

Augmented Representation of Cultural Objects

Updated ARCO Fact Sheet and Web Site Report

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Report Documentation

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Glossary

CO Glossary File
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1. Introduction

The Web Site document is written in order to disseminate the effort spent on the Web Site until the end of the second period, to provide a guide through the pages, and also to identify and list future developments. Clearly this report is not written to provide any technical details, although the web site's design will be presented. The intended audience is mainly the consortium of the ARCO project.

2. Updated Fact Sheet

The following draft article has been submitted for publication prior to COMDEX Fall 2002. Note, it is only draft and subject to change, and has that element of marketing spin provided by the Sussex IP office.

2.1 Draft ARCO Article

Cultural artefacts project turns images into augmented reality

A European Union project to enable students, researchers and members of the public to study and compare important scientific and historical artefacts over the Internet or at their local museum could have a host of applications from training military personnel to home shopping. The technology behind the project will be presented at this year's COMDEX exhibition by ARCO project coordinator, The University of Sussex ("UoS").

Project co-coordinator, Dr. Martin White, from the Centre for VLSI and Computer Graphics at UoS explains, "ARCO—Augmented Representation of Cultural Objects—is a shared venture between a number of European universities and organizations including museums such as the Victoria & Albert Museum, and Sussex Archaeological Society. We exploit the huge potential of 'Augmented Reality'—which we define as 'mixing real reality with virtual reality' to visualize 'Virtual Representations' of cultural objects in the real world. The process starts with a novel technology developed by the Commissariat à l'Energie Atomique (CEA) to digitise a series of photographic images of an object, from which we extract its three-dimensional geometry and texture. Other partners in the project (Poznan University of Economics (PUE), University of Bath (UKOLN) and Giunti Gruppo Editoriale (GIUNTI) are working on new techniques to specify and capture contextual data, i.e. 'metadata' that describes the object, which is then stored with the virtual representation in an object relational database ready for visualization over the Internet or at your local museum".

A major goal of the project is to simplify and reduce the cost of modelling and rendering cultural objects in 3D, while increasing the quality. Key features of the project are the extensive use of XML in defining both the digitization, refinement, manipulation and visualization processes—refining the cultural objects includes setting it in the context of a virtual world described using X-VRML, and describing the object with XML metadata such that both the object or virtual representation and its descriptive context can be visualized together. The virtual representation is then presented to the public remotely through a web browser designed with X-VRML or a local browser exploiting hardware accelerated graphics rendering engines through the augmented reality interface.

"Although the project's first objective is to make important cultural artefacts available to anyone anywhere in the world, the implications of the technology being developed are very exciting," says Russ Bown of Sussex IP, the arm of the University of Sussex established to protect and exploit new technologies developed at the University".

"For a start, it is working on standard platforms, making it applicable to a wide range of sectors, and it is relatively inexpensive. At present, we are focusing on objects of about one cubic foot or less for automatic digitization, but ARCO can exploit less automatic commercial software to capture much larger objects—it just takes more time, that's all. So we have the potential to capture both the architecture of a museum, generate a virtual museum and populate it with virtual cultural artefacts for you to virtually visit. This has obvious implications for home shopping on the web, where you can examine a product, and from every angle. You could even develop a three-dimensional version of yourself, put it into your personal programme and "try out" new clothes on your augmented reality self. "The scope for training, defence and other educational applications is enormous. What we have now would have been described as science fiction a few years ago—but the technology is here now."

The members of the consortium are: the University of Sussex, Sussex Archaeological Society, the department of Information Technology of the Poznan University of Economics, Commissariat à l'Energie, Giunti Gruppo Editoriale, the UK Office for Library and Information Management at the University of Bath and the Victoria & Albert Museum.

UoS are co-ordinating the project and lead the Interactive Refinement and Rendering tool and Augmented Reality Interface workpackages. This is based on UoS's wide experience in high quality 3D modelling, rendering and animation for virtual reality applications, both in hardware accelerator systems and software.

Visitors to the "UK@COMDEX" pavilion at COMDEX will be able to see the technology in action and attend technical presentations being given by Russ Bown throughout the exhibition.

