

EUREKA PROJECT E!2265 - EUROCARE2000 CULT-BASE

1. General description

Project	E! 2265 - EUROCARE2000 CULT-BASE	Status	Announced - 23-JUN-2000
Title	Adaptative Intelligent Database System For Personalised Multimedia Content Retrieval		
Class	Sub-Umbrella	Technological area	Information technology
Start date	01-NOV-1999	End date	01-JAN-2004
Duration	50 months	Total cost	1.4 Meuro
Partner sought	No		
Summary	Culture-Base Is An Adaptive Database Where The Same Stored Multimedia Material Can Be Retrieved Via Internet Or Intranet In Various Representations, E.G. For Broadband Access, Home Pc Or Wap, According To User Needs.		

Budget and duration

Phase	Budget(Meuro)	Duration (Months)
Definition phase	0.07	3
Implementation phase	1.33	21
Total	1.4	50

Member contribution

Member	Contribution	Position	Since
Austria	33.34%	Contact Member	15-SEP-1999
Germany	33.33%	Participating Member	28-JUN-2001
Italy	33.33%	Participating Member	23-JUN-2000

Participants

Company	Country	Type	Role
Tu Wien / Inst. Of Industrial Electronics & Material Science (IEMW) Technische Universitaet Wien	Austria	University	Main
Fraunhofer-Institut Fuer Graphische Datenverarbeitung	Germany	Research Institute	Partner
Space S.R.L.	Italy	Large company	Partner

2. Project outline

Project description

Goals:

Currently most databases store a variety of content which is presented to users via Internet or Kiosks in various forms. But in these databases users have to choose how this is presented, which is often not suitable for their personal telecommunication equipment or does not fulfil information needs.

Here the project partners will develop Culture-Base, a database for multimedia content which provides the following innovative features:

- user-specific presentation of multimedia content (support of specificity as soon as CULT-BASE is developed)
- device specific presentation of multimedia content (support of home PCs and mobile appliances)
- conceptualization of content domains for cultural heritage (supporting different levels of detail).

Results:

The project result will be the product 'CULT-BASE' system, an innovative, adaptive database system which delivers personalised multimedia material to the user, according to telecommunication facilities (from rich presentations for broadband access to summary versions for WAP access) and personal preferences at the user's site (science, research, overview, surfing for information topics, etc.).

In addition, this database system aims to set standards in personalised multimedia content retrieval, demonstrated on cultural heritage material - as well as guiding other multimedia material retrieval.

Partners:

The development of Culture-Base requires different expertise. The Culture Base Consortium therefore consists of the following partners:

- * IEMW-TELAB, responsible for the development of the multimedia database
- * FHG-IGD, responsible for the development of a flexible user access to cultural heritage information
- * SPACE, responsible for the creation of innovative, multimedia content and the exploitation of the results.

The partners will contribute with database expertise and programming (IEMW-TELAB), interface expertise and programming (FHG-IGD), metadata expertise and multimedia content (SPACE) and marketing and exploitation (SPACE and FHG-IGD). Further on, the 'Culture Net' application will also be started. This is an application where some cultural heritage material is added to the database, inviting other multimedia publishing groups to join the system and start building a growing culture network business.

Approach:

Culture Base is planned to last two years. The approach is as follows:

In the first phase, user requirements and technical options will be developed. Next, an initial prototype will be implemented and installed at IEMW-TELAB.

This prototype consists of the technical system as well as initial content. In the demonstration phase, the system and content will be improved and further developed. At the end of the project, a marketable system will be achieved.

Project Plan:

The work will be done in the

- * Definition phase (by IEMW-TELAB and FHG-IGD)
- * Milestone 1: Database definition pm 4
- * Specification phase (by IEMW -TELAB)
- * Design phase (by IEMW -TELAB)
- * Milestone 2: Specification and Design Report pm 8
- * Database programming (basic features): IEMW -TELAB
- * Metadata handling: SPACE
- * Intelligent, adaptive Interface (by FHG-IGD)
- * Milestone 3: CULT-BASE system prototype ready pm 19
- * Test phase (at the CULT-BASE server in Vienna) - contributions from all partners
- * Providing multimedia content: SPACE
- * Milestone 4: Test Report pm 22
- * Modifying content presentations (FHG-IGD and SPACE)
- * Coordination of the project, phases and teamwork: IEMW -TELAB
- * Marketing and exploitation plans - by all partners, founding a marketing consortium
- * Milestone 5: CULT-BASE system ready for marketing pm 24

Keywords: database, adaptive interfaces.

Technological development envisaged

The basic technological development is the database, where multimedia content is stored. We plan to work mainly with LINUS and ORACLE, but detailed specifications and decisions will be done in the Definition Phase.

Based on the CULT BASE main system, the technological innovation is multiple:

- * scalability of the information concerning technical demands, e.g. output (from the same multimedia material) to different displays (handheld computers, cellular phones, standard desktop browsers), bandwidth detection (broadband, ISDN, modem, WAP - Wireless Application Protocol).

