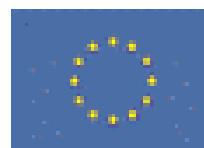




**CogSys**  
Cognitive Systems



**FP6-511931**

**Mind RACES**

*from Reactive to Anticipatory Cognitive Embodied Systems*

**DELIVERABLE 7.1**

*Project Presentation Web Site*

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## Summary

This deliverable deals with the domain analysis, the setup process and the future management activities of MindRaces's Communication Infrastructure. The current development status of related tools, both for dissemination and software development, will also be discussed.

noze is the leading partner for the Work Package 7 (WP7), Dissemination and technological perspectives. The technological expertise of noze will be crucial in order to realize and maintain the communication infrastructure between the partners as well as for building a state-of-the-art web portal, that will be one of the main dissemination channel.

A detailed explanation of the design process that lead noze to choose between different open source softwares and solutions will be shown into this document.

The deliverable will also refer to an online web-portal ([www.mindraces.org](http://www.mindraces.org)) developed since MindRACES beginning.

## :: Introduction

The development of a nice, easy to use, full of features (i.e.: dynamic contents, administrative mode interfaces, internationalization, ...) and WAI guidelines compliant web portal has become a task that needs a lot of expertise. A large number of tools can be used to build up quality products, but lot of them, even professional ones, still lack in two things:

- *Costs*
- *Customizability*

The open-source community with its business model comes to solve those problems.

The usage of open source frees customers from being charged with development costs that does not concern their own specific application. They will pay only for the customization process that is an irrelevant part in respect of the whole program development. They will also have access to the whole program structure (i.e. sources) having the chance to change the current development partner for a possible better one preserving the whole money and know how investment. In short that is why noze works only with open source platforms and technologies, and why a generic customer should feel itself protected by that choice.

Following its philosophy noze started the mindraces.org web-portal development taking care of various important aspects and guidelines.

mindraces.org guidelines and features summary:

- WEB GUIDELINES
  - WAI guidelines (<http://www.w3.org/TR/WCAG10/>)
- FEATURES REQUESTS
  - Web portal open to external registered users
  - Internal mailing lists
  - Newsletter
  - Discussion forum also open to external registered users
  - Instant poll
  - Instant exchange messaging system
  - Users roles
  - Different access layers and views (public, registered, partners, administrative)

- Dissemination facilities (project description, partners infos, links to resources, a semester newsletter with project status, tutorials, downloadable demos, and licensing choices and descriptions – selecting between open-source ones)
- Internazionalization (different languages must be easily supported by the portal framework)
- Centralized ftp area for papers and softwares
- Centralized software development repository
- Concurrent Versioning System (CVS) to mantain different development branch on the same scenarios/platform
- CVS-Web to navigate throught different software versions form any http-browser
- Bug tracking system to schedule debugging and coordinate development on shared resources

Those constraints and requests togheter with the analisys of the domain in wich we can situate the prototypical audience for mindraces.org led noze to make the following choices about tools and portal style:

- Operating System – Linux / Gentoo 2004 distribution
- Content Management System – Plone
- Application Server – Zope
- Portal and glue language - Python
- Statistics - AWStats
- Portal Design – Macromedia Studio MX 2004 and Adobe Creative Suite 7.0
- Portal Style – WAI, ANY Browser, and multilanguage compliance

## :: PORTAL TOOLS

What follows is an overview of tools that has been used to develop mindraces.org web portal. Each tool has a short description to figure out its features and main advantages against generic ones.

### :: Linux

Linux is an operating system available for different hardware platforms (x86 family included). It belongs to the UNIX O.S. family (like Solaris, AIX, HPUX, SCO) but it was written to be compatible with POSIX specification and to include extensions coming from System V and BSD. It was developed primarily by Linux Torvalds at the University of Helsinki in Finland who starts the project in the 1991 with a particular licensing mechanism: the GNU General Public License. The current full-featured version is 2.6 (released December 2003)

Homepage: [www.linux.org](http://www.linux.org)

### :: Gentoo - Linux

Gentoo is an advanced Linux distribution with incredible customization features and an overall performance measure on the edge. It's core is based on a tool named Portage, that is a package and installation system that covers any aspect in the system administration and configuration. Portage keeps Gentoo Linux system as "up-to-date" as user desire. And because of this, experienced Gentoo users don't pay too much attention to "new versions" of Gentoo Linux -- after all, the latest and greatest version of Gentoo Linux is always available by typing a simple "emerge -sync" command. There's no need to wait several months for a "new version" of Gentoo Linux to be released because Gentoo Linux is continually updated and refined and these improvements are immediately made available to users.

Here's an overview of what is included in the most recent release of Gentoo Linux:

- Support for x86, AMD64, PowerPC, UltraSparc, Alpha and MIPS processors
- LiveCD-based installation for x86, AMD64, PowerPC, UltraSparc and Alpha
- Latest stable KDE and GNOME
- Various optimized Linux kernels

- Very modern GNU development environment
- Excellent filesystem support: ReiserFS, XFS, ext3, EVMS, LVM
- Excellent hardware support: NVIDIA, Creative Labs Live! and Audigy
- Modular OpenGL and compiler sub-system (supports multiple co-existing versions)
- Clean, dependency-based system initialization scripts
- more than 8000 packages of the latest and greatest software
- Enhanced Portage capabilities

Homepage: [www.gentoo.org](http://www.gentoo.org)

### :: Plone

Plone is a free, open source Content Management System. The focus of Plone is to provide value at every level of an organization. It comes with a workflow engine, pre-configured security and roles, a set of content types and multi-lingual support. There are many developers, writers and testers from all over the world, contributing to Plone everyday. Plone is based on the Content Management Framework.

