

行政院國家科學委員會補助專題研究計畫

成果報告
 期中進度報告

網頁式的自動發行系統

計畫類別： 個別型計畫 整合型計畫
計畫編號：NSC 90-2213-E032-004
執行期間：90年7月31日至91年8月1日

計畫主持人：劉虎城教授
共同主持人：施國琛教授
計畫參與人員：張文智

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執行單位：淡江大學資訊工程系

中華民國 92年 5月 14日

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一、中文摘要

我們希望有環境提供一起討論、共享、儲存、編輯、排版的功能。特別在學術性的領域，學者們將論文投稿至研討會或是期刊時，通常都會遇到必須將自己的論文格式化的麻煩，面對著不同且嚴格繁瑣的規定，過程不僅浪費時間且繁瑣惱人，讓論文寫作及期刊排版的人員花費相當多的時間，在處理一些相當基本而繁瑣的格式設定和文章的基礎編排上。在提供上網服務的地方，加上電腦設備，便能輕鬆地將自己所打字及粗劣地排版好的文件，以簡單的指令，加上系統中所提供的簡易服務，格式公整的論文馬上出爐。線上輔助編排論文系統，提供固定的格式、欄位，使用者只要將自己的論文，以剪貼動作及上傳檔案的功能，就可以完成在網路上立即排版，並且可以提供多人上網更改同一篇論文的段落。換言之，網上輔助編排論文系統以簡易的方法，提供投稿的人們解決論文格式化的惱人問題。另外在許多的公司行號或是文教機構中，人們也有著相同的問題，在固定格式的公文或文件中，為了讓報告或文件完成，必須對於不同的文章段落，進行上百次相同的固定步驟。使用者能夠在網路上的文件編輯中，不只是文字方面的編寫，更可以提供圖片的修改，和圖片的位置移動及表格的修改與位置改變。讓以往網上編輯所能達到的功能更加強大、更形便利與加快速度。

關鍵詞：線上輔助編排論文系統、基礎編排、格式設定、格式化

Abstract

In recent years, publication on the web has become more and more popular and important. Many research and web sites [4-9] are devoted to the study of web editing environment. There are some technologies to the problem, such as ASP, CGI, Active X, VB script, java script and so forth. But there is still a problem about figure editing. Most of web editing environment are just handle text editing. In this paper, we proposed a Web-based publishing system which makes the users more convenient. Users use mouse to cut and paste the article on the editing area with Internet Browser (IE 6.0). Then, users click the function button which we write in VBA program. Web-based automatic publishing system is simple to anyone to edit their papers, and edit tools and environment are the same as Microsoft Word. The big difference is users can edit and publish papers on the internet with browser by client side. Another point is users can work together and work out a good paper. With good database's help, users can access documents with their own password. The on-line editing system can supports virtual conference operation. There are some major important steps, 1.format, 2.basic edit 3.set type, papers are edited automatically. The web-based automatic publishing system is convenient for users to edit on web.

Keywords : web-based automatic publishing system、format、basic edit、set type

Introduction

In recent years, more and more research conferences are held in the world. Each conference and workshop has to publish a proceeding. A proceeding collects many

good papers which may comprise text, chart, figure, table, equation and so on. In the editing process, people use different package software to edit their paper. People have to devote many people, much time, and money to edit paper, set font size, redraw the tables, remove the graphs, reset all the original paper setting. To expend all editors' energy to publish a proceeding or a journal. If we can develop an on-line paper auto-edit system for conference to save the time and money. We'll have more time in research discussion and paper publishing to higher research worth.

Web publishing and on-line edit environments are more popular in the society. Virtual conference [16] also becomes popular today. Some organizations held virtual conferences on the website to save a lot of time and manpower. If we supported a powerful edit environment and discussed area for the users, people could connected and exchange their opinions to each other.

Related Work

There are many paper templates in every conferences and journals. They are all different in paper setting. We bring up an example of the Tamkang journal of science and engineering. Their regulations are following :

Preparation of Manuscript

Language. The paper should be written in English.

