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Bulletin of the Petroleum – Gas University of Ploiești

Description of the Website and the Content

Management Application

www.bulletin.upg-ploiesti.ro

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Abstract

The Petroleum – Gas University of Ploiești Bulletin website is an online resource for all 6 series of the Bulletin.

The visitors may read about identification and contact data, respectively the table of contents of all the bulletins, also having access to papers abstracts in English / French and Romanian.

The abstract access is free, while the full articles are available only after authentication. The website also provides a system for the online reviewing process.

Functionality and Design

Navigation

The navigation system allows for the visitors to easily reach the information they are looking for, based on a minimum number of operations. Thus, from the first page one can reach any series by a single click (Technical Series, Mathematics – Informatics – Physics Series, Economic Sciences Series, Philology Series, Educational Sciences Series, the Law and Social Sciences) and from that spot, by means of a single click again, one can go to the list that features articles from any bulletin.

Figures 1-3 show the homepage, the articles list for a particular bulletin and an article abstract.

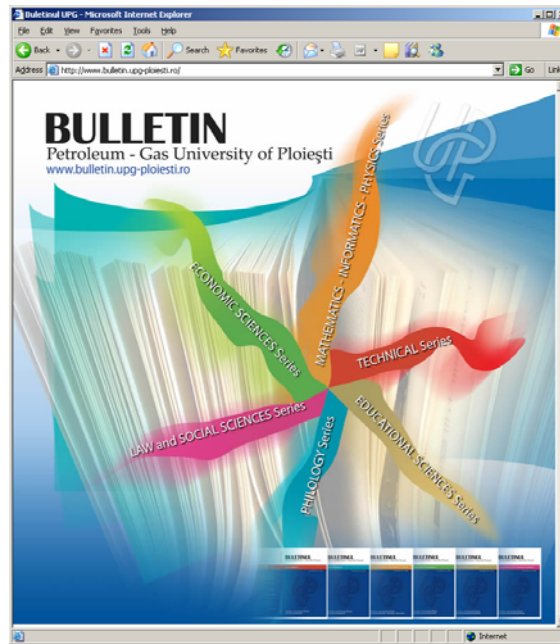


Fig. 1. Homepage



Fig. 2. Articles list of a bulletin

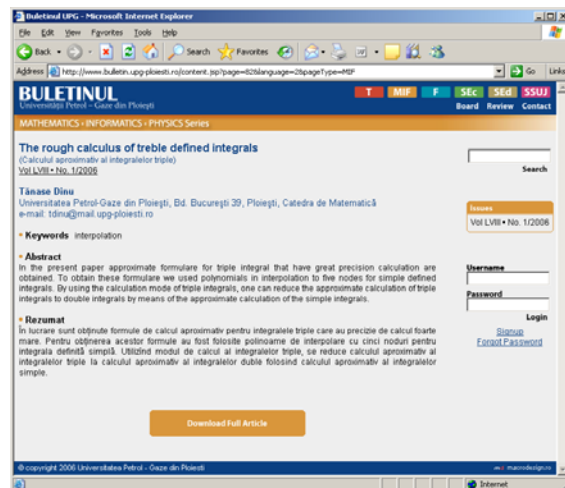


Fig. 3. Abstract of an article

The Search Engine

In order to facilitate the access to the information, the site provides a search engine returning the results after searching through all the paragraphs of the website. There is also an option that allows for the search engine not to index certain paragraphs that the administrator sees as being irrelevant (such as the paragraphs of certain pages that have not been yet published). Figure 4 displays the search page.

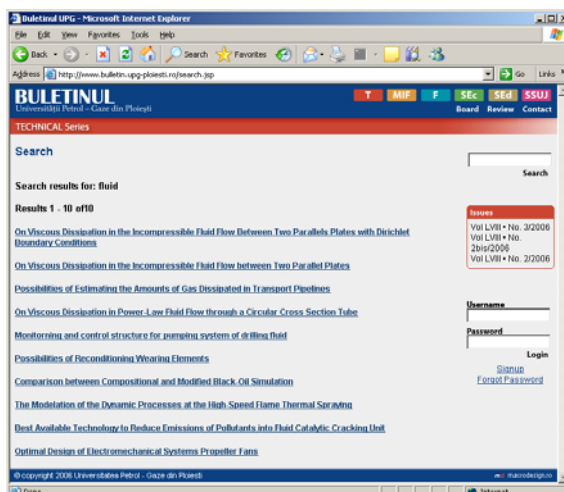


Fig. 4. The search page

The Clients' Authentication System

In order to view the articles full version, the visitors have to pass through an authentication process. The creation of the access accounts is free, following the filling in of a form that contains a series of fields enabling for the identification of the viewer, including the organization and position.

