

PROJECT-ORIENTED SCIENTIFIC COOPERATION

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The paper describes one of the solutions of on-line electronic system for managing projects, doctoral studies and scientific cooperation. The system is designed for project leaders and solvers, supervisors and postgraduate students and staff for scientific research. The system is based on on-line project management and enables to monitor and manage the process of the project, PhD study and co-operation in scientific research.

K e y w o r d s. on-line scientific cooperation, project management

1 INTRODUCTION

Educators, teachers at universities have two main tasks. The first is to manage and lead the process of learning. The second task is to write professional, scientific publications and to solve common projects.

The work deals with the digital support of writing common scientific, technical publications and with solving projects. We are concerned in this work with the software *ProjectPier* (Fig.1) which is a suitable tool for such support. The work was based on a "Virtual seminar on project-oriented scientific co-operation" conducted in the summer semester 2012, see [2]. The screenshots, figures of work also were developed on this seminar.

2 PROJECTPIER

ProjectPier ([1]) is an open-source community focused on developing a simple, powerful and intuitive software for web project management and group collaboration. System offers flexible multi-platform technology for managing projects, project groups, providing a central repository for all project activities and information supporting a variety of user tools - and all this for free.

Thousands of people around the world, by organizing study groups, *school projects*, to large universities *managing hundreds of international research projects*, use this software to project tasks interdependence and communication.

ProjectPier is *freely available* under the GNU Affero General Public License (AGPL).

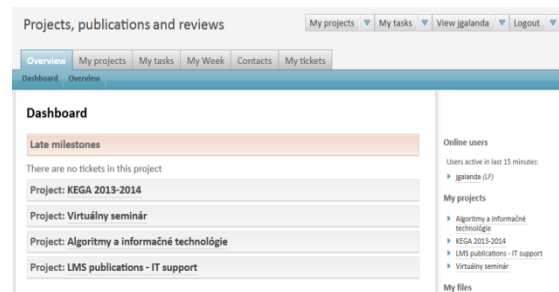


Fig. 1 ProjectPier

3 SYSTEM DESCRIPTION

The system contains three basic objects : *companies, users* and *projects*. The *main system administrator* defines these objects. *Users* are co-solvers, researchers of projects or scientific research. Users working in *companies* that work together on projects or scientific research. The *roles* of the user depends on what position the user has in the project. Role in the system means what operations the user can perform. The main administrator defines the roles of users, see Fig.2.

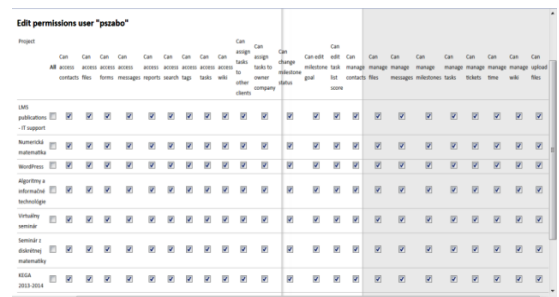


Fig. 2 Define the roles

The most important object in the system is a *project*. All important information such as *milestones*, *tasks*, *links*, *messages* and *files* are associated with particular projects. Users can have access to several projects simultaneously, regardless of their role. We can also consider process of doctoral study or writing of scientific paper as a project, with beginning and with end in time.

Let us now describe the main objects of the project. These objects can be defined by the user. The definition of each object in the project is determined by the assigned privileges, roles. Each object can be *private* or *public*. Public objects can see each user. Objects can be classified as important. *Important objects* (e.g. tasks) appear in the right column of the screen.

Milestones

Each project can be divided into a basic logical units - milestones of the project. Each milestone has its *beginning* and *end*, *status* and may contain a *list of tasks*, *messages*, *links*, etc. Milestone status can take two values : *completed* or *not completed*.

Tasks

Users can assign the *task list* to the milestone. Each task list contains *tasks*. Each task has a beginning, end, *responsible researcher* and the task status. Users can be alerted to assign a task by e-mail. Responsible researcher may indicate a task as completed when the task has been solved.

