Expediency Heuristic in University Conference Webpage

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Abstract. In this paper, we present a webpage that has been developed based on heuristic elements which refer to the International Conference Software Engineering and Computer Systems for requirement. Heuristic and web base method have been applied in this system with combination of PHP language and MySQL as database system. The objective of this paper is the development of a webpage that has been developed based on heuristic elements which refer to university conference is to simplify and get quality webpage in using conference webpage for the Faculty of Computer Systems and Software Engineering, University Malaysia Pahang in Malaysia. Besides minimize human contacts thus provide fast, efficient, transparent and effective service to author, admin and reviewer. Therefore this system can facilitate user by computerized all the form accordance to paper submission, review papers, download paper, assign reviewer through heuristic online university conference webpage.

Keywords: Conference, webpage, reviewer, software, heuristic.

1 Introduction

Conference is one of the events very important for all academicians. Nowadays, all the conference process is computerized and can be viewed by the whole world. Information and communication technology (ICT) helps research industry such as facilitate integration of various processes in the conference, standardization of information and faster and fewer flow of information. To set up a knowledge database for the conference would require a huge amount of resources especially in the application of information and communication technology.

To assist in the process, the utilization of ICT and automated software can provide efficiency and effective solutions to the problems of mass data and information handling [1],[2]. Object-oriented software engineering methodology the idea object model for the business relates to the use case model of the supporting information system [2]. One of the changes that have to make in conference webpage is submission of paper, viewing paper for reviewer, and payment of registration. Before exist the expediency heuristic of conference webpage, organization develop the webpage without consider the usability of webpage.

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In this paper, we present a web based system for university conference webpage facilitates users by computerized all the forms accordance to the paper submission, paper format, download paper for reviewer, through online. Heuristic is applied in confirming the quality of webpage is under consideration which is in-term of usability of the webpage and software engineering method are deployed while developing this webpage. This webpage has been developed for Faculty of Computer Systems and Software Engineering, University Malaysia Pahang conference. This webpage helps user in manage to create an easy upload and downloading system for paper sending or reviewing. This website is also developed to make the user feel comfortable with the interface and design used. Using programming language PHP and MySQL database, this system is an online system, where user sharing their data using internet. Other software had been used include XAMPP as Apache Web Server to support the database, Acrobat Professional to design the interface for the form and Microsoft Word and Microsoft Project to make documents.

2 Literature Review

This section presents the related concept, conventional webpage and existing used webpage in Malaysia.

2.1 Existing System

University Technology and Engineering Malaysia conference website, Malaysian Technical Universities Conference on Engineering and Technology, MUCET 2010 [3] built with very clear background. The menus are located at the left side of the page. The user can know the latest information about the conference as it has the announcement at the top of the page. Figure 1 shows the main page for MUCET 2010.

Meanwhile, the International Conference on Software Engineering and Computer Systems, ICSECS 2009 website [4] has a very informative header. The menus are at the left side of the page. This website is only uses two colors for the background which are grey and white. Figure 2 shows the main page for ICSECS 09.

Based on the websites, the system that is built has clear menu at the left side of the screen shows the visibility to the user that uses the system. The font and the language that are used are consistent and all easy to understand by the first user that uses the system. No computer or jargon language are being used as the system not only focus on the user that are expert in the computer and technical field, but also to ease the user that is still searching for the information or the idea for their project or study.

The webpage can track and save the person's id so that they will no need to type and key-in it again every time they log in into this website. As mentioned before, the menu is at the left side. The menu will change the color if the user has been clicked it. It shows that the user does not need to remember which link they has visited and reduce the memory load.

This webpage is design to prevent and ease to use. The author of the conference does not need to convert their paper into certain format before upload and submit it via email. The system prompts the user to fill the online form and upload the paper straight from their computer. The system will save the paper in database.

Fig. 1. Main Page MUCET

The background color, which is being used in the system, is black and white. It is built in this way to ease the user and prevent the eyes constraint. The old ICSECS in Figure 2 webpage has striking orange-yellow header to attract the eyes of the user and make the interface looks more attractive. But, in the registration page the page is in different windows and the font is small. So, user feels difficult to read the text. In the page also no tooltips or description appears. Tooltips used to give and guide user about the control. The page also is sometimes too plain.

3 Methodology Development

Rapid Application Development (RAD) is one of methodology development lifecycle designed to give much faster development and higher quality than the traditional life-cycle [6]. RAD consists of four phases as shown in Figure 3.