In order to ensure the validity of the E-mail address, after having sent the application for the creation of a new account, the visitor will receive an E-mail containing a link that should be accessed in order to activate the account. The account cannot be used before having been activated. Figure 5 shows the registration form.

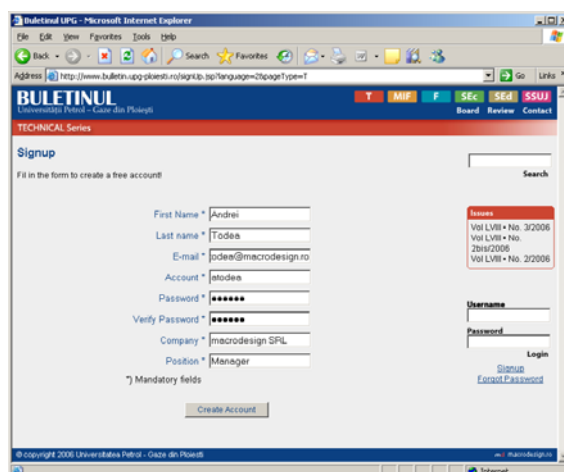


Fig. 5. Client authentication system – Registration form

Online Reviews

The reviews on the articles may also be sent from the site, by simply filling in a form. The data will be automatically sent via E-mail to the series editor of the article that has been reviewed. Figure 6 shows the page that enables the reviews online collection.

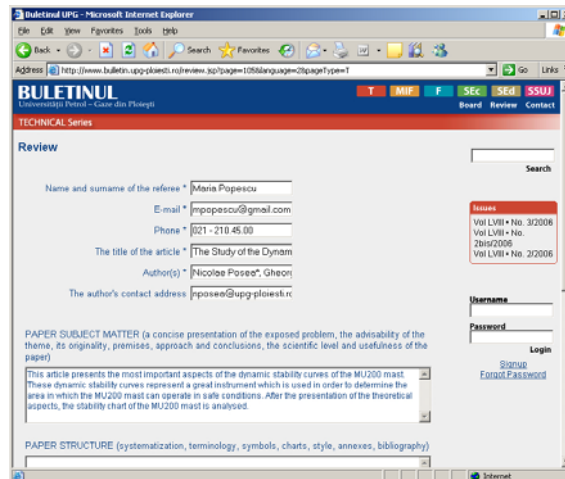


Fig. 6. Online collection of the reviews

Models and Technologies

The Three Tier Model

The solution is based on a three tier model. Figure 7 shows this architecture in a schematic way. The first level is the client (browser), displaying the information and carrying out additional data processing. The client level allows any type of HTML browsers (Microsoft Internet Explorer, Mozilla Firefox, Netscape Navigator etc.) usage.

The second level is the application server, which implements the application logic and carries out most of the data processing. The application server is based on the Java Server Pages (JSP) and Java Servlets technologies. Created by Sun Microsystems, this is at present the most competitive and complex technology used in this field and in the software industry, as a rule.

The third level is the relational database server, defining the structure and storing the website content. Using the Java technology (that interposes between the application server and the database server), an interface called Java Database Connectivity (JDBC) allows any database management system (DBMS) usage. Its replacement, after a period of time, does not imply any substantial code changes. Among the most frequently used DBMS on such purpose one may count MySQL, Microsoft SQL Server and Oracle platforms.

For the Petroleum – Gas University of Ploiesti Bulletin website, the solution was implemented by using Apache Tomcat application Server and MySQL Database Server, due to the competitive performances and the low costs involved (both have GPL licenses and can be freely used for commercial / non-commercial purposes). Figure 7 shows the three tier architecture.