Title page. The title page should be the first page and include the title, all authors' full names, the name(s), city (ies), and country (ies) of the institution(s) with which they are affiliated, and a complete address for correspondence.

Abstract. The abstract should be no more than 250 words. Several keywords should appear at the base of the abstract.

Text. The text of the paper should consist of an Introduction, Materials and Methods, Results, Discussion, and Conclusion. Acknowledgments may be given.

Length. A full paper normally should not exceed 10 printed pages in the Journal.

Illustrations. All illustrations, including

figures and tables, must be professionally rendered and suitable for reproduction. Words, numbers, and symbols should be large and clear enough to remain legible when the figure is reduced to column width (approx. 8 cm) . Each table should have a brief, concise title. Indicate units clearly.

Equations and Mathematical Formulas. Equations should be typed and numbered serially on the right-hand side by Arabic numerals in parentheses, and camera-ready. Superscripts and subscripts should be indicated clearly.

Nomenclature. All symbols and units, English and Greek, should be indicated of their meaning and dimensions in the text and/or in a list in alphabetical order.

Units. SI units are recommended to be used in the text, figures, and tables.

References. References to quoted literature should be indicated in the text by square brackets. References should also be listed and numbered in alphabetical order together at the end of the paper. For example:

(1) Journals:

Woo, H. G. C. and Cermak, J. E., "The Production of Constant-Shear Flow," *J. Fluid Mech.* Vol. 234, pp. 279-296 (1991).

(2) Books:

Slotine, J. J. E. and Li, W., *Applied Nonlinear Control*, Prentice Hall, Englewood Cliffs, N. J., pp. 100-105 (1991).

(3) Proceedings:

Lin, L., Howe, R. T. and Pisano, A. P., "A Passive in situ Micro Strain Gauge," *Proc. IEEE Micro Electro Mechanical Systems*, Fort Lauderdale, FL, Feb., pp. 201-206 (1993).

(4) Theses:

Pllard, A., "Flow in Tee Junction," Ph. D. Thesis, University of London, London, U. K. (1978).

(5) Reports:

Kareem, A. and Cheng, C. M., "Acrosswind Response of Towers and Stacks of Circular Cross-Section," Department of Civil Engineering, University of Houston, Report No. UHCE84-6, Houston, Texas, U. S. A. (1984).

The upper part is the regulation of editing. Each journal and conference has its rule for editing papers.

In other related research about web edit environment, there are some systems developed for the users to edit some documents and discuss some issues. In early period, HyperNews [4] offer the service as the BBS system for people to announce some information or messages in the form of text. People can announce their opinions, response their articles. In Figure 1, we can see the HyperNews [4] system is displayed only with text. Another research in Germany, BSCW [5] provided a public space for every user to edit, store documents, and discuss some issues. In Figure 2, each member in BSCW has personal space, trash can, package and global space. In addition to these services, BSCW [5] use server-client architecture to manage the clients' activities. In Figure 3, people create new folder on the website. In [Raptor], they have a better tool bar for the users. People can use the interface such as the Microsoft Outlook Express writer letter mode environment.

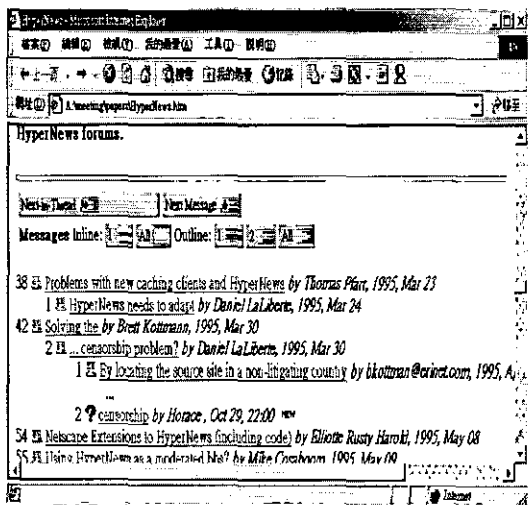


Figure 1 : [HyperNews] is a system for the users to announce, discuss and read the articles.

