Interactive UTP Map Kiosk

by

Aslinda Jamalia Binti Othman

Dissertation submitted in partial fulfillment of

The requirements for the

Bachelor of Technology (Hons)

(Information Technology)

DECEMBER 2004

Universiti Teknologi PETRONAS

Bandar Seri Iskandar

31750 Tronoh

Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

INTERACTIVE

UTP MAP KIOSK

by

Aslinda Jamalia bt Othman

A project dissertation submitted to the

Information Technology Programme

Universiti Teknologi PETRONAS

In partial fulfillment of the requirement for the

BACHELOR OF TECHNOLOGY (Hons) INFORMATION TECHNOLOGY

Approved by,

_____

(Mrs Aliza Sarlan)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

December 2004

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgments, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

Katsy .

_____

ASLINDA JAMALIA BINTI OTHMAN

ABSTRACT

For this paper I have investigated common problems that occur regarding the problem of viewing the campus map and the direction faced by the outsiders from UTP. The aim through this study is to overcome some of the problems that occurs to the outsiders to know and identify the map of the New Building in the UTP campus. The investigation involves the outsiders who are not too familiar with the UTP campus surrounding. In this project, several techniques used such as providing Questionnaires, and do some Observation.

In this research, the importance is ranked from the degree of the importance of this system and its usability. Based on this ranking, the system is focusing on the New Academic Building especially for the IT IS (01 and 02) building. As the findings have been done, the study highlights the advantages of this system and the needs of the modification to enhance and improve the system functionality.

ACKNOWLEDGEMENTS

The author would like to express her gratitude to ALMIGHTY ALLAH, without HIS WILL this final year project would not be accomplished. The author would also like to take this opportunity to convey her appreciations to all the people who has contributed directly or indirectly in the research and development of this project.

Firstly, the author would like to express her gratitude towards Puan Aliza Sarlan from the IT and IS department of Universiti Teknologi PETRONAS, who is her supervisor for this FYP. Without her full support and believes towards the author, this project would not even be chosen as the topic. She has helped and believes in the author capability in doing this project and agreed to accept this project. All of her helped and advice could not be traded with anything in the world. The author would like to thank her for her help, believe, advices and experiences. Without her help, the author would not be able to proceed with this project.

Secondly, the author would like to thank Mr Justin Denish Devaraj, also the lecturer from IT and IS department for giving his knowledge and his help regarding getting the map and information for this project.

Besides that, the author would also like to thank the friends and colleagues who are also collaborate with the author and giving help during the development of this project. Without the colleagues, the project may not run smoothly and finish until its completion.

Finally, the author would like to express her gratitude to her parents, the FYP coordinator and the UTP lecturers. Without their support, the author would not be able to finish her FYP project and thus complete her degree.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Electronic Universiti Teknologi PETRONAS Map Kiosk or in the short form called EUM is the system that guide the user of the system to search the area or building around the UTP that they required to know. The research will be based on the tools and techniques in developing and creating the interactive map for the UTP usage. The findings of the research will be represented in the analysis and also a prototype of the interactive map kiosk. Besides that, the research also covers on the 3D development.

Under the research on the tools and techniques, the research will focus on the best way of developing and create an interactive map kiosk. It covers the best software or tools and equipment to be used to create animations, the appropriate way or techniques to be used in creating and developing the good interactive map. The tools for 3D methods also will be discussed in details later.

Another research that will be covers is on the kiosk itself. The kiosk that may be used has the capabilities in providing the details and information about the location they required. All the information regarding the building or location can be viewed by the user. At the same time can help them searching to the right location that they are looking for. The kiosk for this system is the standard personal computer (PC) as the hardware to use this system. The kiosk used for this project will be discussed in details.

1

1.2. Problem Statement

Majority of the outsiders who are coming or visiting to the UTP campus has the difficulties to know and identify the exact location of the rooms or buildings that they are searching for. Currently, UTP is very large area of university and the new building look the same. For the new comers or students or visitors who are not familiar with that area, they easily get confuse with the surroundings. Although there are map provided around the building, they still have the difficulties to identify or get the details of the room or building either the location or the specific number for each room.

With the modern environment and the technology that exist in this UTP campus, it is useful to use available facilities and technology in order to enhance the information retrieval of UTP New Academic Building map. From the static map, this system will be able to make it interesting and interactive map by providing not only the text, and image but also animation.

1.3 Objectives

- To identify whether it is relevant or not to develop this Interactive UTP Map Kiosk by handling the survey and observation.
- To describe interactive map development such as tools and techniques to be used in developing the interactive map
- To analyze and develop the system as a product to UTP for its New Academic Building.
- To identify the best way in developing the interactive map by using the technology provided.
- Do apply 3D format the common browser

1.4 Scope of study

1.4.1 Research Elements

To seek and analyze the feedback from the user by distributing the questionnaires and do some observations as a feasibility study for this project to create and develop interactive map kiosk for UTP New Academic Building

To study on the interactive map design and development in tools and also techniques. The research will covers from the selection of multimedia tools that need to be used to develop the system and simplify the process of developing the system. It also covers the area of discussion for the hardware and software requirement. It is because there are several kind of tools that exist.

Besides that, the research on techniques also will be covered. The research is purposely to choose the best techniques to be used and can ease in the development of creating the interactive map.

Another from the known multimedia tools, research will also covers on the 3D interactive map, how to create the 3D building or map using the 3D tools and need to consider the platform to display the model that is commonly only can be viewed with the special software.

Research also covers the research on the utilization of kiosk system because the kiosk might be any hardware such as touch screen or personal computers.

CHAPTER 2

LITERATURE REVIEW

3D tools have the capability to present the information or the graphics that is more interesting, innovative and real. In this paper we advocate the use of 3D techniques for realistic visualizations of geographic data for the purpose of navigation and orientation. [1]

By having the three dimensional map, it will help the user to feel it more interesting and user friendly system that can help them to navigate the map. Three dimensional maps have the capabilities to show the geo environment in electronic form to improve the information retrieval. Three-dimensional maps are fundamental tools for presenting, exploring, and manipulating geo data. This paper describes multi resolution concepts for 3D maps and their texture-based design. [2]

Nearly all early approaches for automating, organizing, and drafting map data used Computerized Aided Drafting (CAD) technology with particular emphasis on interactive graphics system functionality. It is because the interactive graphics will be able to present the high quality and accurate data or information to the user and have the capability to attract user to use the system. [3]

The map agent is for the construction of navigating maps, performing tasks on behalf of, and communicating with users. It will be able to help user in searching the required location needed by the user. [4]

Navigation map able to show and display clear image to the user. The map display can also shows the map scale and geographic details such as lakes, rivers, highways and

towns. So all the features can be viewed easily by the user using the map and the specific information or data can be presented by the system to the end user of the system. [5]

In this day and age, as we try to move closer to the paperless office, and Internet use increases daily world-wide, it is a good idea to have a grasp on how to provide your maps to not only your coworkers, but to the world in an electronic format.... to be easily downloaded, viewed, and printed. By having the technology that exist nowadays, it will help us to grab opportunity to produce one product that is useful and interesting to the user. [6]

By using Macromedia Dreamweaver, it will ease the developer to develop the task and create the innovative outcome or kiosk to the user. With Macromedia Dreamweaver since it is a mature, commercial tool that fits well into our environment. To do the maintenance task to the web or system, the Macromedia Dreamweaver could support in order to help the developer. So it will ease the developer in developing the interesting web for the end user besides giving the help to the developer. [7]

Beside teaching and learning interactive Web-based animations can be also excellently used to support research. Here they can be applied to acquire fundamental knowledge give deep and illustrative insights into the behavior of complex dynamic systems. It is very useful to use the interactive Web-based animations in order to give or present the information and knowledge to make it more understandable by the user when using the web. The information that contains in the web can be presented in the form of more interesting manner and can show the quick explanation to the user. [8]

By using the Macromedia Flash it may give more advantages to the web developer who is using this tool. It is affordable, easy to use, portable and the player is free. It is because the file is standalone and can be import or saved as .exe files. These criteria would help to developer to solve several problems that may occur during developing and maintaining the web or system in the future. [9]

Kiosk system has become very popular in their roles as point of information. Multimedia products have become mature enough to allow for user friendly user interface and for digital storage and retrieval in networked environments. It will be able to store database and information to be retrieved by the user. It can be the user friendly and is suitable to be the device to present the information to the in variety kind of situation. [10]

The interactive campus map at University of Utah is designed to allow students, faculty, staff, and visitors to explore the University of Utah campus over the internet. [11]

CHAPTER 3

METHODOLOGY/PROJECT WORK

3.1 Methodology

From the previous report, author has stated that the waterfall model is the methodology that will be used in developing this kiosk system. But after some analysis and observation has been made, author has decided to come out with own methodology for this system by referring the portion of the waterfall methodology to make it fix with the system development flow. From the analysis about the methodology that is suitable to be used, there are 5 phase of that are considered to be used. There are planning phase, design phase, development and coding phase, testing phase and delivery phase.

For the planning phase, there are a few kinds of researches that are involved. The matters that are involved are the process of feasibility study, analysis of the topic that relevant to be chosen for this project and also the research on the tools and techniques to be used.

The second phase is the phase called designing phase. This phase consists of the process of analysis and designing the process flow of the system. Besides that, the task of creating and designing the storyboard or the possible user interface also is created.

The next phase will be the third phase that consists of the coding and development phase. This phase involve the coding of the system to perform some tasks for example to coding to retrieve the information about the buildings. The process of development and construction of the system is also included in this phase. The entire tasks for developing the interface, template, animation etc are done in this phase.

The fourth stage is the testing phase. During this phase, the system that has been completed will be tested to test whether the system able to work or not and at the same time to see whether all the features and functions that are required is been fulfilled or not. If there are any modifications that need to be done after the testing, the remodification of the system will be done during this phase before it is delivered to the end user.

The last phase is called the delivery phase. At the delivery phase, the system will be presented to the user and for this project, the end user that will see this end output or product is the evaluator and the demonstration of the project will be done during the Final Year Project Oral Presentation. (see Figure 1)
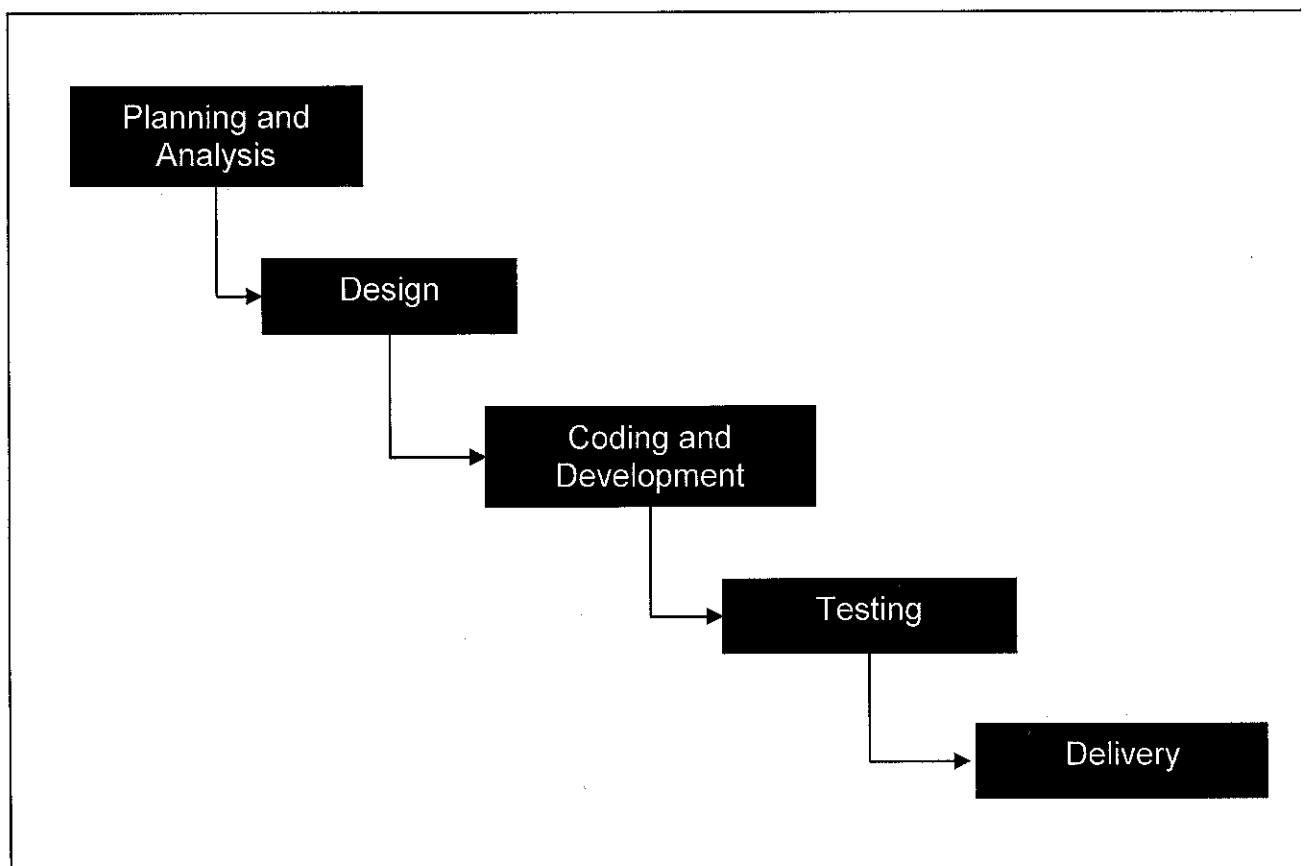
3.2 Methodology Model

Figure 1 : Interactive UTP Map Kiosk Methodology

3.2 Tools or Equipment required

PHP, MySQL, APACHE Server, other Web Based applications and 3D Application:

The main platform to be used throughout the development of the system is the *PHP*. As per the database requirements, the *MySQL* is currently seeing as the best option. It is easier and more user friendly to be used. Other tool required for the animation part is the 3D Application either the using the 3D Flash or using the 3D Animation Studio. Further research is to be done to identify the alternatives devices available and how they support the system effectively. Currently, the best device or hardware to be used is the common personal computer as the kiosk for this system. This system is best viewed using the Internet Explorer browser.

Currently, the software for 3D that is considered to be used is the 3D Flash Animator. The Adobe Photoshop 6 also is used to design the template of the kiosk. It is because all the software that are stated above are user friendly to be used and easy to familiarize with the function and tools that are provided.

A few additional tools have been used due to ease the development of the project. The additional tool that has been used is the Rhinoceros 3 software. But the software only can be used for 25 times because it is the evaluation software. The software used to create the solid 3D model to be imported to Director 8.5 3D to be animated.