RAD is suitable in developing ICSECS website because:

Time constraint: Request from the users of the system estimate the development of the system between three to four months. Since submission of the paper and reviewing paper is main thing in order to get approval for publishing of paper, authors needs

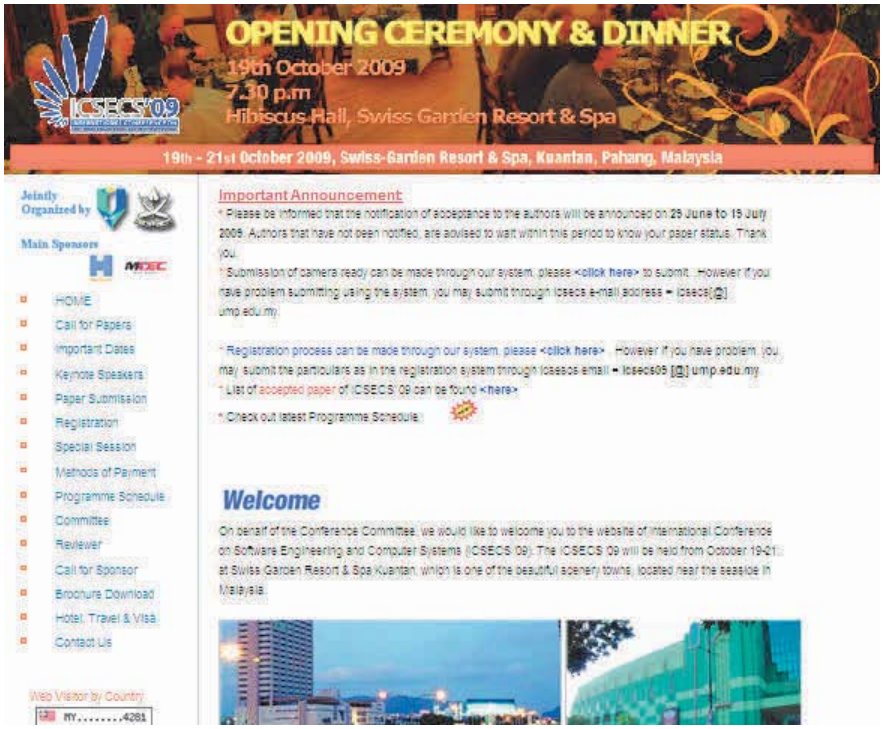

Fig. 2. Main Page of old ICSECS

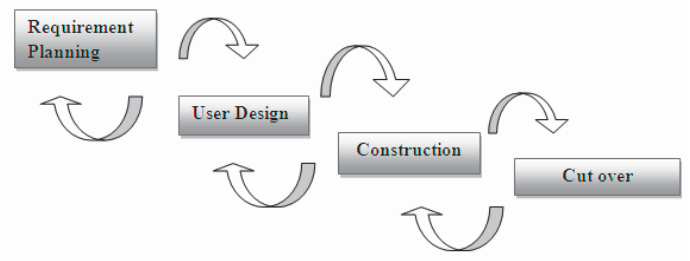

Fig. 3. Rapid Application Development (RAD)

the webpage develop as fast as possible to ease the process and activities submission and approval of paper. RAD methodology design for a faster development and higher quality because RAD model provides "high-speed" development process.

Medium size of system: ICSECS website is developing for conference organizer in Faculty of Computer Systems and Software Engineering and people that involved in the conference organizer such as reviewer, author and participant.

Ability to identify and repair problems in early stage: In developing this webpage, developer and user are worked together to get the best result of the system, therefore, if user needs changes on the requirement, developer will do the changes at any stages

to fulfill the user requirement. This method improved working relationship and trust between developers and clients in order to get the best system result and the system meets the user requirement.

4 Analysis

Several analyses have been done before develop this webpage. This analysis includes physical context, technical context, organizational context and social and cultural context. Refer Table 1.

Table 1. Requirement Analyses

Context Element	*Information*
1. Physical context	University's Conferences Website can be used in anywhere that has wireless to connect the internet. This system designed with more systematic and easier to understand for first time user and also provide the best conference website in terms of its interface and flow of the system.
2. Technical context	University's Conferences Website is the web based application that must connect to the internet for browsing it via web browser such as Internet Explorer or Mozilla. This system fully computerized including manage the participant paperwork because it's embedded their websites with conferences management system (CMS). The website may also be designed to allow small screen devices such as PDA or mobile phone to access.
3. Organizational context	This web based application should have the administrator to organize this system. Moreover this application will be used by anyone that is interested to join and take part in the conference. University's Conferences Website is developed for conference that only have in Malaysia. This website is for an organizational information system that is used by people outside the organization which the user should register into the website.