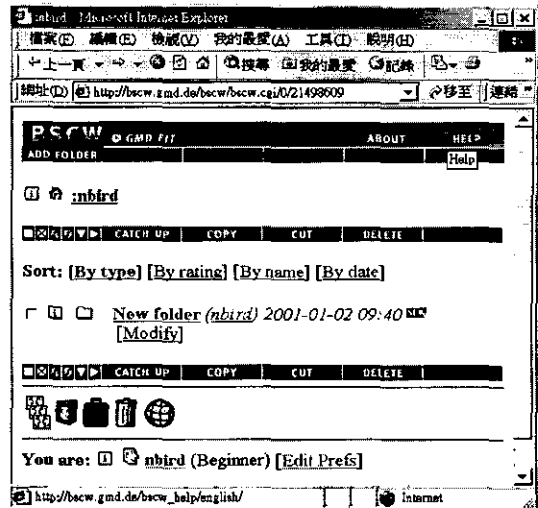


Figure 2 : [BSCW] is a server offer free space to the users to edit paper, discuss issues, and present papers.

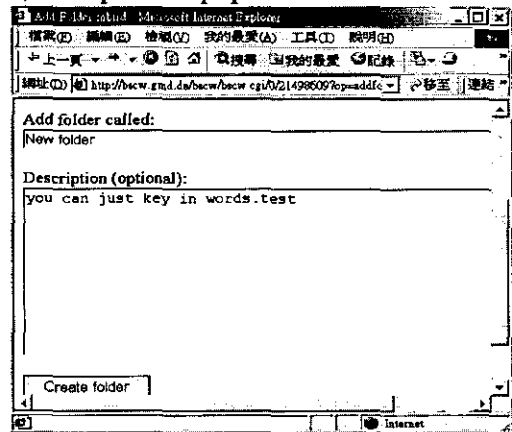


Figure 3 : [BSCW] system is still edit in text mode.

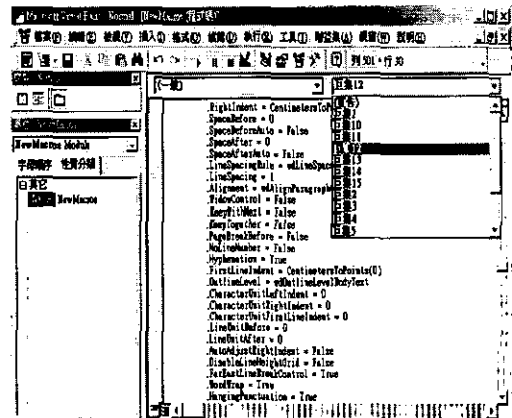


Figure 4 : MS Word Basic edit environment. We can choose the macro program which we want.

Technology

In lately research, most plans use VB, VB script, JAVA script, ASP, CGI technology to implement the system. We use VB and VBA (Visual Basic Application) technology to build our exemplification and auto-edit tool bar. Visual Basic is a simple programming language which can build a visual interface. A visual interface let users feel friendly and interactively. VBA programming language is a well and sound developed language with every aspect of real practice. In Figure 4, we may choose the macro program which we want to use. In a nutshell, there are less mistakes in executing programs in VBA. And we just control and set the properties of each object. With the simply operate and coding, we can develop a very good tool of functions. We can see Figure 5, VBA IDE has many prototypes and functions. There is a most simple method to program, we could record the editing action by ourselves (see Figure 6). By the way, we use VB 6.0, it is very powerful in network application and front-client database develop and applications. VB 6.0 also offer WebClass and DHTML professional prototype.

VBA (Visual Basic for Application) also offer very friendly user interface. In order to expand the user's toolbar and tool functions. VBA offer macro functions, such as MS Excel macro, MS Access VBA macro language. Because this kind of programming language is based on Basic language, it is still has some differences between Basic language. Therefore VBA become the kernel of many MS package software. In MS Word, we can use the record function to record our predicted function toolbar. And we can add or change many beautiful button icon.