CHAPTER 4

RESULT AND DISCUSSION

4.0 Result

The development of this system is within 6 months. So the scope only focuses on the scope that is stated at the early stage of this report. The system is and will be tested at the end of semester.

Figure 2 shows that how the system will be related to each other in order to retrieve information from the Interactive UTP Map Kiosk.
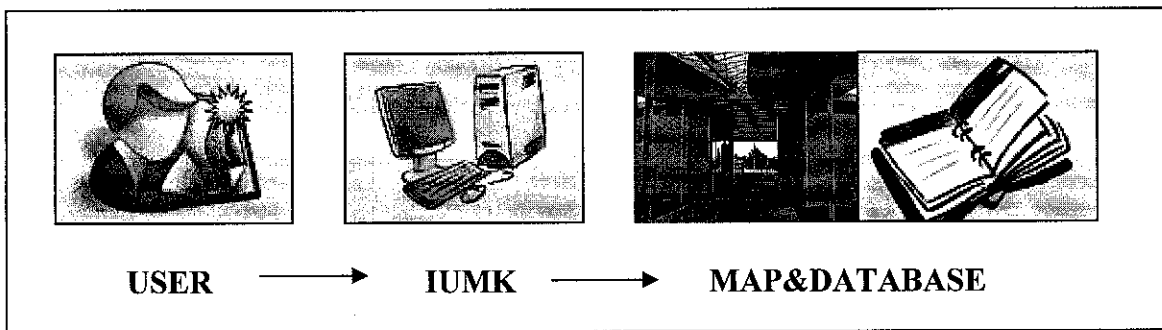

USER ⟶ **IUMK** ⟶ **MAP&DATABASE**

Figure 2 Interactive UTP Map Kiosk General View

After do the research on the tools and techniques, there are several options of multimedia tools that can be used to develop this project. During the research, the possible tools to be used are as followed:

1.	Macromedia Dreamweaver	- project development
2.	Macromedia Flash	- animation and montage
3.	Swish	- animation
4.	Flax	- text animation
5.	Java Script Language	- for drop down menu

The Macromedia Dreamweaver has been used is because of its capability to import and export varies kind of files from other software. (see Figure 3)
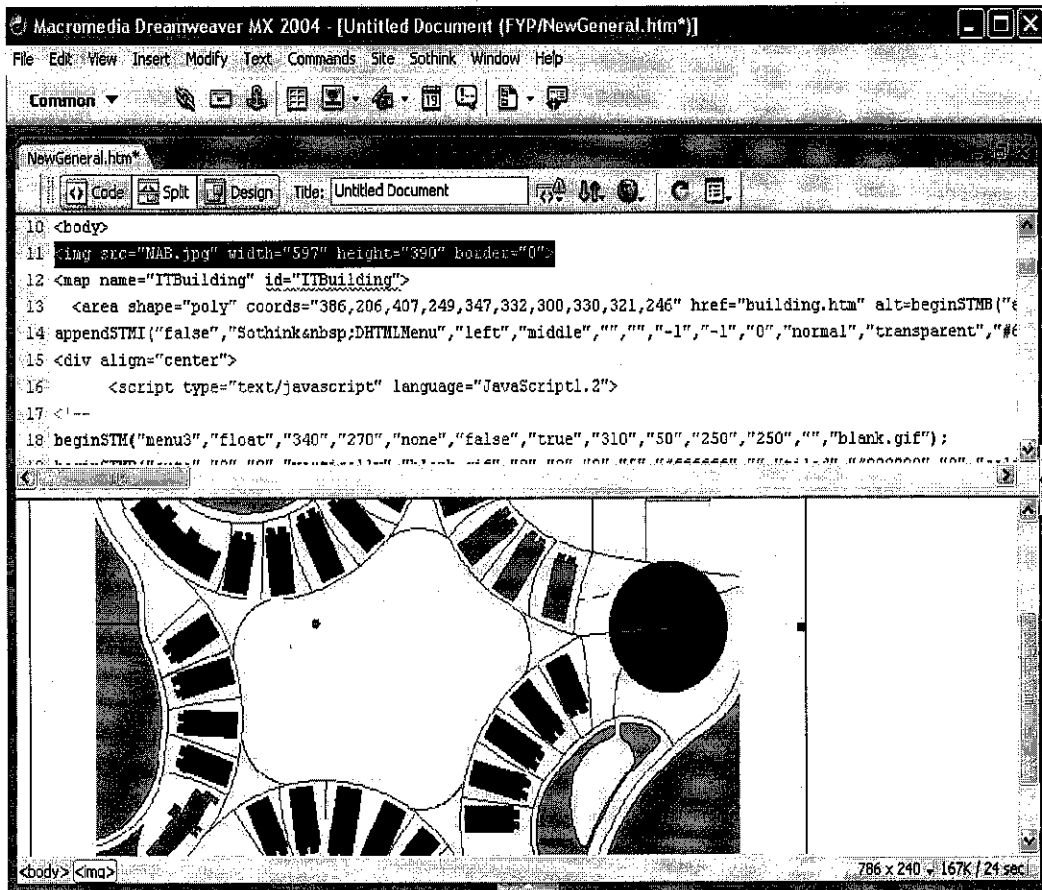
Figure 3.0 Workspace for Macromedia Dreamweaver

The tools that have been stated above are for the multimedia development part only. After done with the research on tools that can be used to create and develop the 3D model, there are several tools that may help to ease the development of the 3D objects. There are:

1. 3D Max Studio or 3D Rhinoceros   - to create the solid object

2. Macromedia Director 8.5 (3D Basic)   - 3D animation

    (see Figure 4)
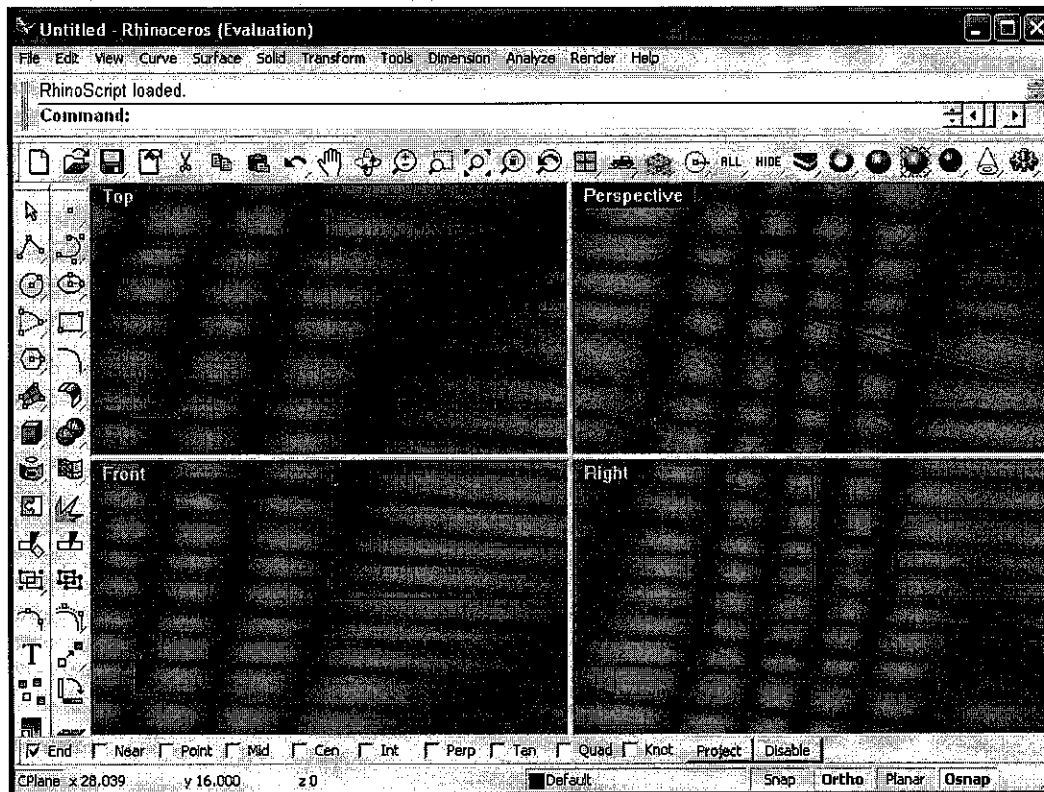
Figure 4 WorkSpace for 3D Rhinoceros

The Macromedia Director 8.5 is suitable to be used is because of the macromedia product that is commonly can save the file as the HTML format that can be viewed using the Internet Explorer or other browser which can be viewed by any user. The Macromedia Director also has the capability to import the 3D object from other software.

Figure 5 Workspace for 3D Using the Macromedia Director 8.5

Figure 6 Screen Shows How the 3D Object Can be Imported to Director
Workspace

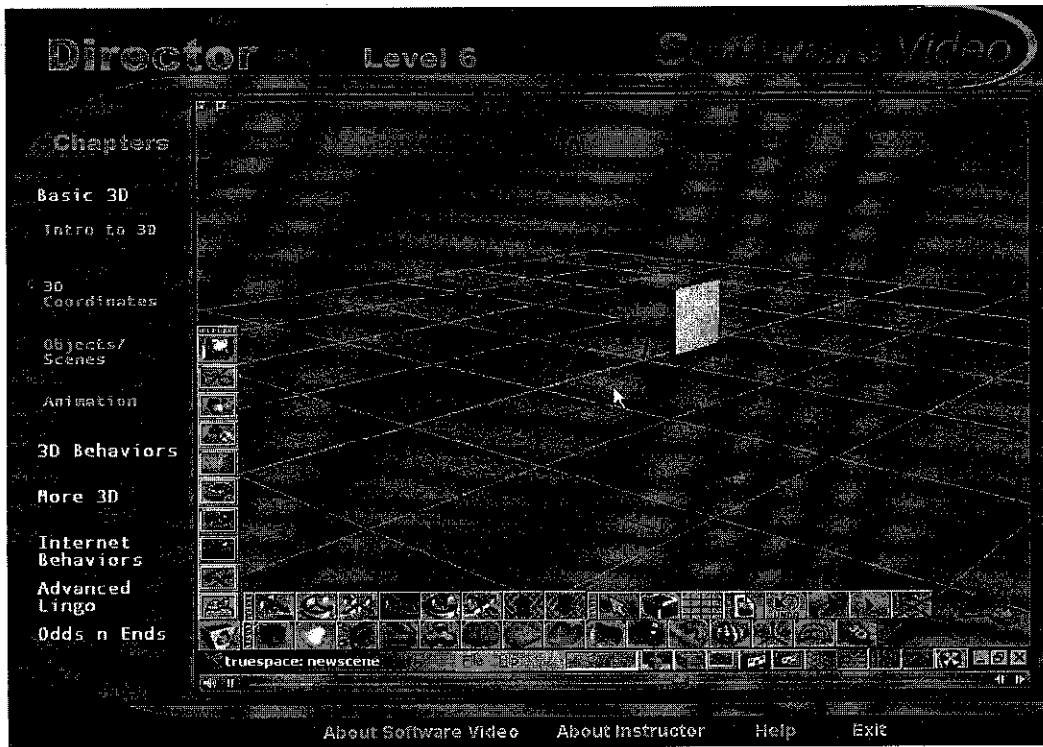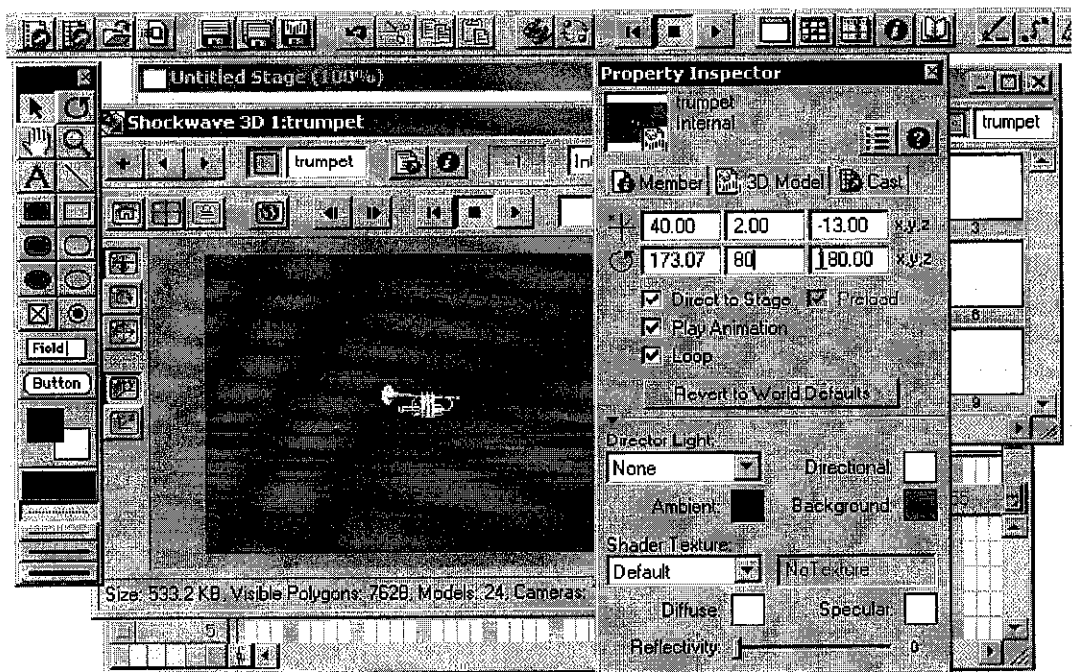For the server to insert or retrieve data, the author has chosen the Apache server using the PHP (that support by Macromedia Dreamweaver) and MySql as the database.