Homepage: [www.plone.org](http://www.plone.org)

### :: Content Management System

Finding a definition for what a Content Management System (CMS) is seems to be harder than finding someone willing to sell you one. Simply put a CMS allows you to manage content, usually for a web site. The main goals of CMS are to allow easy creation, publishing and retrieval of content to fit a business needs.

*"The trouble with content management is that its trivial or impossible."*

Quote: from OSCOM, 2002 One common dividing line between different CMS's is the integration of the web and hence can two types of systems: a web based system, and non-web based system. Plone is a free, open source web based CMS



## :: Web based CMS

The easiest way to understand a CMS like Plone is to compare it with a standard web site design tool, like Macromedia Dreamweaver. In both cases pages can be produced on a remote computer, and submitted for approval and publication. There are, however, four key differences:

1. any user with the required permission can produce web pages from anywhere, using any standard browser, with no need for any specialist software. A CMS is easier to use than Dreamweaver and FTP, therefore very little training is needed, and many more production tasks can be allocated to unskilled staff. As a consequence, a CMS empowers more users to create and edit content on the Web. Also, less training and lower skills result in lower production and maintenance costs.
2. pages are produced by typing text and uploading files into the site's pre-produced templates. This results in a more consistent corporate style. Thus, even though the number of people producing web pages for direct publication can be large, consistency of style and, more importantly, consistency in content structure is ensured.
3. control of workflow in a CMS can be very finely grained, with the Webmaster's job being effectively devolved to many people working in different places without any lowering of security and, more generally, of quality standards.
4. different versions of a document are automatically saved, resulting in a natural audit trail when required. These benefits of Content Management Systems are obviously more significant for large organisations, or large collaborative projects, than for small businesses or organizations.

## :: Content Management Framework

The Content Management Framework (CMF) is an application that contains a series of tools for Zope. These tools form a framework that provide many of the key services a Content Management System would need. The CMF can be used as a standalone product, or in Plone's case, built on top of. The CMF provides core tools like Workflow, Personalisation and Cataloguing. The CMF development is lead by Zope Corporation and is an open source product that benefits from the input and hard work of many developers around the world.

Homepage: [cmf.zope.org](http://cmf.zope.org)

### :: Zope

Zope is a open source web application server, written in Python. It is a scalable, stable, powerful system that includes an object database, a web server and several templates languages. Zope is developed and supported primarily by Zope Corporation, but also by many developers worldwide.

Homepage: [www.zope.org](http://www.zope.org)

### :: Zope and Plone

Zope and Plone are Open Source Software (OSS), that is, the source code is available to anyone for free. The business model of the people who produce Zope and Plone relies on earnings from consultancy services, chiefly for customisation and enterprise use. Other examples of open source CMSes are Midgard, Bitflux, OpenCMS, and Wyona.

Proprietary and open source CMSes are technically not very different. In both camps we find very good, mediocre and poor products; the quality of the documentation and support also varies widely. The main difference is that open source CMS are produced by rather smaller companies than proprietary ones. This raises doubts on the long-term continuity of these firms, and of the support that they can provide. In my view, however, the difference is more apparent than real. Open source producers are smaller and thus more vulnerable to, say, the loss of one customer or the departure of a key individual; proprietary producers are bigger, but are affected by takeovers (e.g. Allaire, by Macromedia) and the vagaries of the IT stock market (e.g. Broadvision). All in all, BOTH kinds of producers can easily disappear. The difference is that, with an open source product, the source code is available to the user and so is the possibility of maintenance, customisation and development, none of which is available to users of proprietary systems without the active intervention of the producers. This is the key reason to use an open source product.

## :: Why Plone and Zope rather than other open source CMS?

Plone is based on Zope, which is a framework for building content management software. In a sense, Zope is an operating system for web applications, one of which is CMF (Content Management Framework), an application to facilitate the building of CMSes. Plone is one such CMS, based on CMF, running on Zope, but with its own set of templates and file types. In our view ("our" meaning the view of the CMS Working Party set up by the Web and Internet Steering Group, WISG), Zope is significantly better than other competing products for the following reasons:

- Zope is object-oriented, in the sense that everything appearing in a Zope web site (web pages, images, links, files) is an object and is contained in an object database. The database is hierarchical, not relational, and is particularly suited to hierarchical file structures. Technical people think of databases in terms of collections of tables of rows and columns, related by primary keys. This is different, and mirrors much more closely the structure of an ordinary file system, with objects within objects.
- The Zope database contains all older versions of an object: this is particularly useful for undoing changes, for the control of versions of collaborative documents, and for items requiring an audit trail.
- Zope contains a number of tools that are specially suited to large organisations and collaborative work, and will be described later in the manual. One example: pre-defined database searches, based on flexible search criteria, which automatically display all objects satisfying certain user-specified conditions.
- Zope can be used on all platforms: Unix, Linux, Mac OS, and all flavours of Windows (98, 2000, XP, NT). This is not true of most other CMS, open source and proprietary alike.
- Zope is a very friendly developing environment. The possibility of creating a customisable copy of a script at the touch of a button, while keeping the default version in its original location, is the best safety net I have ever come across.
- In Zope it is easy to design structured XML documents, with workflow linked to the document structure. This is an essential feature for the administrative systems in a large organization, and promotes both corporate consistency in the style and structure of documents and a streamlined work flow.
- Finally, Zope was created for use by large organisations, with the following characteristics: large number of contributors to collaborative projects, with contributors

located at different sites and using different platforms; strong organisational requirements for flexibility and security, with the need to define local roles with different permissions to view, write, edit and approve different parts of large projects; scalability to large numbers of objects and servers.