OLE(Object Linking and Embedding) technology makes many packages of software be packed into a internet browser. We can use normal functions and toolbar in usual software environment. With network and server service, the toolbar and functions we made by ourselves are taken to client to execute.

With these technology, we can offer the

macro functions to people all over the world with network and internet browser. They just download the macro program, then setup it.

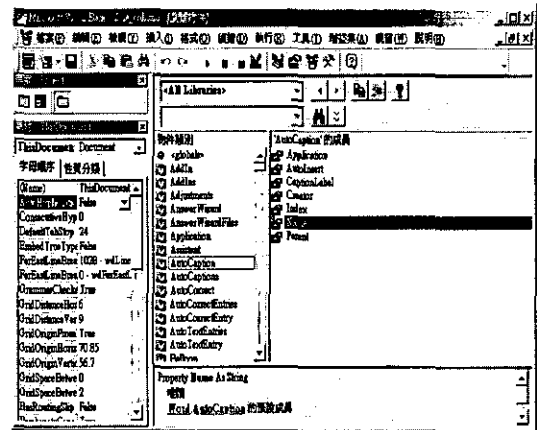


Figure 5 : [VBA] program edit environment has many prototype and functions. We can use these default functions and edit them as a new and different toolbar.

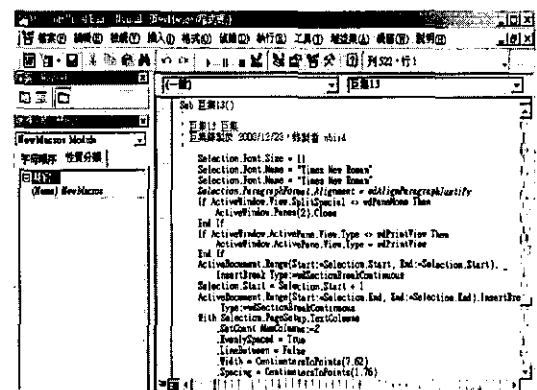


Figure 6 : [VBA] program is based on BASIC program language. We can use record or program by ourselves.

Architecture and Environment

A. System Tool Bar

Every journal and conference proceeding have different demand for paper editing and prototype setting. The paper formats for the conference are all different. These kinds of formats are MS word, Acrobat PDF, Unix TEX...etc. In our environment, we use MS word to edit paper. There are some important items have to pay attention.

Graph, and Photo :

Photo is a real phenomenon, users use photos to show the experiments. Therefore we must keep the factuality in the paper. Graph is a simple display way to show the experiment's architecture, flow chart, tables.

Table :

