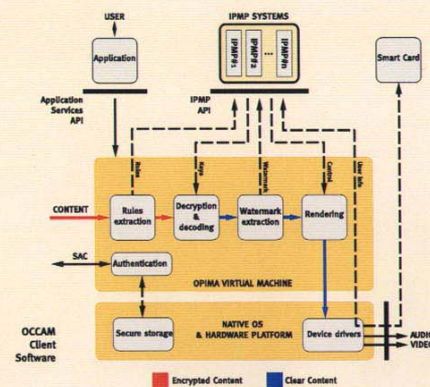
Content is protected by the OVM, and access is controlled via IPMPS (Intellectual Property Management & Protection Systems) or DRM's (Digital Rights Management Systems) which can be "plugged in" interchangeably.

Security components, such as IPMPS, watermarking, scrambling, smart cards, key management and authentication tools, slot into the OCCAMM Client in a modular way.

The OPIMA framework makes a clear distinction between the providers of the platform, the service and the IPMPS. Users can select and move between providers as desired without being "tied in".

Security components, such as IPMPS, watermarking, scrambling, smart cards, key management and authentication tools, slot into the OCCAMM Client in a modular way.

Security components, such as IPMPS, watermarking, scrambling, smart cards, key management and authentication tools, slot into the OCCAMM Client in a modular way.

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OPENISE APPLICATIONS: VIRTUAL CONFERENCING

- Conferees are seated around a simulated conferencing table, i.e. they are integrated into a 3D virtual meeting room which approximates a natural conferencing environment more tightly than a conventional n-pictures conferencing application
- 3D objects in the meeting room act as metaphors for services, options, information etc. E.g. a telephone at the table represents means to invite other people for conferencing. Hence, the virtual meeting space acts as an innovative and exciting user interface for conferencing.
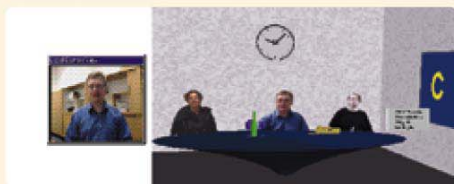
KEY PROJECT FEATURES:

MPEG4 STREAMER:
RTP/RTCP, RTSP, TOS marking, VCR Control, unicast/multicast mode, Flexmux streaming.

STREAMER HARDWARE:
SAN, Fibre Channel Hub, HBA boards.

MPEG4 TERMINAL:
Java based, Flexmux,RTP, RTCP.

MPEG4 AUTHORING:
Java based GUI, BIFS, Interactive MPEG4 authoring tool.

MPEG4 CONFERENCING:
multicasting, TOS marking, RSVP.

IP QoS:
Broadband IP core, DiffServ, RSVP/DiffServ interoperation, Rate regulation, based on Linux and Cisco routers.

ACCES NETWORKS:
broadband ADSL and WLAN access.

CONTENT:
Natural Video/Audio, Synthetic (VRML).

CONSORTIUM

THOMCAST (COORDINATOR)
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Fax: +33 (0)1 34 90 31 36

CNET

CEFRIEL

FHW

COMPAQ

NTUA

NTUA

ORCKIT

SIEMENS ICN

VIDEOTIME

T-NOVA

WWW.IST-OPENISE.NET

Openise

OPEN PLATFORM FOR ENHANCED INTERACTIVE SERVICES

OPENISE

OPENISE GOALS

- Develop an open and scalable platform for the support of advanced networked multimedia services with high quality content retrieval and streaming (MPEG4) including innovative multi-user communication capabilities.

- Define/prototype a high performance application and streaming platform.

- Define/author advanced applications designed to exploit the platform, as well as to create a realistic, friendly and interactive end-user experience.

- Study/implement protocols and technologies for the network delivery platform, ensuring efficient support of QoS, IP Multicasting and fast access on copper (xDSL) and radio (WLAN).

- Integrate/set-up application, content and network components.