The seventh, cultural difference between the Zope team and their competitors is crucial for large organisations. One of the Zope customers is the US Navy, which uses Zope for the management of R&D projects: a big, public-sector organisation with a keen eye on flexibility and security. The same could be said for most large corporations, public as well as private. As far as Plone (as distinct from Zope) is concerned, I regard it as rather more than a generic CMS that happens to be based on Zope. Plone adds to Zope at least two very useful features, which are especially important for the purposes of the Engineering Sciences web site:

- A neat, elegant framework for navigation, relying on folders and the viewing of their content rather than links in html documents (which would have to be updated) and aided by navigational shortcuts such as the Bulletin (which displays objects created or modified within the last few days, thus eliminating the need to navigate the site to find them).
- A simple tool for the creation of complex structured documents such as PIQ and UPC forms, with different parts of each documents visible to different audiences and a customizable approval path.

The first feature makes a Plone-based site uniquely easy and fast to use; the second makes it useful for administration, unlike most CMS which are conceived primarily for the publishing rather than the processing of content.

In addition, Plone guarantees that following its programming style correctly, any web site produced using it will conform with WAI and ANY Browser specs at least.

## 🐍 Python

Python is a powerful, interpreted, interactive, object-oriented programming language. Python is open source and can run on almost any platform or system. Zope is written primarily in Python, with some optimizations in C.

Homepage: [www.python.org](http://www.python.org)

## :: AWStats

AWStats is a short for Advanced Web Statistics. It's an open source tool that generates advanced web (but also ftp or mail) server statistics, graphically. This log analyzer works as a CGI or from command line and shows you all possible information your log contains, in few graphical web pages. It uses a partial information file to be able to process large log files, often and quickly. It can analyze log files from IIS (W3C log format), Apache log files (NCSA combined/XLF/ELF log format or common/CLF log format), WebStar and most of all web, proxy, wap, streaming servers (and ftp servers or mail logs). AWStats's features list:

- Number of visits, and number of unique visitors,
- Visits duration and last visits,
- Authenticated users, and last authenticated visits,
- Days of week and rush hours (pages, hits, KB for each hour and day of week)
- Domains/countries of hosts visitors (pages, hits, KB, 269 domains/countries detected)
- Hosts list, last visits and unresolved IP addresses list
- Most viewed, entry and exit pages
- Files type
- Web compression statistics (for mod\_gzip or mod\_deflate)
- Browsers used (pages, hits, KB for each browser, each version, 89 browsers: Web, Wap, Media browsers...),
- OS used (pages, hits, KB for each OS, 34 OS detected)
- Visits of robots (310 robots detected)
- Search engines, keyphrases and keywords used to find your site (The 109 most famous search engines are detected like yahoo, google, altavista, etc...)
- HTTP errors (Page Not Found with last referrer, ...)
- Other personalized reports based on url, url parameters, referer field for miscellaneous/marketing purpose
- Screen size (need to add some HTML tags in index page)
- Number of times your site is "added to favourites bookmarks"
- Ratio of Browsers with support of: Java, Flash, RealG2 reader, Quicktime reader, WMA reader, PDF reader (need to add some HTML tags in index page).
- Cluster report for load balanced servers ratio

- Can analyze a lot of log formats: Apache NCSA combined log files (XLF/ELF) or common (CLF), IIS log files (W3C), WebStar native log files and other web, proxy, wap or streaming servers log files (but also ftp or mail log files).
- Works from command line and from a browser as a CGI (with dynamic filters capabilities for some charts)
- Update of statistics can be made from a web browser and not only from your scheduler
- Unlimited log file size, support split log files (load balancing system)
- Support 'nearly sorted' log files even for entry and exit pages
- Reverse DNS lookup before or during analysis, support DNS cache files
- Country detection from IP location (geoip) or domain name
- WhoIS links
- Multi-named web sites supported (virtual servers, great for web-hosting providers)
- Cross Site Scripting Attacks protection
- Multilanguage
- Dynamic reports as CGI output
- Static reports in one or framed HTML/XHTML pages, experimental PDF export
- Look and colors can match your site design, can use CSS
- Help and tooltips on HTML reported pages
- Analysis database can be stored in XML format for XSLT processing
- Webmin module
- XML Portable Application Description.

Homepage: <http://awstats.sourceforge.net/>

### ☐ Portal Style

The Web Accessibility Initiative of the W3C Consortium aims to create a set of directives to organize and to present any kind of browsable contents in the web in a lightweight and easy to use way for the largest range of possible users.

ANY Browser is a campaign launched by the GNU project/Free Software Foundation to diffuse a web development style that doesn't give advantage to any particular browser (i.e. Internet Explorer) and that try to suggest a way to be compatible with any kind of them.

A full multilanguage support is possible only when the portal is able to manage different content like CMS Systems. In that perspective during the development of mindraces.org we take care of all of these directives and we released an object that we ensure about its easyness and good looking. The research of a nice aspect can be summarized by the list of visual attempts for logo and layouts that will be shown in the following paragraphs. About the visual philosophy we tried to merge togheter colors and logo into a uniform communication message send to the users that should summarize the whole project meaning. We claim that core concepts of MindRACES project (i.e. anticipation, mind, robots and integration) should be clearly understandable by any mindraces.org visitor. Other important reasons that led us to take into particular consideration the visual aspects of mindraces.org were the simplification and the quality improving of the dissemination activities.

