

# Design And Implementation Of Online Submission and Peer Review System: A Case Study Of E-Journal Of University Of Zakho

Karwan Jacksi

**Abstract:** With the aim of designing and implementing a web-based article submission management system for academic research papers, several international models such as Elsevier Editorial System and ICOCI, International Conference on Computing and Informatics, are studied and analyzed. Through this analysis, an open access web-based article submission and peer review system for Journal of University of Zakho (JUOZ) is employed. This kind of systems is not only capable of solving issues such as complex manuscript management, time-delays in the process of reviewing, and loss of manuscripts that occurs often in off-line paper submission and review processes, but also is capable to build the foundation for e-journal publications. Consequently, an active and rapid scholarly communication medium can be made. The implementation and deployment of this system can improve the rank of the university and the reputation and the globalization of science and technology research journals.

**Index Terms:** Document management system, submission management system, academic journal, electronic submission, electronic journal, conference management system, peer review system, academic publishing, Web-based applications, web services.

## 1 INTRODUCTION

In recent years, the quantity of online applications in Kurdistan Region of Iraq is growing steadily due to better presentation of internet connection bandwidth from local ISPs. This growth has notably influenced the governmental organizations to improve their web services. Therefore, a movement of online journal system is convincing many institutions and universities to implement an infrastructure for gathering and issuing electronic journals (e-journals). Over the last few years, e-journals are considered to be significant resources of preserving scientific communication amongst researchers. Starting from the late 1970s, the first growth of e-journals begins and continued till the early 1990s. A second period of e-journals evolution began in early 1990s where the World Wide Web is invented. So, similarly to printed versions of journals, publishers began to publish e-journals on the Web [1]. A third period of e-journal evolution began from year 2000 where advanced technologies such as searching and filtration features were incorporated in the e-journals [2]. As stated by [3], the distribution type of e-journals can identify the category of e-journal, which are categorized into: 1) pure e-journals, 2) e-printed journals, 3) printed-electronic journals, and 4) printed and electronic journals. The pure e-journals are the journals that only have electronic version of distributions. The e-printed journals are those that have digitals and printed form distributions, however, the distribution of the printed forms have limited numbers. The printed-electronic journals are those that primarily have printed distribution but also made available in digital forms. And the printed and electronic journals are journals where the printed and digital forms release in parallel [4]. Submission management system (aka submission processing) is a software (web-based or desktop application) that simplifies

and facilitates collecting, tracking and management of electronic submissions. Materials can be received, authenticated, tracked, stored, and distributed digitally [5]. Even though submission management systems can be very sophisticated, but to be classified under that category, basic features from a submission management system have to be provided. These features can be summarized as: 1) the duration time for gathering submissions has to be provided; 2) a tool for collecting and storage of digital submissions should be accessible; 3) the ability to verify the required information for submission; 4) mechanism to access collected data to authorized users; 5) techniques to accept and reject submissions; 6) facilities to give related feedback to submitters; 7) ability to resubmit the submissions; 8) facility for submitters to view their submissions and related comments. According to the results achieved from a search made on the *ULRICHSWEB* database in July 20, 2015, the total number of registered journals for the country of Iraq is only 20; where all of them are in the printed format. Thus, the number of online journals registered in this repository for Iraq is 0. Whilst, according to results obtained from *IRAQI ACADEMIC SCIENTIFIC JOURNALS*, the number of journals is 247 journals as of the date of this research. Except two, all of the journals are only in printed format distributions. By exploring the two journals, one of them only publishes digital forms of the articles that have been submitted offline, while the other one, except for article submission, does not offer any of the features to be classified as submission management system. These results confirm that the employed e-journal is a unique online submission and peer review system across the country.

## 2 DESIGN AND IMPLEMENTATION

In this section, the design and implementation of the system is explained. Other components such as search module and system security are discussed.

### 2.1 Interface

The interface of Journal of University of Zakho (JUOZ) system is designed with the approach of Responsive Web Design (RWD). This feature allow the system to provide an optimum viewing and interaction experience, which offers the users of the system an easy reading and navigation from a least possible of resizing, scrolling, and panning towards a wide

- Karwan Jacksi is currently pursuing PhD degree program in Computer Science at University of Zakho, Kurdistan, Iraq and Eastern Mediterranean University, Cyprus. Tel: +90-533-852-8257. Email: Karwan.Jacksi@uoz.ac. Website: www.KarwanJacksi.net

range devices [6]. In other words, the system adapts the layout to the viewing environment such as large desktop monitors, laptops, tablets and mobile phones. Furthermore, client side programming languages such as jQuery have been used in the front-end of the system so that users get better interaction and the backend gets error free requests.

