Czech University of Life Sciences Prague

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Bachelor Thesis

Methods of Web site

Development

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BACHELOR THESIS ASSIGNMENT

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Thesis title

Methods of web site development

Objectives of thesis

The main objective of the thesis is to evaluate methods of web site development in the case of a given news portal.

Partial goals of thesis are such as:
- to describe current web and mobile development technologies and their impacts on the development process,
- to select and demonstrate an optimal development method for a given news portal.
- to evaluate the final application proposal.

Methodology

Methodology is based on study and analysis of web and mobile application development technologies, development approaches and tools in the theoretical part of the thesis. In the practical part, a selection of an optimal development method for the given news portal will be done. The final solution will be demonstrated on a real application. By synthesising theoretical findings and practical results, the final conclusions will be formulated.

The proposed extent of the thesis

30 − 40 pages

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Web design, web sites, web hosting, HTML, CSS, PHP, JavaScript, Joomla.

Recommended information sources

DUCKETT, Jon. Beginning HTML, XHTML, CSS, and JavaScript. Hoboken, NJ: Wiley Publishing, c2010. Programmer to programmer.

JEFF MCWHERTER, Scott Gowell. Professional mobile application development. Indianapolis, Ind: John Wiley & Sons, Inc, 2012. ISBN 1118240685.

NIXON, Robin. Learning PHP, MySQL, JavaScript, and CSS. 2nd ed. Sebastopol, CA: O'Reilly, 2012. ISBN 1449319262.

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Declaration

I declare that I have worked on my bachelor thesis titled "Methods of web site development" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 15th of March _____Yusupova Nilufar

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Methods of Web site development

Abstract

The aim of the bachelor thesis is to evaluate methods of web site development technologies.

The thesis is about web site for news portal. The goal is to create new, modern and multifunctional design.

From the studies and analysis, demonstrate optimal method for creating successful news portal with using new technologies. From the simple online newspaper visualize dynamic and responsive web site.

Every day technologies are moving forward, and there exists such technologies as tablets and smart phones. Those devices are more convenient, and now the web sites can be responsive. It is possible to see websites in mobile and tablet version.

The Thesis is about completely analysis and developing main web site technologies. Web page will be able to present all information to visitors in well organized manner. Web technologies are useful in developing these kinds of applications which become important aspects.

Keywords: Web site, Internet, CMS, programming, dynamic, responsive, news portal

Metody Webové stránky rozvoje

Abstrakt

Cílem bakalářské práce je zhodnotit metody webové stránky, rozvoj technologií.

Práce je o webu pro zpravodajský portál. Cílem je vytvořit nový, moderní a multifunkční design.

Od studie a analýzy ukazují, optimální metoda pro vytvoření úspěšného zpravodajského portálu s využitím nových technologií. Od jednoduchého on-line deníku představit, dynamický a responzivní webové stránky.

Každý den technologie jsou v pohybu vpřed, a existuje takové technologie jako tablet a chytré telefony. Tato zařízení jsou pohodlnější, a nyní webové stránky může být citlivý. To je možné vidět webové stránky v mobilní a tablet verze.

Práce je o zcela analýzy a rozvoj oficiální webové stránky technologie. Webové stránky budou moci prezentovat všechny informace pro návštěvníky, v dobře organizované způsobem. Webové technologie jsou užitečné pro rozvoj těchto druhů aplikací, které se stávají důležité aspekty.

Klíčová slova: Webové stránky, Internet, CMS, programování, dynamické, citlivý, zpravodajský portál

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1 Introduction

The impact of the global computer Network Internet on the modern world has no historical analogues. Today is the beginning of the era of electronic penetration in all spheres of human life is something more than just a marketing campaign. It is the basis of a new philosophy and ne business strategy.

The Internet is developing quite rapidly. The number of publications which devoted to the Web is rapidly growing, which foreshadows its wide spread even in areas far from engineering. Internet turns from a big toy for intellectuals into a full-fledged source of various useful information for any category of users.

This will be a time when anyone who owns a computer can "download" articles, illustrations, video or audio information on any topic of interest with his help. He can get this information when he wants it. Over time, artificial intelligence systems - parallel machine translation, as well as voice identification and recognition, will break the latest national and language barriers and make possible a free transnational exchange of information.

Each of us can now make a contribution to the development of the Internet, to do this, just create your own website and post it on the Web.

Today, traveling on the Internet, you can find many very well executed sites that are quickly loaded, attractive in appearance, have clearly delimited sections and convenient navigation functions. Such sites simply invite you to visit them, relax and stay for a while, have fun and learn something new.

Web sites are very convenient way to present information to the people. The goal of the thesis is to illustrate web site for news portal. Nowadays everybody have access to the Internet and it is available way to get needed information. Years ago Web pages were good way to shares news via

computers, but nowadays it is not enough. Every day technologies are moving forward, and there exists such technologies as tablets and smart phones. Those devices are more convenient, and now the web sites can be responsive. It is possible to see websites in mobile and tablet version.

The Thesis is about completely analysis and developing main web site technologies. Web page will be able to present all information to visitors in well organized manner. Web technologies are useful in developing these kinds of applications which become important aspects.

2 Objectives and Methodology

Objectives

The main objective of the thesis is to evaluate methods of web site development in the case of a given news portal.

Partial goals of thesis are such as to reveal method of effective development of a Website ,to describe current web development technologies and their impacts on the development process

 Finally to select and demonstrate an optimal development method for a given news portal and to evaluate the final application proposal.

Methodology

Methodology is based on study and analysis of web development technologies, development approaches and tools in the theoretical part of the thesis. In the practical part, a selection of an optimal development method for the given news portal will be done. The final solution will be demonstrated on a real application. By synthesising theoretical findings and practical results, the final conclusions will be formulated.

Literature Review

Creating of Web Sites and Web Pages

A collection of pages, united by a common theme and placed, as a rule, on one computer, is called a Web-site or a site. Web sites are like books, and Web pages are like pages of these books. Computers, on which sites are hosted, as well as programs that support sites are called servers. A single server can host multiple Web sites.

To publish a page containing some information on the Internet HTML language is used for this.

HTML - HyperText Markup Language is a simple set of commands that describe the structure of a document. This markup language allows you to select individual logical parts in the document - headings, paragraphs, tables, enumeration lists, etc., but does not specify specific formatting attributes. Specific form of formatting is determined by the browser itself when reading the document and it is the browser that provides the best display of the Web document on your screen [29, p.151].

From a technical point of view, a Web page is a plain text file that can be created in any text editor, the same Notepad or Sublime text, which is standardly supplied as part of any computer. This file contains the actual text of the Web page and various commands for formatting this text. Formatting commands are called tags, and describes their particular HTML language (HyperText Markup Language, hypertext markup language) [18].

Files containing Web pages must have the extension htm. They are stored on the hard disks of the server computer. After receiving a request from the Web browser via the HTTP protocol, the Web server (the server program that provides the WWW service) downloads these files and sends it to the Web browser.

