ARGUS

Assisting personal guidance system for people with visual impairment

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Acronyms and Definitions

Table 1. Acronyms

Acronym	Description
ASP	**Active Server Pages**: A technology used on Web servers allowing to execute scripting code embedded in Web pages, delivering to the client HTML code dynamically generated (supported by IIS).
CMS	**Content Management System**: Software installed on a Web server providing online edition and management of the Website contents.
EC	**European Commissions**
EU	**European Union**
FP7	**Seventh Framework Program**
HTML	**HyperText Markup Language**
GUI	**Graphical User Interface.**
IIS	**Internet Information Server**: Windows-based Web server software..
ISP	**Internet Service Provider**: A commercial company offering Internet services such as domain registration, hosting, housing, e-commerce, SEO, etc.
SEO	**Search Engine Optimization**: A collection of techniques and procedures aiming to improve the probability that a Website can be found by users when search for information in Internet.
TLD	**Top Level Domain**: The final part of a URL, after the rightmost dot, which identifies a type of domain (such as: .com, .net,. .org, .info) or a territory (.eu, .es, .de, etc.).
UI	**User Interface**
WWW	**World Wide Web**
WAI	**Web Accessibility Initiative**
WCAG	**Web Content Accessibility Guidelines**
W3C	**World Wide Web Consortium**: an international consortium of organizations coordinating the standardization of technologies used in the WWW.
XML	**eXtensible Markup Language**

1 INTRODUCTION

1.1 General purpose of this document

This document describes the preliminary version of the public Website of project ARGUS, proposing some guidelines, resources and procedures for its development and maintenance during the life of the project.

1.2 Structure of this document

The document begins with the definition of the **objectives** of the Website.

It continues with the description of the **technical resources** (necessary to host and operate a Website) and the description of the **human resources** (identifying the roles of the people involved in the development and maintenance of the Website).

The next section describes the plan and process followed during the **development** of the provisional Website.

It's followed by a section describing the Website **administration** tasks, another one describing the strategy proposed for the **promotion** of the Website and finally a plan for the **maintenance** of the website contents.

2 OBJECTIVE OF THE WEBSITE

2.1 Goals of the Website

A first goal of the Website is to give public information about the goals of the project, its participants and to show that the project is funded under European Commissions FP7 programs. This is necessary among other reasons to contribute with the **transparency** required for R&D projects developed with public funds managed by the European institutions. Since the European society is paying the effort, it has the right to be informed about the usage of the public money, to know who will receive it and which benefits are expected to be returned to the society.

A second goal is to share **knowledge** and experiences with the community of scientists, organizations and end experts involved in the domain to which our project relates. This exchange of information should be useful for both sides, since the synergies produced during the exchange of knowledge could accelerate the work process and improve the quality of the results, and eventually produce unexpected benefits in different domains.

A third goal is to share with the potential **users** of the ARGUS system information about the goals of the project, allow them to provide inputs for the definition of requirements or to participate in different tasks during the development of the system, and to keep informed on the progress and results of the projects.

A final goal is to prepare the potential **market** for the products and services that are expected as result of the ARGUS project.

2.2 Website audience

A first set of users will be the **members of the team** developing the ARGUS system. For them, the Website should provide a common image about how the project has to be presented to external parties. It also can contribute to the internal team cohesion, if all members feel that the site represents them and they have a chance to contribute to its contents.

A second set of users are the members of the **European Commission** that should supervise the work and the way how information will be presented to the general public, since it will also be perceived as an indirect product of the European Institutions who have responsibility to keep the public informed.

A third set of users of the website are the potential users of the ARGUS system: **visually impaired persons** that would require some guiding assistance to move in certain areas with higher autonomy and security. They may be glad to know more about the goals of the project, be willing to collaborate in some way and be interested in getting updated information about the project status and to know when the solutions will be available for them to use.

A fourth set of users are the **organizations** providing services or organizing activities for visually impaired persons. They would have similar interest than the final users, but from different perspective (for instance, as potential distributors or providers of the commercial ARGUS system).

A fifth set of users are the **scientists** or experts working in knowledge domains related with the technologies involved in the ARGUS system. They could be working on other projects for which the information collected by the ARGUS project team or the experience of the systems developed could be useful references, or eventually become useful tools complementary to their own target systems.

Finally, we have to consider **commercial organizations** who may be interested to know how ARGUS could be competing with their products or services, or may be interested to participate in the future exploitation and commercial activities.

2.3 Constraints and requirements

A key requirement for the Website is that it must comply with **accessibility** standards and be designed according to **usability** principles. This requirement is important for a website informing on a R&D project paid with public funds, and even more when the goal of the project is to improve the social integration of people with visual impairment and several users with different degrees of impairment should be able to access the main contents of the website.

Since the Website is designed for diverse audiences with different **level of technical or scientific expertise**, the way how the contents are delivered should match the right level avoiding the usage of too technical terms or assuming advanced knowledge from the readers. The sections containing more technical contents should be clearly differentiated so that each type of user can assess how appropriate the contents are for him or her.