3. Overall design of ARCO's Web-Site

The UoS developed ARCO's Web Site. Its purpose is to be accessible by both the public and the consortium. The web site is a continuing development that hosts project descriptions, deliverables, disseminations, etc. The web site also has a secure area for exchange of consortium information that is not public. This area is password secured. The first draft version of the web site has been operational since month 3, and development will continue as the project develops. Figure 1 illustrates the overall design of our Web Site

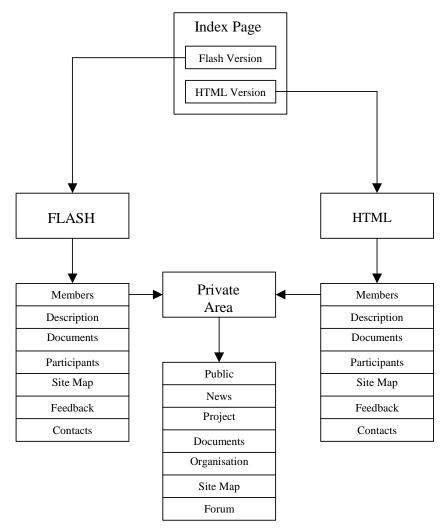


Figure 1: The Overall Design of the Web Site

In order to access the web Site the user needs to enter the following URL <u>http://www.arco-web.org/</u> in a web browser. The first page displayed is the index page, which provides two links to the public site; a Flash and an HTML version. Both of the latter versions provide the same information. The reasons for the double implementation were that UoS wanted to provide people with a slow connection easy and convenient access to our public site, and also to make our site more attractive with the use of flash technologies. The user may go to our private side by clicking on the Members link. In order to get into the private area the user needs to be aware of the username and password. A more detailed structure and information about the ARCO web site will be presented on the following two sections of this report.

4. The Public Area of the ARCO's Web-Site

On the publicly accessible area, the UoS team has been contracted to provide the Web Site with the following type of information:

- The parts of the Annex 1 "Description of work" deemed by the consortium to be publicly available.
- The Project fact sheet, which will be updated every six months.
- The Project Presentation.
- All public (PU) disseminations
 - Deliverable D6: Description of the Final prototype Interactive Model Refinement and Rendering Tool.
 - o Deliverable D8: Report on the XML descriptions of the database cultural objects.
 - Deliverable D9: Report on XML schemas, XSL style sheets and X-VRML technology.
 - Deliverable D10: Report on the XML interface description between system components.
 - o Deliverable D11: Final Report on XML Technology.
 - Deliverable D12: Description of the Augmented Reality Interface based on X-VRML.
 - Deliverable D13: Description of the Augmented Reality Interface based on XML/OpenGL.
 - Deliverable D16: Assessment and Evaluation report on the ARCO system and its components.
 - o Deliverable D18: Dissemination and Use Plan.
 - o Deliverable D19: Updated ARCO Fact Sheet, and web site report
- ARCO publications, e.g. journals, conferences, workshops, etc.
- Feedback forms for targeted groups.

All the above and an amount of other information, such as contacts' and partners' details, can be found on-line. A more detailed structure, of the public accessible area, will be presented in this chapter.

Figure 2 illustrates the first level of links of the web site when the user has just entered the publicly accessible area. The information held on the pages, where the first level links lead, will be listed in the following subsections of this chapter.

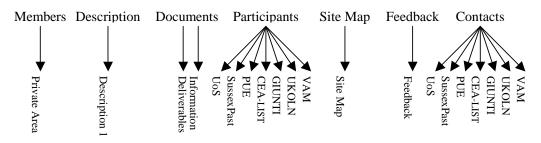


Figure 2: The first level of links in the publicly accessible area

4.1.1 The "Members" link

The "Members" link leads to a page, where the user is asked to enter the username and password. If the login is successful, then he can enter the private area. More details about the private area are reported on chapter 5.