The World Wide Web is a global computer network which nowadays includes millions of sites containing all sorts of information. People get access to this information through using of Internet technology. For navigation in WWW using special programs – Web browsers, which greatly facilitate the journey through the vast expanses of the WWW. All information in a Web browser is displayed in the form of Web pages, which are the main element of the bytes WWW.

Web page supporting the multimedia technology, combine different types of information: text, graphics, sound, animation and video.

But how does the Web browser let the Web server know which Web page they need? It is very simple - it sends the name and full path of the file in which it is stored as part of the client request. Say, like this: http://comp45.buh.department.tj/cautimes.html

These queries will cause the Web-server to retrieve and send the file cautimes.html to the Web-browser.

And what is a Web site? This is a set of Web Pages, subject to a common theme and integrated into a single whole. The Website is also stored on the hard disks of the server computer. There are not too many technical differences between a Webpage and a Website.

And now it's time to clarify a few purely technical issues related to the operation of the Web browser and the Web server. First of all, to store all the files that make up the site (or Web page, if you consider it as a "degenerate" site case), a special folder called the root folder is created on the disk of the server computer. All site files must be located only in this folder, with no exceptions. All that is not in it is automatically excluded by the Web server from the site.

The root folder of the site on the server computer is created by a person who configures and maintains the Web server program (or the entire server

computer), the administrator.In doing so, it takes the full path of this folder to the Web server settings so that the latter can find it on the disk. After that, the root folder can be filled with the files of the new site.

When a Web browser sends a request to the Web server like this: http://wvw.somesite.ru/cautimes.html the Web server looks for the somepage.html file in the root folder of the site and, if found, sends it to the Web browser. If there is no such file or the Web server can not download it for some reason, it sends an error message to the Web browser.

1.1.1 Markup Language HTML

The HTML language is interpreted by browsers. The resulting interpretation of the formatted text is displayed on the screen of computer monitor, tablet or smart phone devices. The HTML language is an application of SGML (standard generalized markup language) and corresponds to international standard ISO 8879.

The world wide web HTML pages, as a rule, are sent to the browsers from the server via HTTP or HTTPS, in plain text or encrypted. Originally, the HTML language was created as a means of structuring and formatting of documents, without linking them to the means of playback (display). Ideally, the text with HTML markup was without stylistic and structural distortions playable on equipment with different technical equipment (screen colour modern computer, monochrome screen organizer, limited by the size of the screen of the mobile phone or device and program-to-speech texts). However, the modern use of HTML is very far from its original objectives. For example, the <TABLE> tag is used for creating documents spreadsheets, but is often used for the placement of elements on the page. Over time the basic

idea of platform as a service HTML language was sacrificed to the needs of today's multimedia and graphic design.

HTML is a computer language devised to allow website creation. These websites can then be viewed by anyone else connected to the Internet. It is relatively easy to learn, with the basics being accessible to most people in one sitting; and quite powerful in what it allows you to create. It is constantly undergoing revision and evolution to meet the demands and requirements of the growing Internet audience under the direction of the » W3C, the organisation charged with designing and maintaining the language [14].

HyperText is the method by which you move around on the web — by clicking on special text called hyperlinks which bring you to the next page. The fact that it is hyper just means it is not linear — i.e. you can go to any place on the Internet whenever you want by clicking on links — there is no set order to do things in [14]. Markup is what HTML tags do to the text inside them.They mark it as a certain type of text (italicised text, for example).

HTML is a Language, as it has code-words and syntax like any other language.

The HTML markup language (HTML - Hypertext Markup Language) is a language designed specifically for creating Web documents. It defines the syntax and placement of special instructions (tags) that are not displayed, but tell the browser how to display the contents of the document. It is also used to create links to other documents, local or network, for example, located on the Internet [11].

The HTML standard and other standards for the Web are developed under the leadership of the W3C (World Wide Web Consortium) consortium. The standards, specifications and drafts of new proposals can be found at http://www.3w.org/. Currently, there is the HTML 4.0 specification, the support of which by main browsers is constantly growing.

How does it work?

HTML consists of a series of short codes typed into a text-file by the site author — these are the tags. The text is then saved as a html file, and viewed through a browser, like Internet Explorer or Netscape Navigator. This browser reads the file and translates the text into a visible form, hopefully rendering the page as the author had intended.Writing your own HTML entails using tags correctly to create your vision.You can use anything from a rudimentary text-editor to a powerful graphical editor to create HTML pages [17].

 What are the tags up to?

The tags are what separate normal text from HTML code. You might know them as the words between the <angle-brackets>.They allow all the cool stuff like images and tables and stuff, just by telling your browser what to render on the page. Different tags will perform different functions. The tags themselves don't appear when you view your page through a browser, but their effects do. The simplest tags do nothing more than apply formatting to some text, like this:

these words will be bold, and these will not [17].

In the example above, the <b> tags were wrapped around some text, and their effect will be that the contained text will be bolded when viewed through an ordinary web browser.

If you want to see a list of a load of tags to see what's ahead of you, look at this tag reference. Learning the tags themselves is dealt with in the next section of this website, My First Site.

Is this going to take long?

Well, it depends on what you want from it.Knowing HTML will take only a few days of reading and learning the codes for what you want.You can

have the basics down in an hour. Once you know the tags you can create HTML pages [17].

However, using HTML and designing good websites is a different story, which is why I try to do more than just teach you code here at HTML Source — I like to add in as much advice as possible too. Good website design is half skill and half talent, I reckon. Learning techniques and correct use of your tag knowledge will improve your work immensely; and a good understanding of general design and the audience you're trying to reach will improve your website's chances of success. Luckily, these things can be researched and understood, as long as you're willing to work at it so you can output better websites.

The range of skills you will learn as a result of running your own website is impressive. You'll learn about aspects of graphic design, typography and computer programming. Your efficiency with computers in general increases.You'll also learn about promotion and your writing will probably improve too, as you adapt to write for certain audiences.

Simple web page in HTML:

Figure 1. Simple page by HTML

In practice, the HTML standard is heavily influenced by the presence of tags offered and supported by the most famous browsers, such as Microsoft Internet Explorer and Netscape Navigator. These tags can currently either not be part of the current HTML specification.

Information on HTML Compendium tags (a short guide to HTML) created by Ron Woodall. The compendium contains a list of tags and their attributes in alphabetical order, as well as updated information about the support of each of them by browsers. Compendium HTML is available at http://www.htmlcompendium.org [20]

1.1.2 CSS

CSS is a formal language for describing the presentation of a document written using a markup language.

Primarily used as a means of description, defines the appearance of web pages written using markup languages HTML and XHTML, but can also be applied to any XML documents, for example to SVG or XUL.

CSS is one of the wide range of technologies approved by the W3C and is generally referred to as "Web standards". In the 1990-ies it became clear the need to standardize the Web to create some kind of common rules by which programmers and web designers would design sites [15].

In the early 1990s, various browsers had their own styles to display web pages. HTML has developed very quickly and was able to meet all existing at the moment of need on registration information, so CSS is not received then wide recognition.

