

An e-Learning Multilingual Dictionary (OpenDict)

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Abstract: This paper is written with the aim to present an online technical dictionary in four languages called 'OpenDict'. This application has been developed by a joint team from Austria, Serbia and Montenegro and Hungary. This webpage contains technical vocabulary explained in English, German, Hungarian and Serbian, managed by the content management system "plone". This platform also supports WIKI pages, the possibility for users to add certain vocabulary items under the stringent supervision of the system administrator. Every vocabulary item can be extended by one or more sentences to show using of the words in different contexts. The article discusses the technical characteristics of this project as well as its use in an e-learning environment.

Keywords: content manager system, technical English, online dictionary, WIKI pages, multilingual

1 Introduction

In this work the authors are going to present an online technical dictionary in four languages. This application was born as a joint project where a team of teachers and programmers from Austria, Serbia and Montenegro and Hungary have been working together. The dictionary is called OpenDict, and is part of the eNcephalon e-learning platform, in use at the University of Applied Science FH-Joanneum in Graz, Austria. The webpage contains technical vocabulary explained in English, translated into German, Hungarian and Serbian, and managed by the content management system "plone". This platform also supports WIKI pages, the possibility for users to add their own entries to the dictionary, or suggest changes.

The system administrator then evaluates the changes and suggestions and either accepts them, thereby including them into the database, or rejects these comments. Every vocabulary item has one or more example sentences to illustrate various aspects of its use depending on the context.

2 Why a New Dictionary?

2.1 The Reasons

In several discussions with English teachers at high schools and universities in Hungary, Serbia and Austria, it turned out that there is a lack of a useful online dictionaries for students and teachers for the technical environment. Language teachers at technical high schools and universities are constantly faced with the problem of having to teach both 'useful' English and technical topics similar to the 'real' technical subjects of their students. However, English teachers are in most cases qualified language teachers, not engineers, therefore cannot be expected to be expert in a wide of range of technical areas. With the ever-growing popularity of e-learning and distance learning in electronic environment, language teacher have to be able to adapt to the modified style of teaching material. On the other hand, 'technical English' is a contains a vast amount of topics, ranging from mechatronics to database management, and for a language teacher it poses a real challenge to acquire the vocabulary of all these areas.

OpenDict has been created to provide assistance for people who deal with technical English. It can be found under the address <https://elearning.fh-joanneum.at/opendict>, and is open to anyone. Basically, any word can be entered in the search box in any of the offered languages, and the found result(s) will pop up. The basic translations are offered immediately, but a link is also provided for further information on the word, in the form of a WIKI page. The sample sentences should allow the user to see examples of the context and environment in which the given can be used. Having analyzed a number of online dictionaries in use, including the English-German technical dictionary Leo (found under <http://dict.leo.org>); the English-Serbian dictionary found on one of the most popular search engines, Krstarica (<http://www.krstarica.com/recnik/>) and the online English-Hungarian dictionary of the Hungarian Scientific Society (under the address <http://szotar.sztaki.hu/angol-magyar>) the lack of sample sentences was a common deficiency.

2.2 Present Problems

Often the user does not have a clear idea of the context in which the word can be used, and either goes for the 'trial-and-error' option, or relies on the use of that word in his native language. A popular example for this is taken from a Serbian-to-English translation by a student of engineering: the sentence 'Ovaj sistem ima *više* funkcija od drugog sistema' was translated into 'This system has *higher* functions than the other system.'. It is undoubtedly true that the student had come across the word 'higher' as a direct translation to the Serbian 'više', and the argument 'But it said so in the dictionary' is one language teachers often meet. The fact that the student in his own language failed to comprehend the difference between the meanings of 'more' and 'higher', denoted by the same word in Serbian ('više'), is an altogether different problem, and can hardly be solved on high school or college level by the foreign language teacher. The sample sentences included in OpenDict will hopefully be of help to users of English in order to avoid using the right expression in the wrong way.

2.3 OpenDict in the Classroom

To the language teachers involved in this project, this dictionary will provide valuable assistance in their classes. More often than not, engineering students are not equipped with technical dictionaries where they could look up words from their area of study. Again, a popular excuse is for failing to translate or even comprehend a given text is 'I couldn't find it in my dictionary, this word wasn't listed'. By having such an online dictionary at the disposal of these language teachers, they are enabled to enter the technical vocabulary mostly used in their classes, thereby avoiding their students' further dragging their feet. On the receiving end, a great number of engineering students at the colleges involved will have a dictionary containing, among others, the vocabulary material set to their specific needs.