Table 1. (*continued*)

4. Social and cultural context	The conferences website can be accessed in anywhere from all over the world. Beside that's anyone can use this web application because the language that will be used is very readily understandable.

5 System Design

Expediency Heuristic Conference Webpage is more usability than previous development of webpage. Data analysis will be process very fast and safe and the interface is according to the Jakob Nielson Heuristic [5]. But most software is delicate: even the slightest error, such as changing a single bit, can make it crash .Thus, development techniques emphasis on design should be managed correctly to overcome this fragility [6]. System flow describes most basic flow of system. A context diagram shows the system boundary. All external agents and all data flows into and out of the system are shown in one diagram, with the entire system represented as one process. Figure 4 shows the system flow for conference website.

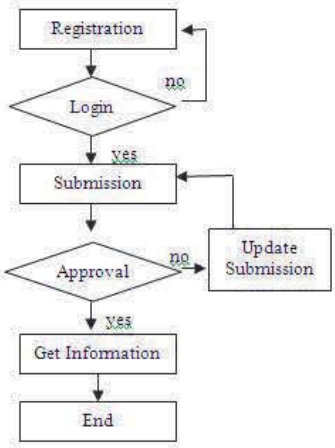

Fig. 4. System Flow for ICSECS

The sketch work for the interface of university conference webpage shows in Figure 5 and Figure 6 .

This is the main page of the system. The layout design were followed the standard layout of the website to make sure that all types of user can used it. Navigation menu is located at the right side of the bar. Consistencies of menu button were applied at every page of navigation menu.

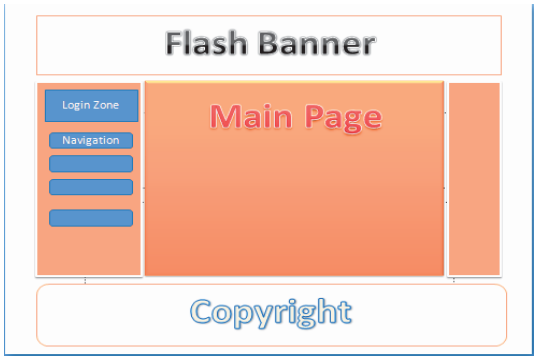

Fig. 5. Sketch work for Main Page Design

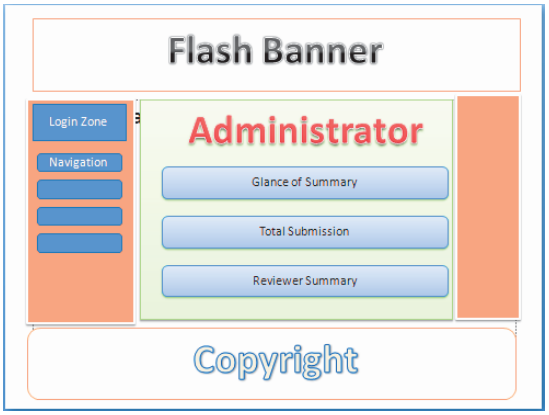

Fig. 6. Sketch work for Admin

User needs only a few minutes to learn how to use and navigate the web page since the orderings are easy to understand. The buttons is consistent in each page. The layout design is simple and color combination is also well design where its keep the concept of simplicity. We reduce the concept of the scroll-bar to make user much easier to navigate the page and get the information.

6 Interface Design

In this phase, the method of the interface design detail explained. Macromedia Dreamweaver 8 has been used as a tool in designing the interface for conference website. Interface plays the important role in interaction between human and computer. Good interface design makes user feel comfortable while accessing the system. In the conference website several of 10 Heuristic Usability by Jacob Nielsen [5] that suitable in the system has been implemented. Figure 5 shows the webpage of heuristic implemented in ICSECS.

a) Match between system and the real world

New ICSECS is a web based application that developed for conference in Faculty of Computer Systems and Software Engineering, Kuantan Malaysia. The management in the new ICSECS website is more efficiency in managing the submission of form by client.

b) Consistency and standards

In developing the interface for new ICSECS, consistency and standard of the interface has been carefully designed. Besides, consistency and standard in designing the interface help user feel they monopoly the system. Consistent in color layout, font and icons applied in this system. Figure 7 and Figure 8 show the consistency of menu at the left side.

c) Help users recognize, diagnose, and recover from errors

When the users of the system did not fill the required fill which is important information, system error massage will be appear to help user from mistake shown in Figure 9.