## :: mindraces.org

The web portal is online at [www.mindraces.org](http://www.mindraces.org)

It offers almost any feature we have discussed even if, since we are at the beginning of the MindRACES project, not so much contents (documents, description, ...) was added. At the moment, only some preliminar information is provided: the overall project objectives, a preliminar plan of the activities, links and contact addresses. The Website will be maintained and updated throughout the Project.

The creation of the web portal followed a 2 stage approval procedure.

Before the kick-off meeting of the project (12-13 /11/2004) noze prepared the whole tools infrastructure needed for the development and a series of logos and layouts that was shown to each partner. noze collected critics, suggestions and new ideas about the portal modifying what didn't fit the partners indications. The result was the object online at this time.

## :: logo

The logo creation process follow these steps:

- Creation of a set of logos that try to express primarily the races (in the sense of speed) concept together with biological and mechanical signs. That analysis led to produce the following graphics.













The analysis was ended with the following proposal of logo that was submitted to the partners to be approved.



**layout**

The layout specification and proposal was derived mainly from the logo idea, with its own chromatic choices, from the portal categories discussion and formalization and from the features requests, especially those that should be placed in the home front end.

Portal categories are an abstract description of how contents must be organized into the portal. Together with portal Roles they make possible to create different portal behaviours, based on login, both at the browsing level and at the management/content modification level.

For mindraces.org the following category set was inferred:

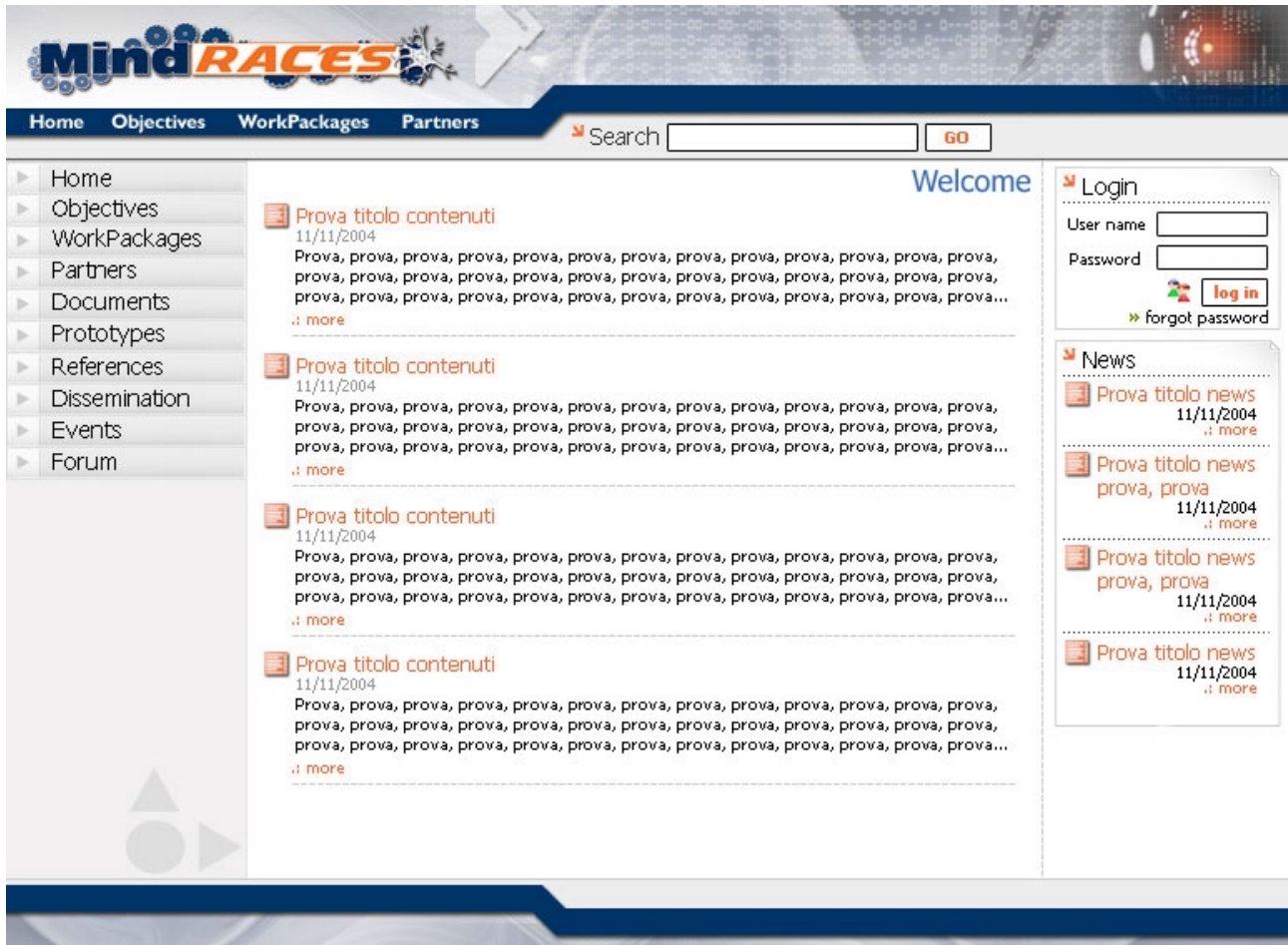
- Home (\*)
- Objectives (\*)
- WorkPackages (\*)
  - Tasks
  - Deliverables
- Partners (\*)
- Documents
  - Public Scientific
  - Private Scientific
  - Private Administrative
  - Deliverables
  - Tasks
  - Others
- Prototypes
- References
- Dissemination
- Events
- Forum

(\*) means that the category will also appear in the header shortcut menu.