3 Software Environment

OpenDict application is realized with Plone. Plone is a user-friendly and powerful open source Content Management System. A CMS, or Content Management System, is an application designed to store, format, reproduce and manage Web/intranet data. The CMS usually uses a database to store the content and a server-side scripting language to recall and present the data. A CMS allows the content manager or author of the website, who may not know HTML the programming language used for the web, to create, modify, remove and organize

the information and pictures on their website. A CMS typically separates page design from content, facilitating content maintenance and design changes.

Plone is ideal as an intranet and extranet server, as a document publishing system, a portal server and as a groupware tool for collaboration between separately located entities. The Plone interface has more than 50 language translations, and tools for managing multilingual content. Plone is licensed under the GNU General Public License, the same license Linux uses. This gives you the right to use Plone without a license fee, and to improve upon the product.

FH Joanneum has been using a plone-based content management system for its e-learning activities for online training since 2004. The advantages of this system are flexibility, expandability and the price, because it is open source software. Plone comes with many out-of-the-box usable modules, which can be easily adapted for e-learning content. Plone provides index and search functions which can be used without any program modifications. It also supports WIKI pages which are useful for simultaneous knowledge development and long-distance teamwork.

4 Technical Solutions

4.1 WIKI-Pages

This technology is used by many online content management systems (CMS) to enable the user to create, modify and evaluate knowledge material presented in the internet (e.g. www.wikipedia.org). The main feature is that users, after having logged in, can enter a new page or edit existing pages. The text in the pages is formatted by a short number of control keys (e.g. **italic**, underline). New pages are created by typing the name in brackets ([page name]) in an existing page and clicking on the question mark, appearing behind the name, after saving the page, as it is shown in Fig. 1 and Fig. 2. On the left side (edit mode) the word “frequently” is marked in brackets. After having saved the page a question mark shows a new word.

```
English: advantage --
The advantage of this system is that it is
[frequently] updated.

Deutsch: Vorteil --
Der Vorteil dieses Systems ist, dass es
häufig aktualisiert wird.

Magyarul: előny --
Ennek a rendszernek az az előnye, hogy
gyakran frissítik.

Srpski: prednost --
Prednost ovog sistema je, da se često
ažurira.
```

Figure 1
Text in edit mode

```
English: advantage
The advantage of this system is that it is [frequently]2
updated.

Deutsch: Vorteil
Der Vorteil dieses Systems ist, dass es häufig aktualisiert
wird.

Magyarul: előny
Ennek a rendszernek az az előnye, hogy gyakran frissítik.

Srpski: prednost
Prednost ovog sistema je, da se često ažurira.
```

Figure 2
Text in view mode

After clicking the question mark a new side is generated. This page contains the new structure for the word “frequently”.

```
English: frequently --
A database backup has to be made frequently.

Deutsch: regelmäßig --
Eine Datenbanksicherung muss regelmäßig
gemacht werden.
```

Figure 3
New page for "frequently"

This technique enables the user to create widely linked content in a very simple way. All changes made to a page can be reviewed by the administrator in order to prevent the system to be destroyed or filled up with false content. Further more, the name of the user who has changed a page is stored in a log file, which makes it possible to identify the user later on and shut them out of the system in case of destructive work.

The following figure shows a history view of a WIKI page.

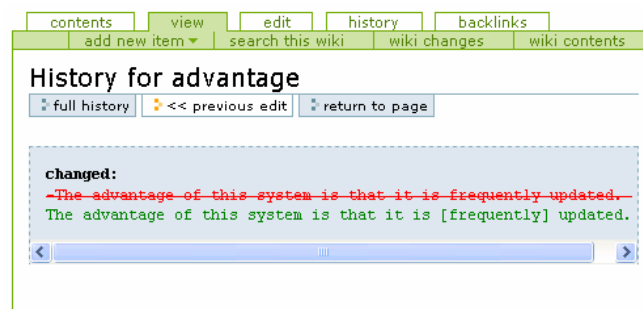


Figure 4
History view

WIKI comes with the functionality of full text search for every page. This way the user will be able to find pages with the requested word in the dictionary.

4.2 Manage Vocabulary Content

The OpenDict dictionary structure is based on three different pillars. First the Multilanguage support. Our ever-day experience shows that we often need to translate texts in different language combinations (e.g. English-German, German-Hungarian ...). Plone supports this, and as it can also be configured to use different languages for the platform.

Second, the translation is supported by a short text and additional information provided by internet links to show the usage of a specific word in different contexts.

