
The Development of Online Conference Management Tools as a Student Project*

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In this article, the authors describe online conference management tools that have been developed at the University of South Australia (UniSA), Adelaide, Australia, by students as their final year electrical and information engineering design project. These tools have been utilised to manage an international conference. The Web tools allow a host of tasks to be handled efficiently. These tasks cover the whole range of conference related business, including the issuing of call-for-papers and providing information about the conference, methods of contacting the conference organisers, registrations of interest, online submissions of abstracts (and, later on, full papers) and online reviewing of contributions. The project has satisfied a number of criteria in terms of suitability for engendering graduate qualities in senior engineering students.

INTRODUCTION

The advent of Internet-based online systems has revolutionised the management of almost every conceivable form of human activity, ranging from making purchases to handling finances. Indeed, the organisation of professional conferences has been no exception. Gone are the days for calls-for-papers, paper submissions, and registration documents that need to be printed and distributed at substantial cost by regular post. All this, and more, can now be routinely achieved online.

It may not be generally recognised how complex a task organising a conference is. Many logistics problems can be solved in a sensitive way by avoiding bottlenecks and inadvertent friction points. If online resources are to be utilised, this requires the mastery of sophisticated skills ranging from systematic thinking to multifaceted computing skills. Regrettably, generic software for practical online conference management

is hardly available. These factors make the task suitable as a challenging topic for a final year electrical engineering project.

The authors of this paper have variously been entrusted with the responsibility of organising international conferences. This has been one of the underlying motives for designating the topic as a final year group project.

PROJECT SPECIFICATION

It is a standard requirement at the University of South Australia (UniSA), Adelaide, Australia, for final year students to produce a design specification as a guide that leads to the implementation of the project [1]. The design specification is to identify the constraints on resources for the project and establish criteria to gauge the success of the outcome. In this case, students were given the task of creating a Web-based management system for an international conference. They identified the following as the cardinal criteria for the project:

- *Information content:* The site must contain pertinent up-to-date information related to the stage along the timeline of the conference calendar, including the provision for the registration of

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interest, mechanisms to acknowledge and respond to senders of enquiries, the creation of a mailing list and database, the broadcasting of e-mail messages to those on the mailing list and the dynamic updating of the Web site to reflect the current state of conference activities.

- *The submission of abstracts and papers:* Provision must be made for proposed contributions to be up-loaded directly via the Web site.
- *Review process:* Task assignment for reviewers must be well defined with clear guidelines, enabling reviewers password-protected access to submitted documents to be reviewed so as to ensure confidentiality.
- *Administration:* The conference administrator must have user-friendly access to the Web site in order to manage the different aspects of conference organisation, including communication with registrants, prospective authors and reviewers.

DEVELOPMENT PROCESS

The process adopted in the development of a Web site as the main tool for the management of an international conference is based on the evolutionary method employed in software engineering. In this instance, the procedure is adopted wherein an initial implementation is first developed and its suitability is tested by users [2]. The outcomes of these tests are then used to progressively refine prototype versions of the site in a sequence until such time that the site is deemed to satisfy both the user expectations and the Web operator's requirements.

The first step is to determine the requirements for the site from the perspective of its users: that is, the users' needs must be identified clearly. This involves identifying the usability requirements. Surveys and interviews may have to be conducted in order to determine users' needs.

Conceptual design comes next: this normally involves conceptualising a site-level design and architectural structure at an abstract level. Active server pages, databases and templates may be considered for inclusion.

The final Web site will be based on this sequence of evolutionary prototype designs. Quality assurance tests are then conducted at the page-level and site-level through test plans and usability testing so as to ascertain the site's functionalities. The results are then utilised to improve the site. Iterations are continued until the stage is reached when the site meets the specified criteria.

After the site has been launched, it must continue to be monitored so that any flaws can be detected and

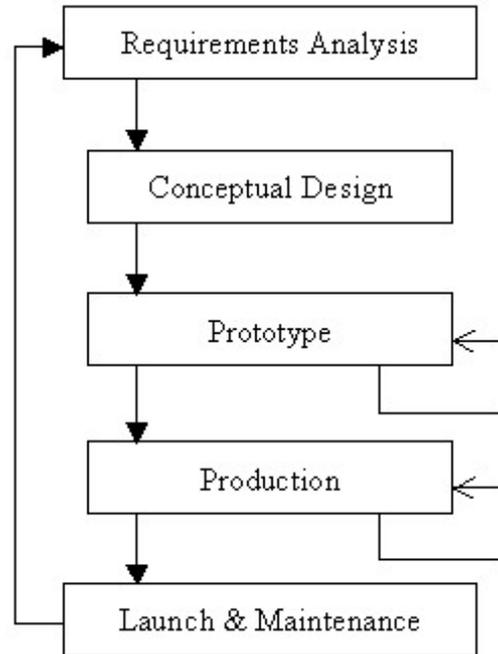


Figure 1: The morphology of the iterative Web site design process based on pervasive usability [1].

rectified in a timely fashion, taking into account user feedback. Figure 1 depicts the underlying design process [2]. In the process depicted, evaluation occurs at every stage of the evolutionary development.