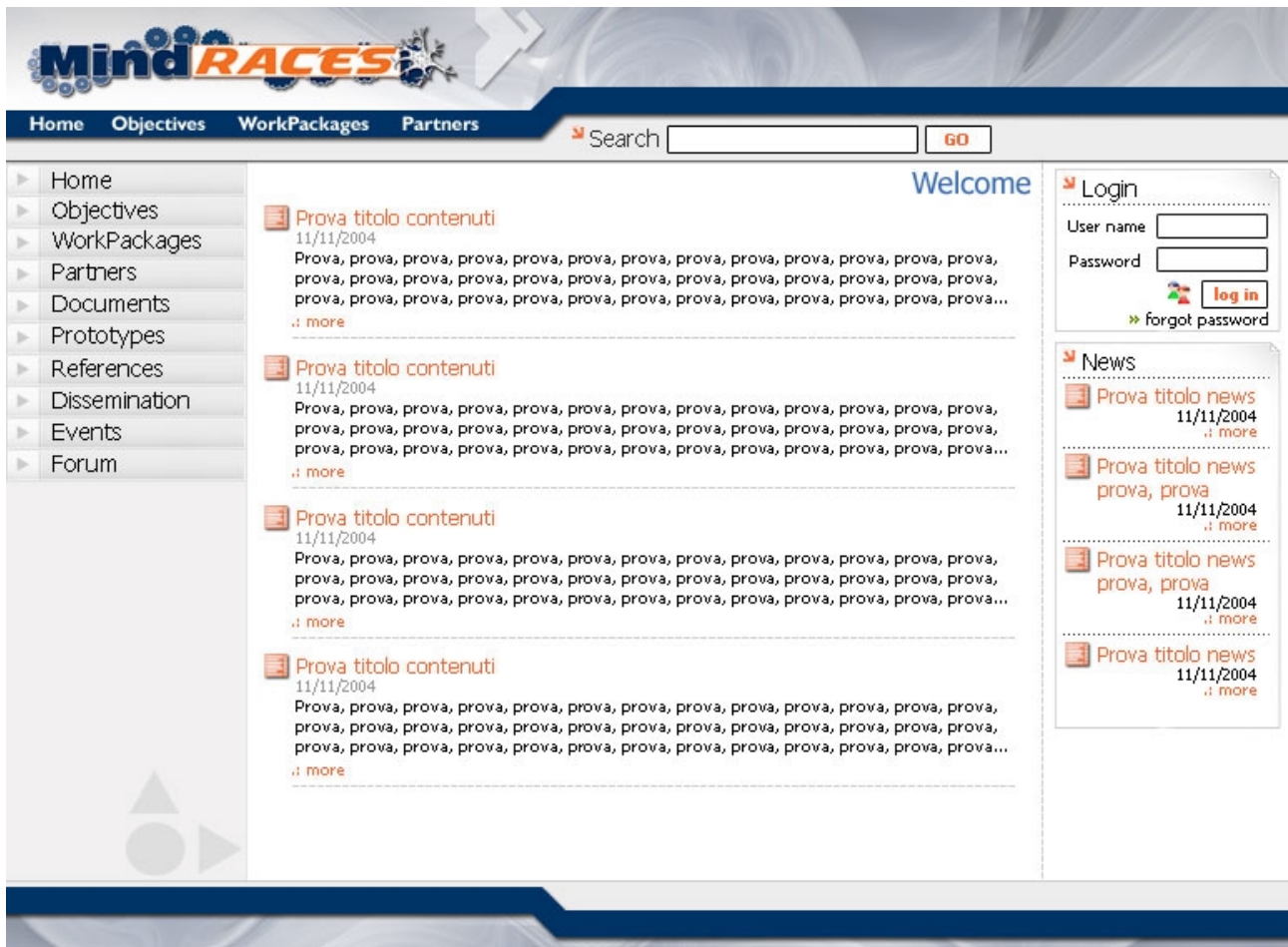
Four different Roles were provided:

- Administrator
- Partner
- Registered User
- Anonymous User

The above Categories and Roles were submitted to the other partners together with the logo produced. They are summarized by the following proposals:



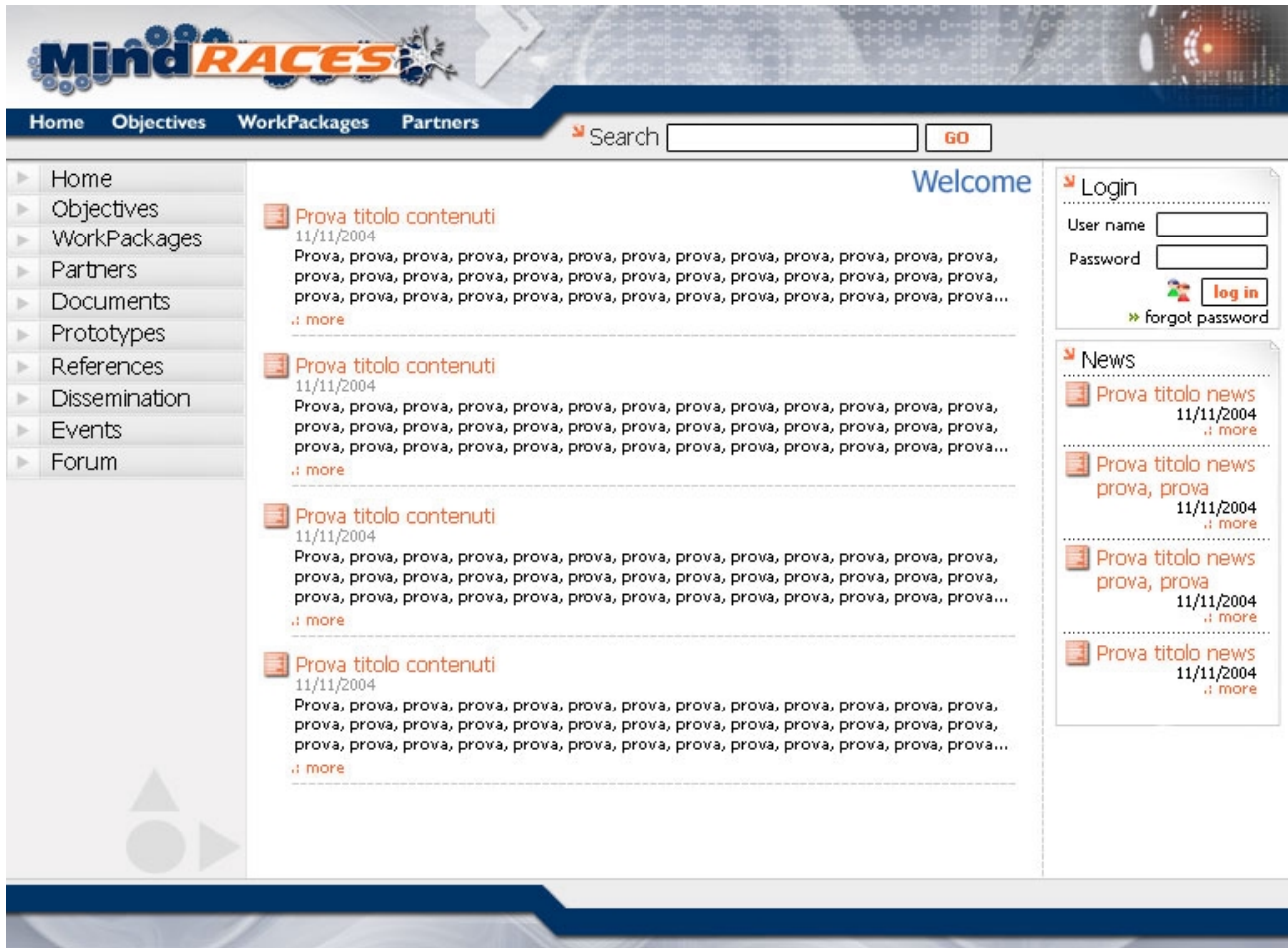
The screenshot shows the MindRACES website interface. At the top left is the MindRACES logo. Below it is a navigation bar with links for Home, Objectives, WorkPackages, and Partners. A search bar with a 'GO' button is located to the right of the navigation bar. On the left side, there is a vertical menu with expandable items: Home, Objectives, WorkPackages, Partners, Documents, Prototypes, References, Dissemination, Events, and Forum. The main content area features a 'Welcome' message and four news items, each with a title 'Prova titolo contenuti', a date '11/11/2004', a truncated text 'Prova, prova...', and a 'more' link. On the right side, there is a 'Login' section with fields for 'User name' and 'Password', a 'log in' button, and a 'forgot password' link. Below the login section is a 'News' section with three news items, each with a title 'Prova titolo news', a date '11/11/2004', a truncated text 'prova, prova', and a 'more' link. At the bottom right of the page, there is a page number '22/38'.



The screenshot shows the MindRACES website interface. At the top left is the MindRACES logo. Below it is a navigation menu with links for Home, Objectives, WorkPackages, and Partners. A search bar with a 'GO' button is located to the right of the navigation menu. The main content area is divided into a left sidebar with a list of menu items (Home, Objectives, WorkPackages, Partners, Documents, Prototypes, References, Dissemination, Events, Forum) and a main content area. The main content area features a 'Welcome' message and four article snippets, each titled 'Prova titolo contenuti' and dated '11/11/2004'. Each snippet contains a list of 'prova' items and a 'more' link. On the right side, there is a 'Login' section with fields for 'User name' and 'Password', a 'log in' button, and a 'forgot password' link. Below the login section is a 'News' section with three article snippets, each titled 'Prova titolo news' and dated '11/11/2004', with a 'more' link for each.