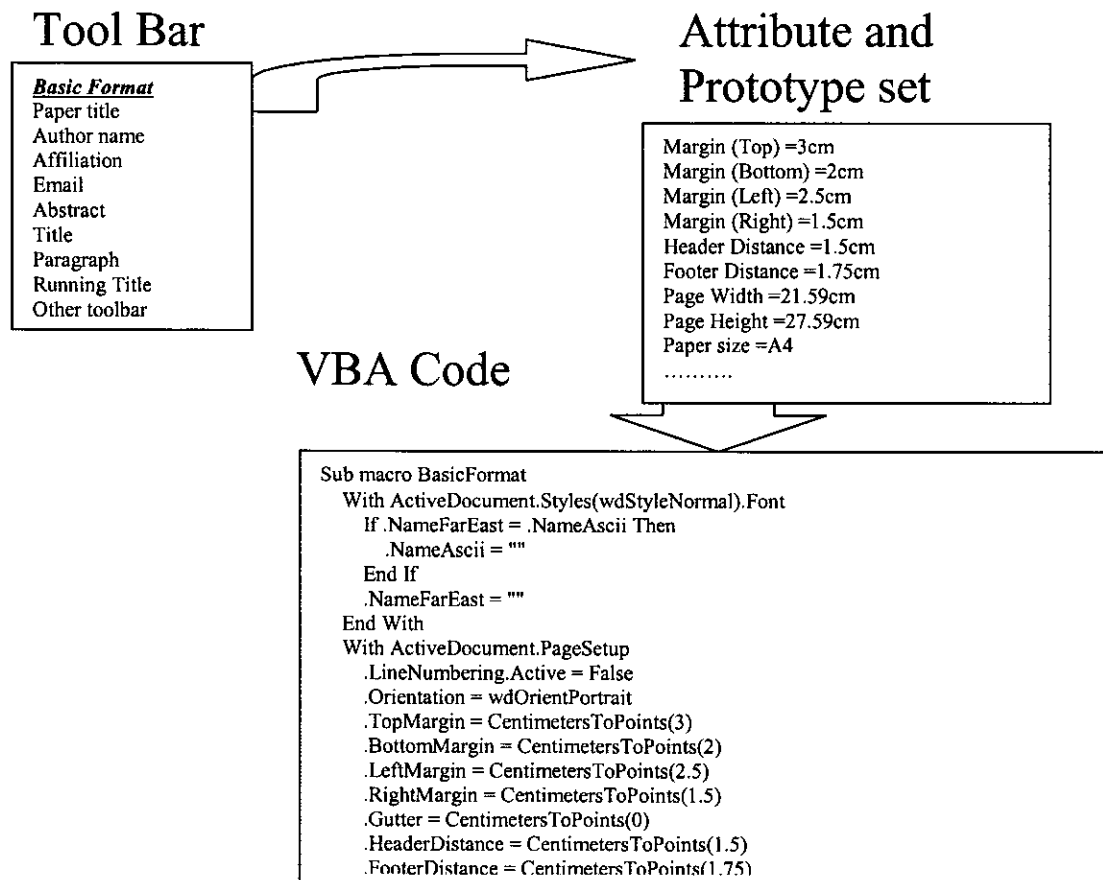
Many researches use tables to express experimental data and information. These tables may too big to place in the template. We want the users can make a table as a graph. Thus it is easy to edit and we can control the size of graph.

Flow chart :

Flow chart is a progress of a plan. People may use Visio, Paint software. But more formats more troubles in editing papers.

Equation : In mathematics, physics, chemistry and economics, Equations are often used in the research. Our system included the MS Equation software to help our users to edit their papers.

From Figure 7, we raise an example of tool bar. This example is [Basic Format] which is responsible for first step of editing paper and set attribute of paper elements, such as margin, page width, page height, paper size, and so forth.



coding with paper editing rule. Tool bar and function table are two different format but corresponding to the same VBA macro program.