4.1.2 The "Description" link

The "Description" link leads to a sequence of pages, the first of which is the main page of the publicly accessibly area, where general information about the project; such as:

- Project Summary
 - Objectives
 - Description of work
 - Milestones
 - Project Objectives
- Key Technical Objectives
- Key Socio-economic Issues
- Contribution to programme/Key Action objectives
- Community added value and contribution to EU policies
- European Added Value
- Contribution to Community social objectives
- Quality of Life, Competitiveness, and Employment

4.1.3 The "Documents" link

The "Documents" link leads to a page where a set of links some of which are active and others, which will become active through project development.

The complete set of links is the following, and the active ones are in bold.

- "Project Publications"
- "Project Deliverables"
- "Project Factsheet"
- "Project Presentation"
- "Project Information"

The **"Project Publications"** link leads to a page where the possible dissemination venues and actual published work can be found.

The **"Project Deliverables** link leads to a page where all the deliverables, in the form of a short description, with related work package descriptions also presented. Each deliverable description is actually a link to relative pages, where deliverables' information is provided. See also chapter 10.

The **"Project Factsheet"** is a link to the IST web site where information about the ARCO project may be found

The **"Project Presentation"** will eventually lead to a page where the updated project brochure will exist.

The **"Project Information"** link leads to a page where the standards that will be adopted by the project are presented. Some of the standards have links that lead to pages with additional information.

4.1.4 The "Participants" link

The "Participants" link leads to a page, where the user is provided with very general information about the number of participants and a short description of the work of each consortium member. Also the links from this page lead to relevant pages for each participant that provides information about the groups, the key people and finally links to each group's web site.

4.1.5 The "Site Map" link

The "Site Map" link leads to a page, where the user is provided with a site map in order to facilitate the site's navigation.

4.1.6 The "Feedback" link

The "Feedback" link leads to a page, where the user could provides feedback about the web site or other issues.

4.1.7 The "Contacts" link

The "Contacts" link leads to a page, where the user is provided with information about all the people involved in the project as well as their contacts.

5. The Private Area of the ARCO's Web-Site

On the secure consortium (private) area, the UoS team has been contracted to provide the Web Site with the following type of information:

- All confidential (CO) or restricted (PP) deliverables:
 - Kick-off meeting minutes, management meeting minutes, prototype specifications, final system specifications, business and IPR models, market analysis, etc.
- All management reports
- All periodic progress reports
- Resource usage sheets and document templates for general partner use
- Model contract
- Consortium agreements
- Exploitation agreement
- The links for JISCmail service, which provides a forum for general or specific consortium communication on technical and management issues.

Figure 3 illustrates the first level of links of the web site when the user has just entered the secure area. The information held on the pages, where the first level links lead, are listed in the following subsections of this chapter.

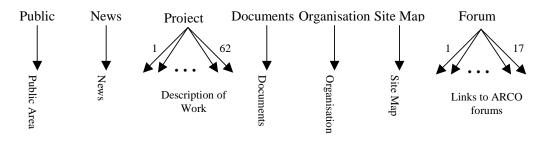


Figure 3 : The first level of links in the secure consortium area

5.1.1 The "Public" link

The "Public" link leads to the main public page of the ARCO web site.

5.1.2 The "News" link

The "News" link leads to the main page of the secure consortium area, where the partners can be informed about the latest news that occurred on the ARCO web site. The news are categorised by month and their relevant links are provided at the bottom of the main "news" page. News may be considered to be museum user trial data, deliverables, project meetings, internal documents, and other minor or major changes to the ARCO web site.

5.1.3 The "Project" link

The "Project" link leads to a sequence of pages, where the description of work document "Annex 1" can be found in an HTML format.

5.1.4 The "Documents" link

The "Documents" link leads to a page where a set of links, some of which are active and others, which will become active through project development.

The complete set of links is listed below, and the active ones are in bold.

- "Project Deliverables"
- "Project Reviews"
- "Museum User Trials"
- "Project Meetings"
- "Project Factsheet"
- "Project Resources"
- "Project Presentation"
- "Project Publications"

The **"Project Deliverables** link leads to a page where all the deliverables, in the form of a short description, with related work package descriptions also presented. Each deliverable description is actually a link to relative pages, where deliverables' information is provided.

The **"Project Review"** link leads to a page where information for the project reviews may be found. This information includes review dates, agendas, partners' presentations and the report returned back by the European commission.