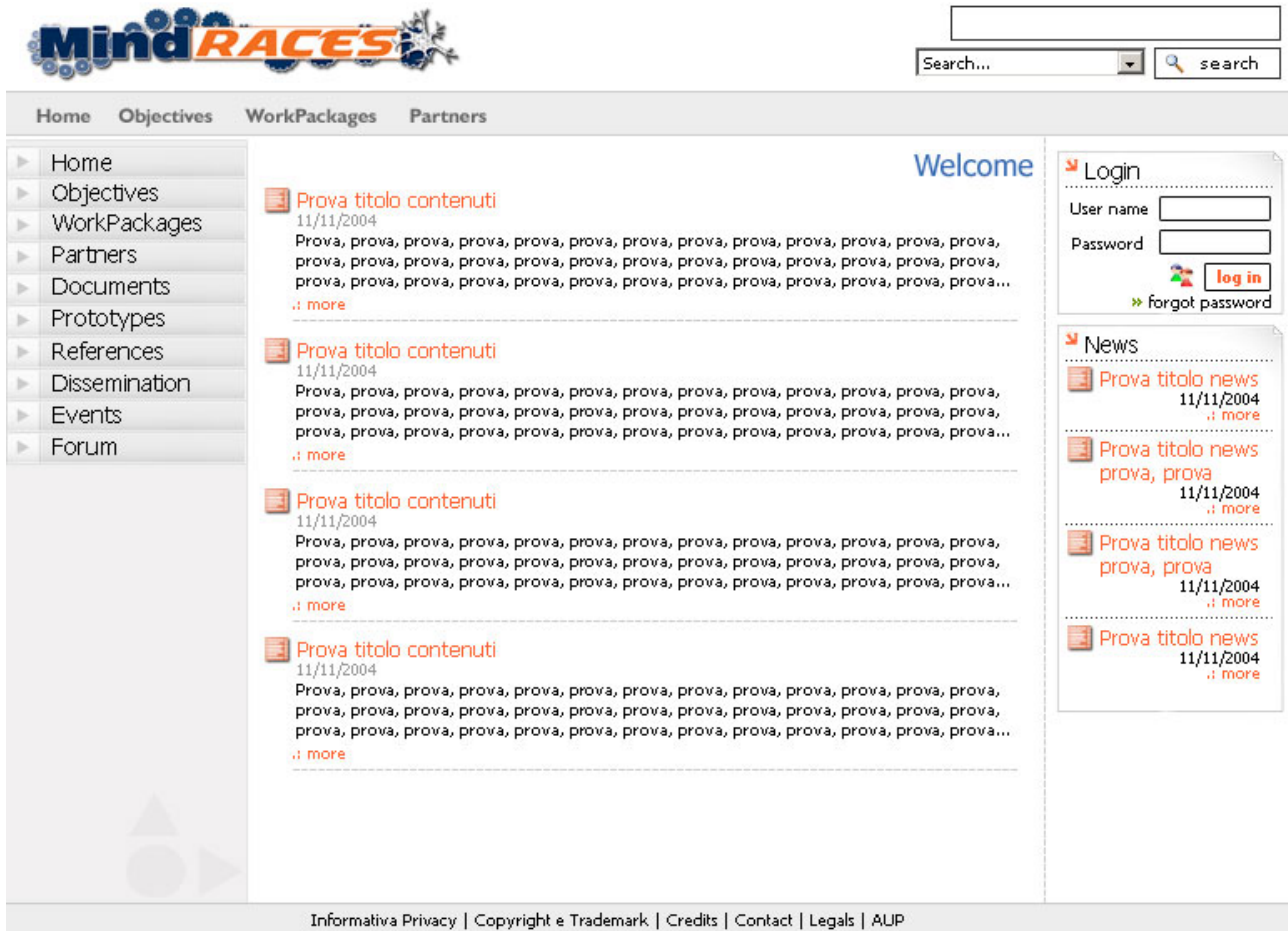
The screenshot shows the MindRACES website interface. At the top, there is a navigation bar with links for Home, Objectives, WorkPackages, and Partners. A search box with a 'GO' button is also present. Below the navigation bar, the main content area is divided into several sections. On the left, there is a vertical menu with links for Home, Objectives, WorkPackages, Partners, Documents, Prototypes, References, Dissemination, Events, and Forum. The main content area features a 'Welcome' message and four news items, each with a title 'Prova titolo contenuti', a date '11/11/2004', and a placeholder text consisting of multiple 'prova,' words. Each news item has a 'more' link. On the right side, there is a 'Login' section with fields for 'User name' and 'Password', a 'log in' button, and a 'forgot password' link. Below the login section is a 'News' section with three news items, each with a title 'Prova titolo news', a date '11/11/2004', and a placeholder text consisting of 'prova, prova' words. Each news item has a 'more' link. At the bottom of the page, there is a footer with the page number '25/38'.







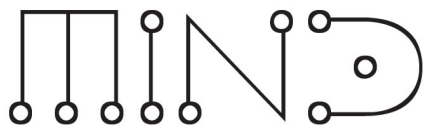
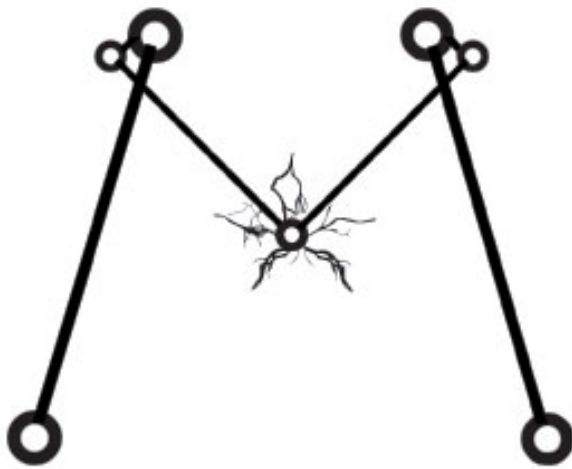




The last layout was approved to become the mindraces.org one, with the discussed Categories and Roles. On the other hand the logo didn't satisfy completely the partners due to the lack of *anticipation* as key concept. The logo followed another restyling stage in which no one considered mainly the idea of anticipation as a basis to start, maintaining the chromatic solution of the first logo release.

