Online Panoramic Photo Album (OPPA)

By

Siti Hadijah Mohamad Suib

Dissertation submitted in partial fulfillment of

The requirements for the

Bachelor of Technology (Hons)

(Business Information System)

JULY 2006

Universiti Teknologi PETRONAS

Bandar Seri Iskandar

31750 Tronoh

Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

Online Panoramic Photo Album

By

Siti Hadijah Mohamad Suib

A dissertation submitted to the

Business Information Systems Programme

Universiti Teknologi PETRONAS

in partial fulfillment of the requirements for the

BACHELOR OF TECHNOLOGY (Hons)

(BUSINESS INFORMATION SYSTEMS)

Approved by,

_____

(Mr. Nordin Zakaria)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

Semester July 2006

CERTIFICATE 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 acknowledgements, and that the original work contained herein have not been taken or done from unspecified sources or persons.

(SITI HADIJAH MOHAMAD SUIB)

ABSTRACT

Online Panoramic Photo Album is a system developed for the user who has interest in any related work in panoramic especially panoramic photographer and developer. Hence, the objective of this system is to integrate panoramic into photo album, to view panoramic images in photo album and study about human perception on panoramic pictures. The scope of study for this project is perform in the university area and collecting feedbacks from various background of user who have readily Information Technology (IT) skills. The author has used Rapid Application Development (RAD) as the methodology to develop the system. The end product will enable the user to navigate panoramic pictures into photo album, and display multiple panoramic images in one page to show some sort of continuous story telling about the user with the image by enabling comments below the picture. The system also enables the user to arrange the images. As a conclusion, the system being developed to ease the panoramic interest group to navigate and share their works with the rest of community around the world.

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND NOMENCLATURES

OPPA : Online Panoramic Photo Album

UIST   : User Interface Software and Technology

PC   : Personal Computer

RAD   : Rapid Application Development

NASA : National Aeronautics and Space Administration

CHAPTER 1

INTRODUCTION

1.1 Background of Study

People today are more attracted to new technologies which are enjoyable, fun, easy, memorable, and uncomplicated to understand and learn. From the traditional technology, photography; there are several enhancements from photography that makes it more attractive and unforgettable. Examples of the enhancement from photography are panoramic pictures, photo album, video, and etc. Now, with the rapid technology development and Internet these enhancements of photography was incorporate together so that people can gain benefits from these inventions. New inventions have eased people daily activities and helping them to achieve goals in their life.

1.2 Problem Statement

1.2.1 Problem Identification

Nowadays, digital camera has becoming more popular than analog camera. Simply because digital camera can produce the photographs much faster, capable to view the images taken after capturing the images, capable to delete unsatisfied images after capturing the images, taking video, can store more than 36 pictures and lots more. However, the image from digital photograph is unable to project the actual environment into the eyes of user, static views, simple and less attractive. Simple photography is also unable to project the actual scenery and the whole view of that particular scenery. Meanwhile the problems occur after taking the pictures is where to save the pictures. Initially, it can be saved in hard disk but after quite some time these pictures will consume a lot of hard disk space in the PC. Another problem is when to share the sweetest moments with love ones, family and friends. One way is to send the pictures using e-mail however it can be really tedious and consumes a lot of time especially when there are plenty of pictures and the size of e-mail for attachment is limited.

1

1.2.2 Significance of the project

The significance of the project is enhancing the use of photography by providing more benefits to the end-user and to ease their daily activities. It also gives benefits to the user who has interest in panoramic and related work by offering other alternatives way to store and share related works to the public.

1.3 Objectives and scope of study

1.3.1 Objectives

1. To integrate panoramic into photo album.
2. To view panoramic images in photo album.
3. To do human perception studies on panoramic pictures.

1.3.2 Scope of study

For this project, the author will study on developing a photo album and panoramic picture to integrate both to be an Online Panoramic Photo Album. The system will make ease for the users who have interest in any related panoramic work especially panoramic developer who needs to stored and publish their works with the others. The author has decided to conduct the study in the university area and will collect feedbacks from various background of user. The purpose is to study how significant the system to the user. Hence, an effective and efficient system will be created to fulfill their needs and a human studies is conducted to measures the significance of the system. Through the study, the author has used Macromedia Dreamweaver and MySQL to develop the system. The advantage of using these software's is because the author used PHP and MYSQL and it is a open source codes where it can be found widely in the Internet and it's free.

CHAPTER 2

BACKGROUND

History and the use of an Online Photo Album

An online photo album concept was developed from the traditional photo album that usually use after develop the pictures. The traditional photo album was use to keep the collection of all the pictures from ones entire life. The idea of using photo album initiated when the era of photography was rise. An online photo album was developed after the digital camera was invented in 1991 by Kodak [3]. The purpose of an online photo album is to resolve the issues of saving the huge amount and size of digital photograph in hard disk and sharing it with others. Basically, an online photo album is use to upload, save, edit, view and share the pictures with others (Figure 1).
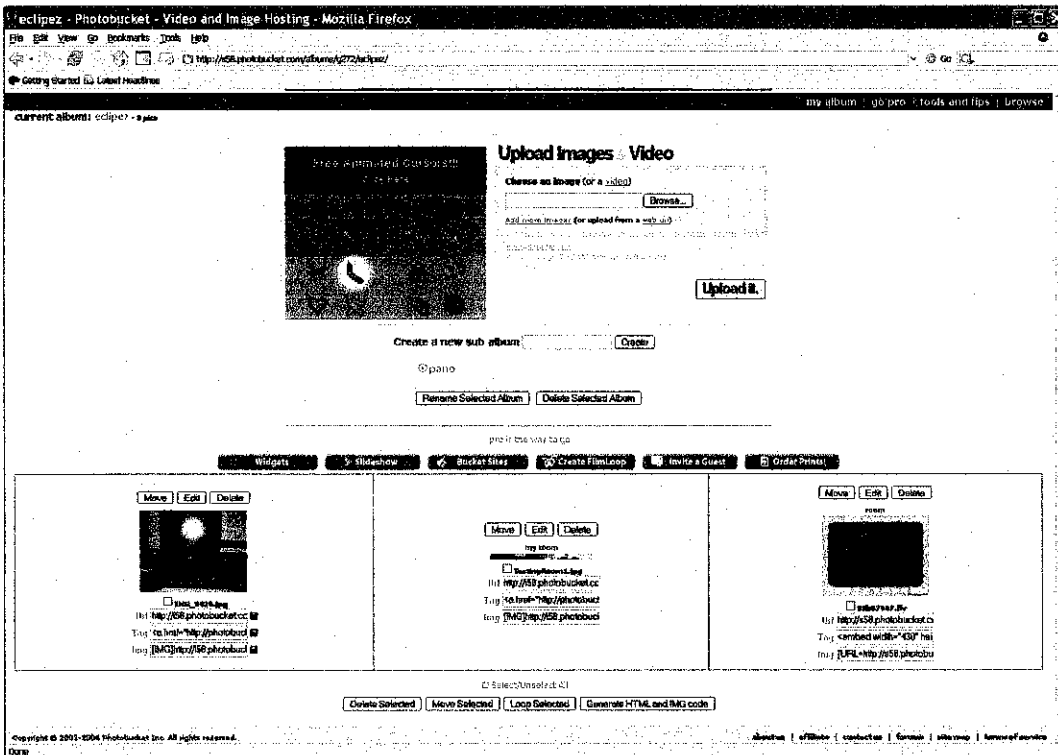

Figure 1: Existing Online Photo Album

Source: http://www.photobucket.com

3

History of Panoramic

The panorama was registered for patent in 1787 by Robert Barker in London. At that time, panorama was a new form of painting with sweeping pictures painted on the inside of the walls buildings. Sophisticated illumination and special painting techniques played to the imagination of the observer standing on a platform at the center to create the perfect illusion [1].

Then it was followed by the extended panorama, the double extended panorama, the scene panorama, the landscape kaleidoscope, the cosmorama, the diorama and finally the double effect diorama which provides motion effects on a two-dimensional surface which was invented in 1844 by Phillip Hackert and Louis Jacques Mande Daguarre [2].

Later, when photograph was invented in 1839 it didn't take long for a panoramic concept to fit in. In 1843, Austria's Joseph Puchberger patented a camera with rotating optical system, whereby the lens could be turned via a hand crank while shooting. This technology was further developed by Kodak, which unveiled the world's first panoramic camera in 1899 [1].

The use of Panoramic

Today panoramic techniques are use in most industries like tourism, historical, NASA, cultural heritage, scenery show, entertainment, architecture, interior design fields, hotel, crime scenes and lots more.