The term "cascading style sheets" was offered Haakon Wium Lee in 1994. Together with Bert BOS, he began to develop CSS.

Unlike many existing at the moment of the languages of style, CSS uses inheritance from parent to child, so the developer can determine different styles, based on already defined styles.

CSS is used by creators of web pages to define colors, fonts, layout of individual blocks and other aspects of performance appearance of these web pages. The main purpose of developing CSS was the separation of the description of the logical structure of a web page (which is done using HTML or other markup languages) from the appearance of this web page (which is now done using the formal language of CSS). This separation can increase the accessibility of the document to provide greater flexibility and the ability to control its performance, and reduce complexity and repetition in structural content. In addition, CSS allows you to present the same document in different styles or methods of output, such as screen presentation, print layout, reading voice (special voice browser or reader screen), or when output devices using Braille.

After studying HTML and CSS, you can get a great Foundation for the future. There is no doubt that these languages will be popular for a very long time and not lose its relevance either in 10 or 20 years from now. The World Wide Web consortium continues to expand and improve HTML and CSS, and with each "upgrade" is becoming clearer that they simply have no alternative.

Creating the site in pure HTML and CSS, the developer will write a completely unique code of your pages, code that cannot be confused with anything else. And this is a huge advantage in the promotion. The search engines will pay more attention to the uniqueness of the code, and increase the level of confidence in your resource. This is one of the methods of web site development which is called manual method.

Methods of Web Site technologies

1.1.3 Manual method

Manual method or programming method if compare with other web site methods is more difficult, but it opens to developers unlimited options for creating unique functionality and interface. It requires knowledge at least of one programming language such as PHP, markup languages HTML, CSS and experience with database like My SQL. It is also possible to use the most popular software for creating websites by hand, which includes DreamWeaver, WebSite X5, FrontPage, and Photoshop for images. However all the routine work a developer would to do it yourself. The main disadvantage of this method is the need to implement it all yourself. It possible realized in a simple way Web Site, just with HTML and CSS. For the static Web Site using of HTML and CSS with a possible addition of JavaScript. To create a dynamic Web Site it is impossible without server-side scripting language, such as PHP or web application framework as ASP.Net.

PHP - the scripting language used on the WEB server for dynamic generation of HTML pages. This is evidenced by the record of his name: PHP - Personal HyperText Processor. PHP is a scripting easy console purpose, extensively used for developing web applications. Currently supported by the overwhelming majority of hosting providers and is one of the leading languages used to create dynamic web sites [32].

A very nice feature of PHP is that its commands are included in a regular HTML page with special tags, which causes the PHP machine to run the server as desired. Programs in PHP don't need a special CGI directory with special access rights. Moreover, on one page can be arbitrarily alternate between the "simple" HTML and PHP code.

Dreamweaver is a typical representative of visual Web-editors working on the principle of WYSIWYG (what you see is what you get, "what you see, you'll get"). In this case, the user formats the text and in the editor window immediately sees the results of his work. There are also non-visual Web editors (they are also HTML editors) based on another principle. They work directly with the HTML code itself, while providing the user with various additional features: quick insertion of tags, convenient setting of their parameters, a set of predefined templates for creating standard elements of a Web page, etc. In this sense, they are similar to Notepad, but significantly extended [19].

1.1.4 Using Constructor

This is the simplest method of Web Site development. It does not require knowledge of the professional Web programmer. There are many tools for the development of the templates and layouts. Web sites constructors are usually an online system that allows from the components create Web Site and post it on the Web. The working principle of them is to select the pattern proposed by the constructor and adjusting it to your needs. One of the most popular Web constructors are WIX, uCoz, uKit, Jimdo. Popular blogging services such as LiveJournal or LiveInternet also are kind of Web Site constructors. However this method is the easiest one, the capabilities of these constructors are limited. The services of these constructors are free and not. The price of the project depends on the functionality (a set of templates, graphic user interface elements and functionality of the finished project) and a set of services that can be ordered in addition to the website. These include:

- use own design is ordered from the designer, not in the constructor;

- domain name registration is the name of the resource where you can find it in the Internet;

- hosting — provision of access to the site via the Internet;

- website promotion — promotion in search engines to increase attendance.

As a result, this method of website creation is the most simple because it does not require knowledge of web programming. It is perfect for beginners, allowing you to save time and effort.

1.1.5 Content Management System (CMS)

CMS is a fast and widely used method. It is a wonderful tool for those who want to create a website own hands and without extensive knowledge of web programming. Nowadays it is system (engines) like Wordpress, Joomla, Django, Drupal and others. To more appropriate forums phpbb, PunBB, SMF are suitable. Using CMS provides access to a variety of modern patterns and schemes of construction, and also accelerates and simplifies the developers work. CMS is a very good option, but if it is about communication to visitors, as the main feature of the project it is best to use a new LiveStreet CMS. It is kind of ready-made visual and software, which user can fill with necessary content, but also by their wishes change and configure. WordPress, Joomla and Drupal are the three most popular content management system (CMS) in the world. They are all open source, written in PHP and JavaScript and uses MySQL database. Differences between them is from the point of view of performance, functionality, flexibility and ease of use .

From the statistics of Web Technology Survey (w3techs.com):

© W3Techs.com	usage	change since 1 February 2017	market share	change since 1 February 2017
1. WordPress	27.6%	+0.2%	58.9%	+0.3%
2. Joomla	3.3%		7.1%	-0.1%
3. Drupal	2.2%		4.7%	
4. Magento	1.2%		2.6%	
5. Blogger	1.1%		2.3%	-0.1%

percentages of sites

Figure 2. Statiscs of CMS by W3Techs.com

 This diagram shows the percentages of websites using various content management systems. WordPress is used by 27.7% of all the websites that is a content management system market share of 58.9%.

• Wordpress - one of the most popular engines. It has a huge number of plugins that extend its functionality. It is always improving and is a great tool for beginners and not only. It works very great for small and medium websites, more than 68 million websites use WordPress, making it the most popular platform for blogs and news sites. It is flexible enough to manage major brands, and occasionally updated personal journals. Examples is– news

BBC America. It has as a good capacity and a convenient administrative panel.
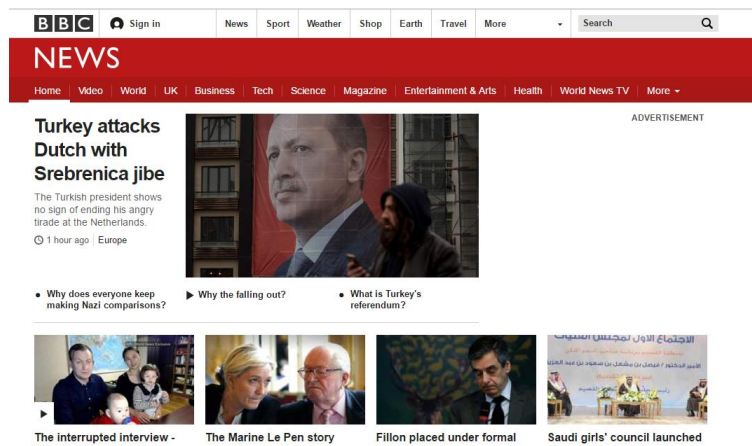

Figure 3. Web site BBC news

Advantages:

1. WordPress was originally created as a system that can work for many authors that is a very important characteristic for any organization that publishes large volumes of content.