Since one of the goals of the ARGUS project is to generate **commercial** products and services, the information included at the Website should be restricted to disclose only information that can be disclosed without risk to damage intellectual property rights or trademarks, and cannot be used by potential competitors to copy the key ideas or products.

The website should give to **first-time users** a clear identification of what does it represent, including a summary of the project goals and basic information about the participants.

To **recurrent users**, the Website should provide easy access to updated news about the project's status and activities, and give quick access to new publications that could be downloaded.

3 TECHNICAL RESOURCES

3.1 Domains

Different domains have been registered, aiming to protect the project's identity in Internet and to be used with different purposes in the context of the development of project ARGUS.

Table 1 shows the list of registered domains, and explains the proposed usage for each one.

Table 1. Registered domains

Domain	Description
ProjectArgus.eu	Since the project is financed by the European Commission, is being developed by a consortium of European companies and primarily focuses on European users, the ".eu" TLD was selected as the most appropriate to host the Public Website of the project, providing general information about the project goals and status.
ProjectArgus.org	This domain has been reserved to host collaboration tools shared internally among the project team members.
ProjectArgus.com	These three domains are temporarily redirected to the public Website (www.projectargus.eu). As the project develops, they can be used to host the Social Network (probably the ".net" TLD would be most appropriate for that purpose) or commercial website depending on the decisions made in the exploitation plan about the brand and image of the resulting products or services.
ProjectArgus.net	
ProjectArgus.info	

3.2 Hosting

The public Website of the project is hosted in a virtual server that OK-Systems contracted with one of the main **Internet Service Providers (ISP)** in Spain: Arsys (www.arsys.es).

The virtual server provides all the resources that have been considered necessary to develop the provisional site, and allow extending it using additional resources and services along the life of the project.

The Web server is based on a **Windows-based Web server (IIS)**. The choice was mostly driven by the requirements imposed by the content management system selected to develop and maintain the initial site, and the convenience to allow developing additional pages and tools that would require access to **ODBC databases** and support to **ASP pages** (this choice is justified by the need to integrate with the Content Management System provided by OK-Systems and make better usage of existing expertise).

3.3 Content Management System

A Content Management System (CMS) is a software package installed on a Web server providing online edition and management of the Website contents.

The CMS includes an **Intranet** containing tools that can be used by the Website administrator to manage the users, to the authors to edit the contents of the website. It could include also an **Extranet**, containing restricted contents or tools to which only authorized users could be given access.

The following diagram shows these three levels of contents and functionality, and how the main types of users are authorized to access some of them.

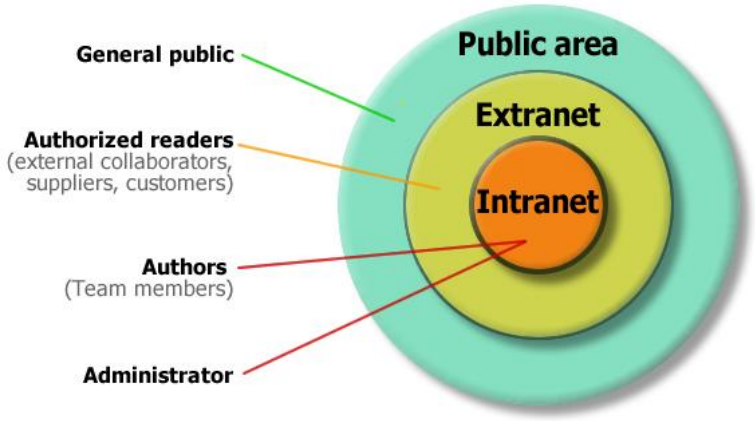

Figure 1 Main areas of the Web, depending on user access rights

4 HUMAN RESOURCES

At the different phases or development and maintenance of the public Website, it will be required the participation of different persons. This section classification describes the profile and main tasks that each one should perform.

The assignment of specific persons will depend on the way how the responsible of Task 6.1 (Dissemination plan and activities) and the collaboration among all team members.

4.1 Webmaster

The Webmaster is the main responsible to coordinate the effort of designing, developing and maintaining the Website.

4.2 Web administrator

The Web Administrator is the responsible to manage the main technical resources supporting the Website to ensure that it operates efficiently, performs administrative tasks to ensure that the site delivers its contents and functionality continuous and efficiently, and performs auxiliary tasks to prevent risks and guarantee the system and data integrity.

The Administrator should provide support to other users, performing basic tasks concerning their rights to perform different operations or access certain contents in the site, or to configure the technical resources available (e-mail and FTP accounts, etc).

4.3 Graphical designer

The graphical designer is the main responsible to translate into a graphical design the image of the project and the team, offering to the final user a comprehensible and intuitive User Interface that facilitates access to the main contents and functionalities, in a way that matches basic criteria of Usability, Accessibility and Aesthetics.

4.4 Programmers

Programmers are responsible to develop, maintain and extend the functionality of the system on which the Web site is based. This includes the development of databases, libraries of functions, and the specific code of each page included in the Website.

4.5 Web authors

Web authors are those users authorized to edit the contents of the Website.