Panoramic is use in historical to enable the visitor to view the historical places, monuments, artifacts, maps which some of those things that are restricted for the visitors to view it closely (Figure 2).
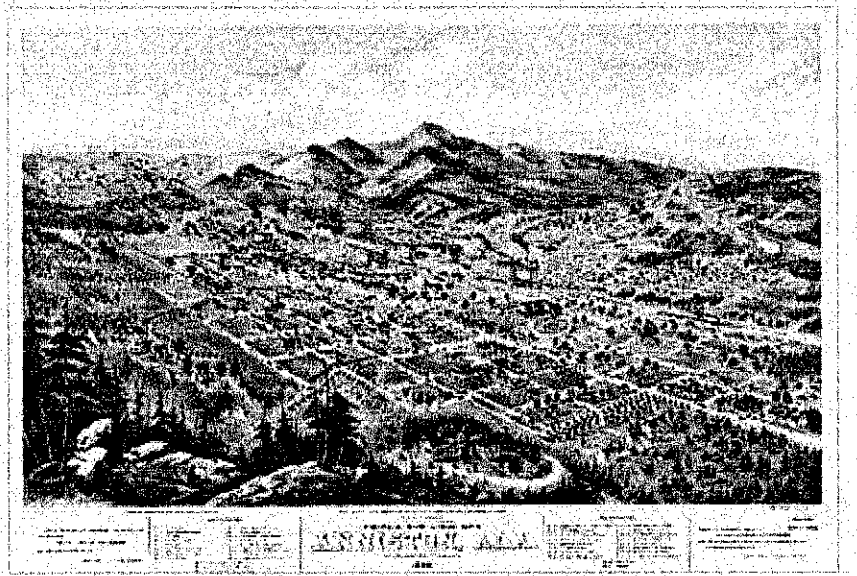
Figure 2: Historical Panoramic Maps
Source: http://rs6.loc.gov/ammem/pmhtml/pmcapimg.html

Panoramic is use in NASA to display their explorations on the space, NASA new inventions, experiments and lots more. The purpose they choose panoramic techniques is to demonstrate their findings with the community through out the world that don't have the opportunity to go to outer space and imagine like landing on that site (Figure 3).

Figure 3: NASA Explorations in Mars.
Source: www.WorldVR.com

Another industry that uses panoramic technique widely is tourism industry whereby this technique gives lots of benefits to the tourism industry and the tourists. It helps the countries attract more tourists from around the world by identify attractive places from many different regions, and assist the tourists to have an optimum planning before they can start their trip. Most of the current tourism websites are using this technique to promote their places and give the feeling of visiting the places virtually to the visitors (Figure 4).
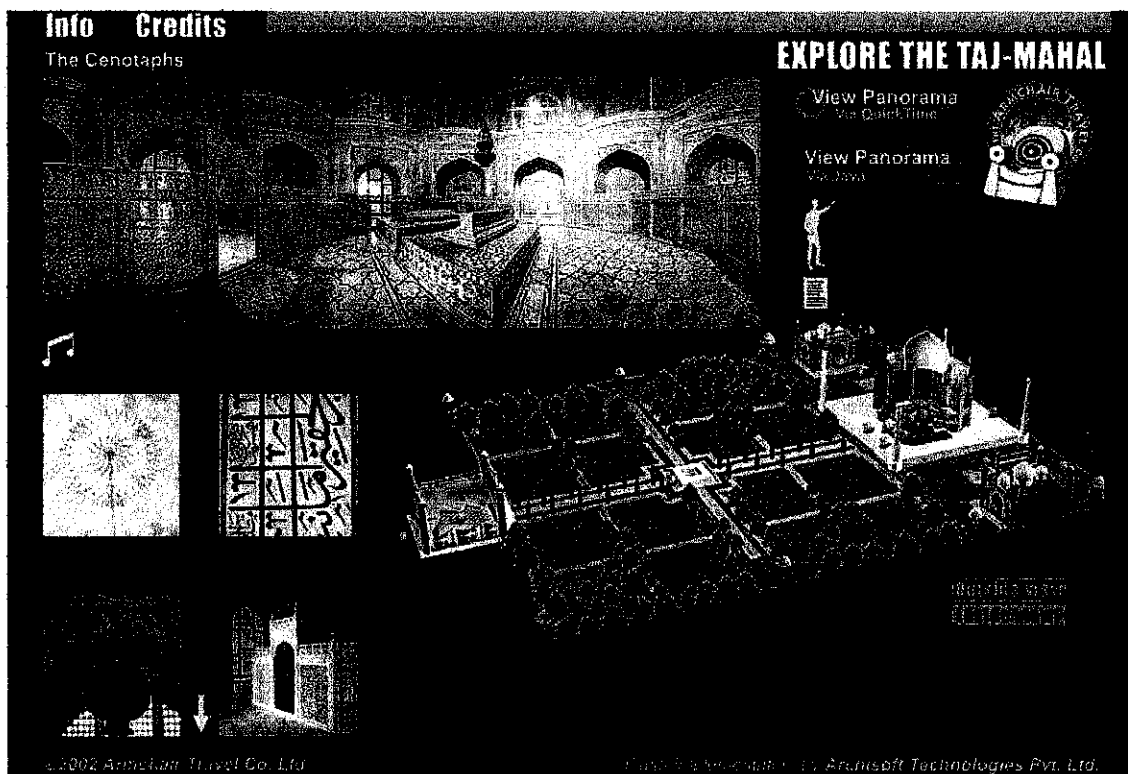
Figure 4: Exploring Taj-Mahal.
Source: http://www.taj-mahal.net/blackLarge.htm

The uses of panoramic in architectural and interior design fields also give the benefits to all the parties where they can view the amazing interior design and the structures of the building architecture and the uniqueness of those buildings (Figure 5).
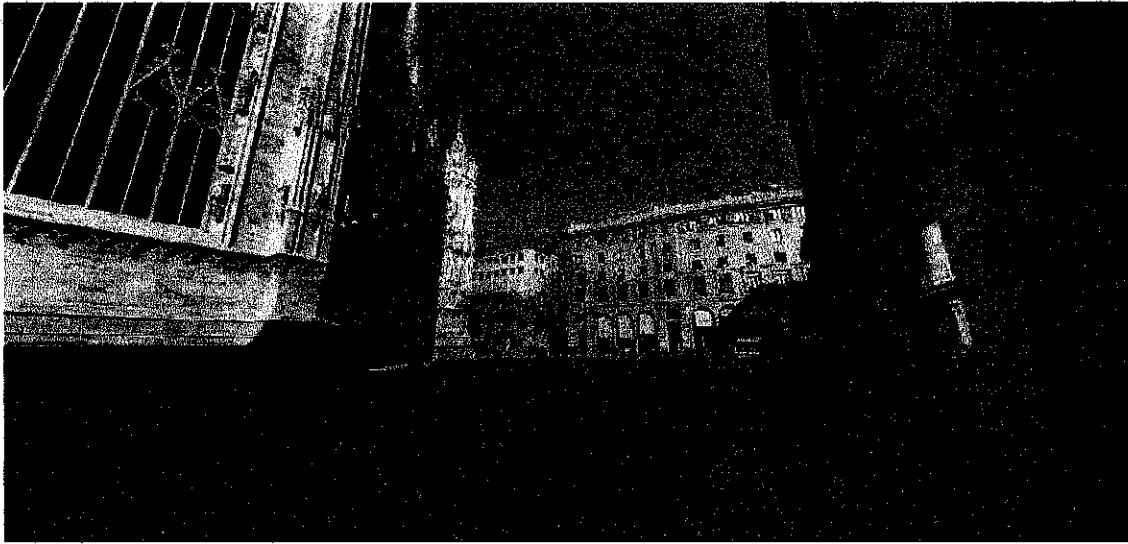
Figure 5: Milan's Duomo Cathedral.
Source: http://www.fullscreenqtvr.com

An interesting uses of panoramic technique is in securing evidence and document crimes scenes. The police will take pictures of details that are directly related to the crime. The purpose is to collect various different details and examine the panoramic pictures as the case progresses (Figure 6).

Figure 6: Panoramic Scene View
Source:http://www.crimescene.com/purity/crime_montage.html

CHAPTER 3

METHODOLOGY

The methodology that is suitable to implement this system is iterative design and implementation process that incorporate elements of user-centered design and rapid prototyping to develop the system [6]. This is because it helps t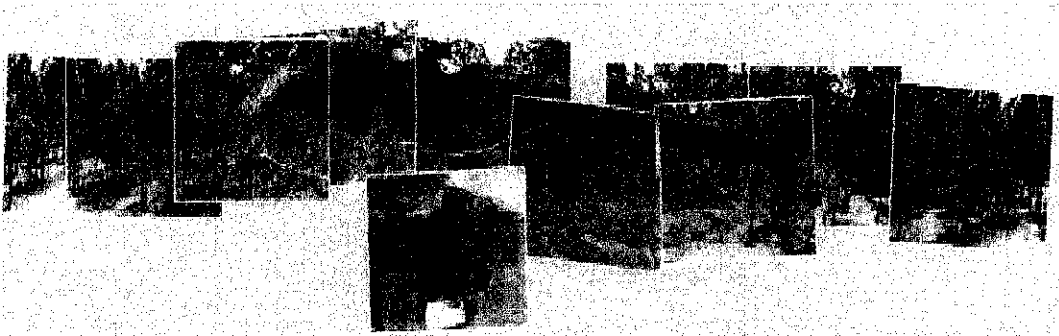he developer to do analysis and guide the requirement analysis and interface design. Another reason is because due to the limitation of time given to the author and at the same time the author need to develop a product that have functionalities which meet the most of initial requirements. At the end of the development of the product, the author has to do evaluation and general observations of the system to find out the significance and impact to the users.