2. Huge library of plugins. WordPress – example creation of community of developers of open source systems with a rich library of plugins. It is for content and usefulness, not quantity.

3. Convenience for users. The WordPress interface is very easy to use and intuitive even for beginners. You can choose a theme, add some plugins and start to post in a few minutes.

4. The ease of identification. System WordPress themes designed to facilitate individual configuration of the site. Anyone who has knowledge of HTML and CSS can modify WordPress themes the way he wants.

• Joomla is also a very popular engine for creating websites. The advantages of this engine in its functionality and versatility. To him also written a large

number of plugins and there are tons of free templates. Among the shortcomings, the experts noted the low bandwidth of early versions of the engine. The software is open source, the basis for the development of which was the Mambo system. Joomla was released in 2005. This is one of the most popular CMS in the world and boasts more than 50 million downloads. Example can be Linux.com.
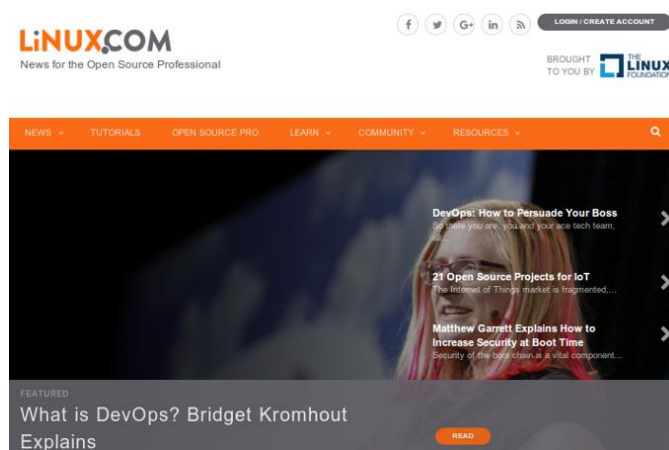

Figure 4. Web site Linuc.com made by CMS Joomla

Advantages:

1. Convenience for users. Joomla is relatively easy to use (compared to Drupal). Beginners will find its interface a complete, flexible and powerful, though, to configure everything properly, you will need to learn a little bit.

2. A powerful developer community. Large library of plugins in Joomla are called "extensions", includes many free open source solutions.

3. Variety. Joomla extensions are divided into five categories: components, plugins, templates, modules and languages. Components work like mini apps that can completely change the set Joomla. Modules add such features as, for example, dynamic content, RSS feeds, and search function on the page.

4. Great functionality in the area of content management. Joomla was originally designed as an enterprise level CMS. Due to this, it perfectly supports a large volume of pages.

• Drupal is an engine, which is used by many users. Under him there are many themes for creating websites in the Internet. It has a good capacity. It is the oldest of the presented system, released in early 2001. Drupal is extremely powerful and convenient for developers platform, which makes it popular for creating multifunctional web sites with a large amounts of data. Example of it can be web site Forbes.
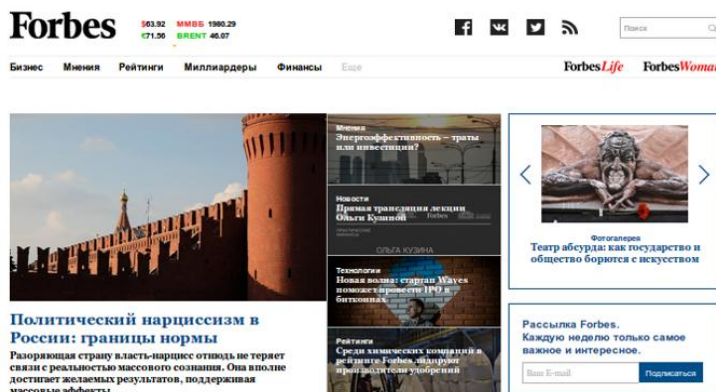

Figure 5. Web site Forbes done by CMS Drupal

Advantages:

1. Simplicity and amazing flexibility, it can create anything with a simple blog with a static first page and a powerful backend tool enabling the work of hundreds of thousands of pages and millions of users.

2. Convenience for developers. Basic installation is a skeleton on which it can create own software solution. This freedom promises a sea of possibilities to the programmer, however, limits the approach for non-professional users.

3. Adapting to SEO. Drupal from the beginning was designed as a system focused on search engine optimization.

4. The version control system. The functionality of the CMS and software that easily serves hundreds of thousands of pages of content make it preferred for large corporations.

5. Stability. Drupal effortlessly massturbate and stably works even processing the requests of thousands of users simultaneously.

Drupal is a developed content management system with a corporate level. A platform is recommended to use in large projects where stability, scalability and good functionality is more important than ease of use and aesthetics.

1.1.6 Using Framework

Framework is a software platform provided by a set of libraries. It should be noted that there are many kinds of framework for different languages – Java, Ruby, Python, Groovy, etc. Due connecting files frameworks in the project, we can use them in certain classes and snippets markup, which will work according to the already described rules and have a specified appearance (for example, buttons, input fields, tables, etc.). Thus we save time, for example, a description of the location of the blocks of the design, their size depending on the resolution, appearance, form fields, buttons and their States. We are also interested in PHP "frames." One of the most popular frameworks:

Zend Framework a software framework created in PHP, which is used for developing Internet projects and also freely redistributable product that allows you to use different DBMS uses the concept of "weak linking" with minimal dependencies between parts of the project, making it easy to adjust individually.

Laravel – again free framework, accompanied by high-quality and concise documentation with examples.

Here is the most popular and powerful JavaScript frameworks and libraries:

AngularJS is a popular framework that is widely used for creating and maintaining complex web applications. The popularity of AngularJS is huge and companies using it, are equally diverse: Domino's Pizza, Ryanair, ITunes Connect, PayPal, Google Checkout. AngularJS is open source with the support of Google. AngularJS is positioned as an extension of HTML to create complex web applications [33].

ReactJS is a JavaScript, top project of this year! ReactJS is open source and is developed mainly through Facebook, with the participation of other major technology companies. Describes itself as the React JavaScript library for building user interfaces.

In the well-known pattern Model-View-Controller React closest to the user. He is responsible for the presentation of data, receiving and processing user input. Where and in what form you store the data, how do you deal with storage, it's yours. React is only the View of your application. React is built on the paradigm of reactive programming. This declarative approach offers to describe the data as a set of propositions or formulas. Changing parameters leads to automatic recalculation of all dependencies. ReactJS is a great GOTO-framework for creating simple web applications.

Backbone is a simple framework that fits into one JavaScript file. Backbone was designed by Jeremy Ashkenazim CoffeeScript. Backbone is especially popular among teams seeking a simple structure for small web applications without the use of large frameworkof as Angular or Ember.

