

### **MYKOLA GLYBOVETS -**

Dean of Faculty of Computer Science at National University "Kyiv Mohyla Academy"

*Address: Kiev, 04070, Ukraine, Skovoroda st. 2, NaUKMA, building 1*

*E-mail: glib@ukma.kiev.ua*

### **VOLODYMYR BOUBLIK -**

Chief of Chair of Multimedia Systems at National University "Kyiv Mohyla Academy"

*Address: Kiev, 04070, Ukraine, Skovoroda st. 2, NaUKMA, building 1*

*E-mail: boublik@ukma.kiev.ua*

### **ANTON SHABINSKIY -**

4th year student of Faculty of Computer Science at National University "Kyiv Mohyla Academy"

*Address: Kiev, Ukraine, Harkivske Shosse Str., 17*

*E-mail: anton.shabinskiy@gmail.com*

### **ANDRIY APOSTOL -**

4th year student of Faculty of Computer Science at National University "Kyiv Mohyla Academy"

*Address: Kiev, Ukraine, M. Cvetaevoi Str., 14b*

*E-mail: avacom@ukr.net*

### **ROMAN BUNIAK -**

4th year student of Faculty of Computer Science at National University "Kyiv Mohyla Academy"

*Address: Kiev, Ukraine, M. Cvetaevoi Str., 14b*

*E-mail: romec@ukr.net*

### **IGOR LUTSENKO -**

4th year student of Faculty of Computer Science at National University "Kyiv Mohyla Academy"

*Address: Kiev, Ukraine, Harkivske Shosse Str., 17*

*E-mail: lutsik2002@mail.ru*

## **WEB PORTAL FOR SUPPORT OF JOINT EUROPEAN PROJECTS**

### **1. Task**

- Our task was primary design and development of web-portal for Joint European Projects under aegis of European Commission. The portal should provide a friendly and clear access to any dedicated information and concrete JEP portals themselves. In other words, the task was to create a modern web-resource with all necessary information about Projects, Commission, consortia and partners; ability to add new Joint European Projects and their pages; ePortfolio for members; storage of materials (articles, files) and ability to add/modify them; news, calendar of events and so on.

## 2. Development tools and technologies:

- The basis of our portal is e107 content management system, e107 is an open source content management system (CMS) that allows for the quick creation and management of websites or community portals. The main reason of our choice was the flexibility of e107. It means that we can easily add or change any component we need.
- The database management system we used was MySQL. We found it very handy to use such tool as phpMyAdmin 2.10.0.2 to work with database. This tool simplifies the process of creating new tables and working with those that we already have, **it** has very easy-to-use web interface.
- As a programming language we used PHP - a reflective programming language originally designed for producing dynamic web pages. Our choice was argumentative for several reasons:
  - PHP is an object-oriented programming language which provides all the possibilities of this paradigm.
  - PHP is rather simple language. It makes the development process easy and clear.
  - The core of the e107 CMS is developed with PHP. So all modules implemented has to be created using this programming language.
  - In spite of its simplicity, PHP provides all the possibilities of working with databases, LDAP, file system etc.
- Our aim was a unified user database - one for several portals, to provide a "single sign in" mechanism and so convenience for members.
- The true logic way to provide a single user database for JEP portal and all dedicated portals is implementation of LDAP and proper software. There are several evident pros:
  - LDAP makes provision for storing and effective maintenance of large user database. It was developed specially for storing various personal information, grouped hierarchically.
  - LDAP modules are maintained by most modern systems, which gives us an opportunity to unify the user database without dependence on peculiar databases (mysql, postgresql and so on).
  - LDAP is a special protocol providing fast access and rich safety mechanisms.
- Practically the solution was implemented with OpenLDAP software and e107 module "Alternative Authentication". OpenLDAP server was deployed on the server and e107 module was configured to retrieve

information from the LDAP database. Besides that an additional feature was developed - adding/deleting users to/from the LDAP database, simultaneously with adding/deleting users to/from the e107 user table. For this purpose traditional e107 signup.php script was modified. Such modifications need PHP configured with LDAP sup-port. The modification itself means several methods for binding to the server and then operating necessary queries like ldap\_search(), ldap\_add() or ldap\_delete().

- In order to make code in our plug-ins clearer and easier to read we decided to use some template engine for separation of the application code and presentation. We used PHP as a programming language so we find one of the possible solutions, which is supported by PHP. Smarty template engine is this solution.
- Smarty template gives us the possibility to create two layers in our PHP applications. Business logic layer creates the rules and ways of getting, or counting data and sends it to presentation layer. Presentation layer gives us the possibility to make some design solutions without disturbing about the ways of getting the right data.
- At last, Smarty gives us the possibility to use the same templates for different logic, which makes the work of designers easier.
- Because of security reasons and for making our code clearer we tried to separate one more layer - "database layer". It means that all information about the database, its tables should be collected in one place. Besides this information should be hidden and separated from the application code with business logic. For this purpose we tried to use the Data Access Object (DAO) template. Content management system e107 has some sort of a DAO template, and so we used it.
- The reason for such great attention to code cleanness is not only to make the development easier for us. The JEP portal should live and develop. New designers, web-developers, administrators are welcomed. So we wanted to make our portal easy to support and change.

### **3. Site structure:**

- General information about JEP. This part contains the description of a TEMPUS program, the projects supported by the faculty of computer sciences in National University "Kyiv-Mohyla Academy", other partners etc.
- JEP community members. Here you can learn a contact information, find out how to become a member of this community, look

through the users' list. Every user have the possibility to create and manage his own electronic portfolio. He can put a per-sonal information, contacts, upload files and sort them by categories there.

- News system. For the portal users to learn about the latest events concerning TEM-PUS projects we developed a powerful news system. It consists of "Publications and Reports" and general news. They can be sorted by categories and topics.
- Projects. The Providing the information about the global projects under the Tempus Pro-gram such as ITSoftTeam and EduViSim, which were conducted by the faculty of Informat-ics at Kyiv-Mohyla Academy was one of the tasks that our web-site was supposed to per-form. Also there was a need to create the tools to administrate this information by using the web interface. In order to reach this goal we wrote the special plug-in for e-107 that would make it possible to manipulate and display the information about the projects the way the portal administrator wants. First part of this plug-in reads the information from our database and displays it on the specific page. The second part consists of the PHP scripts that allow us to add the new global project to the database and edit or delete the existing ones. We used the web-forms for text and for project logo uploads as the way to insert the information to the database. Only the portal administrator is allowed to use this plug-in features, other classes of users don't have permissions to do so.
- Statistics. Here you can learn about the statistics of the portal vis-iting. It is divided into several categories which makes it complete and interesting.
- Forums. Here users can discuss different questions that are inter-esting for them, in-form us about bugs, suggest their ideas about the further development of the JEP portal.
- Administrating. There are different tools for administrators that gives the opportunity to manage portal information like:
  - o Adding/Editing/Deleting articles, news, reports, publications, projects
  - o Provide users with different permission types and access rights
  - o Moderate forums
  - o Adding/Removing portal modules and so on.

#### **4. Conclusions**

- As a result of main part of our work we can present web-portal that pro-vides all features mentioned in (1). Now it gives all visitors a glance to Tempus Program, past and present Joint European Projects and project

consortiums. Each registered member has an opportunity to keep his eFolio here. Administrators are able to fulfill the portal with fresh content like news, events, reports, articles, files or so on, There are several links to dedicated re-sources, for example, to the groupware page for developers. We are glad to invite everyone to <http://jep.ukma.kiev.ua>!