4.1 Findings

From the findings that have been done, it shows that it is necessary to build and develop a system that can help the user especially the outsider that come to the UTP to navigate the UTP New Academic Building especially for the Building 1 (Information Technology) building and Building 2 (Information System). By using the tools such as Macromedia Dreamweaver and Macromedia Flash, it may help the task in developing this system and the interface of the kiosk become easier and innovative. The database of the details description of the buildings is stored in the MySql, in order to retrieve the information direct from the database. The kiosk that is used for this system is the standard personal computer is able to be the middle device to help the user in retrieving the data.
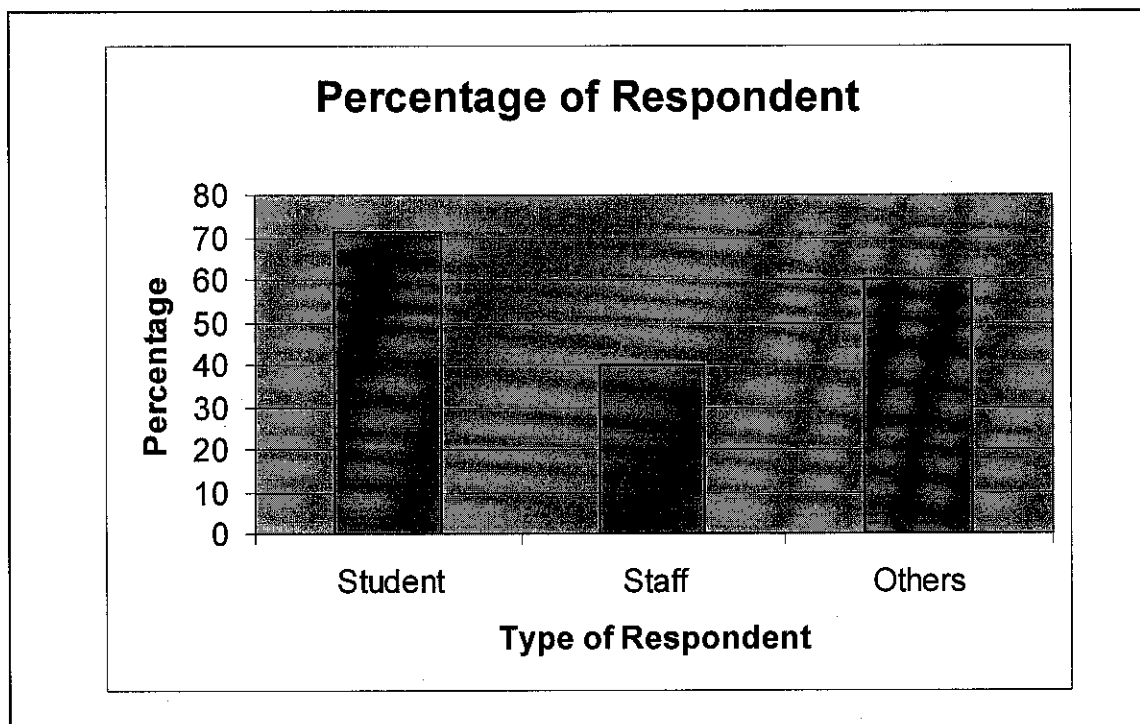
4.2 Survey

Figure 7 Graph for Percentage of the Respondent

To analyze the feasibility of the project, the author has distributed the questionnaires to several group pf respondents that are students, New Academic Staff, Non New Academic Staff and others (the other type of respondents included the outsiders). The questionnaires have been distributed through several ways such as Mirc (Internet Relay Chat), emails and self delivery. But the respond that the author gets from the respondent quite disappointed. There are a few reasons for the difficulties to achieve full target of the questionnaires. There are because of the time constraint, lack of cooperation from the respondent etc. The rating of the respondent is represented graphically as shown in Figure 7.

The questionnaires have been distributed to the 70 for students, 15 for New Academic, 5 for Non New Academic Staff and 10 for the others (outsiders). As shown in the graph (Figure 7), the responds that the author gets only 71% from students, 40% from staff and 60% from others.
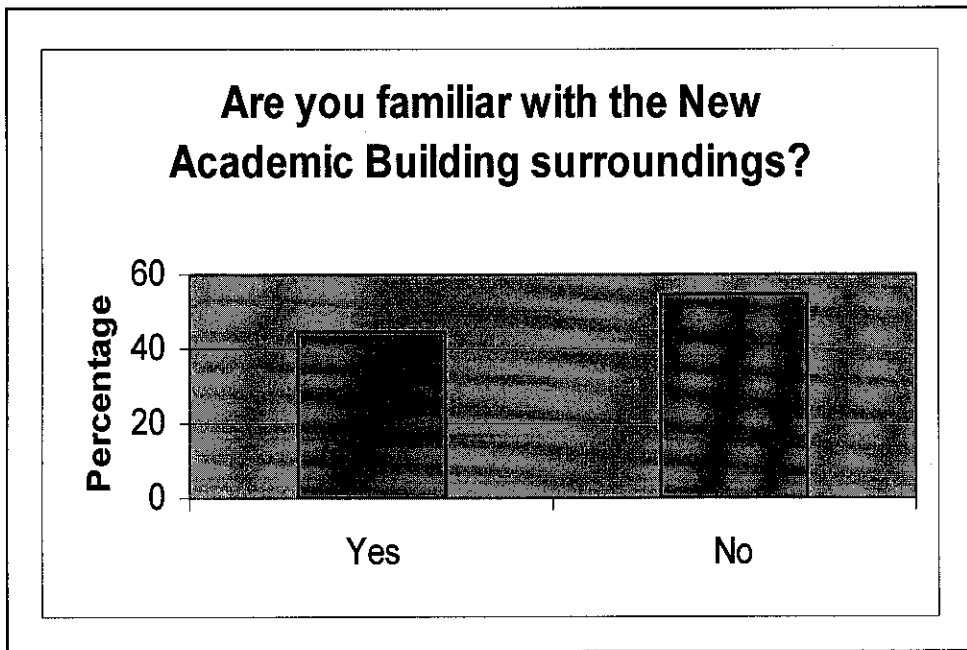
Figure 8 Survey for New Academic Surrounding Familiarization

From the survey above, it shows that majority of the respondents are not familiar with the New Academic Building surroundings yet. About 45% of the respondent answer YES and 55% of the respondents answer NO. (see Figure 8)
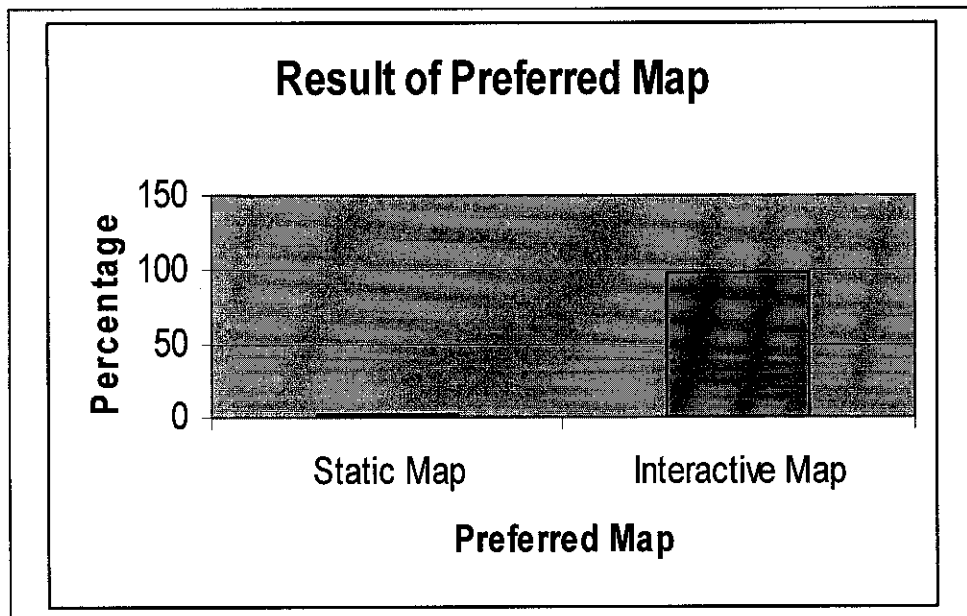
Figure 9 Result for Preffered Map

From the graph above, majority of the respondents prefer to have the interactive map compared to the static map. It is because; the interactive map is more interesting to them. About 98% of the respondents prefer to choose interactive map compared to only 2% of the respondent choose to have the static map. (see Figure 9)
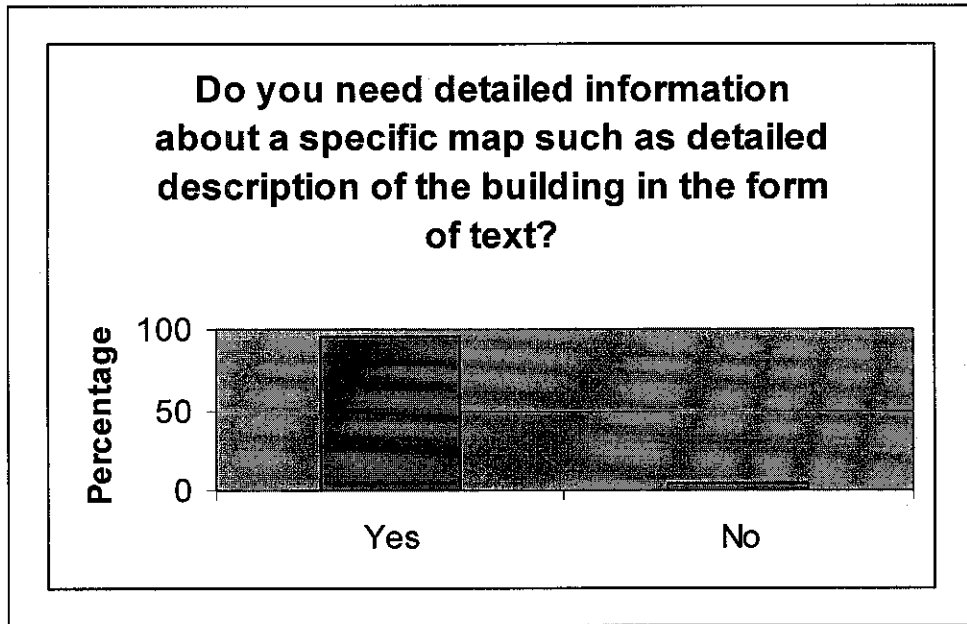
Figure 10 Result for details description in form of text

The graph shows that the user requires the map displayed interactively together with the detail information about the map in form of text. In might because if there are supporting text that give more explanation about the location, it help to strengthen the task in searching for the required building. 99% of the respondents answer the question as YES and only 1% of the respondents answer the question as NO. (see Figure 10)

Type of Additional Elements Required

Figure 11 Result for Additional Elements Required

According to the graph above (Figure 11), it shows that majority of the respondents prefer to choose the User Feedback to be added into the kiosk as the additional elements. About 70% of the respondents prefer to have User Feedback as the additional elements to included, 20% choose User Suggestion, 2% prefer Forum and 8% for the others. There are many kind of opinion that has been suggested by the respondent for the OTHERS answer. There are some staff suggested that there will be interesting kind of system if there are a section that requ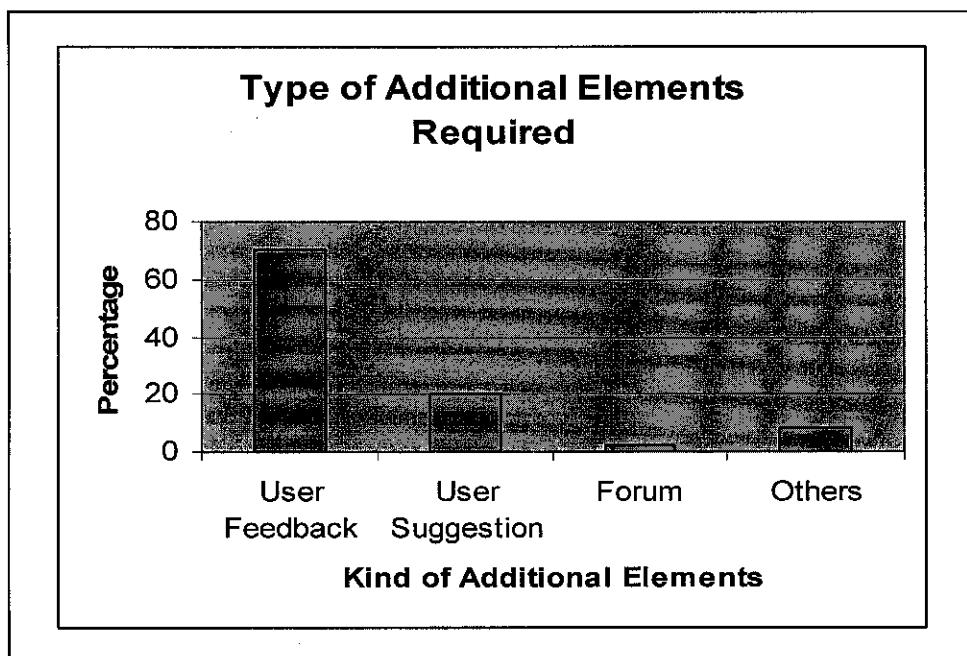ire the user to insert the input such as biometric technology (e.g thumb print) in order to enter the system and other kind of technology to enhance the kiosk.

From the analysis that has been done based on the survey, it shows that it is feasible to develop this Interactive UTP Map Kiosk in order to generate the facilities that will be able to help the user to search for their location around UTP New Academic Building.

After the feasibility report that has been done, it shows that the kiosk have many advantages to UTP campus to perform and solve current problem that exist such as on

how to navigate the rooms and buildings that exist in the UTP New Academic Building. Some of the students or staff at non New Academic Building is not too familiar with the new surroundings and the new buildings. And it shows that this Interactive UTP Map Kiosk is useful to be used in UTP for the modern and unique New Academic Building.

4.3 Discussion

From the research on the journal and other sources such as the observation on the Internet, it shows that there are researchers who have done similar to this system and it can help to improve the functionality and enhance the organization. So it is also can be applied into the UTP campus to introduce and show the rooms that exist in the New Academic Building.

From the analysis has been done, the flow of this system has been created to fix with the system that is developed. The flow chart is shown in the next page for reference. The flow is starting from the montage until the user want to quit from the kiosk. The middle flow shows that the user can choose either to know the introduction of briefly about the UTP New Academic Building or just to choose the option to navigate the map of the New Academic Building. (refer to Figure 12)

The storyboard also has been drafted as the guidance in order to help developer to create the web for the real system for the next phase. There are three storyboards that have been designed for the main screen, home page and also the user interface to navigate the map. (refer to Figure 13, 14, 15)

All data that can be retrieved from this system can be presented in more interactive way and make it understandable. That is why the purpose of using the multimedia technology to present the map and give explanation about the details of the building to the user by using the animation or graphics rather than just using the static text. (refer to Figure 14)

The sample of the mainpage snap shot can be viewed in Figure 16. It is not complete yet and it is under project construction.

