Content Management System for Web Portal

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Abstract - **This paper provides basic information on content management systems, and application developed by the authors.**

Keywords - **Content, Content Management, Content Management System, PHP, MySQL.**

I. INTRODUCTION

In the mid-90s when the Internet started its activities as a commercial tool, mainly static pages-booklet containing information about companies were used. Only after some time the demand for dynamic Web pages has increased. Companies started to recognize the need for rapid updating of information and this marked the beginning of an interactive sites for users. Management of these dynamic constantly developing and evolving sites led to development of solutions supporting content management. The role of Webmaster has evolved from the management all parts of the hand to the task of providing tools for content management.

It may be chance finding, that the idea of content management systems is so as old as the story content, which coincides with the history of our knowledge [1]. Uprising and dissemination of programming languages, enabling a dynamic presentation content resulted in the completion of that idea.

Currently, content management systems market is very rich. Accessibility next commercial and free solutions as well as getting cheaper hosting affect the fact that not only companies, but ordinary users use applications of this type to create and publish your own web pages. Content Management Systems are experiencing rapid growth by all the time. It is estimated that the number of applications of this type states more than a thousand. They offer newer and newer opportunities to meet the needs of current and future users.

II. BASIC DEFINITIONS

To better understand this problem, you must first know the basic definitions:

Content - is the intellectual capital of an organization. It is information, separated from its presentation. Content is the information contained in, for example, a product brochure, a user manual, a web site, a Braille menu, or one of many other Information Product types. Content, stated as simply as possible, is information put to use. Information is put to use when it is packaged and presented (published) for a specific purpose. More often than not, content is not a single “piece” of information, but a conglomeration of pieces of information put together to form a cohesive whole [2].

Content Management - is a set of processes and technologies that support the evolutionary life cycle of digital information. This digital information is often referred to as content or, to be precise, digital content. Digital content may take the form of text, such as documents, multimedia files, such as audio or video files, or any other file type which follows a content lifecycle which requires management [3].

Content Management System - A CMS is a tool that enables a variety of (centralised) technical and (de-centralised) non technical staff to create, edit, manage and finally publish (in a number of formats) a variety of content (such as text, graphics, video, documents etc), whilst being constrained by a centralised set of rules, process and workflows that ensure coherent, validated electronic content [4].

III. CMS ARCHITECTURE

Content management systems typically are based on databases that serve to hold the information displayed on the page and configure the portal, and for scripting languages or special software on the server side. Because on a wide range of hosting providers servers and hence the competitive costs the most common tandem are MySQL (My Structured Query Language) database and PHP (PHP: Hypertext Preprocessor) scripting language.

Content is separated from the page template and stored in the database data. Application running on the server retrieves the stored data and displays them in predefined locations on the site. Template is common for the entire site graphics, information about how to format the content and its layout on the website. For the definition of the appearance of text, photos and other items comprising the main content of the site called cascading style sheets (CSS) are most frequently used. Separation of content from form allows for complete control of the portal appearance. Thanks to using of templates, the change in visual concept amounts to develop and change the existing template with a new one. CMS systems generally don’t impose any restrictions on composition.

Any content management system consists of the presentation part intended for visitors to the portal and the administrative part of enabling the addition of and modify the content of this site after logging in to the application by authorized user. CMS systems usually allow for diversification power of editing which allows users to ensure greater security and avoid errors resulting from the inexperience of some users. Panel Administration is available through a web browser, so changes can be made from each location with Internet access.

IV. TYPES OF CONTENT MANAGEMENT SYSTEMS

The family of content management systems include products with a common origins and similar names, but differ significantly in terms of offered functionality, which also results in a different internal structure. Depending on destination, CMS distinguishes among several types [5]:

Web Content Management Systems (WCMS) - the most frequent type. These systems support creating web sites (portals, blogs, etc.) for all purposes.

Enterprise Content Management Systems (ECMS) - used by major institutions and developed countries. They offer technologies involved in the management, storage,

safeguarding and sharing of content and supporting documents organizational processes.

Document Management Systems (DCMS) - intended mainly for the collection, sharing, and retrieval of various kinds of documents resulting in the company or from outside. Have the extensive search for documents by given criteria. Search is based on both subject matter documents, and so on. meta-data.