4.6 External collaborators

External collaborators or third parties with direct participation on the Website could gain access to certain areas of it, called Extranet. Depending on the needs of the project, they could be authorized only to read restricted contents only after accessing with their login code (supplied by the Web administrator)

4.7 General public

This includes any person that could access to the public pages of the Website without need to register or log in to the Website.

5 WEBSITE DEVELOPMENT

5.1 Structure

A Website is composed of pages, among which the users have to navigate (i.e. open other pages from the current one).

Organizing the pages in a structure following a logical rule helps both the developers and users to guess which contents they could expect to find in the Website, and to navigate across them.

5.1.1 Index of pages

The pages of a Website can be organized in several ways, depending on different factors that can help grouping the pages and offering alternative ways for different users to follow an ordered sequence during a session at the site depending on their goals and preferences.

Hierarchical taxonomies (tree-like structures) are common ways to organize information. Since most people are used to this paradigm (used in books, in the classification of collections, in the organization of large human groups, and in the classification of files in computers), it's an intuitive model to apply to the organization of the pages in a site.

The key to produce a good classification of pages is to apply clear criteria to the classification at different levels of abstraction. If the criteria is applied consistently, and the GUI elements (textual labels or icons) are properly designed and placed, the user will be able to build in an intuitive way a mental map of the site that will help to predict where to find different contents, be aware of the place in the structure where the current page belongs to, and know which are the direct relationships to other pages where he can make de decision to navigate (depending on the flow of the operation that he/she is performing, or based on his/her personal preferences).

For the provisional website of the project ARGUS, are not needed many pages. According to the goals and requirements described above, a small set of pages are proposed, and have been included in the first prototype:

- Introduction to new users arriving for the first time to the site. This will include a short **abstract** at the main page, a **summary** giving a general overview of the project goals and tasks, and a description of the **participants** including basic contact information.
- Frequently updated information for the recurrent users who want to follow the development of the project and know its status and results at different moments. This includes a page of **news**, a list of public **deliverables** (from which it should be possible to download documents released to public access), a page containing **links** to related Websites, organizations or publications.
- An interactive **contact form** allowing all users (new or recurrent) to communicate with the project team to send requests, comments information or suggestions.
- An **Extranet** where different contents can be placed restricted only for users with a login code and password (to be assigned by the Web Administrator).
- An **Intranet** containing all the tools necessary to edit the contents of the Website.

5.1.2 Navigation system

Despite the navigation system has a direct relationship with the User Interface of the system, we mention it here to highlight the importance that the UI adapts to the implicit logic of the classification, and the role that it plays in the way how the user follows a logical sequence (despite the sequence may be different depending on the user's background, the operations being performed or the context of the operation.

The UI doesn't need to match exactly the implicit sorting and grouping of pages, but is should adapt intuitively to the way how the webmaster decides that could be more useful in future simulations.

In our case, based on usability criteria, the index of pages can be found in two places:

- At the **main menu**, where the different levels are display or hidden to help user focusing only on the active branch and the most directly related pages.
- At the **Site map page,** showing the full index of pages to which each type of user has access.

5.2 Design

5.2.1 Page layout

The following diagram shows a typical layout of a webpage, representing the main blocks in which a page is divided.

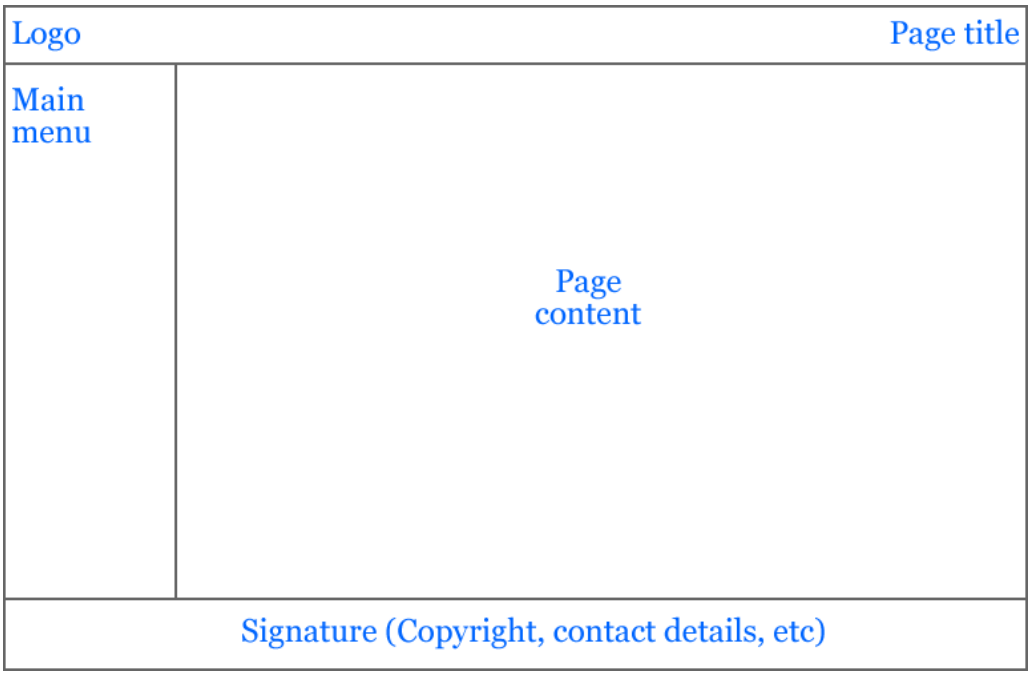

Figure 2 Page Layout example

This template aims to be a common pattern applied to all the pages of the website, guaranteeing that the users can easily find the commonalities and differences, knowing in an intuitive way where to find the key elements of the page.