Fig. 7. Interfaces for New ICSECS homepage

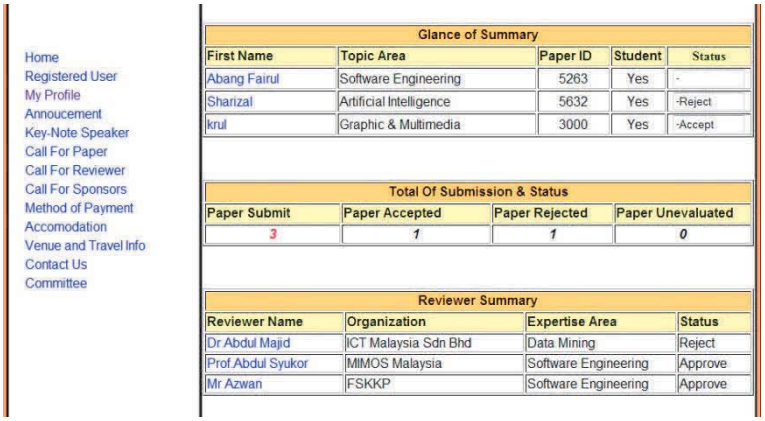

Fig. 8. Admin view

Fig. 9. Error message as a guidance to user

d) Error prevention

Error prevention used in order to alert the user when the user makes the mistake. For example user did not login to access the system. Error massage will appear to inform the mistake of user as shows in Figure 10.

Fig. 10. Error message to alert user has to login to access the system

e) Help and documentation

After user fulfills all the information needed, user can print the form as their reference when dealing with the OSC staff.

7 Result

The result of this conference web pages are mention in Table 2. The result is refer to the analysis study of the conference webpage result. The analytical study included paper submission, reviewer, and admin job.

Table 2. Evaluation Result

Evaluation Metrics	Conference Web
Physical / Ergonomic Concern	
Legibility	98% of the potential user can read the text and view the image with ease.
Audibility	100% of the potential user thinks that there should be some sound to comfort or to navigate user through the page since the web page doesn't contain any sound.
Safety in use	95% of the potential user thinks that there is no harm by using this web page and it doesn't impose any health concerns.
Cognitive / Usability concern	
Fewer errors and easy recovery	User needs only a few minutes to learn how to use and navigate the web page since the orderings are easy to understand
Easy to use	Each task can be done separately and easily.
Easy to remember how to use	Registration are made easy by sending information over the net and not manually.
Easy to learn	Error rate should be less than 1 in every 50 users for each task.
	The steps to use the page are very easy to be remembered.
	Easy error recovery for every single error occurred.
Effective, Emotional, Intrinsic Motivation Concern	
Aesthetically pleasing	98% of tested users should have 4 out of 5 with 5 the highest for the below ratings:
Engaging	Aesthetic, Enjoyable, Engaging, ,Satisfactory
Trustworthy	90% of the tested users trust this conference web page for credit card use, information and password security.
Satisfying	No unnecessary anxieties impose by the interface such as user needs to complete the registration or file uploading in 10 seconds.
Enjoyable	The interface is quite interesting and creates a calm situation for the user to use the web page.
Entertaining	
Fun	
Extrinsic Motivation / Usefulness Concern	
Support individual's tasks	User only can get the topics when logged into the system.
Can do some tasks that would not so without the system	The events update and change of date can be viewed by the user without need to contact the person in charge.
Extend one's capability	

8 Conclusion

ICSECS webpage is developed for conference in Faculty of Computer Systems and Software Engineering in Kuantan. Basically, this system used Rapid Application Development (RAD) methodology during developing this system. Consist of four phases which are requirement planning, user design, construction and cutover, this method is suitable implement for developing this system because the size and scope for the system is medium and developed for staff in OSC and client of the OSC. By using RAD methodology, this system developed to solve the problem occurs in manual or current operation in submission of application in building plan. This system enable in helps user manage their times in submission the application, the approval times and reduce the usage of form by using electronic form.

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