3.1 Development Phase

3.1.1 Planning

The initial planning is the most important part for the project to be successful. In this phase, the author has prepared a work plan, identify problems and opportunity. Thus, the author has produced the project milestone to ensure that all the development stages are complete within the time frame. Refer to Appendix A for the planned milestone.

3.1.2 Analysis

At this phase, the author has done an analysis by doing requirement studies that based on other researchers work that related to this system. The research papers that take into consideration are the systems that have similar functionalities with the author project. Other sources of information such as books and Internet also play a major role in collecting the desired information before building the system. The

requirement refining is performed to indicate that the functionalities included are suitable according to the time given, scope, and other available resources. Therefore, a use care diagram is attached in the Appendix B to show the overview of system requirements.

3.1.3 Design

In the design phase, the author has designed the system operations and features based on the gathered requirements. First, the author has created and arranged the system flow according to the main functionalities. Then, the author has designed the storyboard to create a visual layout of the system flow. Thus, the designed interface is based on the system flow and storyboard which has been done before designing the actual interface. Then, the author has use Macromedia Dream weaver for the interface development. The flow of the system is represented in Appendix C. The flowchart showed the functionality of the system. The most important phase that can be seen through the diagram is arranging the images and also to display the panoramic pictures process.

3.1.4 Construction

At this stage the system is build and executed whereby the author has developed the system in iterative cycles, requirements checking and develops again until the system is successful and ready to be use. The system is built using PHP and MySQL database. And at the end of the development, the system will be testing and develop iteratively until it meet the specification of the initial requirements of the project. And at the final iterations of the system development the author has prepare documentation and perform user acceptance testing that based on principles as below:

3.1.4.1 Testing

The testing part is crucial to test whether the system is developed according to system design and requirements. There will be evaluations that based on Kearsley's four stages of interactions [6]:

a) Immediate Attraction

Principle: Use the most attractive content ("treasures") to demonstrate the system and invite use.

Guidelines: Organize content to highlight treasures for the general community and for sub-communities with special interest; implement an attract sequence tailored for the audience; clearly indicate how to end the attract sequence and begin using the system; avoid introductory ("splash") screens.

b) Immediate Learning

Principle: Support zero-trial learning. Users should be able to use the interface after observing others or using it themselves for a brief period of time (15-60 seconds).

Guidelines: Use the simplest practical interface; take careful advantage of common knowledge in the community; use an immediately understandable metaphor; make visible affordances for all operations and ensure that all results are immediately apparent; avoid menu bars and other elements that hide functionality; avoid UI navigation such as scrolling and jumping. If online help is needed, it should be extremely condensed and displayed in the context of the primary interface without obscuring it. Short demonstrations of functions can be incorporated into the attract sequence.

c) Immediate Engagement

Principle: Encourage users to immediately interact with content; provide immediate reward; avoid interrupting users.

Guidelines: Defer login or user identification as long as possible; avoid any interactions that interrupt the user or display dialog boxes.

d) Immediate Disengagement

Principle: When a user departs, immediately reset the system and prepare for the next visitor.

Guidelines: Use proximity sensors, infrared, sonar pressure- sensitive mats or machine vision when it is important to reset the system between users; otherwise, provide a reset button and implement an idle-timeout.

3.2 Tools

The tools that are used in the development of the system are as below:

3.2.1 Software

No.	Software	Description
1.	Adobe Photoshop	Correcting Image Distortion
2.	Realviz Stitcher	Stitch pictures
3.	iVista Panorama	Stitch pictures
4.	QTVR	Panoramic Publication
5.	PHP & MySQL	The publication of the system

Table 1: Software Requirements

3.2.2 Hardware

No.	Hardware	Description
1.	Operating System	Microsoft Windows XP
2.	Processor	Intel Pentium 4
3.	Memory	1 G
4.	Disk Space	Minimum 50G of free space
5.	Digital Camera	Canon Digital IXUS *i* Power Shot SD30
6.	Tripod	Assist to capture images

Table 2: Hardware Requirements

11

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

The Author is responsible to develop an Online Panoramic Photo Album (OPPA) which is focused to be used by the users who are Information Technology (IT) literate and also to the panoramic photographer or developer. The system is basically to display multiple panoramic images in one page so that it will show some sort of continuous story telling about the user with the image by enabling comments below the picture. The system also enables the user to arrange the images according to their preferences and accordance that based on their likeness or series of events. Thus, OPPA is divided into three main functionalities which are to display multiple panoramic in one page, to post comments and arrange the panoramic images.

4.2 System Design and Structure

The user interface for Online Panoramic Photo Album is simple, easy to learn and serve the purpose of this system. Basically, before starting using the system there is a login page to authenticate the user before they can use all the functionalities. The system has three users which are administrator who administer and control the system, one user who can use all the functionalities, and one user who has limited privileges and only can view the panoramic images.

- **Post comments below the pictures**

User is allowed to post comments below the pictures to indicate a story line about the pictures with user. Therefore they can view others people opinion about the picture and respond back to the comments.

- **Arrangement or organization panoramic pictures**

One special function from the system is the user able to arrange the pictures based on their input and preferences. Whereby, a collection of pictures are organized based on the attributes, accordance, priority, likeness and the meanings of the pictures to the user. The user has to arrange the pictures where they need to specify the number of order for each picture.

- **Display all the panoramic images.**

Another objective of the project is to view the panoramic picture in a photo album. Hence, the user can view all the images right after they have arranged the images accordingly. Whereby, in the system it has one page with all images and has 4 pictures in a row. The user can navigate each image easily.

4.3 Database Design and Database Structure

After creating the interface of the system, the author has created the database that is required for the display function for the system. As for the database structure, the author had gathered all the information needed from the research result. The database schema was manually created or designed on paper before it was being transferred into the application. The application that was being used in such system is the MySQL. From the information gathered, the author has decided to create three tables which are:

No.	Table	Attribute	Description
1.	Album	Album_id	To store the picture
		Album_description	
		Album_uploads	
		Album_date	
2.	Comments	Picture_id	For the user to put a comment below the picture
		Msg_id	
		Userhost	

No.	Table	Attribute	Description
		Msg_subject	
		Msg_body	
		Msg_date	
3.	Picture	Picture_id	To display the pictures
		Album_id	
		Picture_filepath	
		Picture_filename	
		Picture_filesize	
		Picture_width	
		Picture_height	
		Picture_hits	