IMPLEMENTATION

On the basis of the foregoing, the project set out to ascertain the user requirements and to devise the structure of the Web site [3]. The ensuing site design successfully offers four main services, namely:

- Registration of interest;
- Broadcasting timely messages to the mailing list;
- Uploading files via HTTP;
- Reviewer access to submitted documents by password-protected login;
- Password-protected administrator access for conference management [4].

Some of the details as to how these services were realised are detailed below.

REGISTRATION OF INTEREST

It is critically important to arouse interest in the conference and to obtain enquirers' details so that they can be further contacted with conference bulletins and be kept informed. The page for Registration of Interest is reached via the link on the Conference home page, which is illustrated in Figure 2. The form asks for all fields designated by an asterisk to be filled.

The screenshot shows the 'Registration of Interest' page on the ICEMA website. At the top, there is a navigation bar with links: Home, Registration of Interest (highlighted), Call for Papers, Conference Programme, Committees, Tourist Attractions, and Reviewer. The page header includes the ICEMA logo, the conference title 'International Conference on Electrical Machines in Australia', and the location and dates 'ADELAIDE, AUSTRALIA 14-17 August 2005'. A 'Quick Link' sidebar on the left contains links for Conference Topics, Deadlines, Upload Paper, Instructions for Authors, and Companions Programme. The main content area is titled 'Registration of Interest' and contains a form with the following fields: Title (dropdown), Given Name, Family Name, Company / Institution, Position, Mailing Address, City, Post Code, Country (dropdown), Telephone, Fax, and Email. There are 'Submit' and 'Reset' buttons at the bottom of the form. Below the form is a section for unsubscribing, with an input field for an email address and an 'Unsubscribe' button. The footer of the page reads '© 2002, ICEMA'.

Figure 2: Form for the registration of interest.

If the respondent enters inappropriate information, or fails to enter the information required, the system provides prompt assistance.

Once the form has been completed as required, the mail management system automatically generates an e-mail message sent to the *subscriber* confirming successful registration of interest.

BROADCASTING

The administrator has password-protected access to an *e-mail generator* to compose and broadcast either plain text messages or messages encoded in .rtf format to those on the mailing list. The interactive window for the latter is shown in Figure 3.

The screenshot shows the 'Compose Rich Text Email' window. At the top, there is a navigation bar with links: Home, Registration of Interest (highlighted), Call for Papers, Conference Programme, Committees, Tourist Attractions, and Reviewer. The page header includes the ICEMA logo, the conference title 'International Conference on Electrical Machines in Australia', and the location and dates 'ADELAIDE, AUSTRALIA 14-17 August 2005'. A 'Quick Link' sidebar on the left contains links for Compose plain text email, View or delete members, View or edit reviewer, Add new reviewer, Assign upload file, and Update ICEMA info. The main content area is titled 'Compose Rich Text Email' and contains a form with the following fields: Subject (required), Font Type, Font Size, Font Colour, Text Format (with icons for bold, italic, underline, bulleted list, numbered list, link, unlink, and image), and Message (required). There are 'Send to All Members' and 'Reset Form' buttons at the bottom of the form. The footer of the page reads '© 2002, ICEMA'.

Figure 3: Window for composing e-mails in .rtf format.

Home	Registration of Interest	Call for Papers	Conference Programme	Committees	Tourist Attractions	Reviewer
<p>Quick Link</p> <p>Conference Topics</p> <p>Deadlines</p> <p>Instructions for Authors</p> <p>Companions Programme</p>						
<h2>Submit Abstract in PDF file</h2> <p>Author Information (All fields marked with an * are required)</p> <p>Title * <input type="text" value="Click To Select Title"/></p> <p>Given Name * <input type="text"/> Family Name * <input type="text"/></p> <p>Company / Institution * <input type="text"/> Position : <input type="text"/></p> <p>Mailing Address * <input type="text"/></p> <p>City * <input type="text"/> Post Code * <input type="text"/></p> <p>Country * <input type="text" value="Click To Select Country"/></p> <p>Telephone * <input type="text"/> Fax : <input type="text"/></p> <p>Email * <input type="text"/></p> <p>Paper Title * <input type="text"/></p> <p>Topic * <input type="text" value="Click To Select Topic"/></p> <p>File * <input type="text"/> <input type="button" value="Browse..."/></p> <p><input type="button" value="Submit"/> <input type="button" value="Reset"/></p>						
© 2002, ICEMA						

Figure 4: Form for uploading documents as .pdf files.