Transactional Content Management System (TCMS) - These systems are used mostly in commercial environments such as stores. Facilitate the conduct transactions.

Integrated Content Management System (ICMS) - Aimed at simplifying collaboration between users and marketing documents.

Publications Content Management System (PCMS) - Applications for individuals, institutions using web portals as a place to publish books, articles or instructions.

Learning Content Management Systems (LCMS) - Model of these systems is based the combined elements of two systems: Content Management System (CMS) used to manage content and Learning Management System (LMS) for the management of players and process training. Applications of this type support to construct the pages with content and educational processes.

This division focuses mainly on the features offered by each systems. Given their construction, most applications consist of modules used to the presentation of content and performance of their assigned tasks. Using such systems is a simple way to increase functionality through the installation of new modules.

V. PROJECT GOALS AND USED TECHNOLOGIES

The aim of the project was to develop a simple content management system for creating Web pages, enabling further expansion and to guarantee the basic functionality needed to create a website. An additional requirement was the separation of a panel of the administrative management of the graphical appearance of the portal. To achieve this goal used the following technologies:

PHP - or PHP: Hypertext Preprocessor, is a widely used, general-purpose scripting language that was originally designed for web development, to produce dynamic web pages. It can be embedded into HTML and generally runs on a web server, which needs to be configured to process PHP code and create web page content from it. It can be deployed on most web servers and on almost every operating system and platform free of charge. PHP is installed on over 20 million websites and 1 million web servers.[6]

MySQL - is a relational database management system (RDBMS)[7] which has more than 6 million installations. [8] MySQL stands for "My Structured Query Language". The program runs as a server providing multi-user access to a number of databases. The project's source code is available under terms of the GNU General Public License, as well as under a variety of proprietary agreements.

CKEditor (formerly FCK Editor) is an open source WYSIWYG[9] text editor from CKSource that can be used in web pages. It aims to be lightweight and requires no client-side installation. Its core code is written in JavaScript, having server side interfaces with Active-FoxPro, ASP, ASP.NET, ColdFusion, Java, JavaScript, Lasso, Perl, PHP and Python. FCKEditor is compatible with most Internet browsers, including: Internet Explorer 5.5+ (Windows), Firefox 1.5+, Safari 3.0+, Google Chrome (Windows), Opera 9.50+, and Camino 1.0+ (Apple). [10]. It is used in adding and editing articles in the designed system.

VI. APPLICATION FEATURES HIGHLIGHTS

1. SECTIONS AND COMPONENTS

Template page that appears in the browser is divided into five sections. Allocated to each component are components that are loaded when section to which they belong is processed. Breakdown of the page template is shown in Figure 1 below.

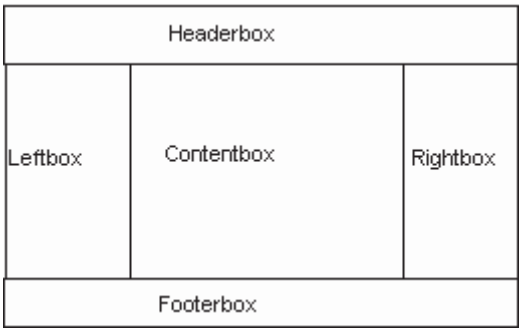

Fig.1 Template sections

Each section is described in the corresponding record in the database. Sequentially information about the section of the database data, which have the status "Published", are collected. Through the function require () loads the file from a PHP script that supports a given part of a page template, which are then loaded components included in the section. Upon loading a file in charge of the Section starts loading all the components of the component template. After downloading the data, again by using require () to the script file is included with the module, which represents the functionality of the component. When the function require () script responsible for the module performs its task, and after their return until the function call, and continues to insert the following components section. After passing all the iterations portal template is ready.

2. USERS AUTHORIZATION AND PRIVILEGES

Logging mechanism is based on the mechanism of the session. Session variables hold all data about logged user. On their basis application that recognizes the privileges that the user currently viewing portal has.