Table 3: Database Details

14

4.4 Result & Discussion
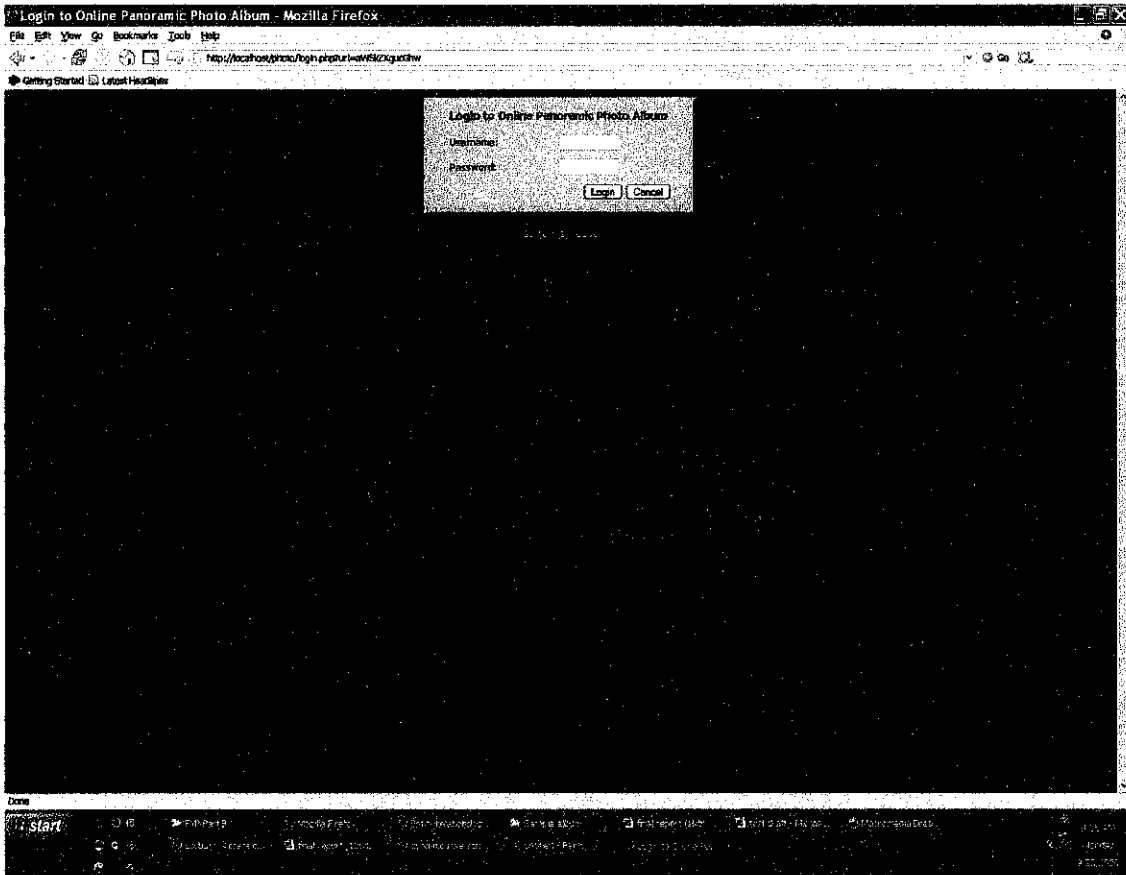
Online Panoramic Photo Album Layout

Figure 7: Login Page

This screen layout is the login page before the user have the privileges to use all the functionalities such as arranging the panoramic pictures, view the panoramic pictures, navigate the panoramic pictures, and give comments to the pictures. There are three type of user created. One is the administrator who is responsible to provide necessary access to the user, update the user account, updates the available panoramic pictures, updates the layout of the application and maintains the functionalities so that it will available at all time. Another user will have privileges to arranging the panoramic pictures, view the panoramic pictures, navigate the panoramic pictures, and give comments to the pictures. And the last user only can view the panoramic pictures but did not have other special privileges in the application.

15
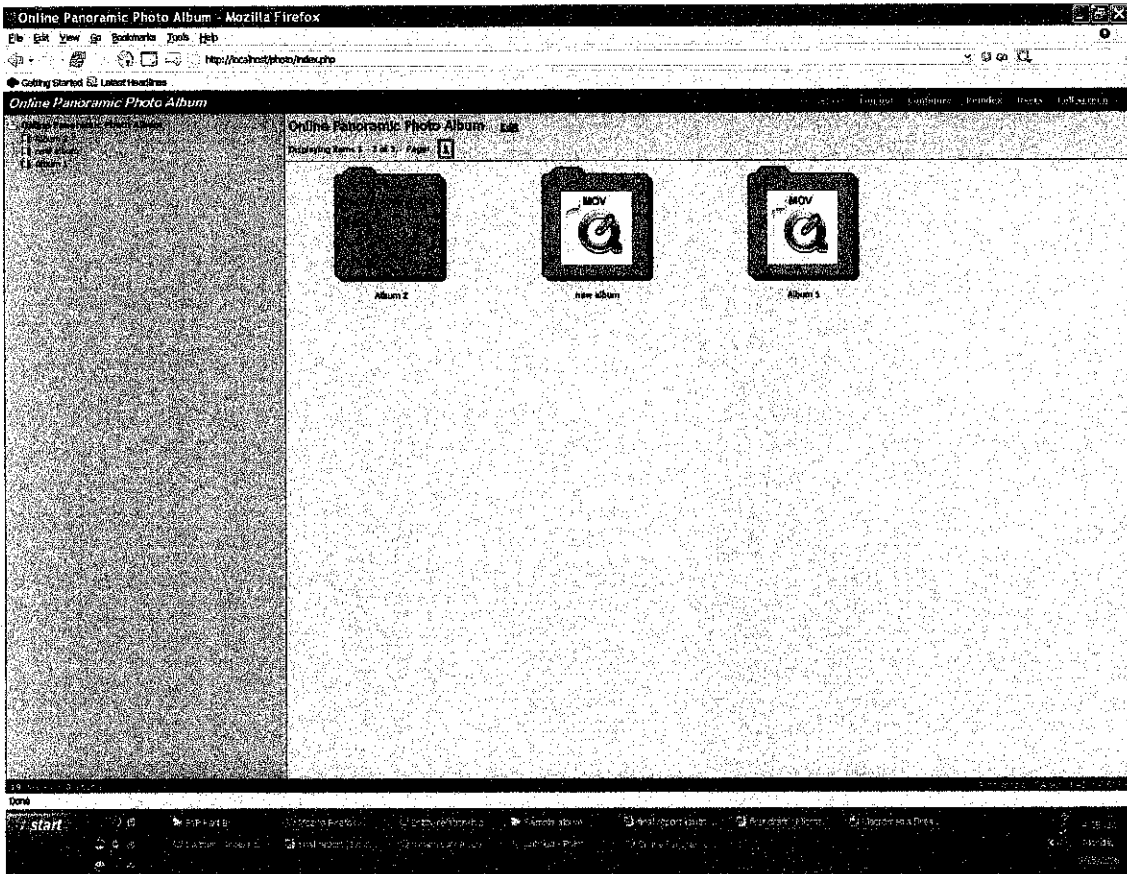
Figure 8: Main Page

This is the main page for the Online Panoramic Photo Album after successfully login where it will list all the available albums including the view of the folder thumbnails. It also listed the number of albums in the page. On the left side of the main page is the tree icon for each album and including the name of application. The purpose of the tree icon is to enable the user have better view of the available albums if there are huge numbers albums in the system.

16

Figure 9: Folder Main Page

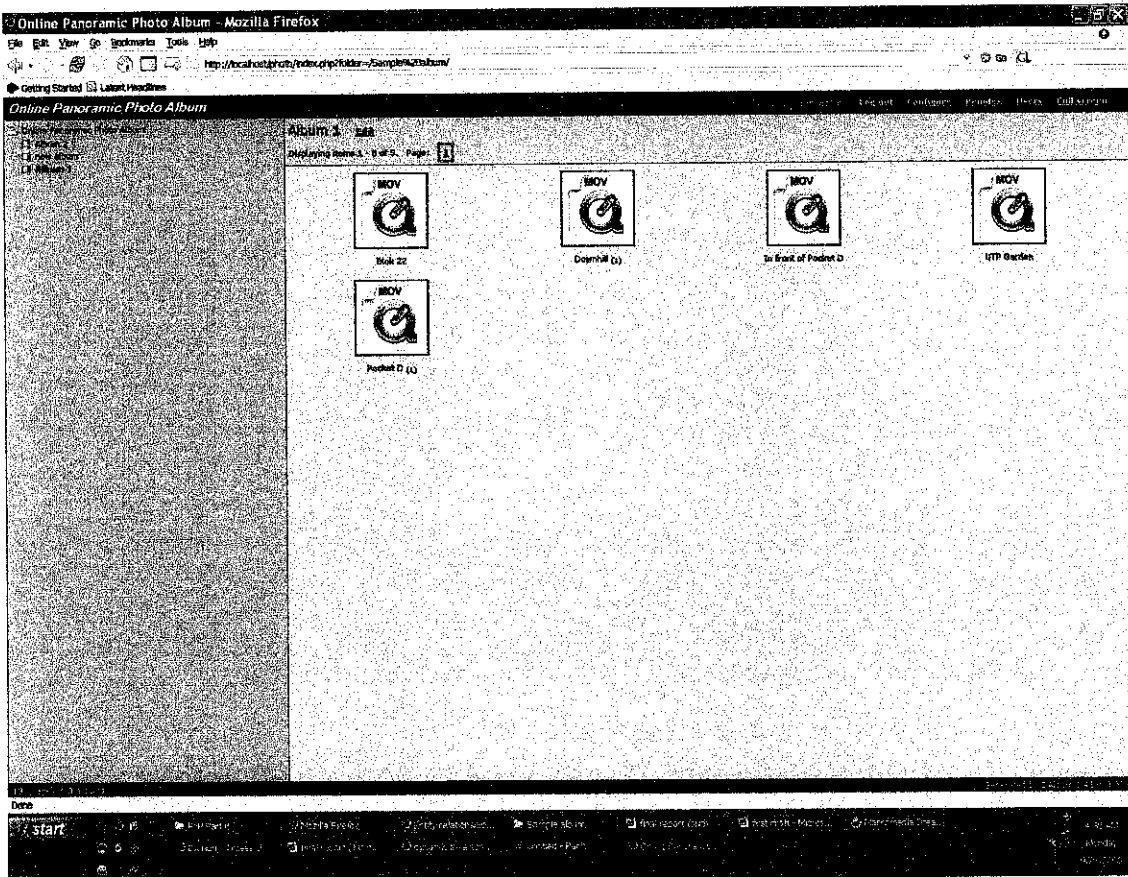The user will go into this page if they select any of the albums. This page is the main page of the album and it will list all the available panoramic pictures. Besides, it also lists the panoramic picture name and the number of comments posted. The arrangement of the pictures in a page is the number of pictures per page is four pictures in a row and 12 pictures in a page.