- **Header**: Placed at the top of the page, should identify clearly the identity of the web-site by mean of a logo or title. This should remain equal across pages, so that the users perceive it easily without deviating the attention from the other elements.
- **Main menu**: It provides an overview of the site structure, and helps to navigate among the different sections of the site.
- **Signature**: At the bottom of the pages, it can be included any information that may be useful to let the user know, such as contact details, legal notices, etc. Besides saving the user the effort to look for such information in other pages, it can be useful to ensure that some important information can be copied together with the page contents in case that the page is printed, saved or copied into other documents.
- **Page content**: The central area of the page contains its specific contents. This is where the main focus of the user's attention is expected to be placed most of the time.

5.2.2 Usability

The usability of a document or website doesn't refer to how aesthetically nice it is, but how easy it is to be used by the user. Some designers are able to produce beautiful designs that could be hardly usable if the user cannot find the information that is looking for, or doesn't perceive the meaning of the contents presented to him/her.

We consider that the usability is a necessary condition that all documents should match, and in case that there is a conflict it must prevail over aesthetical considerations.

Since the websites designed for the project ARGUS should be used by people with diverse characteristics and abilities, it's especially relevant that the usability should be reinforced to ensure that all the users can easily navigate and access to the main contents of the pages.

5.2.3 Accessibility

The accessibility of a document can be understood as an extension of the usability, consisting on rules that ensure that it can be used by people with specific handicaps (perceptual or motor impairments), who may depend on special tools to interact with a computer (adapted output or input devices).

For ARGUS, the most relevant consideration should go to users with visual impairment.

The W3C consortium coordinates the Web Accessibility Initiative (WAI) that maintains the Web Content Accessibility Guidelines (WCAG) and provides resources to facilitate the development of accessible Websites, and to evaluate the compliance of a website with the standards.

The following online validation tools will be used to test the accessibility of the pages:

- http://wave.webaim.org/
- http://www.etre.com/tools/accessibilitycheck/

5.3 Contents

5.3.1 Textual contents

During the lifespan of the project ARGUS, the contents of the website will evolve to reflect the status of the project, include information collected during the process of development and test, share relevant knowledge acquired during from external sources, and communicate the results.

In the early phase, the initial version of the website is designed to contain a minimum set of contents, being the most important the **summary** of the project because the main goal is to raise awareness on the project and let the people looking for information about it to know its key ideas. The summary should be a short and clear overview of the project, stating the main goals, describing the target population and providing a general idea about how it's planned to reach the goals (without disclosing key concepts that could compromise the success of the project).

It's also necessary to describe he **participants** on the project, and to mention that it's funded by the EU's Seventh Framework Program.

A section of the website should be reserved to publish relevant **news** about the project, either the news generated by the project members or external news about subjects that may be relevant in the context of the project's goals and activities.

Other sections of the website will be initially empty, but be prepared to publish documentation produced by the project: **public deliverables** and information on **dissemination activities**.

5.3.2 Languages

The main language of the site is English, and all contents shall be available at least in that language.

The main elements (navigation menu) and contents (cover page, summary, contact form) may be translated to other languages (at least Spanish and German, based on the nationality of the project partners). Depending on the availability of translators or on their relevance for the project, they could be also translated into other languages.

The user shall be able to change language at any time from a language selection menu, and the content management system shall be able to support editing the contents in multiple languages.

5.3.3 Graphics

Apart of the graphical elements of the pages that can be considered part of the general layout and will be shared by all pages (page background, logo, etc), each page could contain graphical illustrations to reinforce the associated textual contents, or to reinforce the style and messages of the site.

The images shall be edited before uploading them to the server, ensuring that 1) their size (in pixels) will be the same as how it must be displayed, 2) that the file size (in bytes) is as small as possible without losing quality to ensure that it will be loaded as quick as possible, 3) that the format in which is saved is the most appropriate depending on the characteristics of the image (GIF for computer-generated graphics with reduced palettes of colors or for images with transparencies, JPG for photographs, or PNG as the best alternative for all cases).

5.4 Functionality

The main functionality provided by any website is to let users read information on a subject. In the case of ARGUS, the subject is a R&D project, its goals, activities and results. To facilitate the access to al the contents, the site provides a simple navigation method and ensures that the layout and usability of the pages make easy to find the different types of information contained in the site.

A second functionality that a website should support is to facilitate the communication with the users who may require additional information or would like to contribute in some way. The main way to support this function is to offer clear contact data (e-mail, phone, or postal address), and to offer an online **contact form** where any user can immediately deliver any message.