By using the multimedia tools, it can reduce the problem that may be occurred during the development of this kiosk. For an example, by using the multimedia tools, it only required small size of storage and it also can be run in the free platform.

```
  START  ───────▶  INTRO  ───────▶  MONTAGE
                     │                   │
                     ▼                   │
                   ENTER  ◀──────────────┘
          ┌──────────┼───────────────────┐
          ▼          ▼                    ▼
        HOME        eMAP              GUESTBOOK
                     │
                     ▼
                   EXIT
```
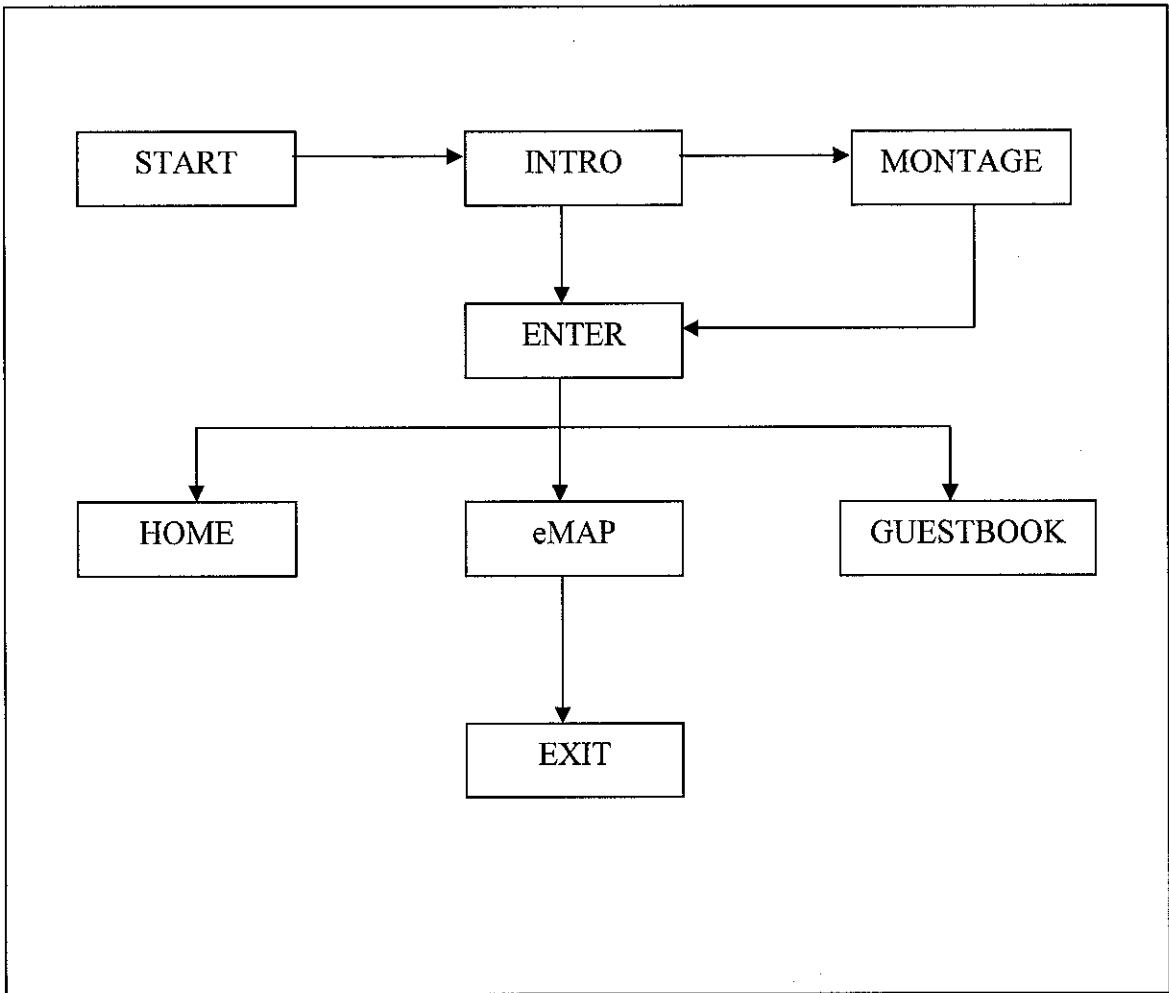
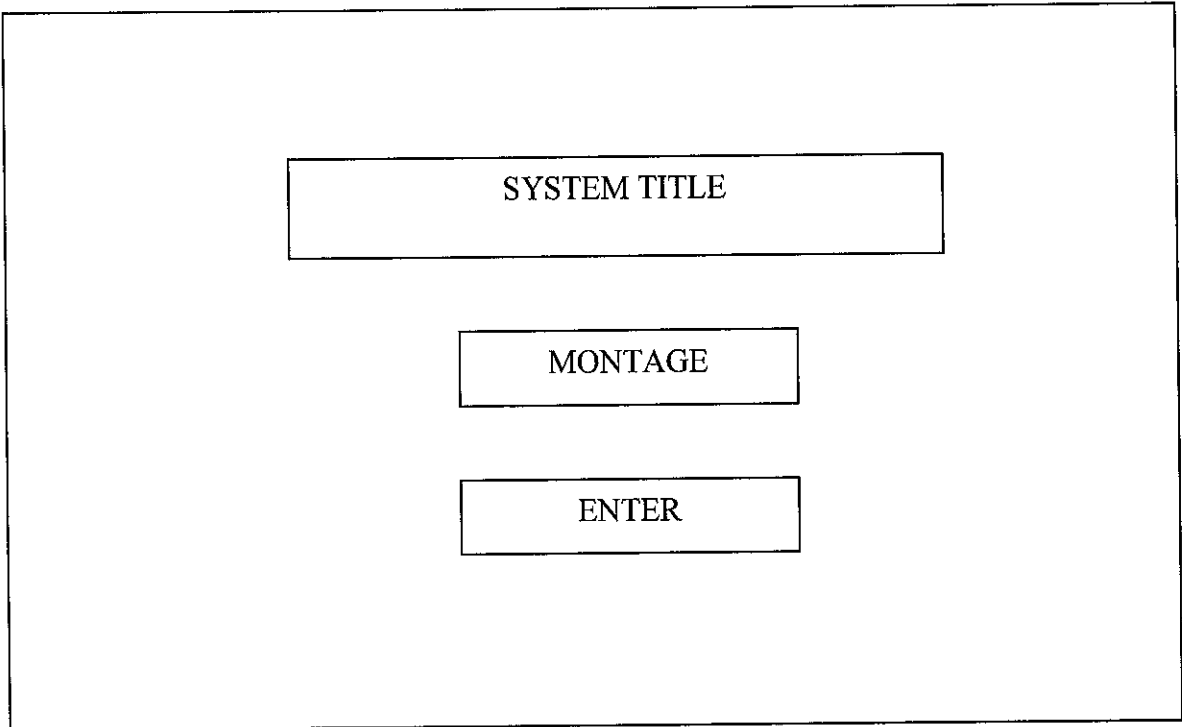Figure 12   System Flow Chart
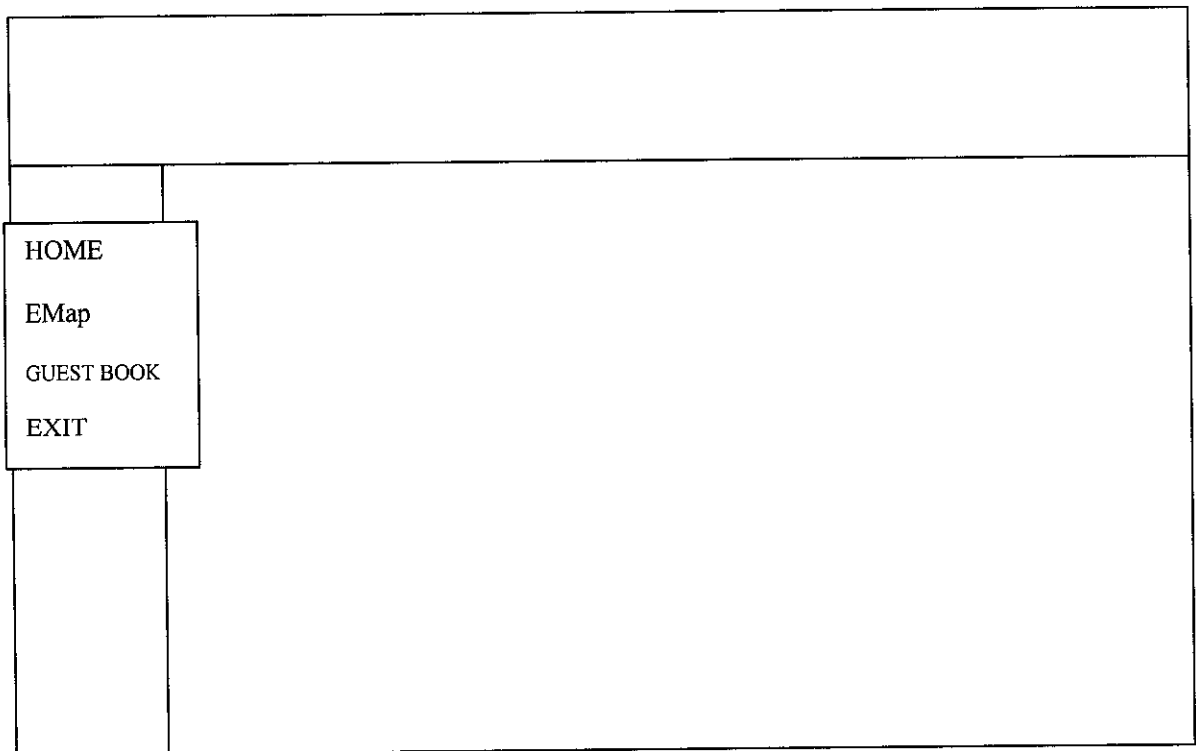
StoryBoard

Figure 13 Main Screen
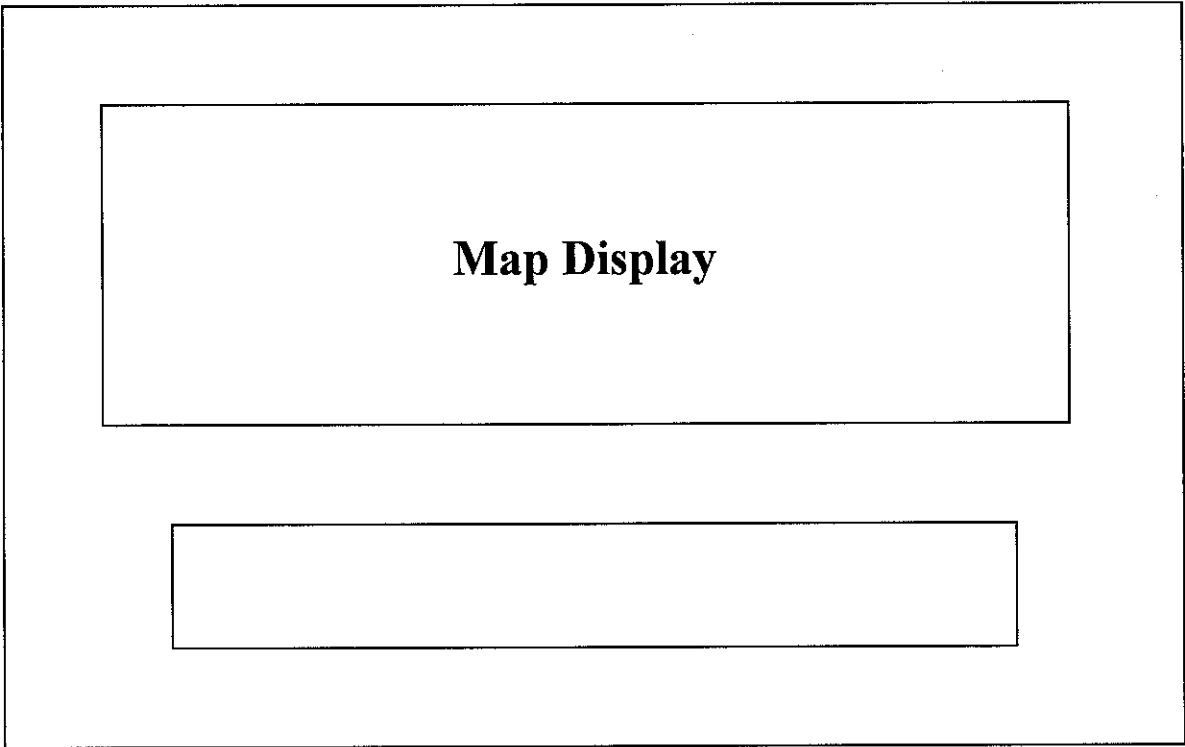

Figure 14 Home

Figure 15 Map Navigation

Figure 16 Sample of MainPage Snap Shot

4.4 Features

For this kiosk, there are several functions that are included. The scope of the areas considers the location, functions that may be required and other considerations. The system focus on these following matters:

4.4.1 Map

Map or picture of the location show the exact point or place of the location that the user need to know and by having the map, they will know what are the other buildings that exist around the identified area to strengthen the exact location of the required place. The map presents the general map of the UTP building and it zooms in the location selected by the user and has the animation.

4.4.2 Area

The areas that are focused for the map is the UTP New Academic Building specifically for IT IS buildings that are 01 Building and 02 Building. The system states the details of each room that exist in the building by selecting any level of the building.

4.4.3 Information or Details Inquiry

Besides providing the information to the user in form of display text and the picture in the listed list, user can access the information in the database that exist in the system about the building that consist in the campus.

4.4.4 Guest Book

The user of this system will be able to give their feedbacks or comments about the building around UTP campus as well as their feedback about kiosk system. By having this feedback section, we will have the variety of suggestion and comments that will help

us in improving the functionality of building around campus as well as in improving this kiosk system.

4.5 Map Navigation
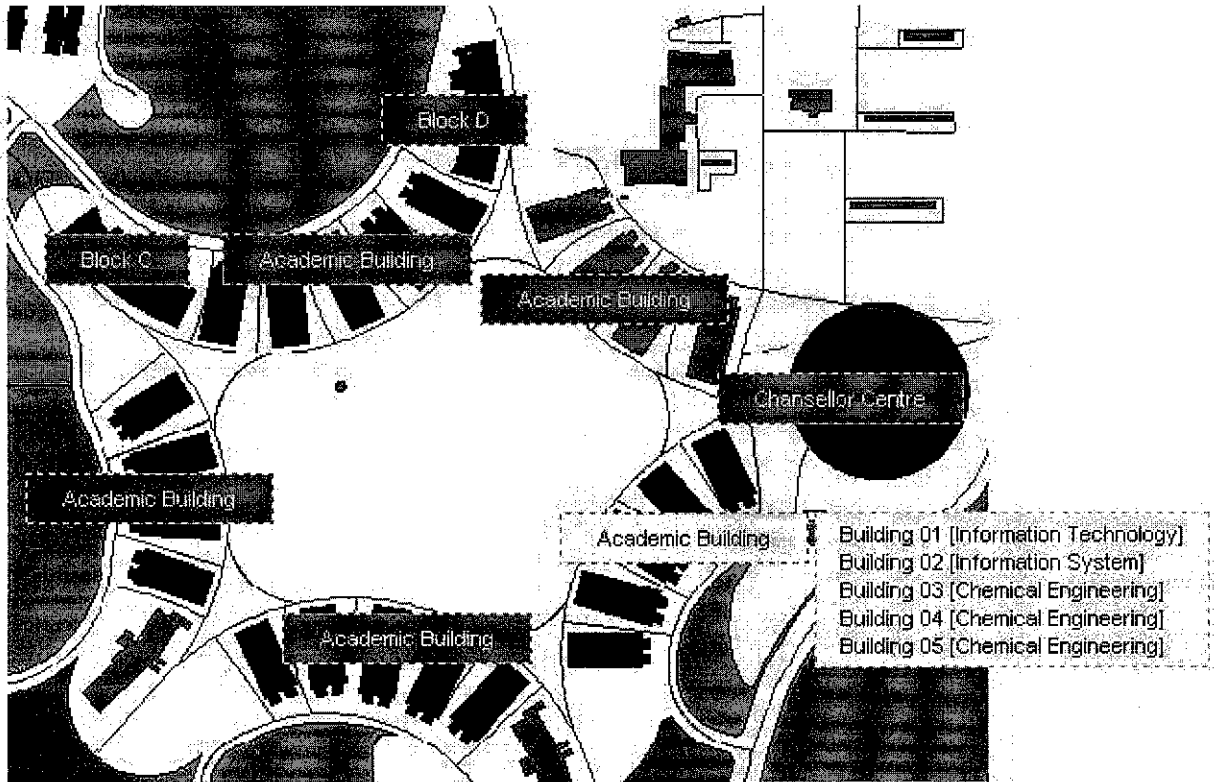
Figure 17 General Map of New Academic Building

To help the user to navigate the map of the New Academic Building, the general map as shown above (Figure 17). When the user points their mouse to the one of the location that they want, the map will display the buildings that exist around that area of the selected location.