The "**Museum User Trials**" link leads to a page where information for the project museum user trials may be found. This information includes MUT dates, their duration period, the event coverage place and finally useful data acquired during this MUT.

The **"Project Meetings"** link leads to a page where information for the held project meetings may be found. This information includes meetings' dates, meeting minutes reports, the host of the venue, and the purpose of the meetings.

The "Project Factsheet" link leads to an IST page where the updated factsheet can be found.

The "Project Resources" link leads to a page, where exists the set of links listed below:

- Project management Templates
- Project Months
- Annex 1(Description of work)
- Project Development Documents
- Project Review and Monitoring Templates
- Project Contracts & Amendments

The **"Project Presentation"** link leads to a page where the brochure may be found.

The **"Project Publications"** link leads to a page where the possible dissemination venues and actual published work can be found.

5.1.5 The "Organisation" link

The "Organisation" link leads to a page, where the Project management structure is illustrated.

5.1.6 The "Site Map" link

The "Site Map" link leads to a page, where the web site visitor is provided with a site map in order to facilitate the site's navigation.

5.1.7 The "Forum" link

The "Forum" link leads to a page, where the user could find links and a guide for ARCO forums.

6. Logo & Branding

The Branding of the web site has being provided by GIUNTI.



Figure 4: ARCO logo

The original web site needed to be branded. GIUNTI provided the Consortium/partners with 9 possible branding options. All the partners took part in the vote and the best logo was selected. The winning logo was used to brand the public area of the ARCO web site as illustrated in Figure 3 and Figure 4.

GIUNTI provided UoS with the modified templates, which were applied to both of the public sites; i.e. the HTML and Flash Version. Over one hundred pages were modified in this way.

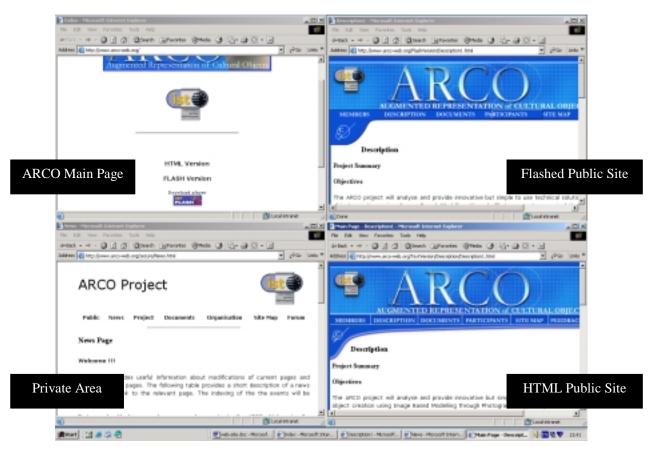


Figure 5: ARCO Web site Branding

When you visit the ARCO web site the first thing you can see on the screen is the ARCO Main Page (illustrated in Figure 4). There the user is provided with two options. The "HTML Version" and the "Flash Version". If the "Flash Version" is selected then a short flash movie introduces the ARCO web site to the user. A screenshot of the flash file is illustrated in Figure 5. When the flash intro is finished the user is entered to the flashed public web site illustrated in Figure 4.



Figure 6: Flash intro

7. Site Map

The Site Maps has changed since the previous release version (1st prototype) of this report. Figure 7 illustrates the site map that exists in the public HTML area of the ARCO web site. This page can be found at <u>http://www.arco-web.org/TextVersion/sitemap.html</u>. The purpose of the site-map is to facilitate the navigation of web site visitors (public or not) through the ARCO web site.

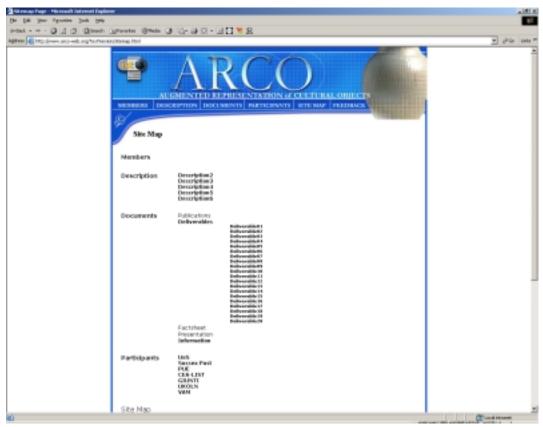


Figure 7: The Site Map on the HTML public area of the ARCO web site

Figure 8 illustrates the site map that exists in the private area of the ARCO web site. This page can be found at <u>http://www.arco-web.org/secure/SiteMap.html</u>. The purpose of the site-map is to facilitate the navigation of partners through the private area of the ARCO web site.