Figure 10: Panoramic View Page

In this page the user able to view the panoramic pictures available in the album and navigate it. Besides they also can upload comments below the picture and response to other user comments. The purpose of the comments is to show some sort of storyline about the picture related with the users.

18
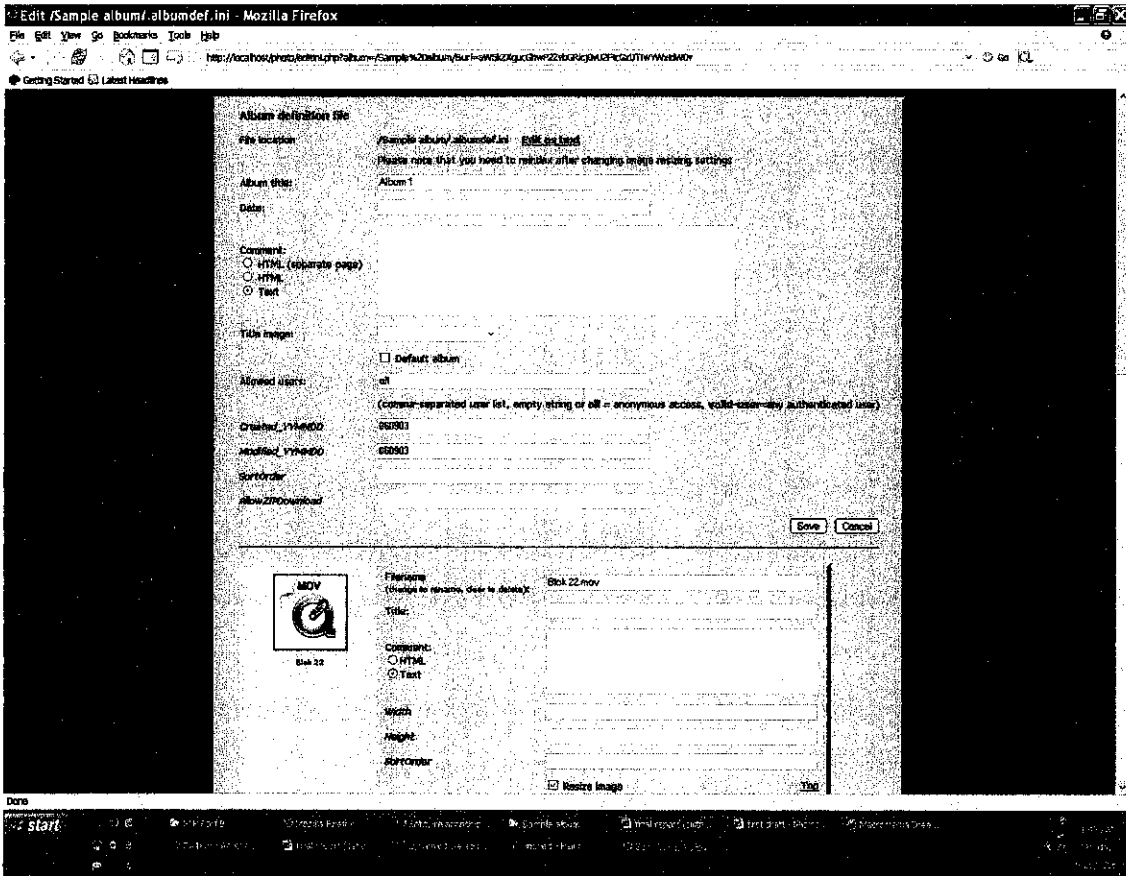
Figure 11: Edit Album Page (1)

In this page, the user can edit or update information about the album such as the album name, created date, allowing what type user can access the album and sorting the order of the album.

19
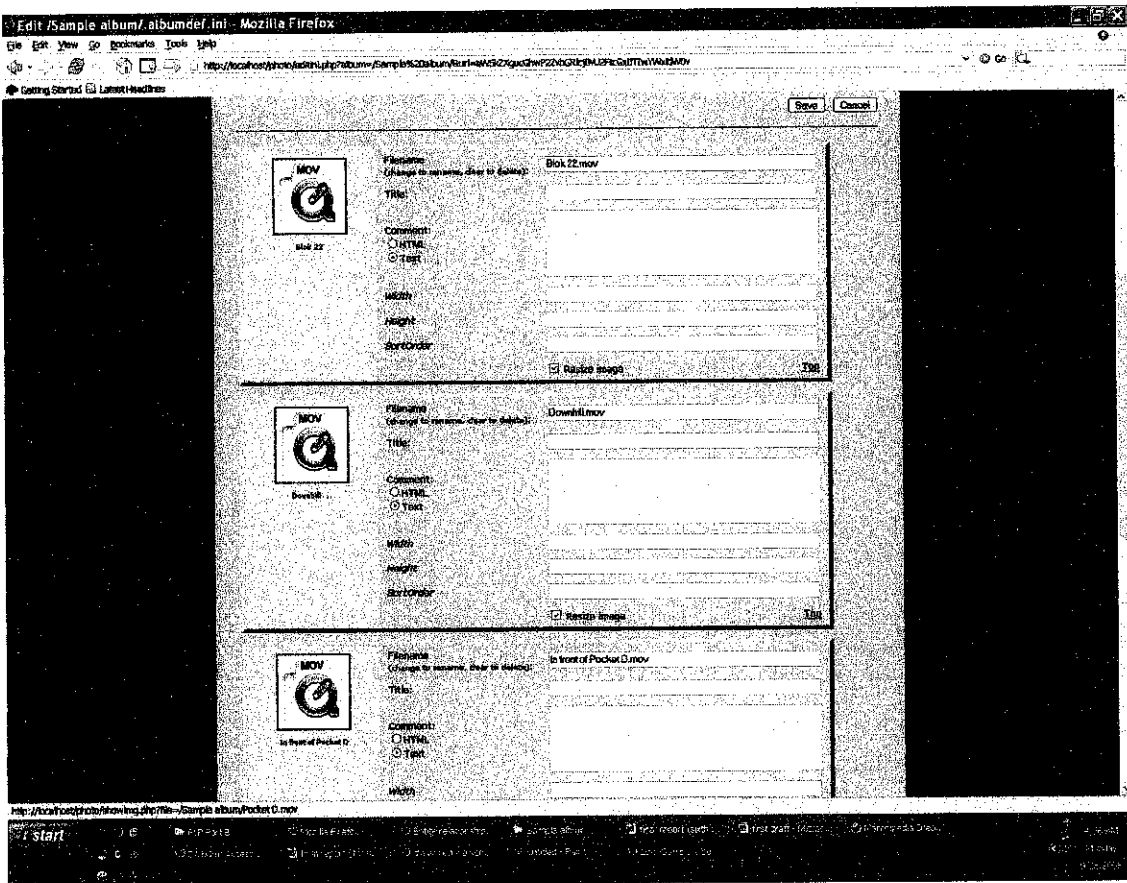
Figure 12: Edit Album Page (2)

Continuous from the screen above is the page for editing the details of the panoramic pictures. The user can edit or update information about the pictures such as the pictures name, provide brief explanations about the picture and arranging the panoramic pictures according to the priority, likeness or events. The users need to arrange the picture using number type of input.

Figure 13: User Manager Page (1)

The user manager page only available in administrator account that use to create new user, delete existing users and change current password of the existing users.