- Define/perform service/technical experiments to evaluate the project platform performance.

OPENISE ACTIVITY AREAS

IN THE MULTIMEDIA APPLICATION AND CONTENT TECHNOLOGIES AREA OPENISE:

- Integrates, experiments and validates technologies supporting innovative and interactive applications.

- Is developing a MPEG4 multimedia platform for content and applications data storage and for content encoding and streaming.

- Implements retrieval and streaming of MPEG4 high quality multimedia content.

- Through service experiments will evaluate feedbacks by users on the offered services.

IN THE ADVANCED BROADBAND NETWORKING TECHNOLOGIES AREA OPENISE:

- Specifies and deploys adaptive techniques aiming to guarantee QoS over IP networks.

- Supports QoS monitoring in point-to-multipoint scenarios.

- Integrates the selected protocols and mechanisms in the project platform, taking care of the appropriate network nodes adaptation.

- Tests and experiments in a laboratory environment copper-based and a radio-based access technology.
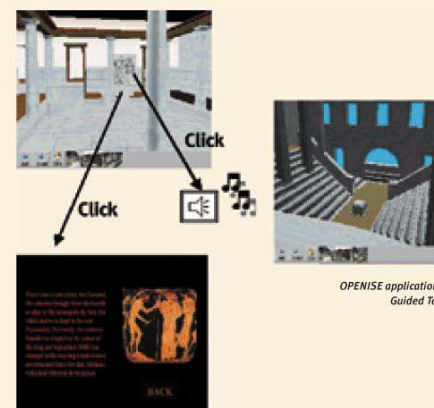
OPENISE APPLICATIONS: INTERACTIVE TV

The Interactive TV & Entertainment application is built as a virtual city where different buildings play the role of different services.
The user may watch movies (CineStore), documentaries or cultural events (DocuStore), collect news of interest (NewStore) or join a multicast group (MultiStore).
The screenshots show the Cinestore building, where the user can select to see a movie among several previews.
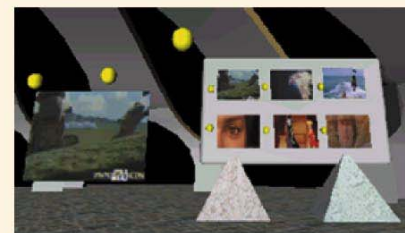
The user can navigate and interact within a highly detailed, virtual representation of the ancient city of Priene.

The guided tour in Priene enables the user/visitor to explore a multitude of historical, architectural and archeological subjects related directly or indirectly to the context in which he/she will be navigating.

Access to various levels of audiovisual information is realized with the help of an avatar, and other signs inside the 3D scene.

OPENISE applications:
Guided Tour

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SAMBITS

System for
Advanced
Multimedia
Broadcast &
Information
Technology
Services

- Combines MPEG-2, MPEG-4, MPEG-7, DVB-MHP and Internet for high-quality interactive multimedia broadcasting

- Provides tools for integration of broadcast and internet value chain

- Enables interactive personalised information retrieval through broadcast and internet channels

Public project website:
www.irt.de/sambits/

SAMBITS Project description

The IST project SAMBITS has developed an integrated architecture, for the production, transmission and reception of conventional digital TV broadcast services combined with multimedia broadcasting and the Internet. One of the major achievements of this project has been to base the implementation on the MPEG-4 and MPEG-7 standards integrated into the DVB-MHP (Multimedia Home Platform) broadcast technology to provide a range of integrated broadcast and Internet multimedia services.
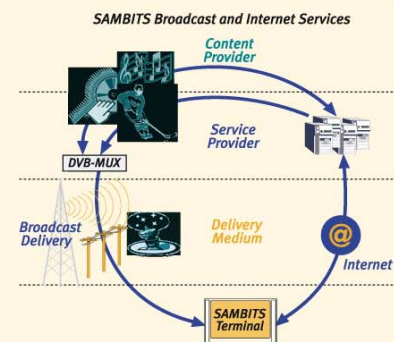
The SAMBITS Multimedia Studio Technology includes tools for off-line and real-time design of new interactive multimedia services.
These allow insertion of MPEG-4 content to provide local and remote interactivity and MPEG-7 metadata allowing easy and personalised access to additional content. With this technology integrated services can be created for access to broadcast and multimedia content in a synchronised way or independently.