The exemplification can provide many kinds of paper format, such as

Figure 7. Tool Bar Example

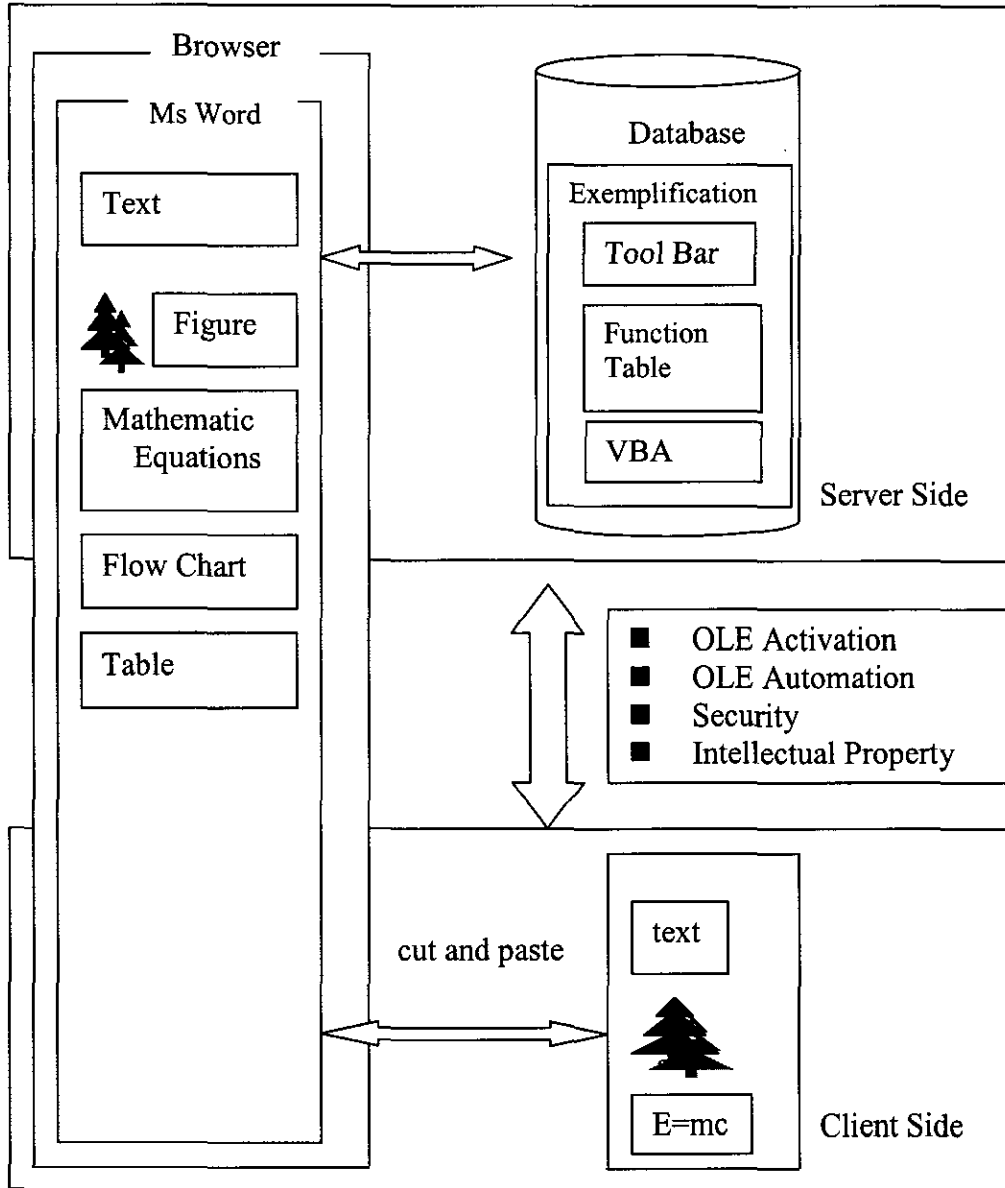


Figure 8. System Architecture

B. System Architecture

The system architecture is divided into several part (see Figure 8) :

(1)Server Side:

Server side provide edit exemplification with tool bar, function table and VBA macro programs. These tool bar, function table are

single column, double column, and other different formats.

With proper database control, the exemplification could access by multi-users. Also the server provides upload function on

the website. Users may cooperate to get the work done quickly. A simple space for users to exchange their comments.

(2) Client Side:

Client side is in charge with the operation of VBA macro programs. We allow the execution of VBA macro programs on the client side to lighten the whole editing load.

Users use simple commands (cut and paste) to complete editing progress. But the client has to pay attention to security and intellectual property. Users can not use the software which is illegal.

(3) Browser Side:

We use browser to access exemplification, which is composed of toolbar, function table and VBA macro programs. The editing objects are figure, graph, photo, text, flow chart, table and math equation. Some of them are combined together. For example, the option [figure] is consisted of photo, picture, graph and table.

Browser side uses OLE technology (OLE activation and OLE automation) to package the MS Word.

C. Environment

On-line proceeding edit system can be use in three ways. First, we can connect with internet browser to download the macro programs. Secondly, we may use common folder in Lan network, then users set their route to this common folder. Thirdly, we can find the server, and use password to pass, then use macro functions directly.

Discussion

In the following, we'll have some important issues to discuss under such an environment and architecture. These problems will occur when we use this system in practice.

A. Security

The system provides the VBA macro

programs for users to use on the server side. When VBA macro programs start on the client side, users' computer will regards the VBA macro programs as virus. Therefore it will present it from virus attract. When the two sides (system and the user) reached an agreement to run the macro programs.