21

Figure 14: User Manager Page (2)

This page is for administrator to add, delete or change password the user whereby it needs to generate username, password and reconfirm the password key in. Only administrator has the privileges to perform these because to avoid unauthorized access to the system and control the user activities.
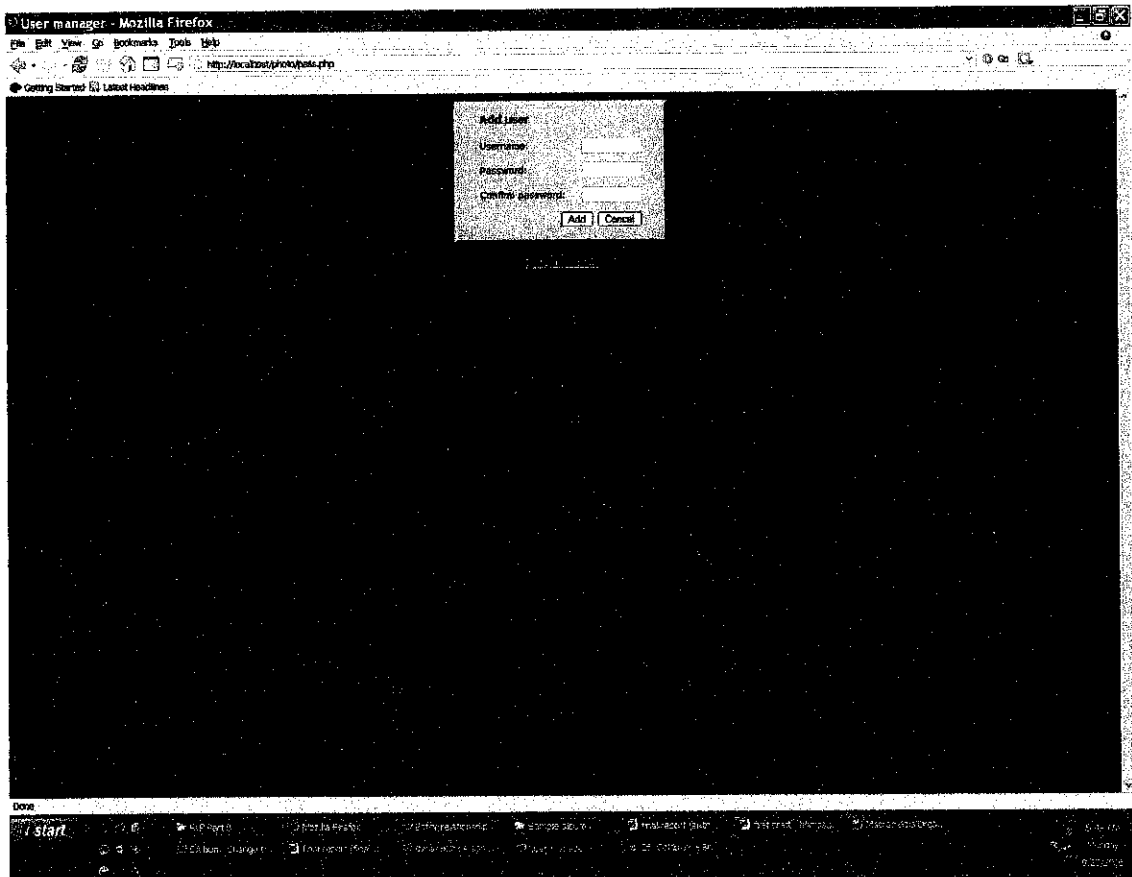
4.5 System Evaluation

The development of this system has been accessed by the user and tested whether the system has served the purpose of the requirements and to measure the human perception towards the system. Thus, questionnaires have been given to the users to evaluate the significance and effectiveness of the system to the users (Refer to Appendix D). The system has been evaluated based on Kearsley's four stages of interactions to measure how the functionalities are significance and effective to the users. Besides, the system also been tested on how interactive it is to the user based on enabling sound feature and navigating the pictures.

The author has gathered feedbacks and comments about the system interface and functionalities.

The testing evaluation has been conducted to small group of users which involved 10 participants and done it in one time. The purpose of the system evaluation is to see whether OPPA able to grab users attention and measure the commercial value of it. A structured type of questions has been given to the participants to elicit important feedbacks from the user.

The background of participants involved who are IT literate but might not heard or uses panoramic application. The group is divided into three small groups which is Group A, Group B, Group C. The user need to rank the system from 1 to 5 (5 for the most like and 1 for the least like). Group A consist of three participants can comments and rank the system when the system disable to navigate pictures and no sound feature. Group B consist of 3 participants can comments and rank the system when the pictures can be navigate but no sound feature. Group C consists of 4 participants can comments and rank the system when the system enable the users to navigate the pictures and included sound feature.

From the gathered feedbacks, some of the users had heard about panoramic and some aren't. The users also did not see any existing Panoramic Photo Album before. The

23

feedbacks about the system are majority of the user think that the interface is OK and simple but hard to understand. However the entire users think that the system has a commercial value if it will be enhanced in the future.

The feedbacks to study human perception of the system based on ranking, Group A total rank is 3/15, Group B total rank is 6/15 and Group C total rank is 18/20. From the result, it can be concluded that users are prefer a system that provide most functionalities and interactive which in this case are able to navigate the pictures with sound feature included.

The users also commented overall of the system performance and interactivity. Majority of them didn't know how to create panoramic pictures which mean that they doesn't know what kind of software available in the market to perform this action and also they doesn't have any knowledge to use it. The users also mentioned that it such a hassle to create panoramic pictures since it needs to take a series of images and edit it before publishes to the web. Meanwhile, others say that although it a long process but it is satisfying work to see how the picture can view the environment.

Moreover, the users also expressed about limited functionalities offered to the user. Thus it looks like the system is less interesting and less valuable to them. However, they suggest that they will buy the product if it serve multiple needs of the users such as enabling the product to support various types of files like .mpeg, .avi, .mp3, etc and not only panoramic format. Therefore they were referring to a product which not only restricted to panoramic pictures but video and images also.
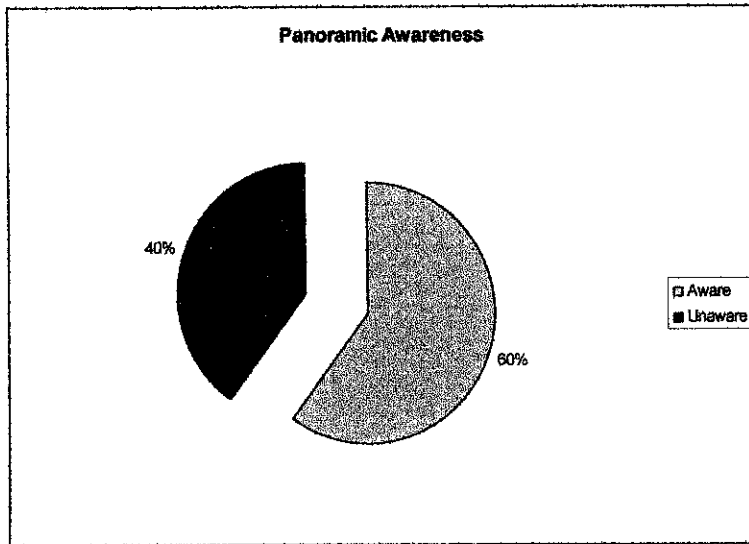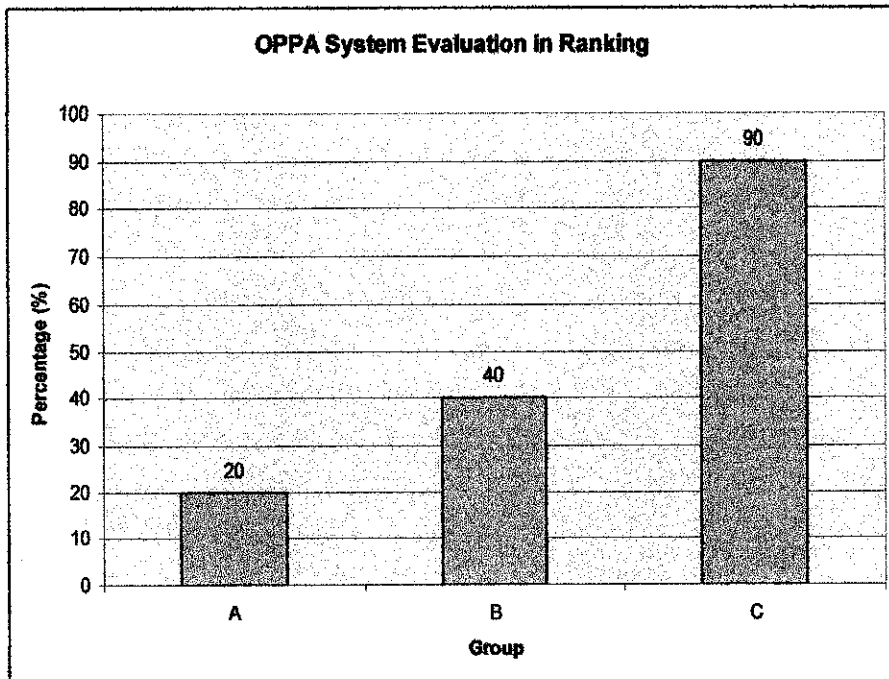
Figure 15: Panoramic Awareness

Figure 16: OPPA System Evaluation in Ranking

CHAPTER 5
CONCLUSION & RECOMMENDATION

5.1 Conclusion

In conclusion, the system is focusing on enable panoramic picture to be integrated and viewed in the photo album. Thus it gives benefits to the users who have interest in panoramic applications by getting utilities like navigating and sharing the panoramic pictures. However the most critical part of the system is to be able to achieve optimal requirements while developing the photo album. This is because, it's important to develop a product that can attract the user to use it and have commercial value. Therefore studies on human perception of the system really assists the author in identify the weaknesses and advantages of the system to the users. Successful development of Online Panoramic Photo Album will eliminate the difficulties face by the users who wish to share and store their panoramic pictures online.