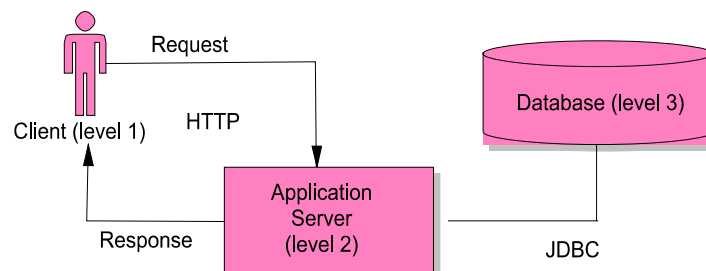


Fig. 7. Three tier architecture

Apache HTTP Server

The Apache HTTP Server project is the outcome of the effort taken by volunteers and it aims at developing and maintaining a modern, open source web server that may run both on UNIX and Windows NT platforms. The project's objective consists of providing a secure, reliable and efficient server that is compatible with the current HTTP standards. The project belongs to Apache Software Foundation, a non profit organization supporting the open-source software development. The market share held by Apache HTTP Server for 2006 was 61%¹, while the second position was held by Microsoft IIS (29%).

Java Server Pages (JSP)

Java Server Pages is a technology that was conceived by Sun Microsystems (the creators of the Java programming language), enabling the easy and fast creation of web pages displaying a dynamic content, based on the Java technology. As compared to other similar technologies, such as ASP, PHP, JSP is 100% platform-independent (UNIX, Microsoft etc.).

The Apache Tomcat Application Server

The Apache Tomcat project has been created by Apache Software Foundation under the same conditions as Apache HTTP Server, it being the application server officially recommended by Sun Microsystems in the implementation of JSP and Java Servlet Technologies description.

The Web Browser

The website of the Bulletin of the Oil and Gas University from Ploiești was conceived to run on most of the current browsers, yielding very good performances. It was mainly tested on the ones that held the highest market share, meaning Microsoft Internet Explorer (82%) and Mozilla Firefox (10%).

Content Management

For the Bulletin website content management, the chosen application was macrodesign CMS®. The usage of this application may be done by users having no HTML knowledge and it does not imply the installation of special software. It can be accessed by means of any web browser. Figure 8 shows the information flow.

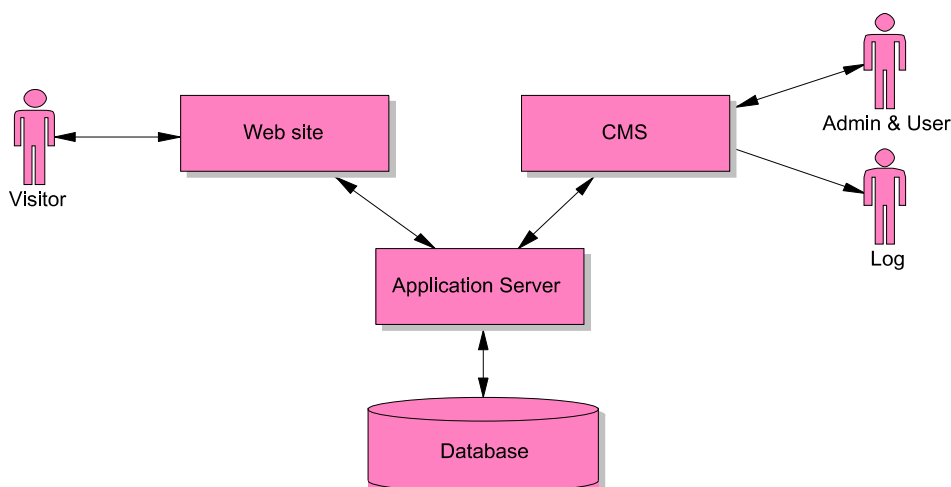


Fig 8. Information flow

¹ http://news.netcraft.com/archives/web_server_survey.html

As for data security, the application allows creating several access accounts corresponding to different user roles: the administrator role (that enables the access to the entire application) and the user role, the account enabling only the updating of the information and access to traffic logs.

Buletinul Universității Petrol – Gaze din Ploiești Descrierea site-ului web și a aplicației de administrare a acestuia - www.bulletin.upg-ploiesti.ro

Rezumat

Site-ul web al Buletinului Universității Petrol – Gaze din Ploiești oferă vizitatorilor informații despre toate cele 6 serii ale Buletinului: datele de identificare și contact pentru fiecare dintre acestea, cuprinsul tuturor buletinleor și abstractele în limbile engleză/franceză și română pentru fiecare articol.

Accesarea rezumatelor este gratuită, articolele complete fiind disponibile numai după autentificare. De asemenea site-ul dispune de un mecanism pentru automatizarea procesului de recenzare.