## 2.2 Modules

JUOZ, generally, consists of four main modules: guests, authors, reviewers and editors. In this section, the details of each of the modules are described.

### 2.2.1 Guests' module

This module is made where users of the system have role of guests (any visiting user). These users can navigate through the system and access all the available data on the Web such as searching and downloading accepted papers, searching for authors, and registering in the system to become authors. When users get registered in the system, henceforth the second module starts, and the users basically become authors.

### 2.2.2 Authors' module

In this module, when users register on the system, a verification email is sent to their email address so as to make sure they have used a working email address to activate their accounts. Next, authors will be the owner of a personal and a lightweight control panel framework. The author control panel offers several functions; the most important one is the paper submission process. In this process the authors are able to fill the required fields and upload their article to the system, where later they can either save it in the system for later manipulation or submit it to the editors of the journal. While the submission process passes positively (guaranteeing all the required information is present), the authors will get a notification email announcing of their successful submission. Authors from their control panel can see all their submitted articles with the observation of their article's status (*accepted, rejected, under review, etc.*). As soon as the authors submit their articles, the status of the article changes to *Submitted*; and a notification email is sent to editors informing them for a new incoming article that is needed to be assigned for reviewers. Once the submitted article gets assigned to reviewers (section 2.2.3), the article status changes from *Submitted* to *Under-Review*, this means that the authors can communicate with reviewers. It is significant to remark that the communications between the authors and the reviewers remain completely anonymous (blind peer review); this feature primarily helps reviewers not to be known by authors so that they can fairly evaluate the authors' articles.

### 2.2.3 Reviewers' module

To be a reviewer at the JUOZ, a normal registration as authors is needed, but *register as reviewer* option from the registration form is needed to be selected. In this case, a request is sent to the editors of the JUOZ in order to confirm the acceptance. Similar to authors, reviewers will get their private control panel presenting several functions. The most important one is the *papers' dashboard* module. In this section, which in turn consists of three main subsections; the reviewers can see all the papers that are assigned to them for evaluation process. The top subsection, is for articles that need to be reviewed and evaluated (not evaluated yet), while the middle subsection

is for articles that have been evaluated but not yet been accepted (reviewed but need revision), and the bottom subsection is for articles that are reviewed and evaluated with either accepted or rejected. When editors assign an article to reviewers, a notification email regarding that article is sent to the reviewers informing them for a new article, and the article becomes visible in the top subsection of the dashboard. The reviewers then need to sign in to their account and access the article to begin the evaluation process. There are several criteria for the article to be assessed, a field for comments to be given, and three options for status of the article to be set: 1) *accepted*; 2) *rejected*; or 3) *accepted with conditions*. When the article is accepted by one of reviewers, the article will be moved to the bottom subsection of the dashboard for the current reviewer; when the article is rejected from one of the reviewers, then the article is rejected permanently and cannot be resubmitted by the author; while, when the article is accepted with conditions, then the article will be moved to the middle subsection of the dashboard which means that the article is not yet been accepted and the evaluation process is continuous. Therefore, the author of the article needs to revise the article and resubmit it again. When the article is resubmitted by the author, the previous article is removed from system, to avoid useless articles, and the reviewer will get a notification email so as to check the resubmitted article. It is valuable to mention that the previous evaluation assessments and comments are visible to the reviewer so that she or he remembers them for a new evaluation.

### 2.2.4 Editors' module (Journal Committee)

This module is specifically designed for editors (journal committee) to manage the journal. Editors need to register to the system similarly to authors, and they have to be approved by one of the registered editors in the system. Much the same as other two modules, editors have their own control panel but with a wider range of functionalities. In this section we will briefly explain the most important functions in this module. The *papers' control panel*, as from its name, is responsible for manipulating all incoming articles. This panel is divided into two subsections: top and bottom subsections. When a new article is submitted by an author, it appears in the top subsection, which means it needs to be sent to reviewers. Each article is required to be sent to two reviewers (double blind peer review); or in other words, only two reviewers are assigned to each article. Editors are forced to explore the articles first before sending to any of the reviewers. After the exploration process, editors at the journal determine whether to reject the submission outright or begin the process of peer review. The process of peer review (assigning articles to reviewers) is very simple, it just requires the email addresses of the reviewers, which can be found from *Users' Control Panel* (section 2.2.4), and put them down in designed fields then confirm the submission. Throughout the submission, the system will check for the email addresses of the reviewers whether they are registered in the system or not, then a notification email will be sent out to both reviewers informing them for an article to be reviewed. Afterwards, the article will be moved to the bottom subsection of the panel which shows whether the articles have been reviewed by each of the reviewers, the status of the article, and the assigned reviewers. For each evaluation, articles are associated with timestamps so that it can be noticeable if one or both of the reviewers have not evaluated an article, then an email can be