⚡ logo restyling

Logo restyling process with its result is shown below.



MindRaces

MindRaces

MindRaces



MINDRACES

A stylized version of the MindRACES logo where the word "Mind" is rendered in a solid dark blue, blocky font. The word "RACES" is in orange. The 'd' in "Mind" contains a white graphic of a brain or circuit.A stylized version of the MindRACES logo where the word "Mind" is rendered in a solid dark blue, blocky font. The word "RACES" is in orange. The 'd' in "Mind" contains a grey graphic of a brain or circuit.

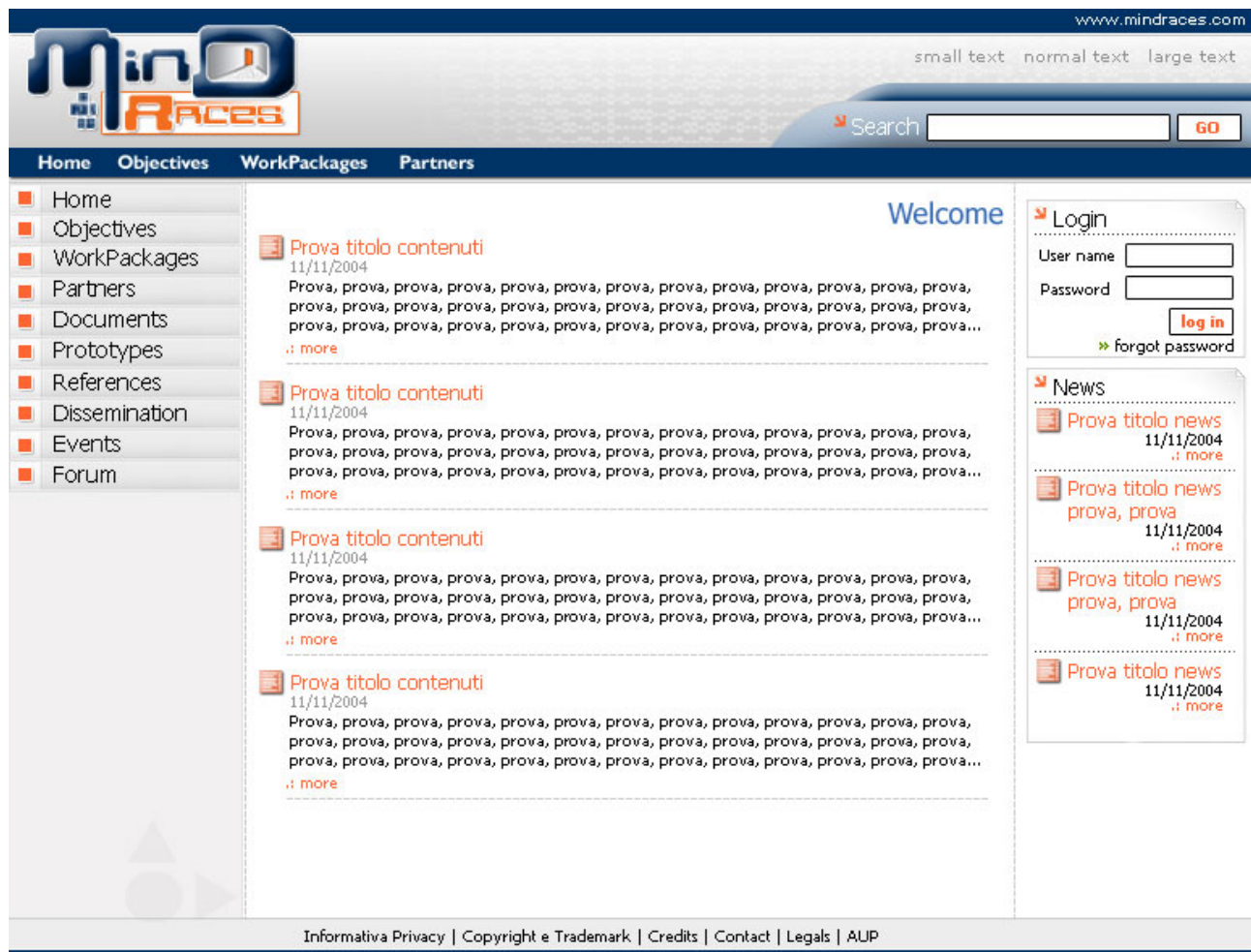






**:: Final logo and layout**

This can be subject to small adjustments in the future.



**Homepage:** [www.mindraces.org](http://www.mindraces.org)

**Stats:** <http://stats.noze.it/www.mindraces.org/>

## :: Conclusions

We have shown the decision process, the tools used to develop the MindRACES Project web portal, and the final result produced. Motivations and descriptions of any open source tool and of the overall open source philosophy was clearly explained.

Results for this deliverable and for the M1 milestone of MindRACES Project can be summarized by the setup of a web-portal that however needs to be filled in with informations and documents (i.e. this deliverable will be one of the first that will be published online) and by the setup of shared infrastructure for the development (mindraces compile farm – cf.mindraces.org, mindraces shared shells – shell.mindraces.org, www.akira-project.org)

This deliverable also refers to online resources :

- [www.mindraces.org](http://www.mindraces.org) – Web Portal
- <http://stat.noze.it/www.mindraces.org> - Web Portal Statistics
- <http://cf.mindraces.org> – Compile Farm
- <http://shell.mindraces.org> – Remote Shells

that have to be considered as part of it in respect of MindRACES Project's M1 milestone.