For an example when the user points the cursor to the one of the label box (e.g Box labeled Academic Building, the map will display the all the name of the building that exist around that area) such as for Area Academic Building 1, there are:

1.   Building 01 (Information Technology)

2.   Building 02 (Information System)

3.   Building 03 (Chemical Engineering)

4.   Building 04 (Chemical Engineering)

5.   Building 05 (Chemical Engineering)

The tool used for to produce the drop down menu is by using the Java Script. Then if the users want to zoom the selected area, the user needs to click on the map that they want to zoom. The map then will go to the zoomed map that will show the building more specific compared to the previous map according to the position of the building.
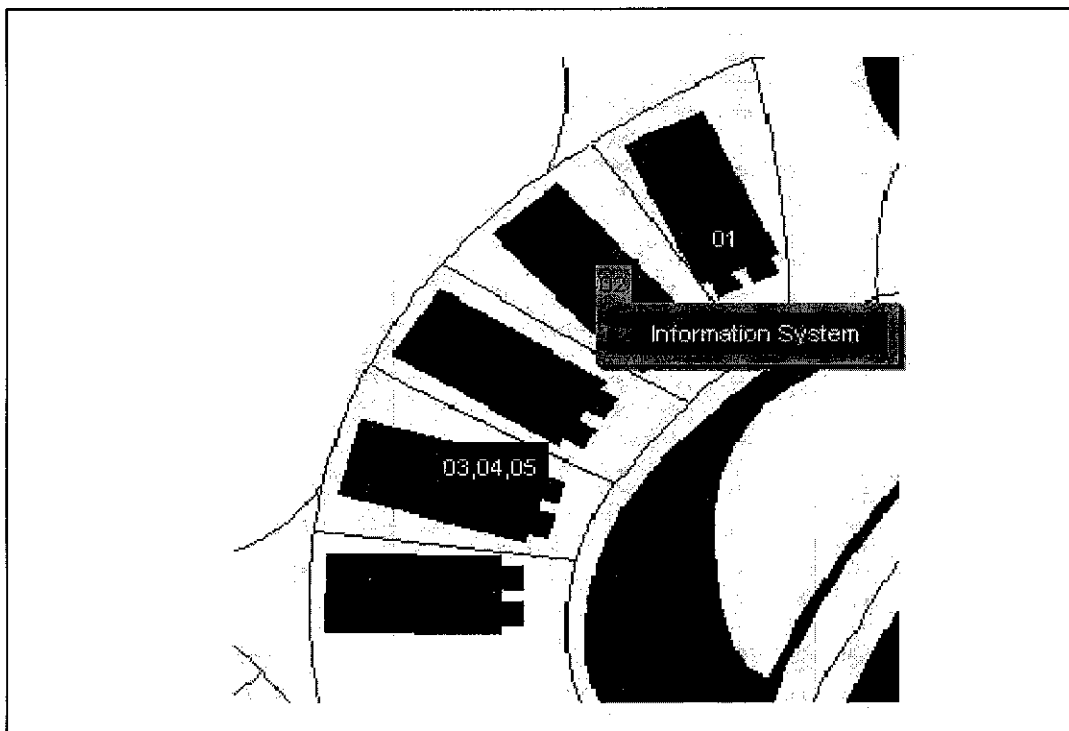
Figure 18 Zoom In Map for Building 01 and 02

When the user clicked the selected area that they want to navigate, the map as shown above (Figure 18) will be displayed. The map is the zoomed map and the name of the building will be displayed when the user point the cursor to the number of the building (displayed). If the user wants to navigate the building, the user needs to click the building and then the level for each building will be displayed.

The level for each building will be displayed as shown below (Figure 19) when the user clicked on the selected building. The user can choose the level they want to explore. When the user clicked on any level on the map, the map will shows the rooms that exist for that level. The name of the room also provided in English and Bahasa Melayu. The way of represent the data also use the same Java Script coding.
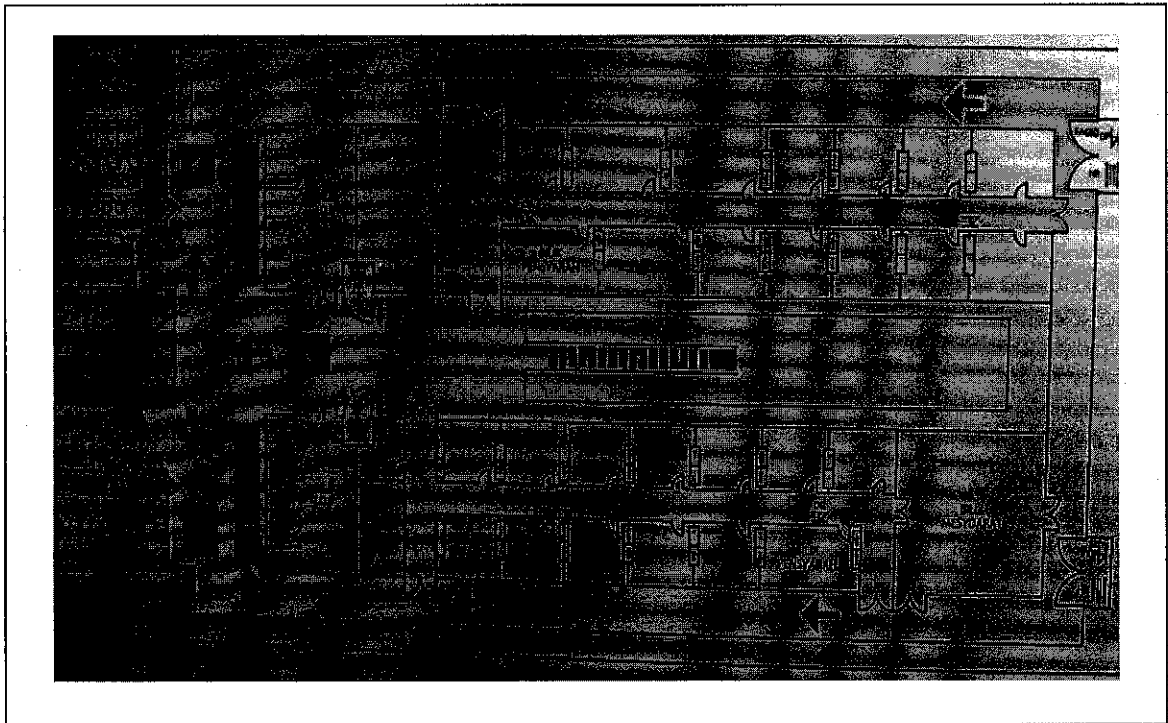
Figure 19 Map for rooms at selected level of the building

4.6 3D Development
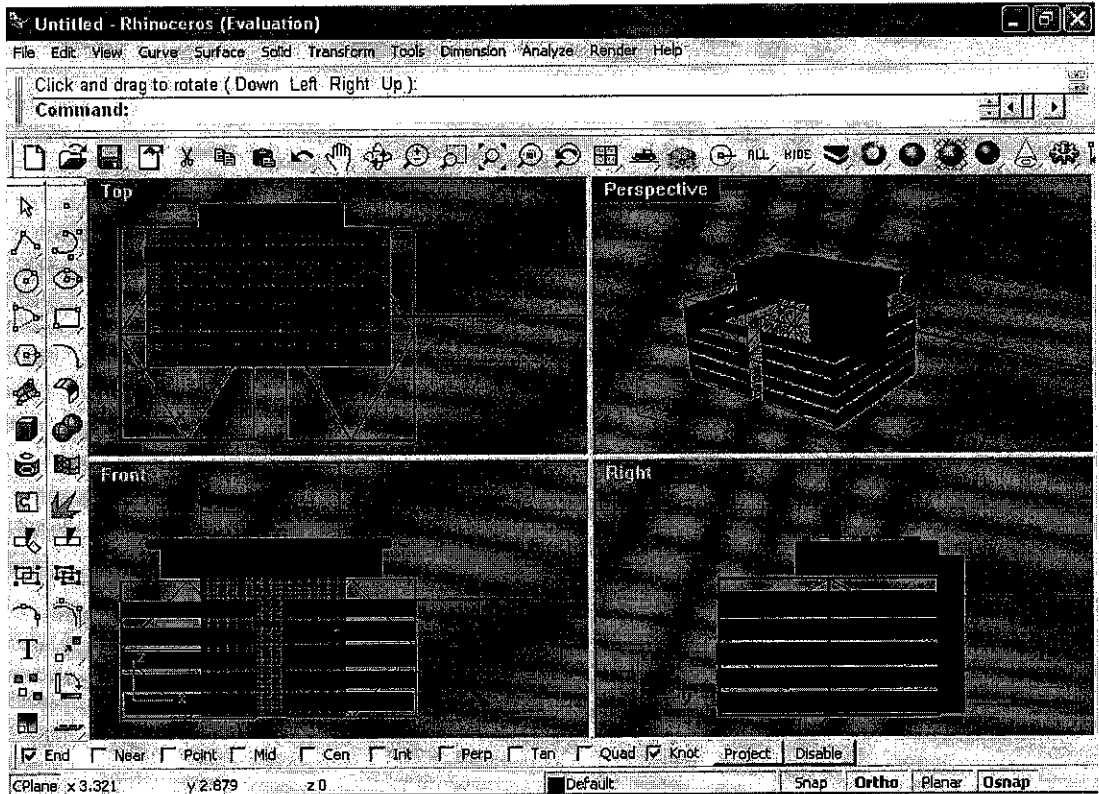
Figure 20 Create the 3D Building using the 3D Rhinoceros

As shown in Figure 20, the screen shows how the author develops the 3D model of the building of the New Academic Building using the 3D modeling software called 3D rhinoceros. The purpose of using this software is because of its capability to create an object and also the software has the capability to convert, import, export and save the 3D object into several file formats. When the 3D object has been created, it need to be saved as .3ds file format.(see Figure 20.1)

When the object already in the form of .3ds format, the object will be load into the Caligari Truespace (see Figure 21). Caligari Truspace has the capability in convert the 3D object to the Macromedia Director format. So, from the Macromedia Director, the 3D object can be published as .exe file that can be supported by the common browser.
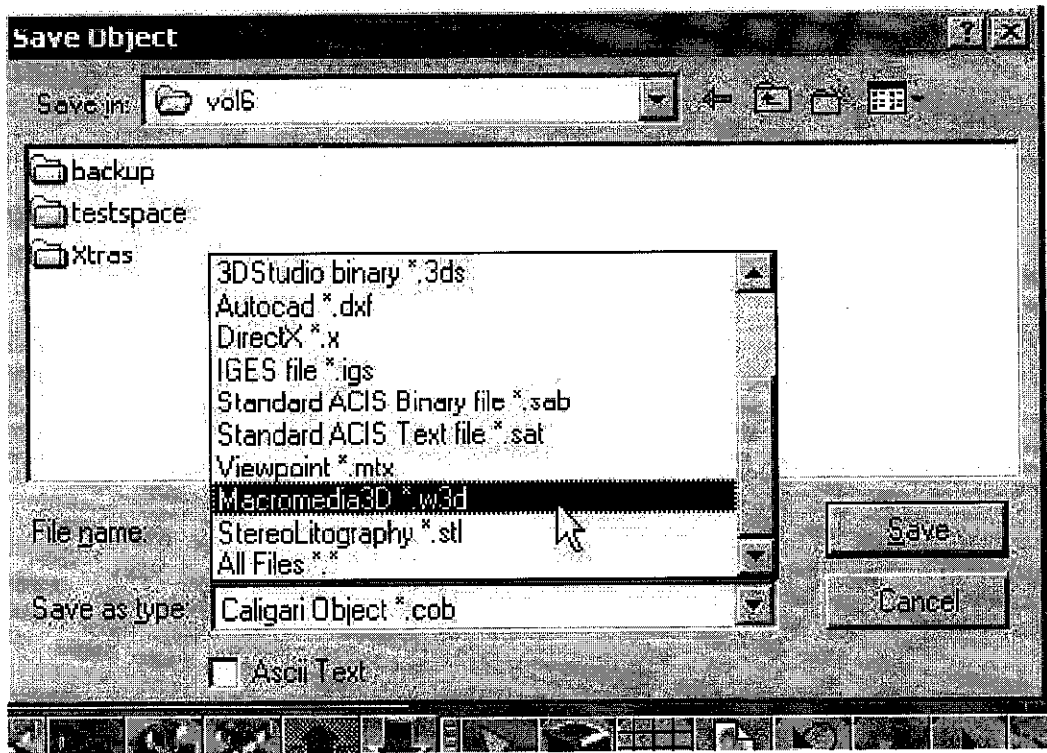
Figure 20.1 .3ds File Format
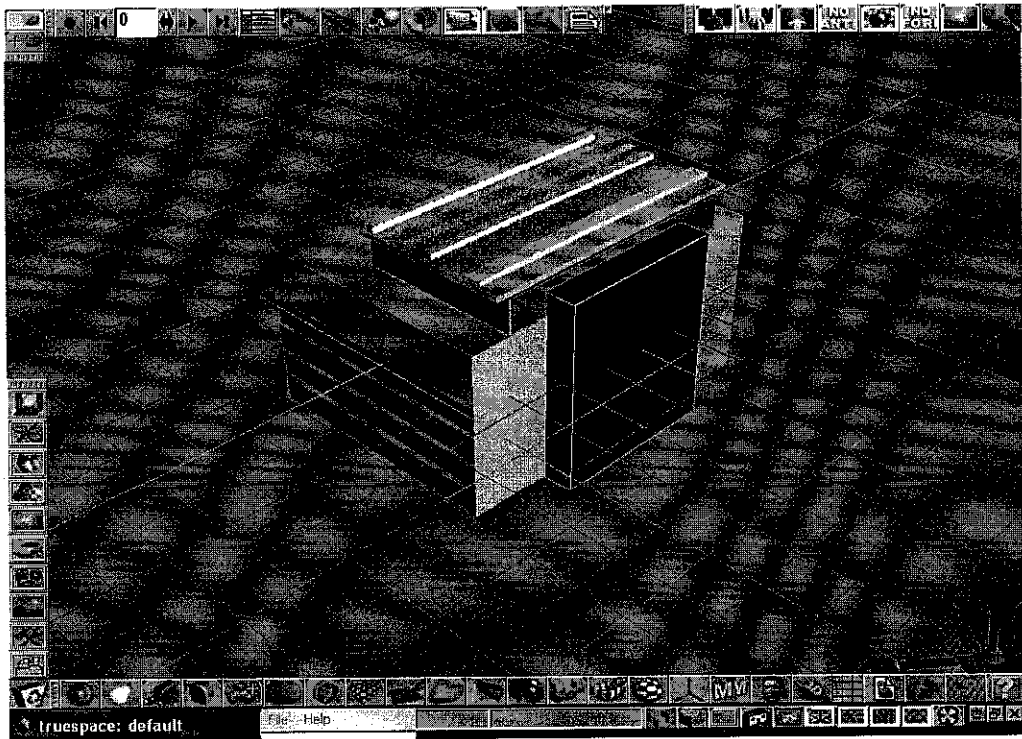
Figure 21 Import the 3D Object (.3ds) into Caligari Truespace