- * adaptive user interface (recognises users' demands and provides personalised information).

Because there are no plans to develop new multimedia content in this project, our publishing companies will provide some multimedia material from cultural heritage projects to demonstrate the database functionality in the following situations:

- * access to detailed content presentation for research and education, e.g. university courses. Broadband access provides the most detailed version automatically.

- * access to less detailed representations such as e.g. general information searching, or overview searching (access to general cultural heritage information at home with PCs via Internet. It gives an overview of topics; details can also be accessed. This is a smaller version of the research and education version.

- * access to a short version of multimedia material (summary versions) e.g. tourism access via cellular phone and notebooks (a small culture tour variety for people 'on the road').

There will be versions with content - starting Culture Net; and there will be versions without content for various other applications.

- * access

Markets application and exploitation

Our partners SPACE and FHG-IGD are already planning to market the product while IEMW-TELAB, as a University Institute, has to structure marketing plans during the project's lifetime (license agreements to companies, etc.).

As soon as CULT-BASE has been developed, the Culture Net application will be started. Content will be brought to the database system in order to enhance the growing process of a cultural information network. Since there is currently no cultural information network in Europe, which provides personalised access to information, we see a great marketing potential for this application.

In addition, we will market the database system without cultural content. Since an adaptive, flexible database system, which can adapt to telecommunication technology can be used in multiple ways, we again see a great marketing potential for the pure technical system (without content).

The current partners will invite more partners to join the cultural heritage system, use the database systems in applications in their own institution, e.g. science and engineering education within the institution (VIENNA UNIVERSITY OF TECHNOLOGY, FHG-IGD), or as marketable multimedia products (SPACE).

Through EUREKA, we will establish contacts with other European companies and other European educational and research institutions.

Project codes

BSI

MJG.JM

data bases

MVG

data handling (software)

NACE

7240

Data base activities

73

Research and development

3. Main participant

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Organisation type	University
Participant role	Main

Contribution to project

Project coordination. Database design, specification, programming, running the test server, contributions to testing, writing official reports/publicity material. Main programming by scientific assistants;students(diploma work).

Expertise

Expertise: IEMW-TELAB is a working group of the IEMW (Institute of Industrial Electronics & Material Science) and was founded in 1995. It is mainly concerned with various aspects of telematic applications. Their major task was coordination and technical development of the European project DEMETER. Currently they undertake many other activities which can be described as follows: * Telematics-based information transfer - mainly research and implementation of information presentation and implementation on Internet (main tasks are design and technical development, database-backed dynamic Web pages, user friendliness, etc.). * Multimedia for information presentation (integration of video and audio, etc.), on Internet. * User Interface Design (help for navigation to various user groups, etc.). * Interface Design for Internet: Information source - user. Applications of these topics are: * Internet services (information presentation on Internet, Administration tool. Interfaces to Internet, e.g. DEMETER (Regional information, tourism, shopping databases, etc.). * Open Learning Systems (currently in cooperation with ORACLE OLA, implementing topics for the DEMETER project). * Internet services, presenting various sources of data. Additional competencies of IEMW-TELAB are: * international project coordination and management (EU projects) * trends in the field of telematic-based learning systems (working in IFIP Groups and the AUSTRIAN COMPUTER SOCIETY. IEMW, as an institute where TELAB is established, has about 90 employees, being one of the largest institutes at the Department of Electrical Engineering. Experience with national and international projects, research activities and best contacts with industry enable this Institute to coordinate and manage even very complex projects. Curriculum Vitae of key personnel: - Dr. Eveline Riedling: she has a Masters degree in mathematics, physics and chemistry and a Doctorate in Informatics from VIENNA UNIVERSITY OF TECHNOLOGY. She has received research grants for USA (CAI/CAL development, intelligent diagnostic systems, cognitive strategies in mathematics reasoning). She is the founder and has been the head of TELAB since 1995, mainly dealing with topics such as: 'Telematics-based information transfer' (education, regional development, information systems) and project management. (Coordination of DEMETER, etc.).

Active member of IFIP, OCGF, IEKE. Since 1996 she has acquired considerable experience in the coordination and management of European projects. Contribution: IEMW -TELAB will run a Web Server with the database and test application, e.g. Culture Net, where the database functionality will be tested with some multimedia material on cultural heritage (provided by SPACE).

4. Partner

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Organisation type Research Institute
Participant role Partner

Contribution to project

Will be responsible for the design and implementation of an 'Individual Cultural heritage Guide', supporting a range of devices as well as being customizable to users' needs.