Backbone is based on the design pattern Model-View-Presenter. Models allow you to associate key-value and events for handling data changes. Supports a RESTful JSON interface. Backbone includes everything you need to build single page applications without unnecessary complexity. Backbone is best used when you are building simple single page applications.

Successful Web site

The best Web sites are those that look attractive, express the main idea and do not force users to wait for information on their screens for too long. A successful web site is one that accomplishes online goals.Some conditions for creating a successful site:

- Clearly formulate the purpose of the site. It is necessary to determine the goals of the site, try to formulate goals as clearly as possible. It is necessary to think about how the products will be presented, how to post products on the network market. Without a clearly defined goal, the site will be doomed to oblivion somewhere on the outskirts of the World Wide Web.

- Content is important, but content alone will not make your site work.

- Use the fastest download items. Reason number one, why people quickly leave the site (or do not visit it at all) - too long downloading information. A large amount of graphics files cause a desire to somehow influence the course of events, and the simplest thing is to press the Stop button, stopping the download.

- Make the site visually appealing. Undoubtedly, there are a lot of boring websites on the Internet. Perhaps it makes them uninteresting

lack of color and variety of text, headings. When creating your own website, you need to remember that the thoughtful formatting of the pages will bring the site one step closer to the cherished goal.

- Do not try to put everything on one page. Do not overload pages with too much information. We all know that writers like to write, and graphic designers - to draw spectacular pictures. Task as a website developer is to create a fine harmony between these two very different groups of people, to establish a balance between textual and visual information.

- It's reasonable to organize the content. It is a familiar statement that the content is primary, and the form is secondary. And this is true, but the form of presenting the content is also important. Perhaps somewhere deep inside and buried something of value, but it is possible to unearth this, only accidentally bumping into it. Information that visitors should see, do not need to hide deep into the site. Important information should be made as easily accessible as possible.

- Use the site map. A site map can be especially useful when there is difficulty in presenting information. Start work from the main page and go deep. This visual presentation will help "see" the content of your site, more clearly organize it and avoid global changes when modifying the site. The more clearly I can imagine the structure of the site, the more I will have new ideas for improving it.

Representing graphics on Web pages

At the moment almost all images on the Web are presented in two formats: GIF and JPEG. The third contender, worthy of mention, the PNG

format, is fighting for the support and attention of browsers. Next - a brief overview of the "big three" of online graphic formats. For more information, see the chapters on each of the formats.

GIF. GIF - Grafic Interchange Format can be called the traditional format of Web files. It was the first file format that was supported by Web browsers, and to this day continues to be the main graphic format of the Web.

Its properties are as follows:

- supports no more than 256 colors (less can and often need);

- uses a palette of colors;

- uses compression without loss of information using the LZW method (which is similar to the one used in the PKZIP archiver, and therefore, GIF files are practically not compressed in the future);

- supports interlaced scanning;

- is a stream format, i.e. Image display starts during transfer;

- allows you to assign a transparent attribute to one of the colors in the palette, which is used when creating so-called transparent GIFs;

- it is possible to save several images in one file, which is used in the production of animated GIFs;

- supports the possibility of inserting control blocks into the file that allow you to insert comments into a file (for example, copyright), to delay between image displays, etc. [1]

And now a little explanation - what these properties can lead to. As we wrote, GIF supports no more than 256 colors, which means that all the images that we save in GIF format, explicitly or implicitly reduce the number of colors to fit into this limit (different programs with different success). And hence the conclusion - if you take a beautiful photo with smooth transitions

and subtle color shades, then after the transformation everything will be much worse - the shades will cease to be elusive, and the whole picture will acquire an unnatural, unrealistic look. Therefore, if you still need to save the photo in GIF format and transfer all the shades, then you have to go for the trick. For example, you can apply some art filter to a photo and turn it into a drawing or apply toning. But there is no problem with saving drawings and drawings in this format, they tend to shrink well and do not contain many colors.

JPEG. The second most popular graphic format on the Web is JPEG - Joint Photographic Experts Group. It contains 24-bit color information. It's 16.77 million colors unlike 256 colors of the GIF format. In JPEG, so-called lossy compression is used. This means that some information about images in the process of compression is discarded, but in most cases the deterioration of image quality is not harmful and often even not noticeable [9].

Photos or any images with smooth gradations of colors are best saved in JPEG format, because it offers higher quality images that fit into a smaller file. However, JPEG is not the best solution for single-color image graphics, since this format tends to stain colors with specks and the final file will usually be somewhat larger than the GIF file for the same image.

PNG. There is also a third graphic format competing for permanent use on the Web. This format is PNG - Portable Network Graphic, which, despite some advantages, since 1994 is more or less in the shadows. Only recently, browsers began supporting PNG as a built-in graphics, but PNG has every chance of becoming a very popular format on the Web. That is why it is included here in the "Big Three". PNG can support 8-bit indexed colors, 16-bit halftones or 24-bit full-color images, using a lossless compression scheme. This provides higher quality images, and sometimes a smaller amount of files compared to the GIF format. In addition, PNG files have some great features, for example, the built-in gamma coefficient control, and the variable levels of

transparency (this allows you to display the background image through the discarded soft shadows) [9].

File size. No doubt, it was the graphics that made the Web the way we see it today, but as a designer you should know that many users experience a feeling on the Web on the verge of love and hate. Do not forget that the graphics increase the time required for a Web page to transfer over the network; A large amount of graphics means a significant load time that the reader's patience is experiencing, especially if it dials using a standard dial-up connection.

In this respect, for the Web designer, there is the single most important rule: the size of the graphic file must be minimally possible! The creation of images intended for transmission over the network, imposes a responsibility on developers to take seriously the problem of loading time.

A Web Hosting

Web hosting is a place for website. From hosting will depend speed of downloading the Web site in the Internet. Once you have placed your website on the server — anyone can access it by typing the domain name in the browser. Access to the site is possible 24 hours a day, 7 days a week, and 365 days a year. In order to place web site on the web:

- First of all, it is to have own web site. It has to be a site copy on the local computer (in html files), or ready materials + a script which would allow to create a web site directly on the server.
- Domain name. It needs to find and purchase a domain name website. It is desirable that the name of talked about the topic of the site, and it was easy to remember. A domain name can be up to

choice, the blast zone, for example: .com .net .org .EN, etc. When choosing a domain zone, follow-up data on the subjects of domains. Domains .com, for example, is used for commercially oriented .org — government agencies and public organizations. Regional domains indicate affiliation of site to any area. This is an optional rule, but it is worth to remember.