4.7 System Descriptions
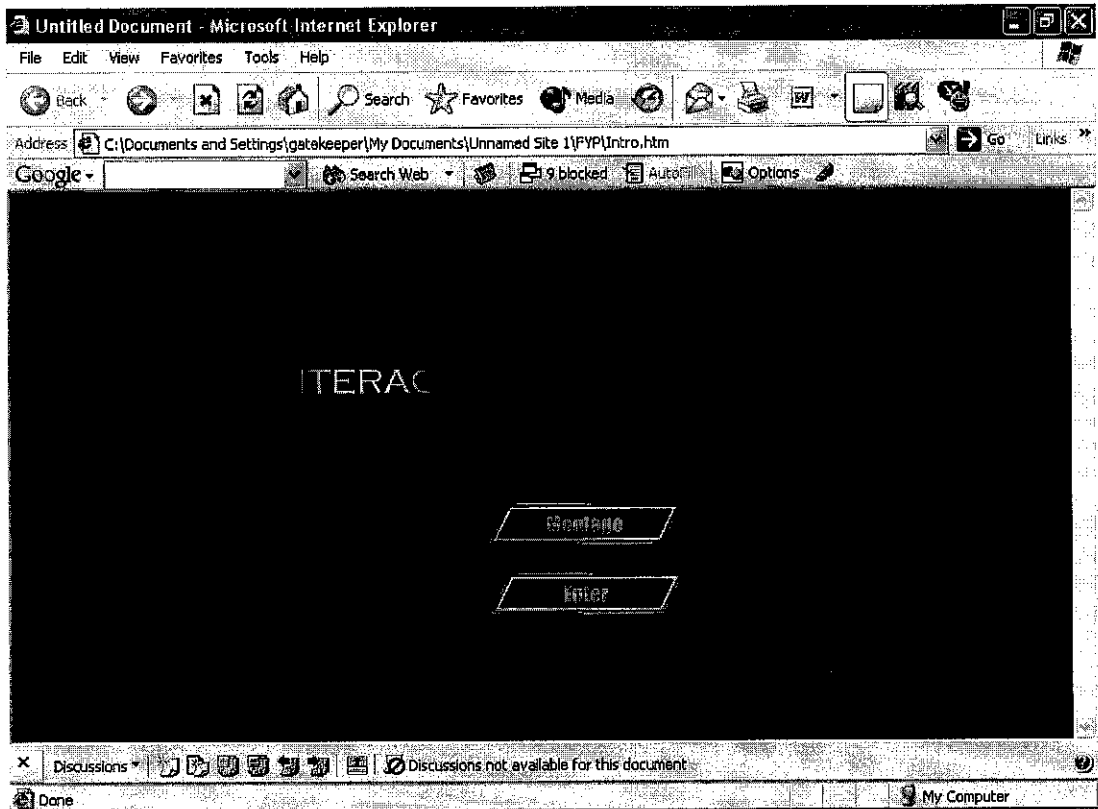
Figure 22 Snapshot of the Welcome Page

This is the snapshot of the welcome page of the Interactive UTP Map Kiosk (see Figure 22). The page shows the title presented in the animation and the page also provide two options to be chosen by the user. The two options are the Montage and Enter. If the user clicks to the Montage button, the page will go to the page that will display the short montage for the Interactive UTP Map Kiosk. But if the user clicks to the Enter button, the page will be linked to the home page as the introduction page for the system. (see Figure 23)

For the Home Page, a brief description about this kiosk is provided to be viewed by the user. Besides that, a general information about the rooms that exist in the building (this kiosk only focus on IT IS building). Figure 23 shows how the home page looks like and menu that are used for this kiosk using the java script drop down menu. The menu

that is located at the left side of the home page consists of the Home, eMap, Guest Book and the Exit options.
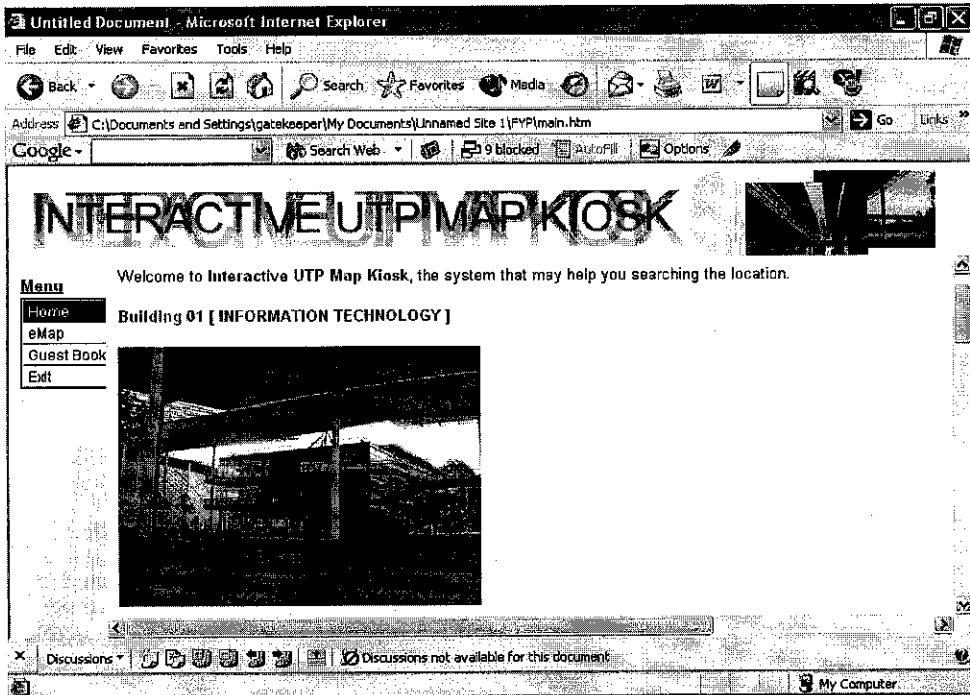
Figure 23 Home Page

The Home button will link the user to this Home Page. The eMap button will link the user to the other page that will ask the user either they want to navigate the map or not.(see Figure 24)
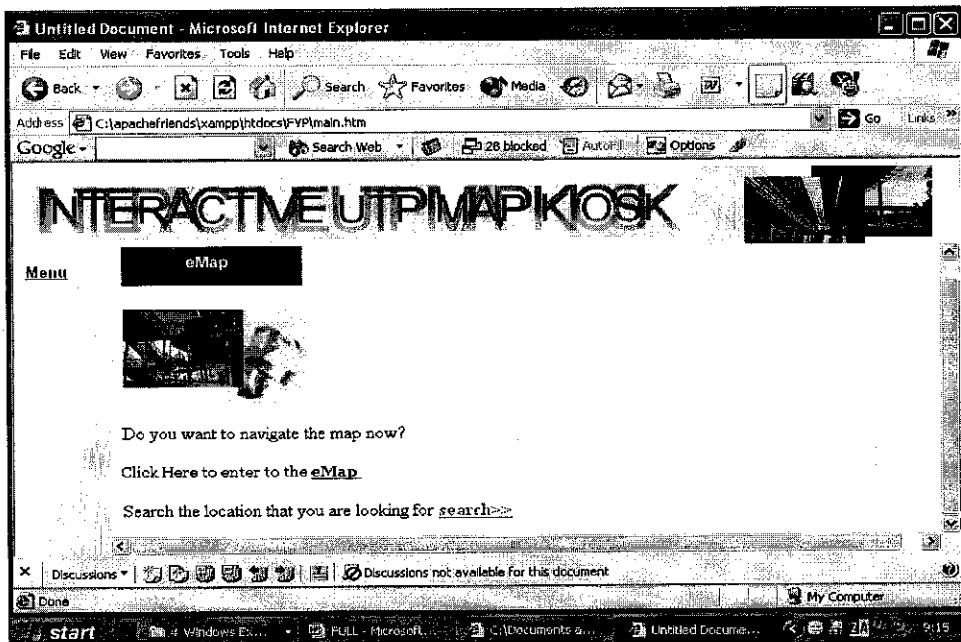
Figure 24 eMap

Then the user need to click at the eMap link at the page to link to the general map as shown below (see Figure 25). The user can view the name of the building with its building number by mouse over the area of the building that they want to view. The Java Script drop down menu has been used to display the name and the number for each building. The user need to know where they are and then the map may help them to navigate the map by display the details of building (building name and building number) so that the user will know the other building that exist around them.
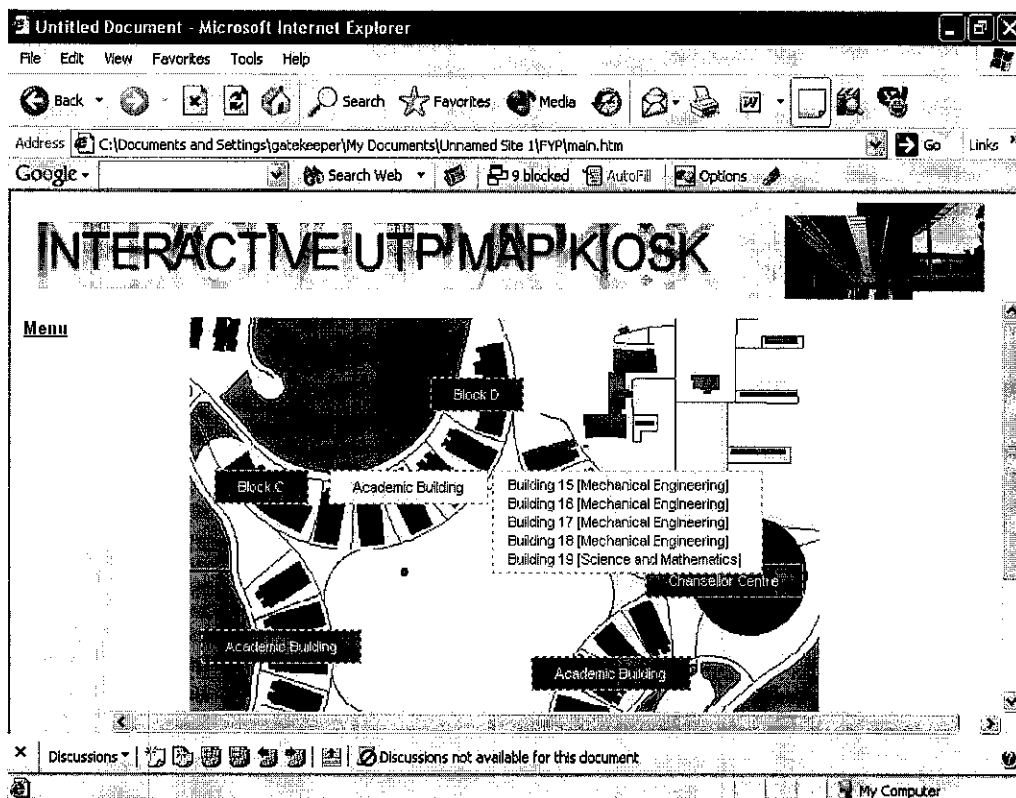
Figure 25 Navigate eMap from General Map

After the user navigate the general map, and then the user can click at the building that they want to navigate. For this project, the author only focus on the IT IS Building. So when the users click the building area for IT IS, it will zoom to the next page and the zoomed map as shown in Figure 26.