sent to one or both of them regarding that article. Once the article is being evaluated by both of the reviewers, the details of the assessment can be visible by the editors, and additional functions, such as author communication and setting article status are given. If an article is accepted by both of the reviewers, it is significant for the editors to doubly check the article and set the final status of the article to *Camera-Ready* (CR), otherwise the article will not be included in the accepted articles. *Users' Control Panel*, in a nutshell, this panel is used to handle the registered users in the system. It is segmented into four subclasses: 1) editors (committees), 2) reviewers, 3) authors, and 4) pending users to become reviewers. Editors have absolute privileges to edit users' information, change their passwords, change their roles, and even remove their accounts. It is their responsibility to either accept users to become reviewer or editor. One of the other functions offered in editors' module is releasing new editions (volumes/issues). In this module, editors are able to release a new volume or issue of the journal. The technique of this module only accepts a unique volume and issue of the journal. In other words, the system does not accept duplicate volumes and issues. This has been done using the following validation over the schema. `'volume'=>'unique:editionTable,volume,NULL,id,volume,'.$edition['volume']`. `','issue,'.$edition['issue'];` Where `editionTable` is the schima for journal editions, `id` is the id of volume/issue, `volume` and `issue` are the columns in the schema that hold their numbers. The structure of directories in the server for storing articles is clearly categorized, where the structure is constructed based on Journal Edition concept, such as Volume no., Issue no., Field of Science, and Article name suffixed with time to prevent duplication. This categorization makes the process of offline storage recognized, differentiated, and understood. Editors can also publish announcements on the journal home page with the ability to update them after publishing them. This can be done by using news module, where subject and body of a new event or news can be set, then it will be published on the journal homepage taking its own style based on the timestamp of the published announcement. The search component of the system is built using utilized approaches of database indices [7]. This technique improves the speed of data retrieval operations on database tables of the system. The whole system of JUOZ is well protected against SQL injection types, in which malicious SQL statements are inserted into an entry field for execution. The system can smoothly hold Incorrect Type Handling SQL Injections, Blind SQL Injections, and even Second Order SQL Injections when submitted values contain malicious commands that are stored rather than executed immediately. The system is constructed based on PHP as server programming language, MySQL as Database Management System (DBMS), and HTML5, CSS3 and jQuery for the front-end. The framework has few server requirements:

1. PHP version should be 5.4 and above
2. Mcrypt PHP Extension
3. OpenSSL PHP Extension
4. Mbstring PHP Extension
5. Tokenizer PHP Extension
6. MySQL version 5.6.16 or above

### 3 CONCLUSION

The growing amount of Web applications in Kurdistan Region of Iraq made the local organizations to move toward online services. Based on international criteria, an open access

online submission and peer review system is designed and implemented for the JUOZ. The system takes its uniqueness in Kurdistan Region of Iraq and the entire Iraq for the submission management system principals. The interface of the system constructed based on responsive design features. Lightweight panels are employed in the system to support low bandwidth connections and it is protected against all types of SQL injections.

### REFERENCES

- [1] Keller, "Electronic Journals: Their Development in Different Branches of Science.," *Philobiblon Transylv. J. Multidiscip. Res. Humanit.*, 2005.
- [2] Tenopir, D. W. King, P. Boyce, M. Grayson, Y. Zhang, and M. Ebuon, "Patterns of journal use by scientists through three evolutionary phases," *-Lib Mag.*, vol. 9, no. 5, pp. 1082–9873, 2003.
- [3] R. Kling and E. Callahan, "Electronic journals, the Internet, and scholarly communication," *Annu. Rev. Inf. Sci. Technol.*, vol. 37, no. 1, pp. 127–177, 2003.
- [4] H. Dilek-Kayaoglu, "Use of electronic journals by faculty at Istanbul University, Turkey: the results of a survey," *J. Acad. Librariansh.*, vol. 34, no. 3, pp. 239–247, 2008.
- [5] N. Geri and O. Naor-Elaiza, "Beyond adoption: Barriers to an online assignment submission system continued use," *Interdiscip. J. E-Learn. Learn. Objects*, vol. 4, no. 1, pp. 225–241, 2008.
- [6] K. V. Natda, "Responsive Web Design," *Eduvantage*, vol. 1, no. 1, 2013.
- [7] K. Jacksi and S. Badiozamani, "General method for data indexing using clustering methods."