There are four user roles. The most privileges holds the role of Administrator. Only one user at a time can have an administrator privileges. The system administrator has some of following powers: access to the administration panel, access to sections, components and user management. User with this role can create another user accounts, change their privileges and delete them. On the portal site there is possibility of components editing and CSS style editing which is stated before as one of the requirements for the system. The Editor

role has the same privileges as Administrator in the portal side of the system. It hasn't access to administration panel. There are also Author who can add and edit articles and User who can view nonpublic content of the site.

Each user can be assigned to a selected group of users. Where a portion contained in the site content is also assigned to any group, only those assigned to the same group can view the contents. Generation of the navigation menu is also dependent on the group to which the user belongs, and also on whether the user is currently logged on. When we review the portal and we aren't logged, we do not have access to non-public content. Links to it are ignored. Articles that belong to a different group than we are also skipped in the menu.

3. Administration panel and articles form

Administration panel welcome page is shown in Figure 2 below:

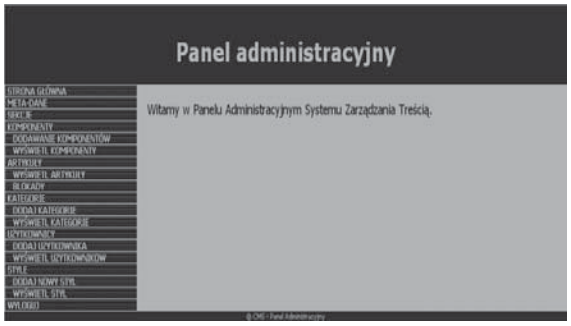

Fig 2. Administration panel

Using administrative panel system administrator has granted access to the management of: sections of a page template, components, users, articles and categories. It also has the possibility of uploading the new CSS style sheets and editing the files already uploaded on the server.

Adding and editing articles is one of the key content management systems functionality. For this purpose, there is used a form shown in Figure 3.

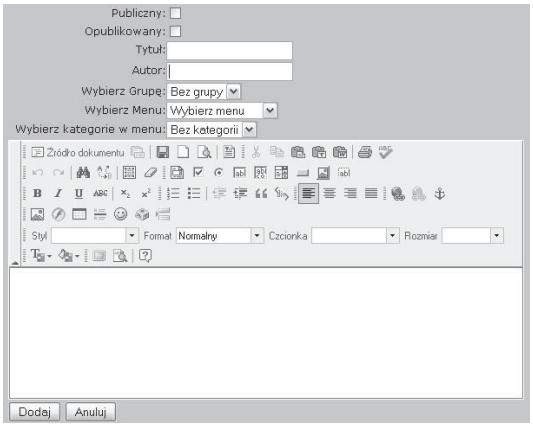

Fig 3. Adding and editing form for articles

When editing the article, the data is retrieved from the database and inserted into form fields. In order to preserve data integrity during editing of the publications, lock mechanism has been applied. Lock is assumed when you click edit article button. Correct completion of editing, or using the cancellation form buttons will remove it and another user will have the chance to edit the article. In another case, for example, lack of electricity, closing of your web browser, the lock is maintained. User who set up the lock who will be able to go back to editing and finish it properly. If this does not happen and the lock will be maintained, then the system administrator can delete any blockade by the administration panel.

VII. CONCLUSION

As mentioned earlier, there are many ready-made solutions. There are both open source and proprietary groupware systems. Some of them are being developed for many years, supported by a broad technical background, and also recognized among the Internet community. There are many modules that can be used when creating web pages. It is difficult to catch up so the developed systems. But it was not the objective of this project. It let me learn about such systems and learn the rules of their functioning.

Of course, the question arises whether to use ready-made systems, or write your own. Both approaches have their advantages and disadvantages. On the one hand, ready to use systems reduces the time to prepare the websites, through the use of ready-made modules. Troubleshooting is made easier because of the technical support and online community. Writing your own application is time consuming, but allows for full flexibility in decision making. We can make decisions as the content stored in the system will be presented on the Web and how content will be handled as dynamic. Preparing your own content management system obviously requires a lot of work-related the development of appropriate safeguards, can implement the required functionality and maintenance of the system. But gives a possibility of full freedom in changing and upgrading components.

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