The SAMBITS Multimedia Terminal Technology is based on DVB-MHP allows for personalised access and usage of broadcast and or Internet information. This is done through integrated broadcast and Internet reception at home and a return-channel through the Internet, allowing for personalised additional information. Emerging technologies such as MPEG-4 are used to effectively compose and render heterogeneous multimedia content. MPEG-7 with query construction and searching is used to access additional programme-related information.

SAMBITS Broadcast and Internet Services

SAMBITS allows to demonstrate to the broadcasters, most of whom are also offering internet services, the integration of MPEG-4 and MPEG-7 standards as part of their multimedia services both for MPEG-2 broadcasting and internet applications. The services consist of high quality video based broadcast services enhanced by multimedia elements and interactive personalised information retrieval through the Internet. Web-based content, which belongs to the service, can be routed either via the Inter-net or broadcast delivery channel. The services allow to access information from remote or local storage. The user is able to make interactive choices and manipulations by selecting 2-D or 3-D MPEG-4 objects or by entering textual responses. All these services are delivered on a common terminal platform based on the DVB-MHP standard.

SAMBITS Broadcast and Internet Services

SAMBITS Multimedia Studio and Server System

The SAMBITS Multimedia Studio and Server System is a PC-based integrated system to define, construct and deliver multimedia services. The main building blocks of the studio system are the Interactive Programme Production Sub-System (IPPS), the Off-Line Service Provision Sub-System (Off-SPS) and the On-Line Service Provision Sub-System (Online-SPS). These components provide functionality:
• To define of the time structure and content of the service (IPPS)
• To index, store and manipulate the content (IPPS)
• To specify and configure the streams to be delivered (Off-SPS)
• To encapsulate in real-time certain types of content to change the content of the program just seconds before the content is broadcast (Online SPS).


SAMBITS Studio and Server Systems
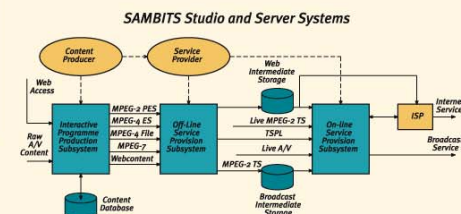
SAMBITS Multimedia Terminal System

The SAMBITS user terminal is an MHP compliant, DVB-Set-top-box, including a PC with local storage, a DVB receiver board and additional functionalities required for the Internet access, graphic display and audio/video playback.
The main building blocks of the user terminal are the MPEG-2 broadcast de-multiplexer, which has to split the MPEG-2, -4, -7 and HTML data from the MPEG-2 transport stream, the player for MPEG-2, the MPEG-4 and -7 engines and the Internet access interface. It further contains the user interface engine and the storage manager, which controls the local storage. Control of the various resources, such as MPEG-4, MPEG-7, etc., is performed by a central Java application, which is the main control engine.
The terminal provides users simultaneous access to high quality digital video, as provided by DVB, and to the broadcasters' web-pages, interactive services, streaming content and databases of the Internet. The terminal benefits from cross-links between data stored on a broadcast server and an Internet server which is fully transparent to the user whether the data itself is transmitted via the broadcast channel, or the Internet, or has been already stored on the local storage in the SAMBITS terminal.