Expertise

Expertise: part of the FRAUNHOFER GESELLSCHAFT E.V. (FHG), located in Munich and the biggest research organisation in GERMANY with 47 institutes, more than 7000 employees and with a revenue of more than 500 million DM FHG-IGD, located in Darmstadt has more than 100 employees, an annual revenue of more than 15 million DM and is active in the fields of computer graphics, advanced telecommunications, computer- supported cooperative work and virtual and augmented reality. FHG-IGD carries out basic R & D projects as field trials and consultancy work. It is part of the INI- GraphicsNet, the world's largest network of competence in computer graphics, with sites in Rostock (GERMANY), Coimbra (PORTUGAL), Providence (Rhode Island, USA) and SINGAPORE. In the INI-GraphicsNet, collaborative R & D projects are executed for industrial companies as well as SMEs. The Cooperative HyperMedia Systems Department is responsible for business sector learning, training and qualification. This comprises the development of JAVA-based systems and multimedia courseware as well as the implementation of field trials and consultancy. This Department has about 10 years' experience in this area in national and international projects as well as in EU-funded R & D projects. FHG-IGD was the main technical partner in the EU projects DEDICATED (DELTA 11329, 1992-1994) and IDEALS (TAP 1012, 1996-1998). In these projects the modular training system (MTS) was developed. This provides support to distributed multimedia databases for educational and training purposes as well as individual client access to distributed courseware domains. IGD coordinated COBRA, a project developing advanced telecommunication applications or SMEs funded by DEUTSCHE TELEKOM (1995-1997). Currently, IGD is running PLATINUM, a worldwide network for advanced education and training (<http://platinum.igd.fhg.de>). Moreover, IGD is the leading partner in the upcoming FRAUNHOFER Knowledge Network (FKN), aiming at the transfer of FRAUNHOFER knowledge to industrial partners. Dr. Christoph Hornung has been the Head of the Department of Cooperative HyperMedia Systems at FHG-IGD since

1989. He holds a Dr.-Ing. in Computer Graphics and has been in charge of national and international projects in the area of learning, training and qualification. Dipl.-Ing. Frank Schroedter has been a computer scientist in the Cooperative HyperMedia Systems Department since 1995. He is responsible for the design and implementation of the MTS System and has several years of experience in the development of distributed multimedia databases as well as the implementation of field trials on distributed courseware areas. Contribution: Compared to the current situation, this is a substantial innovation, supporting the user in individualised access to information as well as supporting a set of access devices (appliances). The result of FHG-IGD's contributions will be flexible access to cultural heritage databases, supporting both the access of individuals via different devices as well as the customized presentation of information to different communities. FHG-IGD will collaborate closely in the area of database design with IAEQ-TELAB and in the area of multimedia and 3D content, with GIUNTI ILABS. The main focus of the work of FHG-IGD will be in the following areas: * user interfaces and data access mechanisms supporting user-specific presentations (detailed for researchers, guided tours for tourists), stored in user preferences/ user profiles; * user interfaces and data access mechanism supporting different devices and netband widths, stored in device profiles. In the area of user-specific presentations, FHG-IGD will develop a sort of user interface configurable to individuals and/or roles. The user interfaces will be built on top of a toolbox of common graphical user interface elements. The configuration according to specific roles will be done manually. Users can store profiling information according to their wishes and needs. This will lead to a kind of 'individual cultural heritage guide'. One of the tool's main advantages will be the possibility to 'register' interesting information (based on the metadata provided by GIUNTI ILABS) and herewith get some form of active feedback (notification of new information) or related links. In the area of devices support, FHG-IGD will develop a concept and implementation for the device and bandwidth- dependent presentation of information. This will allow an interested user to access cultural heritage information, using his/her home PC or by visiting a building). Technically, this work relies on the availability of different media representations, which will be provided by GIUNTI ILABS. Collaboration with partners: FHG-IGD will collaborate closely with the other Culture Base partners and put requirements to the database design from an access point of view to IAEQ-TELAB presentations. Moreover, the server-side components of the 'Individual Cultural Heritage Guide' will be designed in close cooperation with IAEQ-TELAB, because of the smooth collaboration of the tool and the database.

4. Partner

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Organisation type	Large company
Participant role	Partner

Contribution to project

Replaces GIUNTI INTERACTIVE LABS S.R.L. in the project. Cooperation in the definition of the architecture of the CULT-BASE system and the specification of its functionality and components.

Expertise

Contribution: * Cooperation in the design and implementation of the database engine using ORACLE or similar technology, with special reference to the object-oriented and multimedia aspects of the architecture; * main role in the design and implementation of the client aspects of the architecture, i.e. of the interfaces with which users will interact for the customised and media- dependent delivery of the cultural heritage information managed by CULT-BASE. This will especially involve the integration of real-time 3D technology for the presentation of navigable 3D worlds and cultural contexts, using standard browsers as a unified user interface; * cooperation in the documentation, dissemination, promotion and exploitation activities of the project. In particular, SPACE will ensure that the results of the project will be thoroughly tested and exploited in the framework of two major projects being carried out in the Region of Sardinia in ITALY: the M@rte project for innovative, Internet-based educational tools involving all the schools in the region and the Museum Network project involving the 15 main museums of Sardinia.