Registered users will be able to access to restricted areas (**extranet and intranet**) after being identified with login forms where they must enter the username and password provided by the site's administrator. Depending on the user's grants, they'll be able only to read confidential information or to modify the site's contents (editing the contents of each page, or the databases managed by the Contents Management System).

During the development of the project, additional functionalities will be supported. For instance, in the first phase (WP01) an **online questionnaire** should collect information from different users in order to identify the requirements for the ARGUS system.

6 WEBSITE ADMINISTRATION

6.1 Support to users

6.1.1 Training

OK-Systems will provide direct to the users who need to access the Intranet and learn how to edit the website contents using VirtOf.

6.1.2 Problem solving

OK-Systems will manage requests to solve any problems related with the website contents, design, structure, functionality, accessibility or usability.

6.1.3 User account management (registration process)

OK-Systems personnel will act as Webmaster and Web administrator for the public website of the Project Argus, and will provide access to the users who request access to the extranet and intranet.

6.2 Supervision and feedback to users' inputs

6.2.1 Reply to form inputs and e-mail messages

The messages sent from the Website are not stored in any database, and are just sent directly via e-mail to the account info@projectargus.eu.

This account is provisionally managed by the website administrator (OK-Systems), but could be managed to whoever decides the leader of the project (Vicomtech), in which case OK-Systems will provide support to manage the e-mail account or to forward all incoming messages to an alternative account.

6.2.2 Moderation of forums and comments

In the provisional Website, no forum is included and users cannot leave comments, so it's not necessary to moderate them.

6.3 Quality control

6.3.1 Quality of original texts

The quality of the textual contents of the site will be primarily controlled by OK-Systems, and ultimately by the quality manager designated by the project's leader (Vicomtech).

6.3.2 Quality of translations

All texts shall be entered in English, and whenever they are important and there are translators available they shall be translated and added to the site using the multi-language features (following guidance from OK-Systems).

Whenever may be possible, the quality of the translations should be verified by somebody different than the translator, if possible a native speaker of the language.

6.3.3 Quality of illustrations

OK-Systems will be responsible to maintain a baseline for the style and quality of the images included in the site, ensuring that their format, size and style are adequate and consistent with the general guidelines.

6.3.4 Quality of adaptation to HTML

OK-Systems will be responsible to generate and maintain the Website pages ensuring that they comply with the standards (HTML and CSS) so that the pages can be rendered without problems in all the main browsers (IE, Firefox, Chrome, Safari, Opera).

To avoid incompatibility with browsers in mobile devices, it shall be avoided (unless that is really necessary) to include Flash animations, Java applets or elements depending on plug-ins.

The accessibility of the code shall be also validated using online tools periodically to ensure that no critical error make the pages not accessible to users with visual impairment.

6.3.5 Bug and issue tracking

OK-systems shall be notified of any error found in the website, and will be responsible to fix it or to mitigate it as soon as possible.

OK-Systems will also collect suggestions for improvements.

In the near future, OK-Systems plans to activate an online **issue tracker** tool that will facilitate to collect bugs or requests from users and to allow them to follow the status of the reported issues.

6.4 Analysis of site's traffic and usage

The server can be configured to keep track of the pages visited, saving the information in log files that could be analyzed by different software tools.

But the main system selected to manage statistical analysis and produce reports summarizing the usage of the website is **Google Analytics**. It's a free service, based on the inclusion of a scripting code into the HTML code of the pages, without significant performance impact on the page loading and with null impact on the server's resources since the data is collected, stored and processed directly into Google's servers. OK-Systems manages the account associated with the report, and can provide access to the online reporting tool or distribute the generated reports (in PDF format) to whoever requests access to them.

7 WEB PROMOTION

Once the preliminary version of the website is approved and validated, OK-Systems will initiate a promotion strategy to ensure that the site can be found by whoever user looks for information about project ARGUS or by people searching for related terms. In this section we only mention the general ideas about the strategy that will be designed and implemented in the next stage.

7.1 SEO (search Engine Optimization)

The term SEO describes different techniques that can help positioning the websites in a good position when people seek for certain terms in search engines.

Most of these techniques depend on the contents of the page. For instance:

- setting the appropriate meta-tags in the page header,
- ensuring that the HTML code is valid and complies with the main standards,
- ensuring that there are no broken links,
- associating meaningful alternative textual descriptions to images,
- adding semantic data,
- including in the page contents the main keywords and expressions that could match the terms searched by the target users.

Others depend on more proactive techniques, such as:

- include links to the site in other websites,
- paying to include banners into other websites,
- paying advertisement in traditional media (specialized or general magazines, newspapers, etc.),
- bulk e-mailing campaigns,
- paying online advertisement campaigns (v.g. Google Adwords)

7.2 Social Networks

Nowadays it's especially important to use the social networks not only as part of a strategy to promote a website, but furthermore as complementary resources that can facilitate the distribution of information and the contact with other users in a more dynamical and efficient.