Practical Part

Practical part is the main part in this thesis. It shows comparing between old Web site and new Web site. Author of the work was responsible to make a huge difference. The web site is a news portal for "Medium-Orient" Information Agency. The goal of this thesis was to evaluate methods of Web site development technologies, and in the result to illustrate a new web site with new changes. The name of the news portal is Caucasus Times. The Caucasus Times, media product of the information agency Medium-Orient, has been one of the most objective and credible news channels about conflicts in the North and South Caucasus. It is a trustworthy and unbiased source of information for a number of civic activists, scholars, journalists, and experts on the Caucasus. In addition to the daily news coverage, the Caucasus Times provides analytical reviews of the main political and socio-economic developments in the region, monitoring of regional mass media sources, and monthly sociological surveys; as well as publishes books and articles on the conflicts in the Caucasus.

Medium-Orient information agency was launched in 2003 with private funds of its founder and Editor-in-Chief Islam Tekushev, then-contributor of the Cherkessian service of Radio Free Europe. Starting in 2005, the agency cooperated with the Soros Foundation based in Budapest, Hungary, and received its first grant from National Endowment for Democracy (NED) to implement a series of sociological surveys in the North Caucasus. Up until now NED is Medium-Orient's main partner. With its financial support, the agency has completed eight democracy promotion projects in post-Soviet countries. The projects focused on fair and balanced news coverage of the events in the North

Caucasus and Georgian provinces Abkhazia and South Ossetia and public opinion studies in these regions.

Since day one, the Caucasus Times has been delivering first-hand information about the events in Chechnya, Kabardino-Balkaria, Ingushetia, Dagestan, and Karachaevo-Cherkessia. Own correspondent network provided the news agency with independent regional data and spearheaded its ascendance to the leading media sources. Having civil society's interest at heart while covering the regional news, the Caucasus Times quickly earned trust not only of wide readership audience in Russia, but of reputable western editions and electronic media sources including BBC, Radio Free Europe, Kommersant newspaper, Independent Newspaper, etc.

1.1.7 Old Web Site

Old Web site was created long time ago, and since that time web development technologies changed a lot. The old version consisted a lack of design, unplanned user interface, inconvenient overall usage. Firstly, the font style was limited. The web site was not responsive for tablets or smart phones. However the attendance of the web site was over one thousand in a day. By following new technologies decision came of creating new idea.

The search engine optimization could not recognize and find web site fast and the materials which were published on the website as well. The website was not integrated in the social network, and it was one of the causes of competition with another companies. Old web site was not dynamic; it was too simple with small font size. It was not allowed to upload multimedia.

Figure 6. Original web site Caucasus Times

The main disadvantage of the site, that it was not responsive as nowadays modern web sites.

In the figure below shows, due opening on smart phones, it was difficult and inconvenient to use.
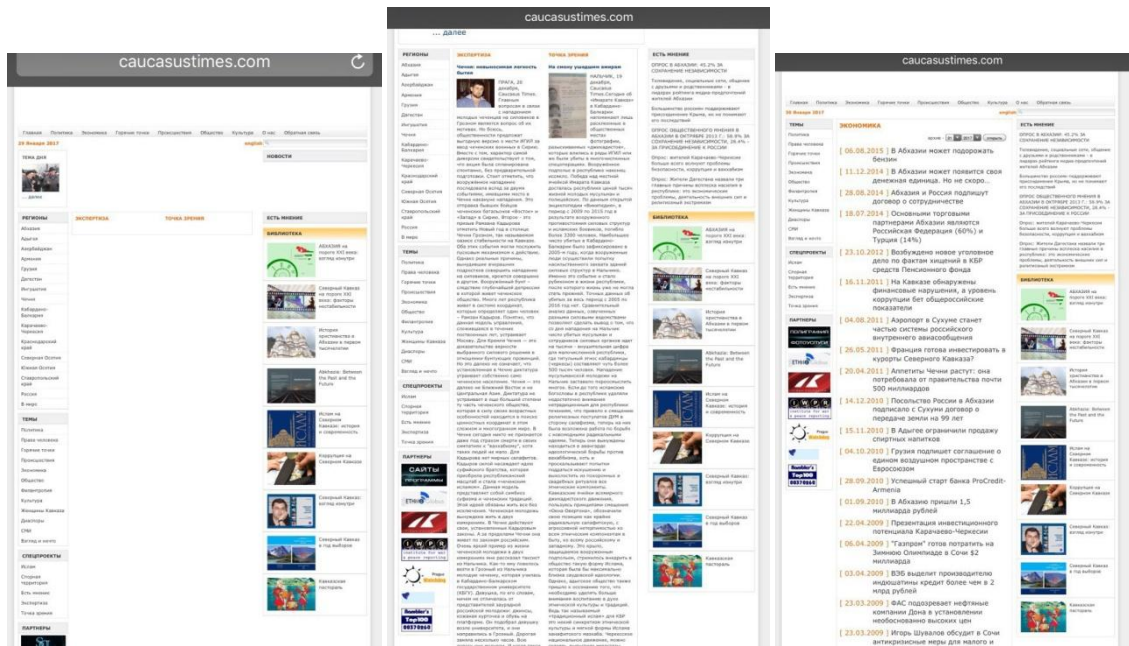
Figure 7. Original Web Site Caucasus Times on smat phone version

1.1.8 New Ideas

Conditions of new ideas were following new technologies. The goal was to make it more interesting with his content, design, colours, easy to use and understandable. Planning can be divided into several sub-steps:

- Creating the idea. At this stage the idea was already exist (site, service). Further, in accordance with the selected theme, using all existed material and make it work.

- Development of project structure. When it was decided on the topic of the project, selected the necessary material, the next step will be the development of a project structure. The structure of the project includes sections of the site, in accordance with which will form the navigation menu and build the design project. At this stage it is possible to classify the material according to topics and sections.

- Elaboration of the layout of project. After we have determined the structure of the project can make the project layout (schematically). To draw the sketch, it is possible to use a pen and paper, Photoshop, any other graphics editor (I used to use Adobe Fireworks). It is important to note that this stage is not a rendering of the finished design layout, and only a schematic outline, is made for understanding how in the site will be formulated basic information, graphics and other design elements.
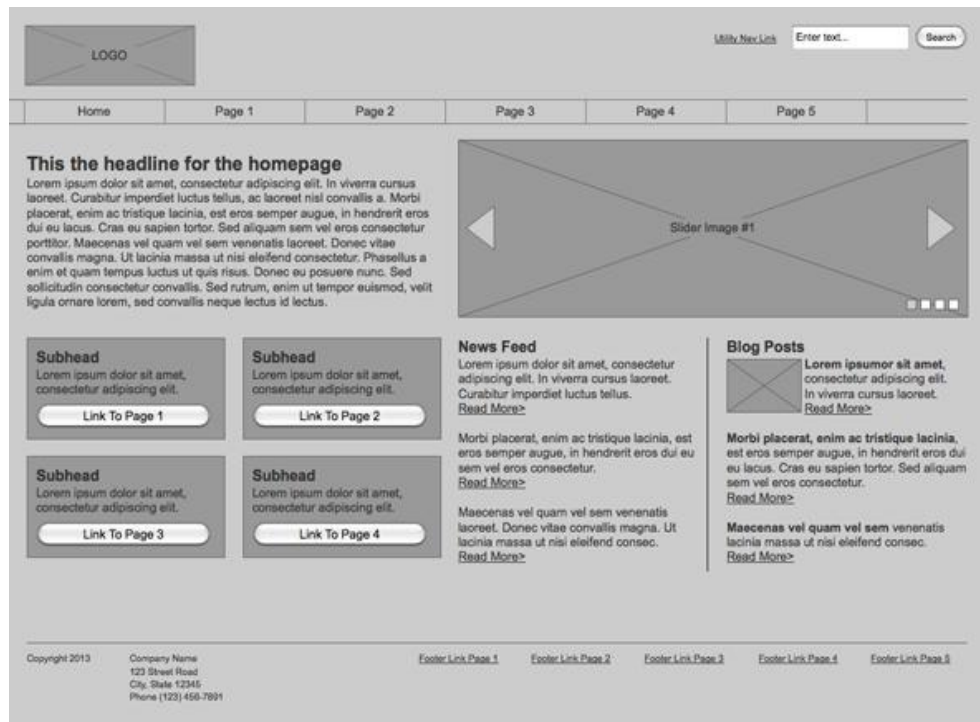
Fist idea was:

Figure 8. The layot of new idea

Often the main elements of the page are: the containing block (wrapper, container), logo, navigation, content, footer (footer), free space (essentially the free space is not a design element, but the concept of remembering where in the preparation of the page layout, our project would not look like a stack

of blocks).One of the famous news portals such as BBC news was the assumption of well designed site.

The final choice to create a new web site was using of manual method and combines it with CMS WordPress. WordPress has grown from its initial purpose to be the engine of blogs. At the moment, declares that its application is virtually unlimited. Using own content and administrative panel of WordPress is making it convenient and easy to use. The goal was to upload in WordPress the template which was created manually and test how it works.

The main navigation bar contains links to the main sections of the website. The navigation bar is often located at the top of the page (no matter vertically or horizontally placed navigation elements).

The content is the main component of the web page. He has a leading role in the design page, therefore, occupies more space, backed up, in addition to the text, graphics.

Fixed layout implies that regardless of the screen resolution, site will always occupy the same width.

Navigation is not only the availability of menu for the project, but understand the linking pages, the links on the most popular, interesting content, tag cloud etc. If it can be implemented on the project, the functionality of the website will increase significantly.
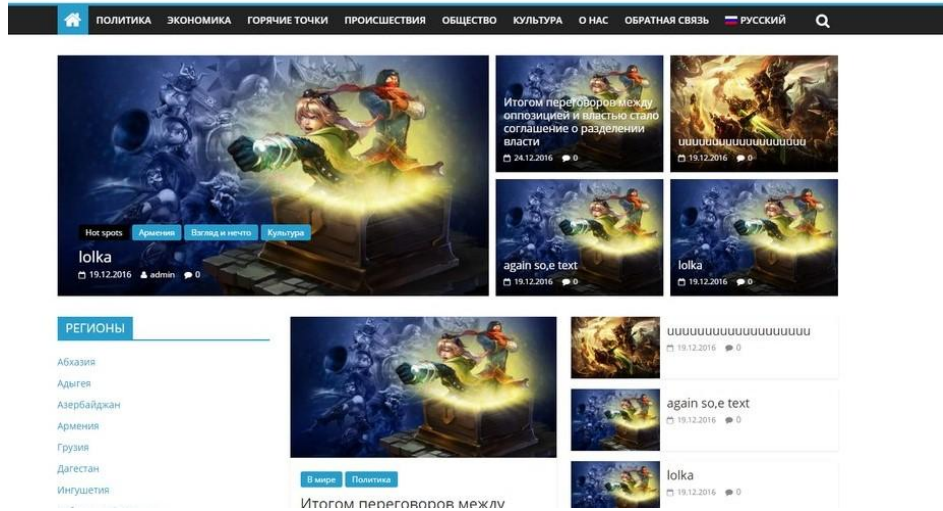
Figure 9. First example of new planned web site

Usability is an important aspect of web design and it is important to make the page convenient and simple for users. There have been many studies about the different aspects of web design and interface design. The results of these studies are very important and help us to improve the quality of work.

When you design the layout of the mobile version of the website trying to the fore to make the main content, so the navigation menu is often hidden, hiding large banners and decorative elements, content blocks usually placed under each other. On a predetermined layout can be determined which items we left on the mobile and which to hide.
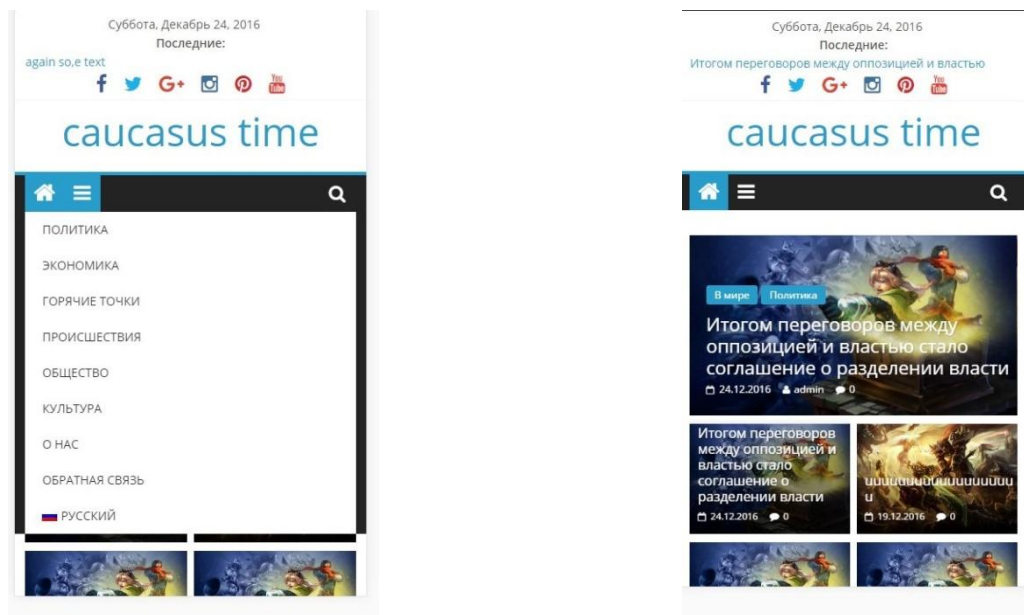

Figure 10. Smart phone version of new Web site

The final result was successful. It was following all requirements. From studies and analysis of web development technologies, in the practical part was selected the optimal method.

In the creation of various types of Internet portals, such as public or corporate, attention should be focus on a few key aspects which is design of sites, ease of use (usability) and functionality. The functionality of the website is

Sites with type of horizontal navigation are in the majority. The convenience of this approach is easily explained by the fact that in this case we have more space for content, constituting of website.

Figure 11. Final Result of news portal Caucasus Times

From simple electronic news paper it became dynamic, responsive and multifunctional news portal Caucasus Times. Now, the search engines can find it easily and fast. If comparing with previous web site, the protection of new version system is more secured and all types of media such as video, high quality pictures, audio are available. Using CMS WordPress which helps to improve performance of web site.