Due to the limited resources given to the author which is time, the proposed system can be reliable to certain extent of requirements only and not up to the standard of available system exists in the markets in terms of its functionality. This is because the author has to eliminate certain functionalities when it runs out of schedule to complete it.

Last but not least the whole overview of the project itself, the author view of the course itself is it could be better if the student have equal opportunities with previous students to develop the project. This is referring to duration planned that is given to the students. Due to a limited resources which is time constraint, the author felt unsatisfied with the developed product as it doesn't meet the author expectation from the beginning of the project initiation. The course should be able to train the students producing and gain the most knowledge during this period and not only for the purpose of develop a system and passing the grade so that it will be valuable for the future purposes.

However, the implementation of this project gives a good experience to the author on how to manage project individually whereby need to comply with the milestone given and at the same time try best to produce an optimum product at the end. At the same time it also gives opportunities and identifies weaknesses in discovering new management skills, knowledge and applies and improves it in the future. Therefore, a supervision and guidance from supervisor really helps the author to discover these.

5.2 Recommendation

Although the system is partially completed but there are several enhancement that can be implemented in the future. Firstly, the system must have upload functionality so that the user able to store the pictures easily and not only view the panoramic pictures stored by the administrator.

Secondly, the system can have search functions in the future. It applies when there are huge numbers of pictures in an album and its' difficult to find the desired picture at a time where the users need to browse one by one the folder.

The system also can be enhanced by including archive date for each picture that has been uploaded. This will help the users to keep track of the pictures and assists the user to search and browse the pictures later if there are plenty of albums in the system.

Lastly, it will be better if it can support multiple formats of media files and not only restricted to panoramic file format only. This is because the users can gain benefits from the system which offer multiple functionalities and choose this product as their favorite.

REFERENCES

1. Corrina Jacobs, *Interactive Panoramas: Techniques for Digital Panoramic Photography* (2004): 1, 2.

2. Ryad Benosman & Sing Bing Kang, *Sensors, Theory, and Applications: Panoramic Vision* (2000):7.

3. Mary Bellis, *The History of the Digital Camera,*
   http:// inventors.about.com/library/inventors/bldigitalcamera.htm (2006).

4. Ianus Keller, Pieter Jan Stappers, Sander Vroegindeweij, *Supporting informal collections of digital images: organizing, browsing and sharing.*

5. Alan Dix, Janet Finlay, Gregory D. Abowd, Russell Beale, *Human-Computer Interaction, Prentice Hall* (2004): 771-787.

6. Bill Kules, Hyunmo Kang, Catherine Plaisant, Anne Rose, Ben Shneiderman, *Immediate Usability: A Case Study of Public Access Design for a Community Photo Library* (2004).

7. Paul E. Debevec, Camillo J. Taylor, Jitendra Malik, *Modeling and Rendering Architecture from Photographs: A hybrid-geometry and image-based approach.*

8. Realviz, Stitcher Tutorial, http://www.realviz.com (2006).

9. Stephen Voida, W.Keith Edwards, Mark W. Newman, Rebecca E. Grinter, Nicolas Ductheneaut, *Share and Share Alike: Exploring the User Interface Affordance of File Sharing.*

10. Allan Kuchinsky, Celine Perling, Michael L. Creech, Dennis Freeze, Bill Serra, Jacek Gwizdka, *Fotofile: A Consumer Multimedia Organization and Retrieval System.*

11. Mike Esler, Jeffrey Hightower, Tom Anderson, Gaetano Borriello, *Next Century Challenges: Data-Centric Networking for Invisible Computing the Portfolio Project at the University of Washington.*

12. Brian M. Landry, Mark Guzdial, *Supporting Personal Digital Storytelling: From People to Software.*

13. YoungKyu Kin, SeungEok Choi, Amy Chung, InSik Myung, Ja Yeon Lee, MinChui Kim, JooKyung Woo, *GIA: Design of a Gesture-based interaction photo album.*

14. Jim Gemmell, Gordon Bell, Roger Leuder, Steven Drucker, Curtis Wong, *MyLifeBits: Fulfilling the Memx Vision.*

15. Tim Monroe, Bryee Wolfson, *Programming with QucikTime VR: A look at the new API for managing QuickTime VR movies, Apple Computer, Inc.*

16. Yoknapatapha County, Law Enforcement Division Evidence File, http://www.crimescene.com/purity/crime_montage.html

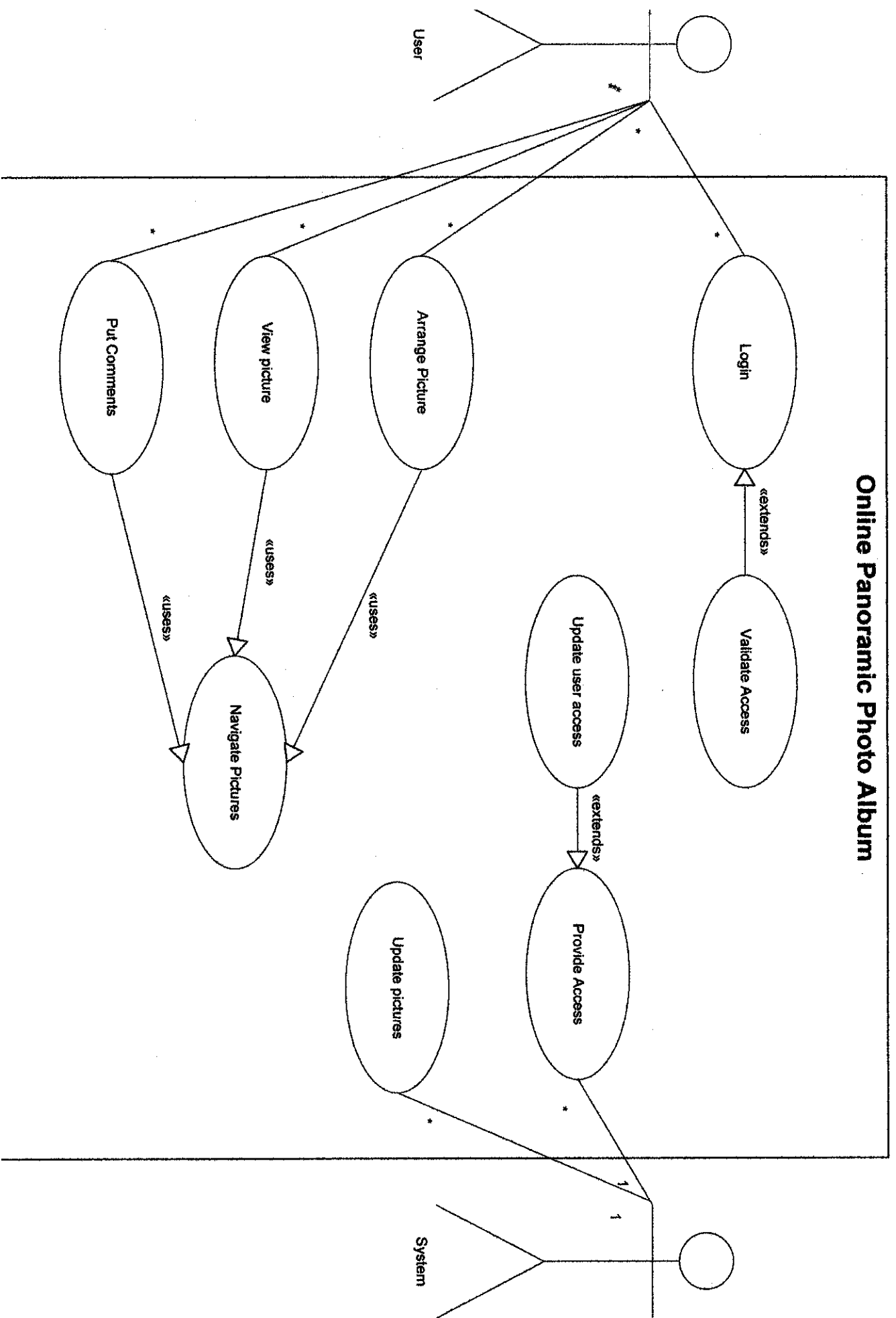17. Technical Note TN1035, QuickTime VR 1.0 Panorama Movie File Format, http://www.quicktime.com

18. http://rs6.loc.gov/ammem/pmhtml/panhome.html

19. http://www.worldvr.com/

20. http://www.fullscreenqtvr.com/

APPENDICES

APPENDIX A:

Project Timeline

Task Name	Duration	Start	Finish
Planning	2 days	Mon 7/24/06	Tue 7/25/06
Analysis	2 days	Wed 7/26/06	Thu 7/27/06
Gather Pictures	2 days	Wed 7/26/06	Thu 7/27/06
Application	22 days	Fri 7/28/06	Sat 8/26/06
Design	9 days	Fri 7/28/06	Wed 8/9/06
Design Application Interface	2 days	Fri 7/28/06	Mon 7/31/06
Design Security for User Access	2 days	Tue 8/1/06	Wed 8/2/06
Design Application Template	2 days	Thu 8/3/06	Fri 8/4/06
Design Functionality	3 days	Mon 8/7/06	Wed 8/9/06
Development	22 days	Fri 7/28/06	Sat 8/26/06
Develop Application Interface	5 days	Tue 8/1/06	Mon 8/7/06
Develop Security for User Access	5 days	Thu 8/3/06	Wed 8/9/06
Develop Application Template	5 days	Mon 8/7/06	Fri 8/11/06
Develop Functionality	6 days	Thu 8/10/06	Thu 8/17/06
Submit Progress Report	0 days	Tue 8/8/06	Tue 8/8/06
Repository	22 days	Fri 7/28/06	Sat 8/26/06
Design	8 days	Fri 7/28/06	Wed 8/9/06
Design Record Types	2 days	Fri 7/28/06	Mon 7/31/06
Design User & Roles Security	2 days	Tue 8/1/06	Wed 8/2/06
Design DB Environment	4 days	Thu 8/3/06	Tue 8/8/06
Development	22 days	Fri 7/28/06	Sat 8/26/06
Develop Record Types	5 days	Tue 8/1/06	Mon 8/7/06
Develop User & Roles Security	5 days	Thu 8/3/06	Wed 8/9/06
Develop DB Environment	12 days	Wed 8/9/06	Thu 8/24/06
Test	7 days	Sun 8/27/06	Sat 9/2/06
Unit Test	3 days	Sun 8/27/06	Tue 8/29/06
Functional Test	4 days	Wed 8/30/06	Sat 9/2/06
Submit Final Draft	0 days	Mon 9/4/06	Mon 9/4/06
Submit Final Report	0 days	Mon 9/18/06	Mon 9/18/06
Oral Presentation	5 days	Mon 10/9/06	Fri 10/13/06
Submit Dissertation	0 days	Fri 10/13/06	Fri 10/13/06

APPENDIX B:

OPPA Use Case Diagram

Online Panoramic Photo Album

User

System

Put Comments

View picture

Arrange Picture

Login

«uses»

«uses»

«uses»

Navigate Pictures

Update user access

Validate Access

«extends»

«extends»

Provide Access

Update pictures

APPENDIX C:

OPPA System Flow

Start

Login into OPPA

No

Successfully login?

Yes

OPPA

Arrange Panoramic Pictures

View Panoramic Pictures

Put Comments

Navigate Pictures

End
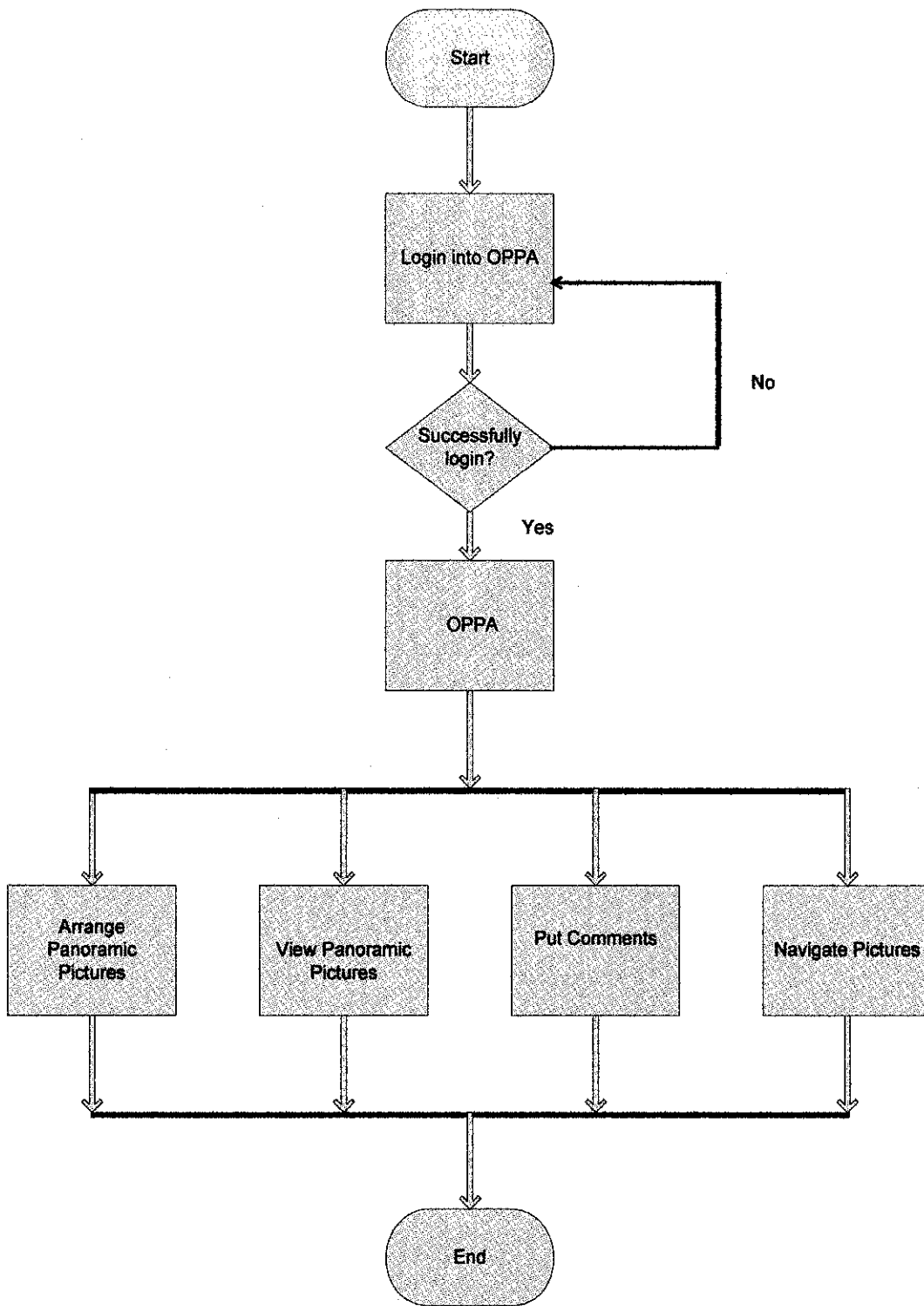
System Flow of Online Panoramic Photo Album (OPPA)

APPENDIX D:

Questionnaires

The purpose of this questionnaire is to elicit information on the efficiency of Online Panoramic Photo Album.

.

Age/ *Umur*   : [ ] 20-35   [ ] 36-50   [ ] Over 65/ *Atas 65*

Gender/ *Jantina* : [ ] Male/ *Lelaki*   [ ] *Perempuan*

Race/ *Bangsa*   : [ ] Malay/ *Melayu*
                     [ ] Indian/ India
                     [ ] Chinese/ *Cina*
                     [ ] Others/ *lain-lain*

Status   : [ ] Student/ *Pelajar*
                     [ ] Lecturer/ *Pensyarah*
                     Others/ *lain-lain* _____

Level of education/   : [ ] School/ *Sekolah*   [ ] Degree/
                                   [ ] Master's / *Ijazah Lanjutan*   [ ] Phd./ *Dr.*

---

1. Have you ever heard about Panoramic before?

    A. Yes
    B. No

2. Have you ever see Online Panoramic Photo Album?

    A. Yes
    B. No

3. What do you think about the interface?

    A. Simple & Hard to understand
    B. Simple & Easy to understand
    C. Unpractical
    D. OK

For Questions 4-6, please rank the system from 1-5 (1=the least like, 5=the most like)

4. What is your opinion, if the system do not provide music and do not allow the user navigate the picture.

   A. Boring
   B. OK
   C. Interesting
   Rank [   ]

5. What is your opinion, if the system do not provide music but allow the user navigate the picture.

   A. Boring
   B. OK
   C. Interesting
   Rank [   ]

6. What is your opinion, if the system provide music and allow the user navigate the picture.

   A. Boring
   B. OK
   C. Interesting
   Rank [   ]

7. Do you really think that this system will have commercial value in the future if it will be enhanced?

   A. Yes
   B. No

8. Please give your comments or recommendation about the system.

[   ]