We'll prepare a plan to make project ARGUS be present (at least) in the following social networks:

- Facebook
- LinkedIn
- Twitter
- Youtube
- Flickr and/or Picasa Albums

8 WEBSITE MAINTENANCE

8.1 Domain and hosting management

OK-Systems will be the main responsible to maintain the domains and hosting resources necessary to keep the ARGUS website online and active.

8.2 Server backup

Among the maintenance tasks, OK-Systems will perform periodical backups of the contents modified directly in the server by different users (changes made through the Intranet, files uploaded via FTP or data collected from users via interactive Web pages).

APPENDIX 1: SCREENSHOTS OF PRELIMINARY WEBSITE

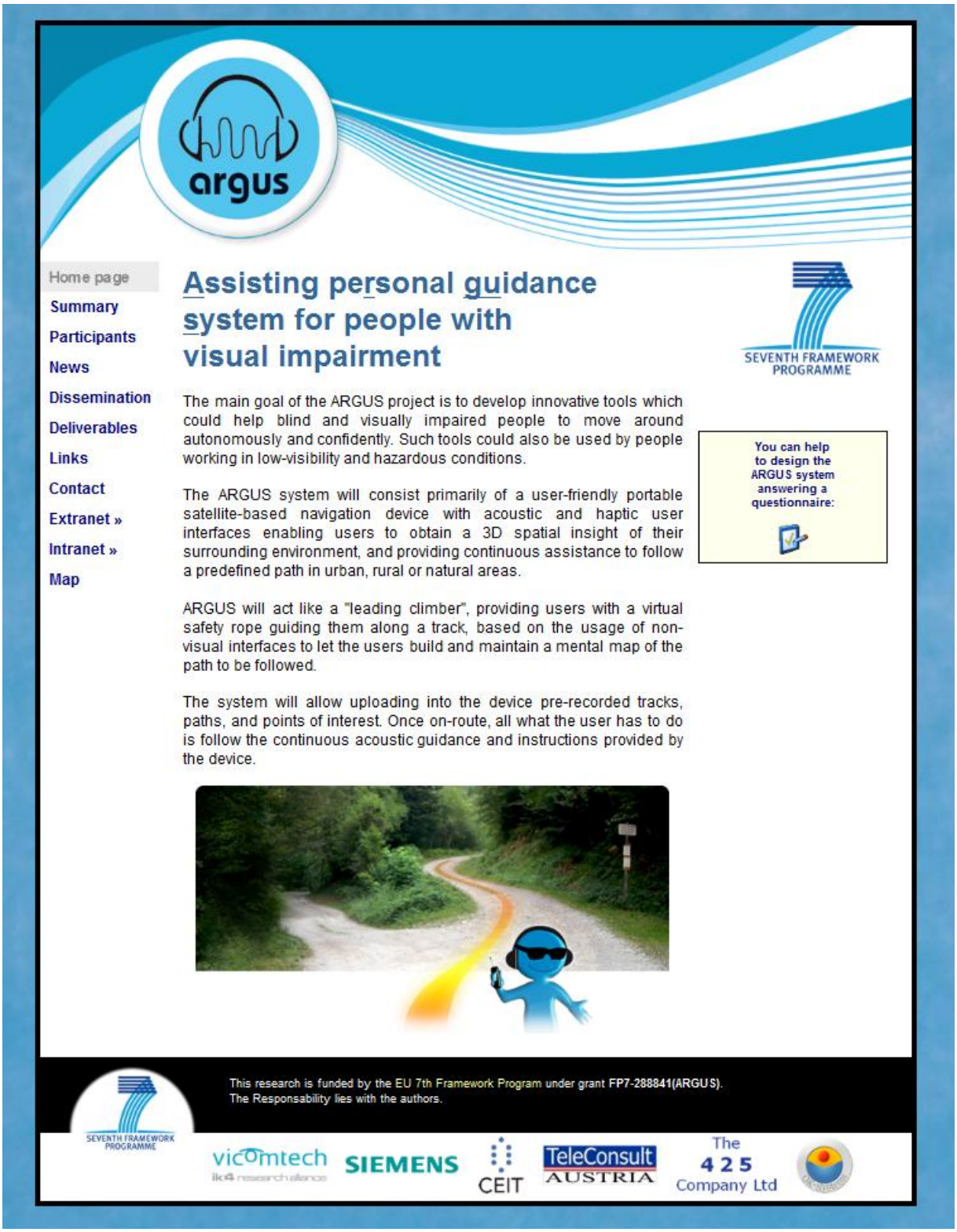

Figure 3 Screenshot: Main page of the website

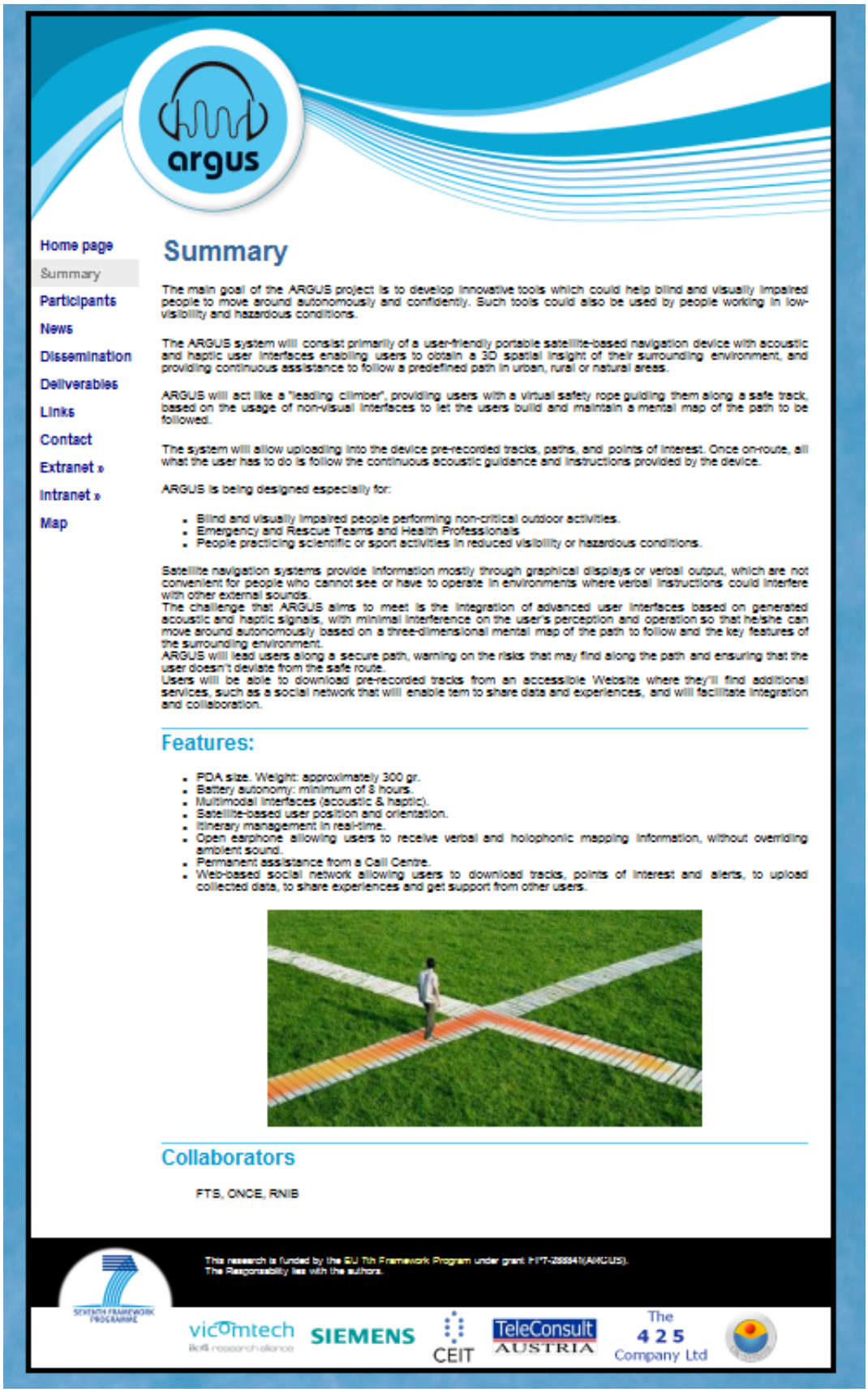