The goal was to create a new design by using markup language HTML and CSS, transferring all data base from original version to the new version of web site by using Local Host. The goal was executed. It is dynamic, well secures, responsive and it works with all type of multimedia.
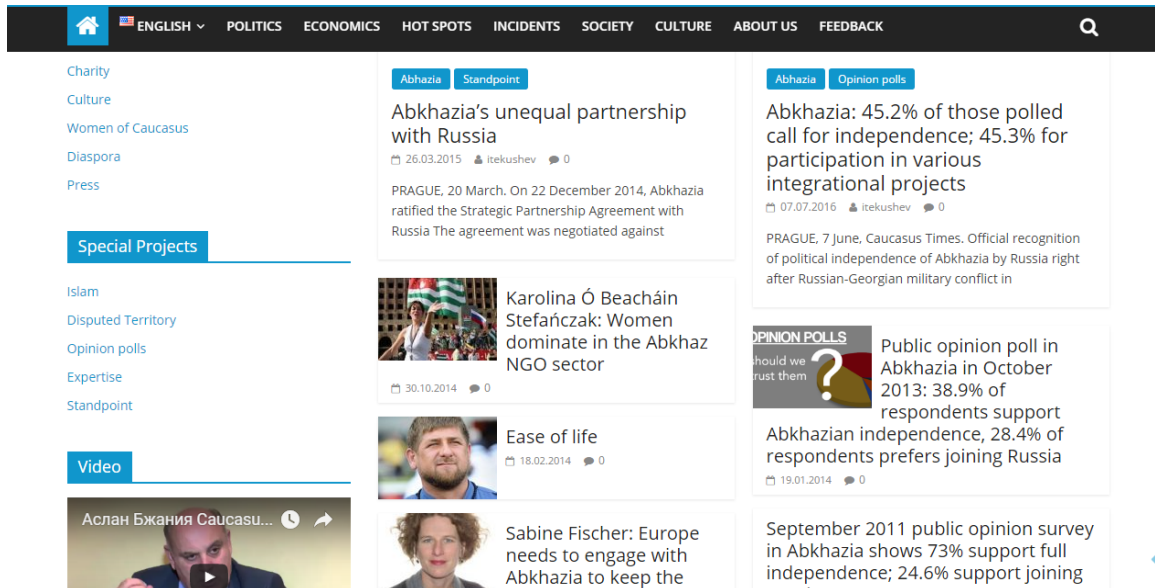
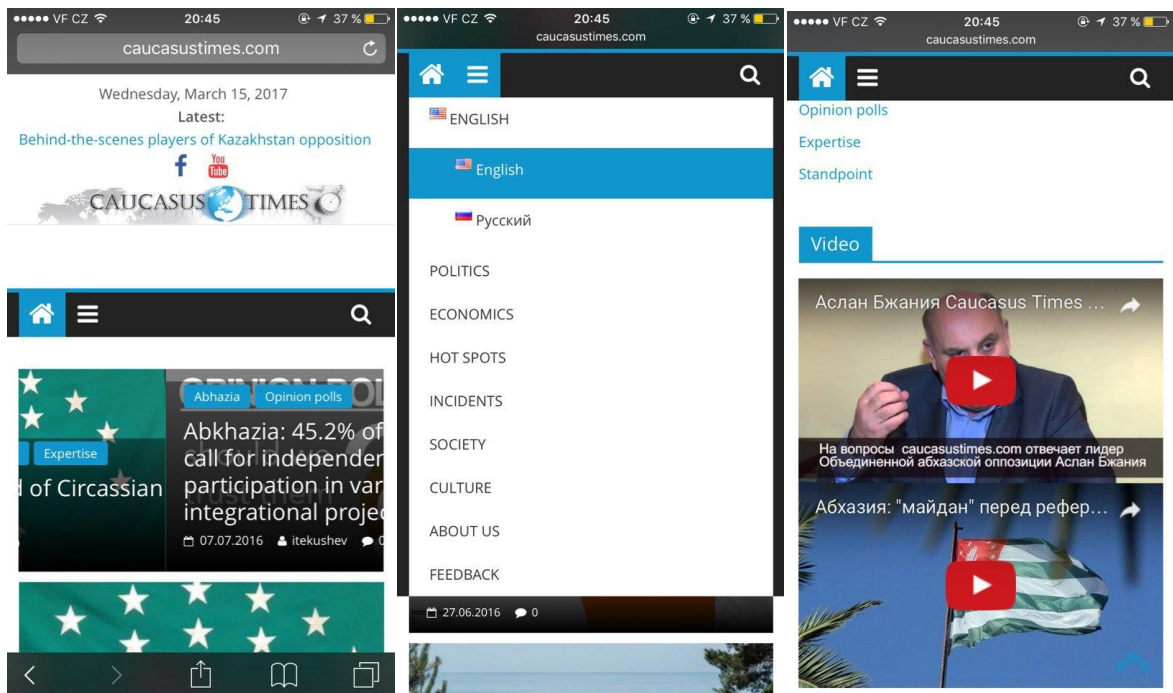**Figure 12. Final Result of news portal Caucasus Times 2**

Figure 13. Responsive new portal on smart phone

Results and Discussion

Evaluation of all methods, manual method by using Content Management System WordPress was chosen. Compare to other methods, this method was the most optimal one. Firstly, know portal BBC news made by using WordPress and it has great interface and usability. Manual method gives opportunity to create owns design and CMS makes the following method easy to use.

SWOT Analyse

Strength Executed through modern technologies. Swift response. Successful – user friendly. Well designed.	**Opportunities** New plugins. Additional foreign languages. Increase attendance of Web site. Unique design.
Weakness Existence of similar design, templates.	**Threats** Competition.

Figure 14. SWOT Analyse

6 Conclusion

Web development technologies began to develop intensively. First of all, this is due to the users great interest in information, which is offered by sites of different purposes.

In this work, topical issues of developing and creating a modern Website are considered.

At the same time, we solved the following particular problems:

- ❖ acquaintance with modern Internet technologies and use them in their development;
- ❖ study the main concept of manual method programming and Content Management System (CMS), used to develop and create Web sites;
- ❖ familiarization with methods and methods of presenting on the Web pages various types of information and multimedia;
- ❖ familiarization with the basic rules and recommendations for the development and creation of Web sites and strict adherence to them in their practice;
- ❖ definition of the successful of Web sites;
- ❖ providing difference between new and old version of for developing a web site.

As a result of the work on the basis of selected technologies, a newsportal of a modern Website was created. All the requirements were fulfilled. From simple online news page it became dynamic and multifunctional Web site. From the all studying and analysis, manual method with combining CMS WordPress is the optimal solution to create a news portal .

The WordPress admin panel is easy to understand and use. The goal was to create a new design by using markup language HTML and CSS, transferring all data base from original version to the new version of web site by using Local Host. The goal was executed. It is dynamic, well secures, responsive and it works with all type of multimedia.

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