DOCUMENT SUBMISSION

Documents can be submitted via the appropriate link on the conference home page. The form on the page has fields that are compulsory to fill, again designated by an asterisk, along with provision for attaching documents, as illustrated in Figure 4.

The uploading of documents requires no client-side software, since it utilises software resident on the conference server via standard multipart HTML form. The protocol adopted for uploading files via HTTP has the advantage that the files can be SSL encoded so that the information is encrypted during transmission. A further advantage is that HTTP uploads are capable of traversing firewalls, whereas out-of-bound FTP files are blocked.

REVIEWER ACCESS

Once the administrator allocates submitted documents to reviewers, assignment messages are automatically generated and sent to the nominated reviewers, who can then access the document.

They can do so by logging in and utilising their unique password provided by the administrator, as depicted in Figure 5. Evidently, each reviewer has privileged access to those documents allocated to that reviewer to the exclusion of anyone unauthorised.

ADMINISTRATOR ACCESS

The administrator has privileged access by password to login and modify the appropriate items on the Web side. The privileges include the following:

- View and modify mailing lists;
- Create and promulgate *newsletters* or *announcements* to those on the mailing list;
- Assign documents for review and monitor the review process by sending and receiving e-mails.

CONCLUSIONS

The purpose of this article has been to show that engineering students can, indeed, successfully cope with challenges normally reserved for seasoned

Home	Registration of Interest	Call for Papers	Conference Programme	Committees	Tourist Attractions	Reviewer
<p>Quick Link</p> <p>Conference Topics</p> <p>Deadlines</p> <p>Upload Paper</p> <p>Instructions for Authors</p> <p>Companions Programme</p>						
<h2>Reviewer Login</h2> <p>Enter your username and password</p> <p>Username : <input type="text"/></p> <p>Password : <input type="password"/></p> <p><input type="button" value="Enter"/> <input type="button" value="Reset"/></p>						
© 2002, ICEMA						

Figure 5: Password-enabled access by reviewers to submitted documents.

professionals, provided that the right motivation and empathetic direction and supervision are present. The ensuing Web-based management system may be in need of refinement, but compares favourably with many of professional systems currently operating on the Internet.

The students of Computer Systems Engineering stream of Bachelor of Engineering (Information Technology) have demonstrated – during the process of developing a software product and by the quality of the product – that they have acquired a number of important graduate qualities (attributes) defined by the UniSA [5]. These various important skills include the following:

- The ability to operate effectively with, and upon, a body of knowledge of sufficient depth to begin professional practice;
- The capability of effective problem solving, applying logical, critical and creative thinking to a range of problems;
- The ability to work, both alone and in teams, as a professional;
- The competence to communicate effectively in professional practice.

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BIOGRAPHIES



Özdemir Göl has had extensive experience as an engineering educator in addition to his substantial industrial experience. His academic career has included appointments in electrical engineering at universities in Turkey and

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He has a strong interest in innovative approaches to engineering education and has published widely in this field. His teaching responsibilities have included courses in electrical machines, engineering design and virtual instrumentation. He is the author and co-author of some 150 publications.



Andrew Nafalski's career spans over 30 years in academic and research institutions in Poland, Austria, the United Kingdom, Germany, Japan and Australia. He holds BEng(Hons), MEng, GradDipEd, PhD and DSc degrees. He is a Chartered Professional Engineer and

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In 1989, Thien Dug Nguyen arrived from Vietnam in Adelaide, Australia, where he continued with his education. He graduated in 2004 from the University of South Australia (UniSA), Adelaide, Australia, with a Bachelor of Engineering degree, specialising in the field of

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Quang Thai Tran received his Bachelor of Engineering in Computer Systems Engineering in 2004 from the University of South Australia (UniSA), Adelaide, Australia. Since graduation, he has worked as an Information Technologist at the UniSA. He is now studying for his MBA degree at the UniSA in Information

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