The security level is divided into three levels, high, medium and low (see Figure 9). The [high] level permits the macro programs with reliable source to start. The unsigned macro programs would be stop in [high] security level. In the [medium] level, users can choose the macro program to stop or start by their own. The [low] level does not have any protect measures. It will start any macro programs without asking including macro virus.

B. Intellectual Property Right

The system will have some problems with Intellectual Property Right. For example, users use unauthorized fonts which server doesn't provide. Another example, users want to use unauthorized software embedded in the software. In such a situation, the server will not provide these functions, or it will show the error messages.

C. Software Update

We use the MS Word as the VBA macro programs editing tool and editing environment. However, when the software updated, the system will work properly or improperly. Our VBA macro programs will update automatically with the software updating. Users don't need to update their VBA macro programs all the time.

D. Off-line

When users in a off-line environment, they can use the system normally. Basically, the editing tool bar operates on the client side. Therefore it doesn't make any difference between off-line and o-line situation. However, it had better be on-line when the macro programs start and restore the file in the database.

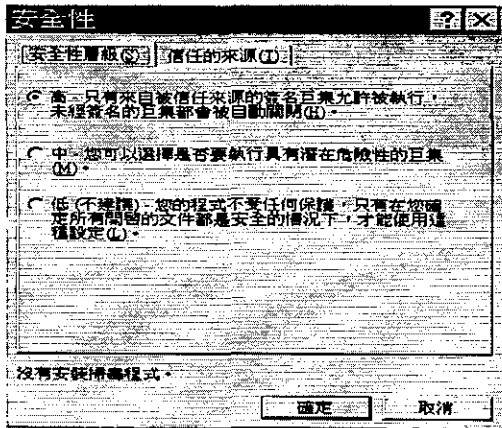


Figure 9 : In MS Word, VBA macro program will be detected. The security will be divided into three levels.

Implementation

With the VBA macro programs help, we implement the on-line proceeding editing system which enables the users to edit and format their papers automatically. Figure 10 shows the on-line proceeding editing system's homepage. Figure 11 is the MS word and VBA macro editing environment.

Users could use the tool bar and inset the function table in the client side (see Figure 12). And then, with the OLE automation and OLE activation technology, we call MS Word environment in the internet browser (see Figure 13). At last, users use the tool bar or the function table to complete their paper editing and paper formatting. The toolbar includes basic format, paper title, abstract, running title, pages, paragraph, and so forth (see Figure 14).

Users can also set the paper format by themselves, just change the value of attributes and rename them as a new macro programs. We have some tool for helping users to set the attribute and values. We implement this system with VBA macro, MS word, internet browser, OLE activation, OLE automation, macro security, SQL database and other technology.

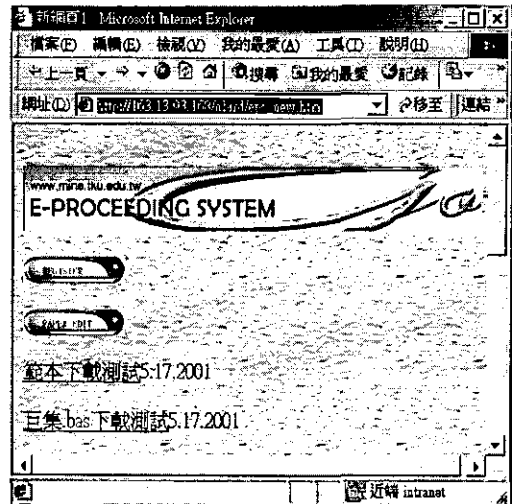


Figure 10 :System Homepage

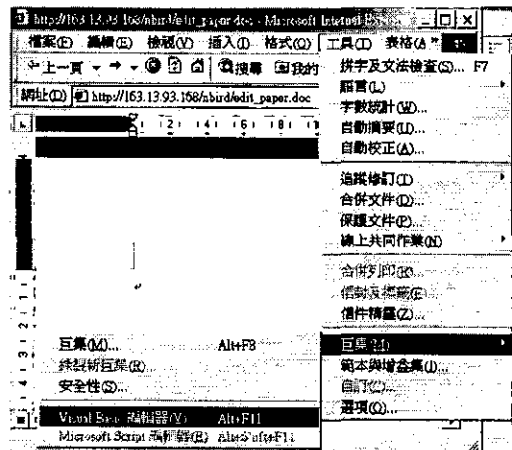


Figure 11: VBA Macro and MS Word Visual Basic edit environment.