31
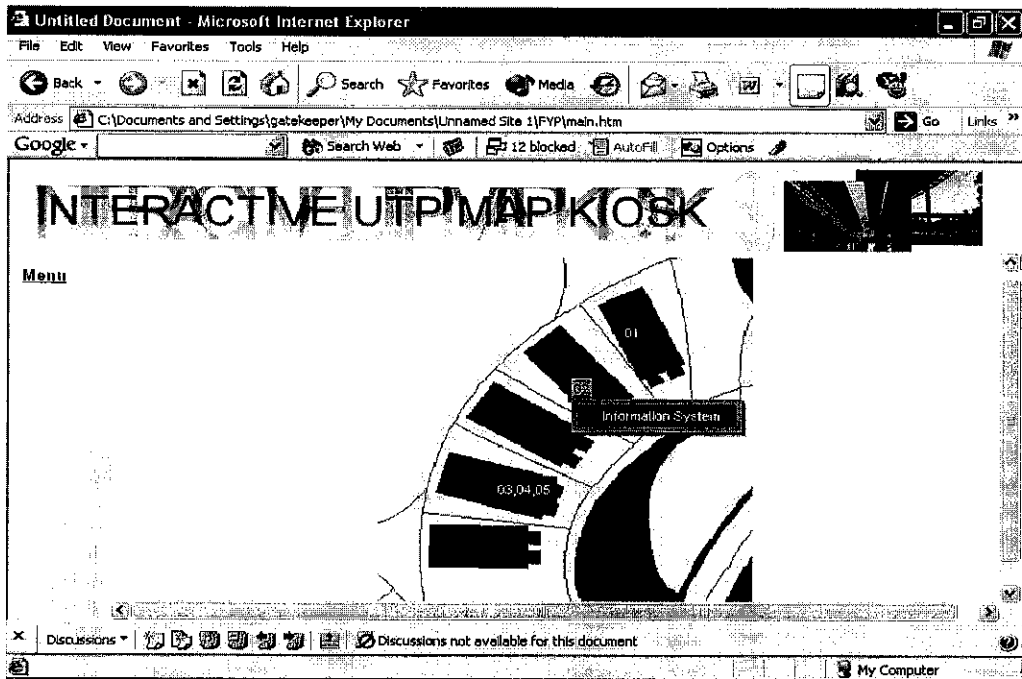
Figure 26 Zoomed Map

Figure 26 shows the zoomed map after the users click at the Academic Building that consists of IT and IS building. The map shows each building with its number. The user needs to click on the selected building. Then the level of the building will be displayed. There are 4 levels of floors for each building. The user can click on the selected level to see what rooms that exist for each level of the building.
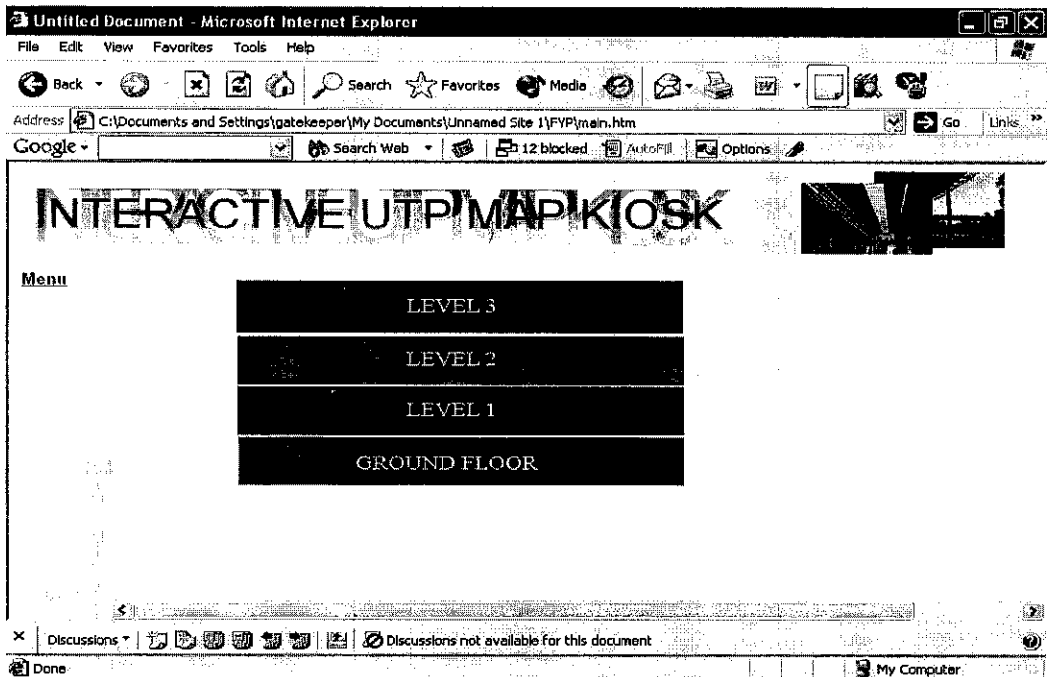
Figure 27 Navigation by Level
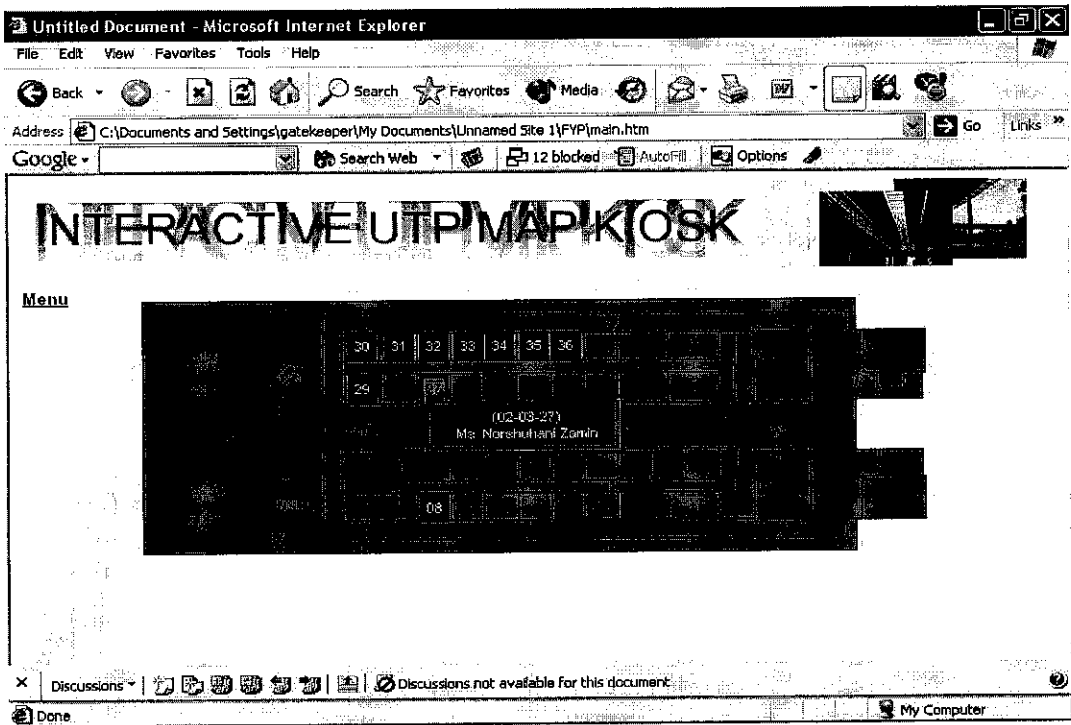
Figure 28 Map for the Third Level

Figure 28 shows the third level of the building. The third level is the highest level for the building. And the level is only for the lecturer room and also meeting room. The same concept used to display the details for each room, the Java Script is used. For this level, when the user mouse over the number, the number of room will appear with the full name of the lecturer who are located there.

Each level of the building has its own uniqueness. For an example, the highest level of the building only has lecturer room and meeting room and has no labs there. So for the level that has labs, the information about the rooms such as its name also displayed using the Java Script drop down. (see Figure 29). When the user points their mouse to the lab, the name of the lab will be highlighted. And for the lab that has the additional details such as as shown in Figure 29; the lab for teaching or learning, the map will display either the lab is for teaching or learning matters.
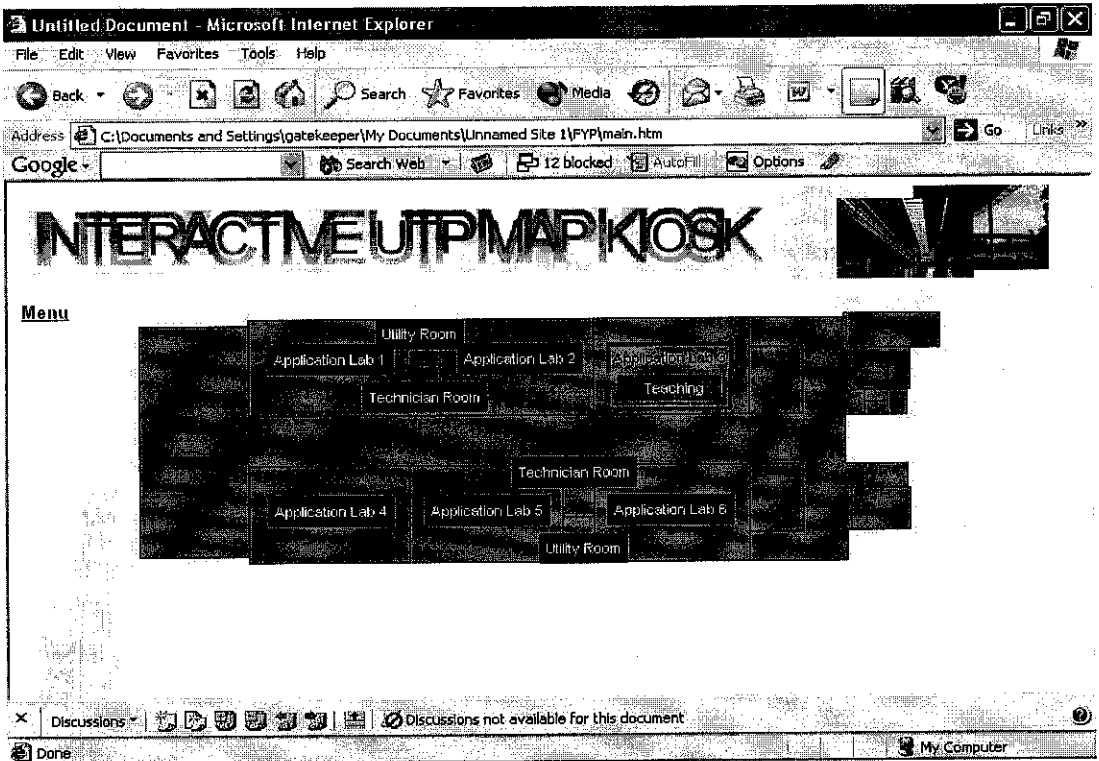
Figure 29 Sample of Map for the Level that has labs

Figure 30 Guest Book

As shown in Figure 30, the page is for the Guest Book. The purpose of the guest book is the space for the user to give their comments and suggestion in order to improve this kiosk system. Besides that, the user also can view the other people's suggestion or comments. For the guest book, the options that provided are User Suggestion, User Feedback and also Forum. (see Figure 31 and 32)
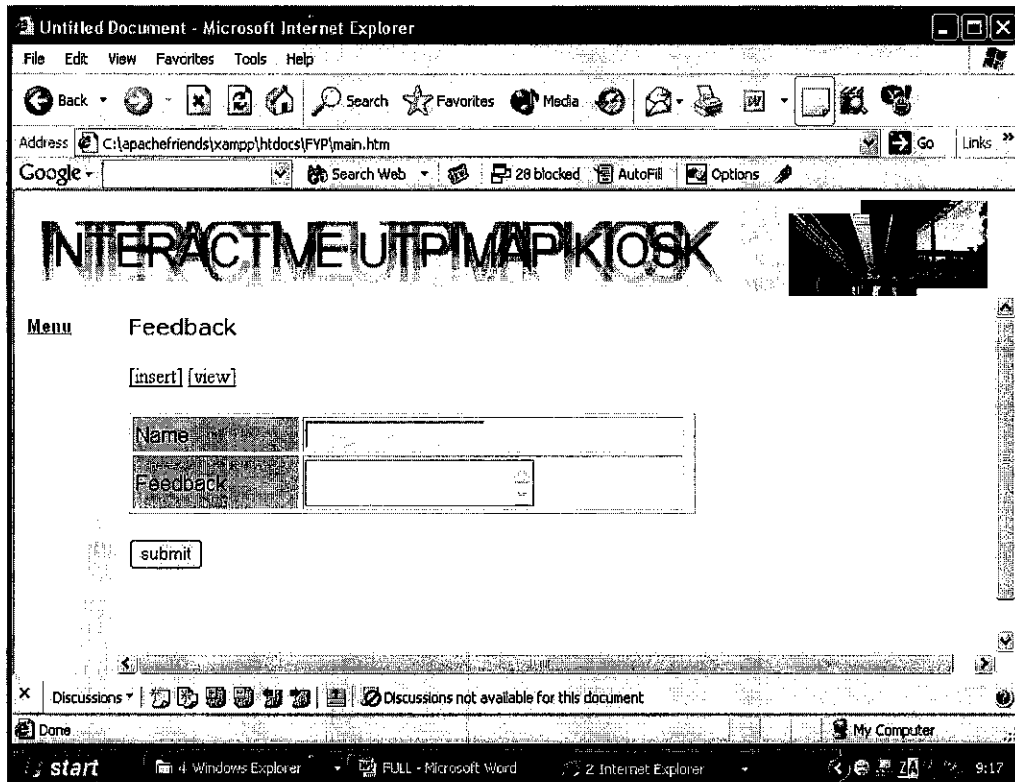
Figure 31 User Feedback
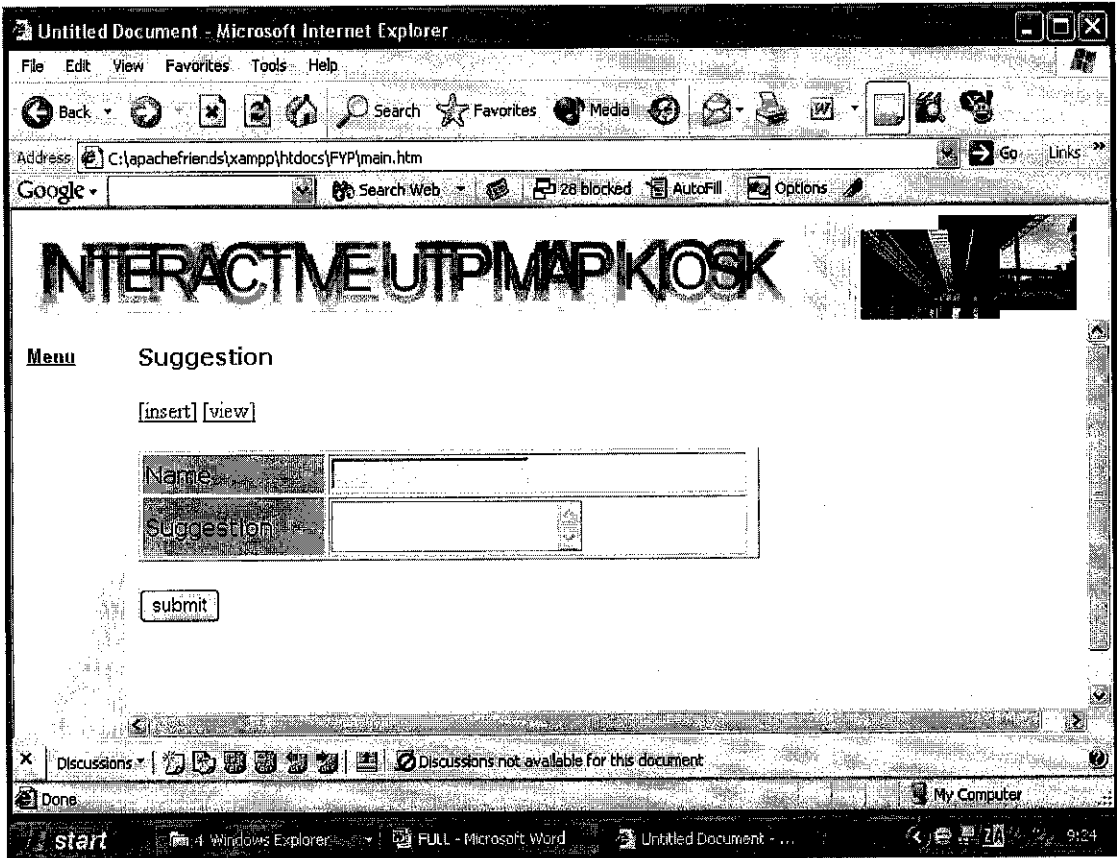
Figure 32 User Suggestion
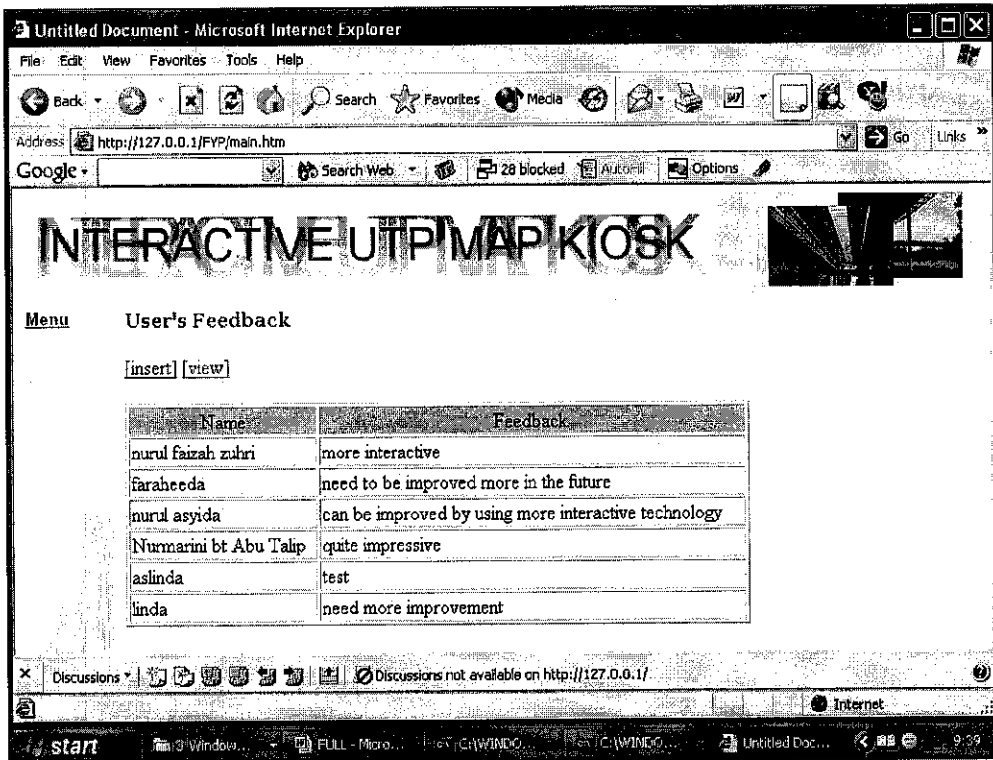
Figure 33 View User Feedback