Figure 4 Screenshot: Summary page

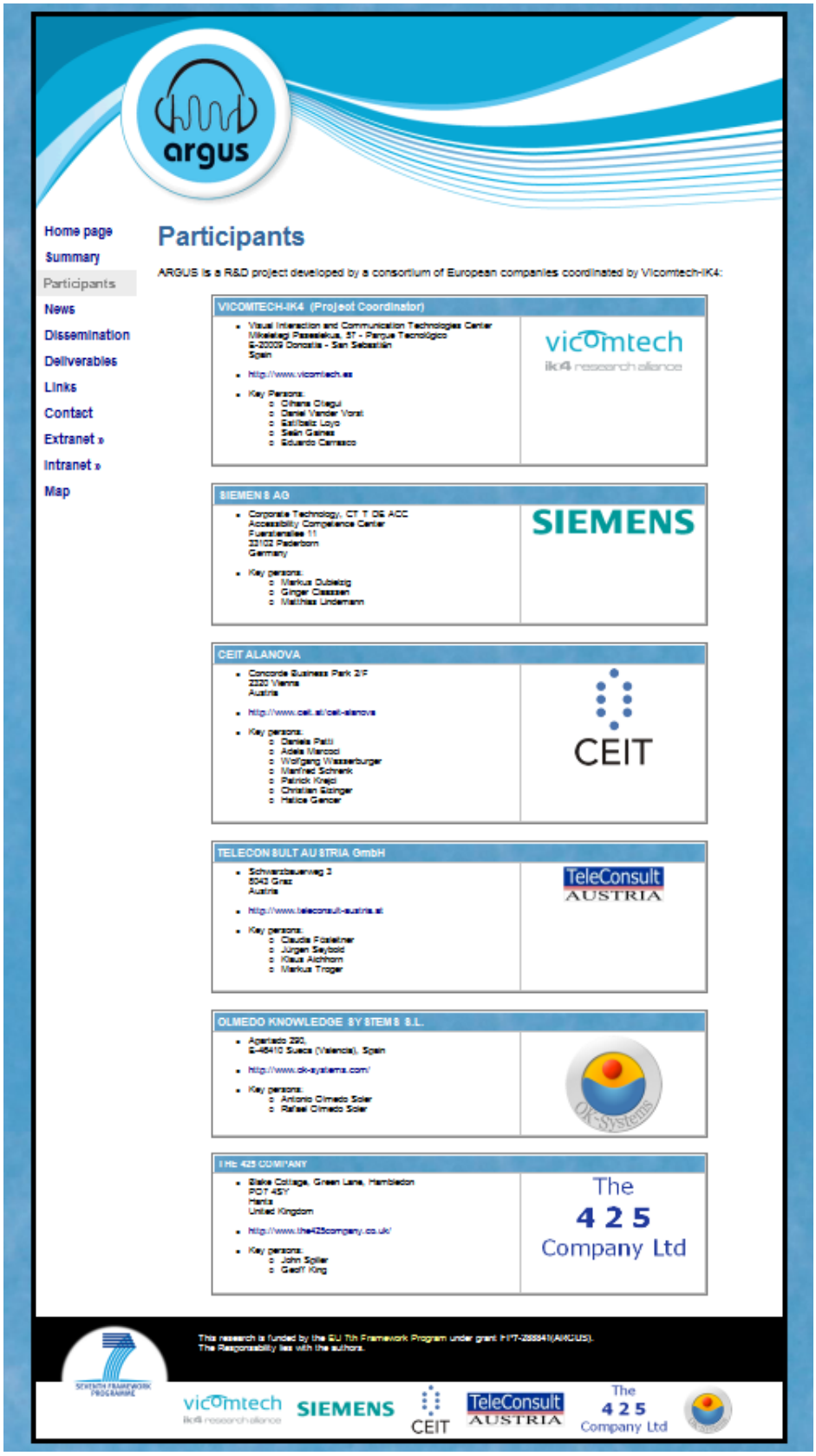

Figure 5 Screenshot: Participants page

Figure 6 Screenshot: News page

Figure 7 Screenshot: Map of web pages

Figure 8 Screenshot: Contact form page

Figure 9 Screenshot: Access to the Intranet

Figure 10 Screenshot: Maintenance of database contents (News)

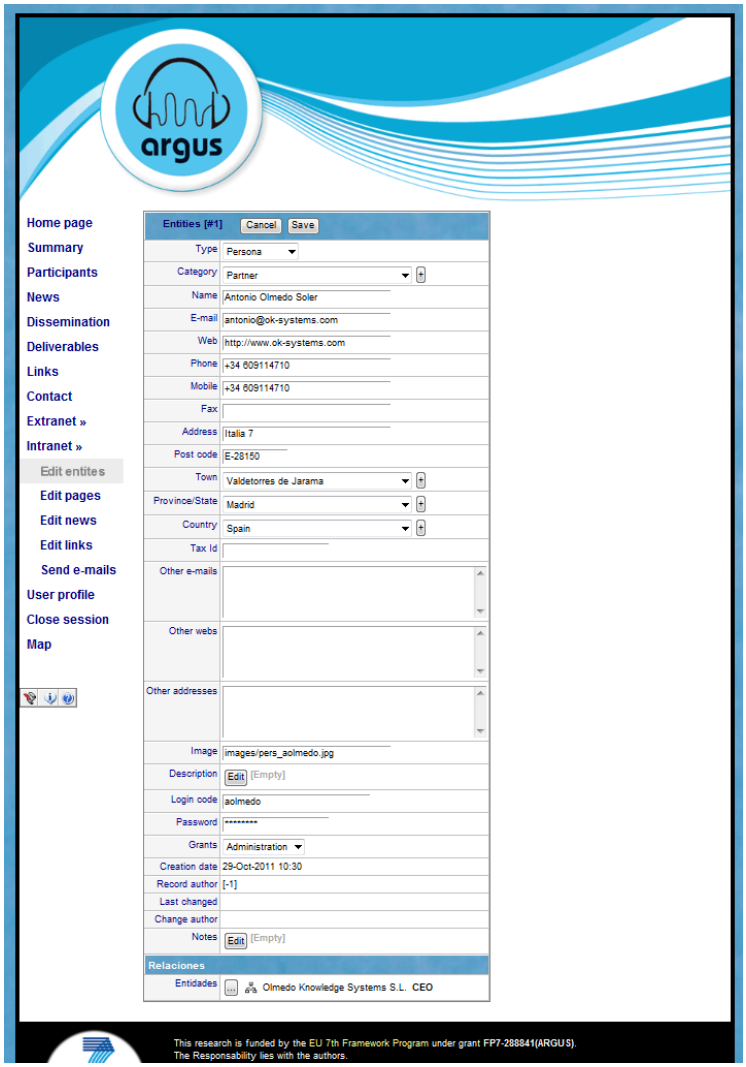

Figure 11 Screenshot: database maintenance (User form)