SAMBITS Multimedia Terminal System
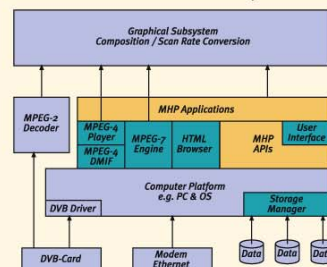
2.4 France Telecom R&D

France Telecom R&D, the research and development centre for France Telecom, currently em-ploys 4200 people including 3400 engineers, scientists and technicians and 150 sci-entists or doctoral candidates from other organisations. In the DIH Division (Human Interaction Division) of France Telecom R&D, exploratory research and studies are conducted upstream in all areas connected with human interaction, i.e. images, movement, sound and voice. Communication habits and modes are analyzed to determine basic trends and their evolution. The services of the future are envisioned and invented by working with customers in creativity workshops. Then, those services are tested with groups of users in order to ensure relevance and quality.

HTTP://WWW.RD.FRANCETELECOM.FR

2.5 GMD

GMD is the national research center for information technology containing eight institutes. The media arts & science lab MARS within the Institute for Media Communmication was cre-ated in 1997 and includes an interdisciplinery staff of 20 people. MARS explores new forms of social interaction, artistic expression and innovative contents in a mediated world.

HTTP://WWW.GMD.DE

2.10 GET

The Groupe des Ecoles des Télécommunications (GET) is formed by the Ecole Nationale Supérieure des Télécommuni-cations de Paris (ENST Paris), the Ecole Nationale Supérieure des Télécommunications de Bretagne (ENST Bretagne), the Institut National des Télécommunications (INT), as well as the Ecole d'Ingénieurs en Communication (ENIC) and the EUROCOM institute. ENST Paris and ENST Bretagne are two prestigious engineering schools specialized in communications and computer engineering . All GET members are committed to multidisciplinary research, which is continuously achieving national and international recognition. Research excellence is manifest in the increasingly success to attract important funding from research councils and industrial groups.

HTTP://WWW.ENST-BRETAGNE.FR

2.6 Imperial College of Science, Technology and Medicine

Imperial College of Science, Techonology and Medi-cine is among the leading institutions of the world for research, teaching and edu-cation in science, engineering and medicine. It attracts the most able students worldwide and aims to educate them in a way that fosters technical excellence, originality and breadth of vision. This is achieved by providing an environment within which both original research of all kinds and its application to useful purposes flourish.

HTTP://WWW.DOC.IC.AC.UK

2.7 INRIA

INRIA (National Institute for Research in Computer Science and Control) is a French public-sector scientific and techno-logical institute under the responsability of the Ministry for Research and the Ministry of Industry. Heaquartered at Rocquencourt near Versailles in France, INRIA has five research centres at: Grenoble, Nan-cy-Metz, Rennes (IRISA), Rocquencourt and Sophia-Antipolis. INRIA's missions are: basic and applied research, design of experimental sys-tems, technology transfer, knowledge transfer, internatio-nal scientific exchanges, contribution of international co-operation programmes, scientific assessments and contribution to standardisation.

HTTP://WWW.INRIA.FR

2.12 RUS

In addition to its basic services to Academic users, RUS, Rechencentrum Universität Stuttgart, maintains close relation to industry. Under the acronym HLRS - High-performance Computing Center Stuttgart, RUS became the first National super-computer center in Germany. RUS/HLRS has an outstanding record in Virtual Reality and Networking.

HTTP://WWW.UNI-STUTTGART.DE

2.13 Siemens

Siemens Corporate Technology is an innovation partner for Siemens' business units. The role of Siemens Corporate Technology is to provide the Siemens' Groups with technologies for future second-generation products and systems. Siemens Corporate Technology operates over 40 centers of competence staffed by "core technology" specialists. These centers have been bundled into six generic technology departments, which, in turn, are supplemented by independent research departments in England (Roke Manor Research, Ltd.) and the U.S.A. (Siemens Corporate Research, Inc.).