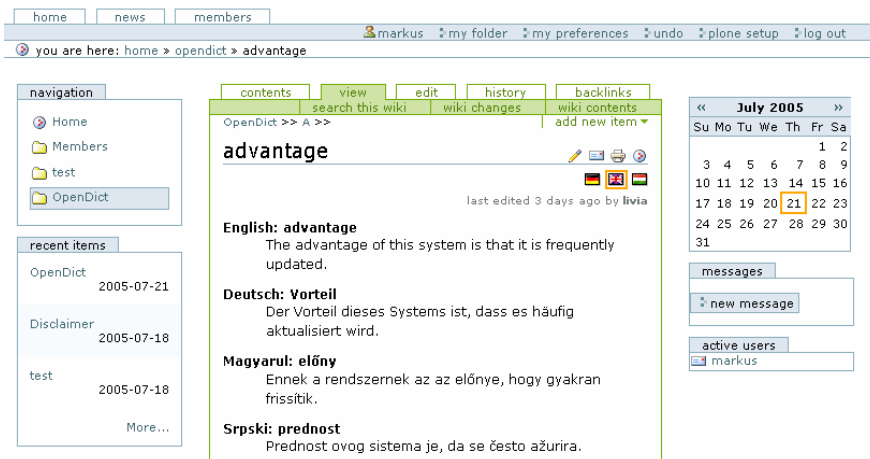


Figure 5
Vocabulary WIKI page in four languages

Third, the translation can be modified by teachers and students. This is possible because of the usage of WIKI pages. So this system is self improving while it is used. When someone finds a better translation for a certain vocabulary item, they can alter the dictionary. The system supervisors and teachers are informed about this change and are able to supervise the content.

The search and find mechanism comes with plone and can be used without any program development. The following figure shows the search result for the word "advantage".

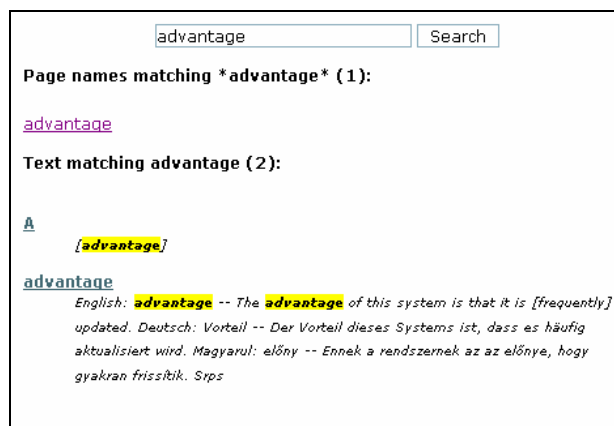


Figure 6
Search result

5 The Future – OpenTest

Among the various plans for the future is a newly developed testing system called OpenTest. The OpenTest service is going to be part of the OpenDict application which gives possibility to users to test their knowledge of languages outside the classes, at home by using the Internet.

The technical requirements for the realization of such a system from the part of the Institution are Internet server, database server and web application. The user has to have access to a PC, the Internet, a valid e-mail address and a web browser by which he communicates with the service.

OpenTest is going to be realized and tested in WAMP (Windows, Apache, MySQL and PHP) developing environment and published in LAMP (Linux, Apache, MySQL and PHP) environment. User-friendliness is among the top priorities, as this is very important for beginners.

The user will be able to choose from three levels of difficulty for the test: beginner, intermediate and advanced. The system generates random questions for every test. The test is a multiple-choice test consisting of 30 questions. The user is given 60, 40 or 30 seconds for every question. The time available for solving the task depends on the difficulty of the test. After the last question is answered, the system generates a report of the test success. The system follows and archives all tests that every user had.

Further ideas for development include plans to create various content templates, in order to make it easier for the user to search for a given words in any of the offered languages. The languages are marked with the British, German, Hungarian and Serbian flags. As soon as the user logs in, they can choose a language and the functions and menus on the entire index page will appear in the chosen language. Besides these user preferences ought to be developed such as different skins that can be set by the user.

Conclusion

This dictionary is the result of an accidental cooperation between various IT and language teachers at the FH Joanneum in Graz and the Polytechnical Engineering College in Subotica. It has enabled the language teachers to have a real say concerning their input needs, so this application will be able to focus on the special needs of students. On the other hand, OpenDict is free to be used by anyone, and all additions, comments or content alterations are welcome, and if constructional, will be incorporated into the database.

It is clear that we are at the beginning of the project and a lot remains yet to be done, but all involved are counting on user feedback to fine-tune further developments.

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