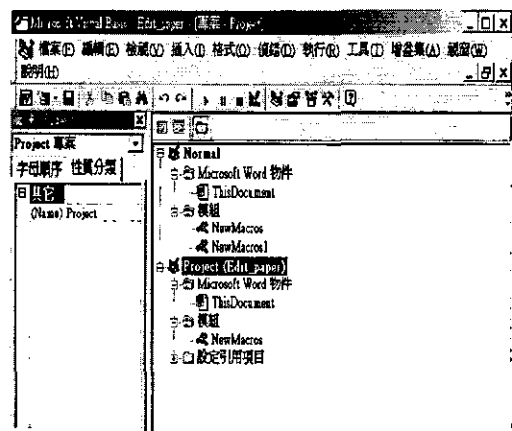


Figure 12 : Insert the toolbar made by ourselves .

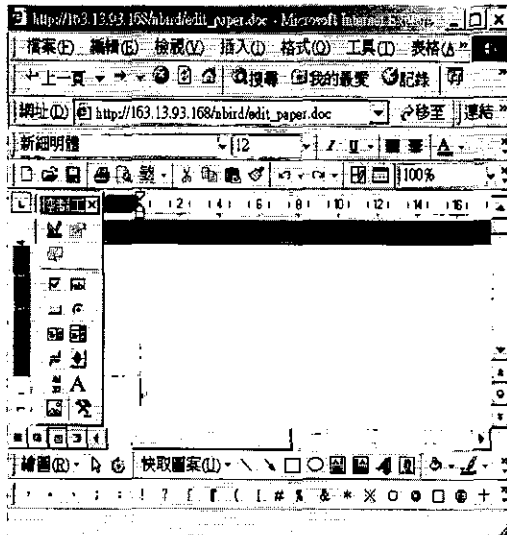


Figure 13: Using OLE to place different software in the internet browser.

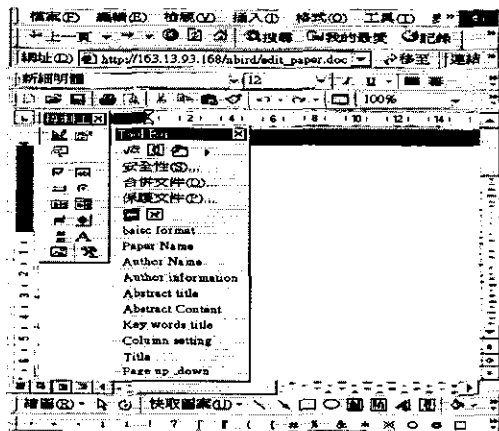


Figure 14 : Toolbar includes equations, graph setting, MS word visual basic, security, protected document, basic format, paper name, author name, author information, abstract title, abstract content, key words title, column setting, title.

Conclusion and Future work

In this paper, we proposed a Web-based publishing system which makes the users more convenient. Users use mouse to cut and paste the article on the editing area with Internet Browser (IE 6.0). Then, users click the function button which we write in VBA program. Web-based automatic publishing system is simple to anyone to edit their papers.

We provided the following functions :

- On-line edit environment
- Auto-edit environment
- Cooperative edit paper environment
- Upload file function
- Macro use and security

These are our contributions to on-line edit system. We use VBA macro programs to be our edit software. There exists another edit software Acrobat writer. The format has many advantages in editing. Therefore we will try to use Acrobat software to develop another on-line edit environment.

In the future, security will be the important issue in this field. And VBA macro program is also one of the virus. Macro virus is a short and powerful virus.

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