HTTP://WWW.SIEMENS.COM

2.9 Telenor R&D

Telenor R&D is Norway's largest research establish-ment within ICT (Information and Communication Technology). The research has a long-term horizon and comprises future com-munication networks and services together

HTTP://WWW.TELENOR.COM

SONG
portalS Of Next Generation

song

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SoNG (portalS Of Next Generation)

Portal is a new term, generally synonymous with "access point to resources and services". Current leading portals are Yahoo, Excite, Netscape and Lycos. A number of large access providers offer portals for their own users. Typical services offered by portals include directory of resources, search facility, news, weather information, e-mail, stock quotes, phone and map information, and a community forum. More specifically, portals provide embodiment of services in multimedia information. A shopping service can be embodied in a virtual shopping mall. Services provided by an intelligent agent can be embodied in a realistic 3D virtual human. Portals provide multimodal interaction between users and services (e.g. talking to a virtual human to make a request) as well as interaction between real users (e.g. multimodal conferen-cing). They also provide perso-nalization and customization of both the access to services and the services themselves. The content of a portal can for example adapt itself according to the user profile. Finally, a special kind of portals is the one that allows users to publish their own services in a dynamic way. Excite is among the first portals to offer users the ability to create a site that is personalized for individual interests.

The objective of the project is to develop the building blocks for the next generation of portals and to demonstrate in a real-time E-Commerce application how they allow a more natural access to services.

THE TECHNOLOGY BUILDING BLOCKS OF THE SoNG PROJECT ARE:

1. shared, dynamic and real-time virtual spaces;
2. Animation of realistic synthetic faces and bodies and rich media;
3. Software agents capturing human characteristics and learning user profiles;
4. Intuitive interfaces for navigation and interaction in information spaces;
5. Delivery of information with QoS monitoring.

Application scenario: customer care center for communication equipment

The SoNG application is an E-commerce application allowing navigation in synthetic and real sites populated with shops. In these sites, users can inspect goods, communicate with virtual or real humans and make transaction.

In addition, a key objective of the project is to participate in standardization activities and to disseminate there the project's results.

The advantage of a standardization approach to portals is to provide interoperability between the various actors of the content creation/delivery/consumption food chain and therefore allow economy of scale. Indeed, the content of the next generation of portals, because of its sophistication, will need complex creation tools. Without standardization, content provider will not know in what format they should provide content. Each service provider will have to develop its own tools and support the related costs, instead of having this done by content authors.
The service provider would also have to develop adequate consumption tools for his content, instead of just making available compelling services. Similarly, customers will benefit from a standardized approach to portals since they will be able to access portals of different service providers with just one navigation tool, and if possible, without the need of repeatedly downloading plug-ins.

Multi-modal interaction: natural and synthetic speech

2. COMPANY DESCRIPTION

2.1 BLAXXUN INTERACTIVE
blaxxun interactive is an international company with offices in Munich and San Francisco. The Company is the world leader in technologies for virtual worlds, a rapidly growing market driven by increasingly powerful end-user devices and ever improving internet accessibility for the general population. blaxxun provides products and complete solutions for the Commerce, Community and Collaboration markets, including applications such as on-line shopping, banking, customer service, online events, virtual cities, customer clubs, interest communities, virtual universities and virtual offices.
HTTP://WWW.BLAXXUN.COM

2.8 CSELT
CSELT is the Telecom Italia Group Company for study, research, experimentation and qualification in telecommunications and information technologies. The Centre is located in Torino since its foundation in 1964. Over the years, CSELT has reached excellent standards of technical expertise, which qualify to successfully operate in most of the fields related to Information & Communications Technologies. Through its own research activities, CSELT contributes to innovation in new telecommunications services, advanced applications and integrated solutions as well as developing advanced systems scenarios.
HTTP://WWW.CSELT.IT

2.3 EPFL
The Computer Graphics Lab (LIG) at the Swiss Federal Institute of Technology (EPFL) in Lausanne was founded in July 1988 by its director, Professor Daniel Thalmann. The laboratory is mainly involved in Computer Animation and Virtual Reality. LIG is especially well-known for the creation and animation of virtual actors like the Virtual Marilyn Monroe, created jointly with MIRALab. Research is oriented towards Virtual Humans in Virtual Worlds.
HTTP://LIGWWW.EPFL.CH