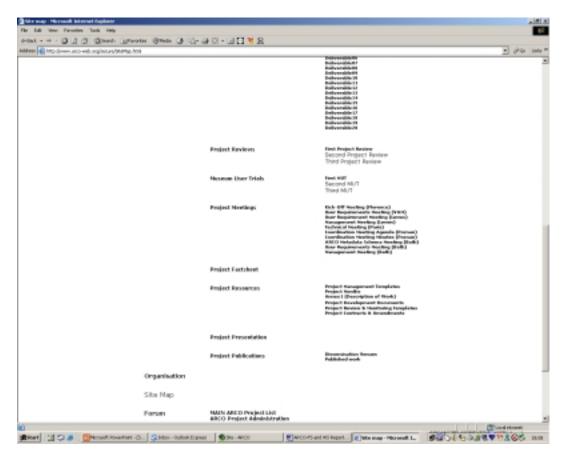


Figure 8: The Site Map on the private area of the ARCO web site.

8. News Page

This page provides useful information about modifications of current pages and/or insertion of new pages. The page is illustrated with the use of a table that provides a short description of the news event, and a link to the relevant page. The indexing of the events is chronological. The news page may be found at <u>http://www.arco-web.org/secure/News.htm</u>. Figure 9 presents the layout of the ARCO news page. This page also provides a table, which illustrates the ARCO project duration, divided into months. Each month is a link that leads to the relative's month news page.

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Figure 9: News Page in the private Area

9. Hit Counter

The purpose of the hit counter is to keep log entry of the web sites visitors. Three counters were used in our web site. These are introduced in the secure, in the FLASH public, and finally in the HTML public area respectively. All the counters are active since the 10th of September 2002.

The counters can be visited on the following web site links:

- Private area: http://www.arco-web.org/secure/News.html
- Public HTML area: <u>http://www.arco-</u> web.org/TextVersion/Description1.html
- Public FLASH area: http://www.arco-web.org/FlashVersion/Description1.html

The web counters are provided by <u>http://www.digits.com/</u>. The ARCO web site developers followed all the policies of the web counter services. The policies may be found at <u>http://www.digits.com/policies/</u>. Figure 10 shows the logo of the web counter services.



Figure 10: web counter services Logo

10. Deliverables

The ARCO deliverables for the first ARCO prototype are mounted on the web site. The deliverables may be accessed from both public and secure web site areas. The relative links are provided below:

- Public FLASH area: <u>http://www.arco-web.org/FlashVersion/Deliverables.html</u>
- Public HTML area: <u>http://www.arco-</u> web.org/TextVersion/Documents/Deliverables/deliverables.html
- Secure area: <u>http://www.arco-</u> web.org/secure/Documents/Deliverables/deliverables.html

Finally, it has to be mentioned that unauthorised web site visitors will not be able to access the deliverables that are not considered to be of "public" security. This is enforced by the use of password protection.

ARCO Project		
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concortium agreement	2	Expert
Management Report	2	Fagert
Progress Report	6	Expart
Project Presentation	6	Report
Management Report	9	Report
Prograss Report	12	Report
	15	Report
Management Report	18	Report
Managament Report Progress Report		Research .
	25	Report
Prograss Report	31 24	Report
Progress Report Management Report		
Progress Report Management Report Progress Report	24	Report
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Figure 11: Screenshot of the WP1 deliverables, which are mounted on the web site

11. Future Work

The list below identifies the future work that has to be done on the web site until the end of the project.

- Mount links for assessment and evaluation questionnaires
- Search Engine (pages' search, e.g. Google)
- Update site with future deliverables
- Update Publications Page
- Update Internal documents