Besides that, the additional function also has been added to the system according to the updated user requirement. The function is the search function that has the capability to help user searching for their location by giving the input about their current location and the next location that they are searching for. (see Figure 34)

Figure 34 User Input

The details of the searched location will be represented in the form of text and also the direction to go to the targeted location. (see Figure 35)

Figure 35 Details Display

CHAPTER 5

CONCLUSION AND RECOMMENDATION

From the following pressing need and opportunities, Electronic UTP Map Kiosk (EUM) is an alternative for the UTP campus to introduce the latest and modern New Academic Building and at the same time make full use of the technology to enhance the campus environment. The importance of such system is obviously useful in every working environment.

During doing the research on the tools and techniques, the author has analyzed the suitable tools and techniques to be used to develop this project. There are software and tools that are free to be used at any platform. There are several kinds of tools and software that the author is not familiar with such as 3D Studio Max. So it may take time for the author to learn about the function of the software to develop the 3D model as required in this kiosk.

By having this kiosk, UTP can improve and enhance the technology that exists in this campus because it makes full use of the technology that this campus have now. The scope of area has been identified to give the details about the area that the user may have. It may help the UTP campus and organization to introduce and show the modern education environment of the campus to the outsider and the specialty of the campus to the world.

With the technology that exists and provided, it is important to make full use of it in order to build the new product to UTP campus.

After done with the research on the 3D interactive map, most of the recent interactive map only uses the 2D map to display the map. The uniqueness of this map is

39

the 3D model of the building will be displayed in the browser. There is the software that can ease the development of the 3D building such as the 3D Studio Max and then it will be exported to the Macromedia Director 8.5 to convert the file into the file that the browser can support.

The system consist of the details, picture and other animation that may make the system to become more interactive and interesting to be used by the user especially who are not familiar with the UTP campus (New Academic Building) that has just been built a few months ago.

During developing this system, it is important to take into the consideration about the project schedule. With 6 months given in order to complete the system, I as the developer need to follow the project schedule with the date that has been set at the early project documentation (please refer to the Project Schedule that has been attached Appendix A). The delay of the development task may cause the problem at the end of the project deliverables. So, it is important to follow the task and date that has been scheduled to avoid any problems that may occur.

During developing this system, the author has learnt about multimedia tools to make the system to become more interesting, interactive and user friendly. More knowledge and skills are required in completing this project.

Future Enhancement

For the future enhancement for this Interactive UTP Map Kiosk, the availability of the software (Caligari Truespace v.6) is required in order to develop the 3D completely supported in the common browser. During developing this project, the author has the problem regarding the capability in having the Caligari Truespace version 6. The author only has the full version installer of Caligari Truespace version 3.2 that has no capability to save the 3D object to .w3d format that will be supported by the common browser from the Internet. The same software of the version 6, the author only get the trial version. So

for the future enhancement, the availability of the full version of Caligari Truespace version 6 is required.

3D DEVELOPMENT FLOW

CREATE 3D OBJECT USING 3D RHINOCEROS

LOAD 3D OBJECT INTO CALIGARI TRUESPACE V.6

SAVE THE LOAD 3D OBJECT AS .w3d

IMPORT THE .w3d OBJECT INTO MACROMEDIA DIRECTOR 8.5
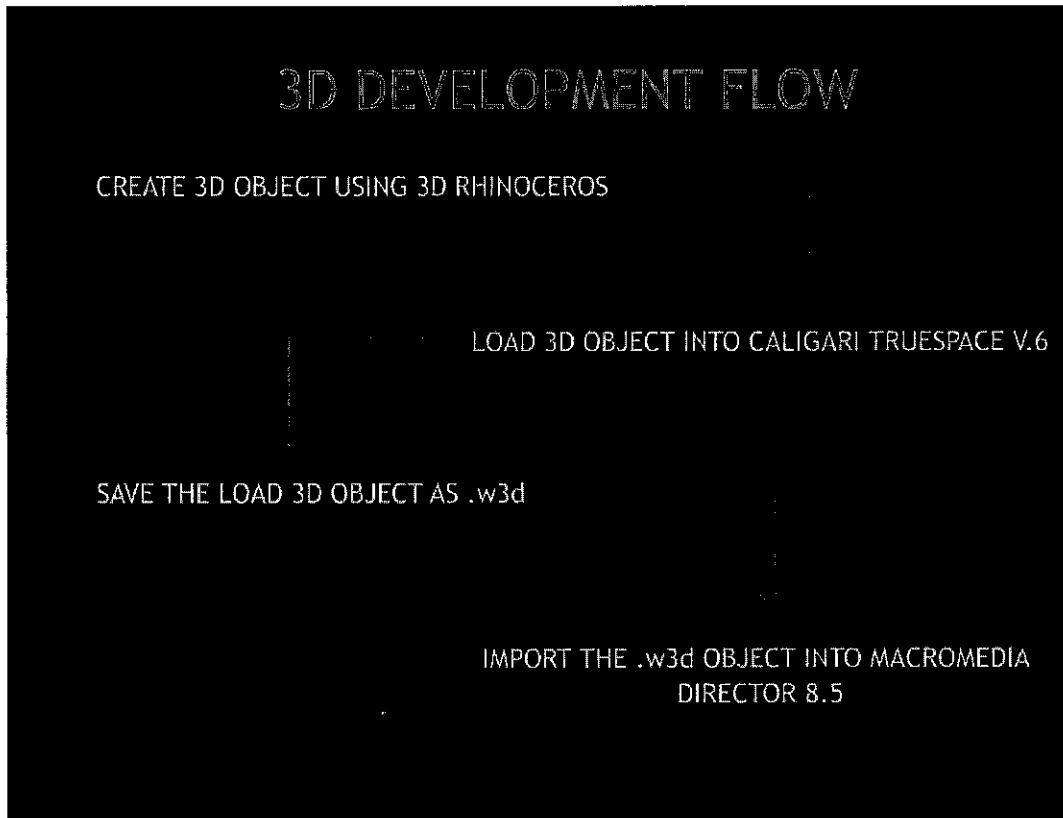
Figure 36 3D Development Flow

Besides that, the full system also needs to be developed for other buildings other than the focused area (Building 01 and Building 02) that are Information Technology Building and Information System Building. The system may also been developed around other Building such as Chancellor Hall or other Academic Building and implemented by the IT and Media Department to update the data and information of the system.

Other than future enhancement that are stated above, more details information also need to be added in the system in order to make the data more accurate and understandable.

REFERENCES

[1]   Journal refer to Brunig, M. Lee, A. Chen, T. Schmidt, H. **(2003)**
       Vehicle navigation using 3D visualization
       Robert Bosch Corp., Palo Alto, CA, USA

[2]   Journal refer to Dollner,J.;Hinrichs,K.;(2000)
       Dynamic 3D maps and their texture-based design
       Computer Graphics International, 2000. Proceedings, 19-24 June 2000
       Pages: 325 – 334

[3]   Article of presentation refer to Tim Haithcoat
       CAD *versus* **GIS Which is better for Automated Mapping?**

[4]   Journal refer to Weiping Yang and Christopher Gold
       A System Approach to Automated Map Generalization1

[5]   Thesis refer to **eMap**
       Garmin Corporation eMap (July 2001)

[6]   Website refer to Joe Sapletal, GIS Specialist
       Presentation Title :_**E-Map Publishing: For Proofs, Presentations and the Web**

[7]   Journal refer to Holger M. Kienle,. Anke Weber,† Johannes Martin,‡ and Hausi A.
       M¨uller. .Computer Science Department, University of Victoria, Victoria, Canada
       Development and Maintenance of a Web Site for a Bachelor Program

[8]   Conference refer to Michael Syrjakow
       **INTERACTIVE WEB-BASED ANIMATIONS FOR TEACHING AND
       LEARNING (1999)**

42

[9]   Journal refer to Wai Shan Lau, Bee Ngo, Eve A.Riskin, Mani Soma, Richard Christie, Jennifer Harris

FLASH ANIMATION IN INTRODUCTORY EE COURSES

November 6-9, 2002, Boston, MA

[10]   Conference refer to Wieland Holfelder and Dietmar Hehmann

A Networked Multimedia Retrieval Management System for Distributed Kiosk Applications (1994)

[11]   Website refer to Adam Sobek

University of Utah Interactive Map

.

APPENDIX   A

GANTT CHART

Interactive UTP Map Kiosk

ID		Task Name
1		**Project Definition and Planning**
2		**Selection of Project Topic**
3		Form 01 and 02 Submission (To FYP Coordinator)
4		Approval of Topic
5		Preliminary Investigation
6		Site Survey
7		Information Gathering
8		Determine Project Scope
9		Submission of Preliminary Report
10		**System Analysis**
11		Work Schedule
12		Feasibility Study
13		Problem Analysis
14		Tools and Equipment
15		Requirement analysis & specification
16		Data, process & object modelling
17		Submission of Progress Report
18		**Design**
19		Database Design
20		Interface Design
21		Multimedia Design
22		**System Development**
23		Web Programming
24		Database and administrative function
25		3D Development
26		**Testing**
27		Web interface testing
28		Modify and re-test design & element
29		**User Approval**
30		**User Documentation**

Month headers: May, June, July, August, September, October, November, December

Milestones: 7/26, 8/16

Legend: Task | Milestone ◆ | External Tasks

Project: FUM Gantt Chart

Interactive UTP Map Kiosk

ID	●	Task Name
31	▦	Submission of Supervisor's Final Draft
32	▦	Submission of Final Draft
33	▦	Submission of Project Dissertation
34	▦	**FYP Presentation**

Timeline: May | June | July | August | September | October | November | December (each with B | M | E subdivisions)

Milestones:
- 9/27 (September)
- 10/15 (October)
- 11/1 (November)
- 12/10 (December)

Legend:
- Task
- Milestone ◆
- External Tasks ▶

INTERACTIVE UTP MAP KIOSK QUESTIONNAIRES

Interactive map is a map that guides the UTP outsiders who are not familiar with the UTP New Academic Building that has just been built by early this year. This system will help those outsiders who are not familiar with the New Academic Building surrounding. This project is for the Final Year Project.

Note: Check your selected answer with [X].

1. Have you been to the UTP New Academic Building before this?

   [ ] Yes   [ ] No

   Specify your kind of respondent:

   [ ] Student

   [ ] New Academic Staff

   [ ] Non New Academic Staff

   [ ] Others

   If you are staff please state your placement

   _____

2. How many times have you been to the UTP New Academic Building?

   [ ] Always

   [ ] Several

   [ ] Rarely

3. Are you familiar with the New Academic Building surroundings?

   [ ] Yes   [ ] No

4. Do you know each room that exists in certain building at New Academic Building?

   [ ] Yes   [ ] No

5. Do you know the name and number of that room?

   [ ] Yes   [ ] No

6. From your observation, are there any facilities that may help and guide outsiders while they are in UTP?

   [ ] Yes   [ ] No

7. Which map do you prefer to use?

   [ ] Static Map   [ ] Interactive and Animation Map

8. Do you need details information about a specific map such as details description of the building in the form of text?

    [ ] Yes   [ ] No

9. Do you think that UTP needs to have a kiosk that contains the map and details information about New Academic Building?

    [ ] Yes   [ ] No

    Why?

    _____

    _____

    _____

10. What kind of elements that you think is needed to be included in the map kiosk?

    [ ] User Feedback

    [ ] User Suggestion

    [ ] Forum

    [ ] Others _____

    Note : The basic elements that are

11. Any suggestions for Interactive UTP Map Kiosk?

    _____

    _____

    _____

12. From your observation, what are the navigation facilities that you can see around UTP New Academic Building that may help you to navigate around the area?

    [ ] Sign Board

    [ ] Label of room or bulding

    [ ] Map stand

Thank you for your cooperation.