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IPEM – UNIVERSITY OF GENT

KTH - ROYAL INSTITUTE OF TECHNOLOGY

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TELENOR, NORWAY

GENERALMUSIC, ITALY

CONSORZIO PISA RICERCHE, ITALY

EIDOMEDIA, ITALY

more details on www.megaproject.org

EU-IST 3-year project

Public project website:
http://www.megaproject.org

MEGA

MULTISENSORY
EXPRESSIVE
GESTURE
APPLICATIONS

MEGA PROJECT DESCRIPTION

The **MEGA** project is about the modelling and communication of expressive and emotional content in non-verbal interaction using multi-sensory interfaces in shared interactive mixed reality environments.

The project focuses on **music performance** and **full-body movements** as first class conveyors of expressive and emotional content.

MAIN RESEARCH ISSUES

- **Analysis of expressive gestures:** the analysis of the expressive content conveyed through full body movement and musical gestures;

- **Synthesis of expressive gesture:** the communication of expressive content through computer generated expressive gesture, such as music performances, movement of virtual as well as real (robotic) characters, expressive utilization of visual media;

- **Strategies for mapping** the data coming from analysis onto the multimodal output.

MEGA:

EXPRESSIVE MEDIA FOR NOVEL MULTIMEDIA APPLICATIONS

The project aims at enhancing users utilization and fruition of Mixed Reality environments by means of expressive content recognition, modelling and communication.
The project addresses shared multimodal interactive MR environments observing the users within them, especially in their movements, analysing the expressive content, communicating with them by means of effective, expressive, multimodal outputs.

MEGA contributes to artistic performances and museum exhibits by providing expressive media technologies (the **MEGA System Environment - MEGASE**) for testing project outputs with artists and end users.

MEGASE is grounded on the EyesWeb Open Software Platform http://infomus.dist.unige.it/EywIndex.html

INTERACTIVE PERFORMANCE FOR HUMAN DANCER AND VIRTUAL PIANIST

A dancer performs a choreography dancing on a computer-generated performance of a pre-existent musical score. The aim is to control in real time, like a real pianist, the expressive character of the music performance by means of the dancer expressive movement. Analysis of expressive cues in dance (fluent/rigid, direct/flexible,...) is performed in real-time and the dancer's expressive intentions are mapped in abstract expression space. The dancer's expressive intentions influence the automatic music performance in a coherent way. A heavy dance corresponds to a heavy music performance.
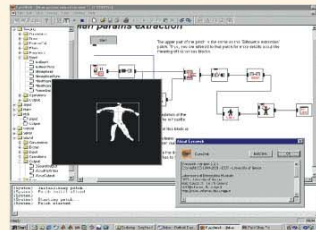
ONGOING RESEARCH IN MEGA:

ALGORITHMS FOR ANALYSIS OF EXPRESSIVENESS IN MUSIC:

- Auditory models;
- Real-time beat tracking from audio signals;
- Extraction of expressive cues (e.g., roughness)

ALGORITHMS FOR ANALYSIS OF EXPRESSIVENESS IN DANCE:

- Real-time movement tracking based on videocameras, on wearable sensorized garments;
- Extraction of expressive cues in movement: direct/flexible, fluentness, stability, contraction/expansion,

ALGORITHMS FOR SYNTHESIS OF EXPRESSIVENESS IN MUSIC:

- Synthesis of expressive cues for music performance (e.g., hard/soft, heavy/light)
- Moody music performance - synthesis of emotional coloring;
- Groovy music performance - synthesis of musical motion;
- Director Musices - a software tool for musical expressiveness;

ALGORITHMS FOR SYNTHESIS OF EXPRESSIVENESS IN MOVEMENT:

- DOVRE-based synthesis of 3D clones motion
- visual representation of expressive cues