Messages

Messages are used for communication between users. Messages can be separate objects of the project but any event of the project is possible to comment via messages.

Files

The system enables to save files in the directory structure. It offers features to save a few revisions of the same file, allowing, if necessary, return to the previous version of the document or just watch the changes. Users can send their own comments to individual files. Files are the output objects of projects.

There are other objects such as *links* (web links), *tickets* (tasks that ordinary users can not solve, only the administrator) and *reports* (Gantt chart to track the project).

The main communications interface of the system is called *overview*, see Fig.3. It contains

basic information about the project: *name*, *description*, milestones, which will be implemented in the future of the project and current activities of the participants. There is also a *measure of realization of the project*. This measure represents the ratio between all project tasks and tasks that have been completed. In the right column are important tasks, messages, companies that address the project and project participants.

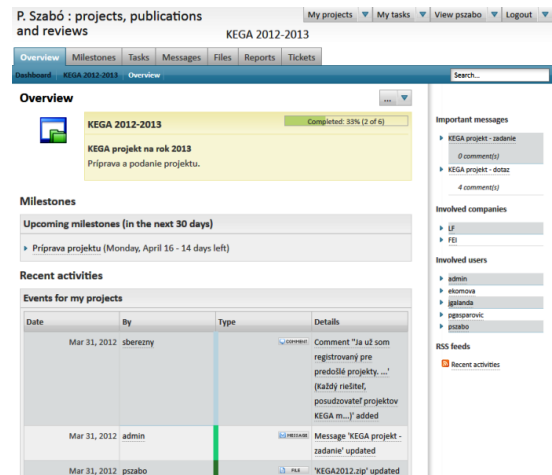


Fig. 3 Project Overview

4 SYSTEM APPLICATION

The system is designed for managers and project leaders, supervisors and doctoral students and scientific researchers to write articles and to solve scientific research. Here are just some possible applications in the context of Aeronautics faculty.

Project management

The project managers (leaders) *can apply the system for submission and solution of projects* of type KEGA, VEGA, APVV, FP7, etc. Users of the system in this case are the project solvers. Project leader manages the project by the following main activities :

- by inserting the researchers into the project team
- by creating projects based on the milestones, task lists, messages and files.
- by monitoring and tracking of projects.

From the perspective of project solvers, the system (project leader) generated tasks. Each task has certain inputs and outputs. Project solvers is solving tasks of project and transmit solved tasks via the file system and identified tasks to be completed. Project leader monitors the overall realization of the project. The project system is considered to be completed if each task in the project will be marked as completed. Communication runs in system by messages or to individual files (outputs of project) can be made revisions. Each event of project may be associated an e-mail message, which is designed for the project solvers.

Management of doctoral study

This system is suitable for supervisors in teaching doctoral students. The whole process of doctoral study, communication with students during his studies, important materials, inputs, outputs and main event of study can be completely controlled and managed using this system.

Management of scientific cooperation

The described system is very useful tool for scientific cooperation. In this case, the co-authors of a scientific article have the same rights. The system enables to do reviews and comments on new article. Therefore, it is possible to create a new scientific article in the collaboration of all co-authors.

4 SYSTEM BENEFITS

The benefit of applying such a system on Faculty of Aeronautics is to provide the possibility of using this system on a voluntary basis for other colleagues. Countrywide contribution of system is a demonstration of the possibility of electronic project management and scientific cooperation.

5 CONCLUSION

In our opinion, reasonable and efficient use of modern information technology to support project management is inevitable nowadays. Particularly for challenging projects or larger teams, where the optimal organization of activities is very important. The presented system allows for bot online management of projects and scientific work as well.

BIBLIOGRAPHY

- [1] ProjectPier.org: *Easy online collaboration*. [online]. ProjectPier.org, 2012-04-24]. Internet: <<http://www.projectpier.org/>>.
- [2] P.Szabó : projects, publications and reviews. *Virtuálny seminár o projektovo orientovanej vedeckej spolupráci*. 2012 [cit. 2012-04-24]. Internet: <<http://www.ipower.sk/projects./>> (In Slovak).

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