Study of User Acceptance of UTP Helpdesk System

by

Mohd Izzuan Affendi bin Roslan

Dissertation submitted in partial fulfilment of
the requirements for the
Bachelor of Technology(Hons)
(Business Information System)

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CERTIFICATION OF APPROVAL

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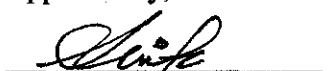
Approved by,



(Savita Sugathan)

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January 2009

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 acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

(MOHD IZZUAN AFFENDI BIN ROSLAN)

ABSTRACT

Online helpdesk system nowadays is widely used all around the world in managing problems faced by employees in a company. While some still use the manual approach of tackling the issue, in the future everything will be done through the computer without having to call for an assistance to help.

UTP had implemented the helpdesk system but currently the usage is very minimal. The intended end users prefer to call than going through the intranet in reporting their problems. This project is meant to study on the acceptance of the system from the users.

In order to understand the acceptance, the author must know one key model in approaching the problem, Technology Acceptance Model. With this model, hypothesis and analysis will be made to determine their level of acceptance towards the system and detect the problems of the helpdesk system.

In the meantime, studies on the characteristics of good websites were also done in order to know how well UTP helpdesk system is designed.

The project continues with the prototype of an ideal helpdesk system and come up with a set of guide in creating a good helpdesk system based on the prototype.

The author hopes the project will benefit not just UTP users but also others in developing any helpdesk system in the future.

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INTRODUCTION

1.1 Background

A helpdesk system is an information and assistance resource that troubleshoots problems with computers or similar products. Corporations often provide help desk support to their customers via a toll-free number, website and/or e-mail. Most organizations now apply helpdesk system in order to solve problems faced by the employees and at the same time organize the problems in a way that can be revised by the technicians or the employees themselves. For UTP helpdesk system, it is managed by the Information Technology Media Services (ITMS) department. There is a link required to access the helpdesk system. Lecturers will access the link to do reporting regarding IT technical issues to ITMS and ITMS personnel will respond.

1.2 Problem Statement

The problem with the system is it is not fully utilized by the targeted users

- End users prefer to call directly the helpdesk personnel then going through the system.
- Most of the question tickets requested were not handled instantly. This de-motivates the end users to use the system.
- In addition, there is no back-up training to cater employees who haven't participated in the training phase.

These problems lead to the system been used less often and become the alternative, not the main reference, when users having technical issues regarding information technology.

1.3 Objectives

The objectives of this project are:-

- To study on current existing helpdesk system.
- To test on user acceptance based on TAM model variables.
- To develop a prototype of improved helpdesk system.

1.4 Scope of Study

The scope of study will focus on the helpdesk being used in UTP. It will also focus on the technical and usability aspect on why the system is not accepted by the end users as well as the external factors that leads to the usage of the system. The external factors will be system promotion, training and management guidance/support as well as IT-alliteration.

CHAPTER 2

LITERATURE REVIEW AND/OR THEORY

According to Wikipedia (2008), a typical help desk has several functions. It provides the users a central point to receive help on various computer issues. The help desk typically manages its requests via help desk software, such as an incident tracking system, that allows them to track user requests with a unique ticket number. Some common names for a help desk include: Computer Support Center, IT Response Center, Customer Support Center, IT Solutions Center, Resource Center, Information Center, and Technical Support Center.

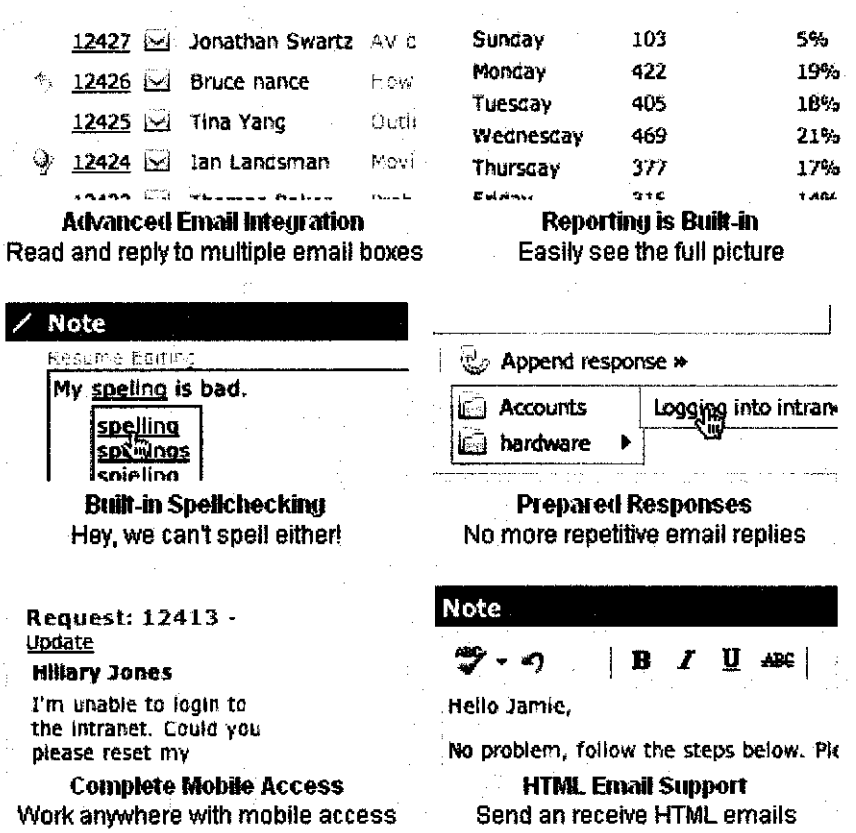
The user notifies the help desk of his or her issue, and the help desk issues a ticket that has details of the problem. If the first level support technician is able to solve the issue, the ticket is closed and updated with documentation of the solution to allow other help desk technicians to reference in the future. If the issue needs to be escalated, it will be updated, noting what was attempted by the technician and dispatched to second level support.

From the mid 1990s research by Middleton (1996) at The Robert Gordon University found that many organizations had begun to recognize that the real value of their help desk(s) derives not solely from their reactive response to users' issues but from the help desk's unique position where it communicates daily with numerous customers or employees. This gives the help desk the ability to monitor the user environment for issues from technical problems to user preferences and satisfaction.

Large help desks have different levels to handle different types of questions. The first-level help desk is prepared to answer the most commonly asked questions, or provide resolutions that often belong in an FAQ or knowledge base. Typically, an incident tracking system has been implemented that allows a logging process to take place at the onset of a call. If the issue isn't resolved at the first-level, the ticket is escalated to a second, higher, level that has the necessary resources to handle more difficult calls. Also note that some organizations have a third, higher again, line of support which often deals with software specific needs, such as updates and bug-fixes that affect the client directly.

One of the example of help desk system is HelpSpot, which is a web-based Issue tracking / help desk software product sold by UserScape, Inc. It was created by Ian Landsman.

HelpSpot requires a web server and an SQL database and its primary features include email request tracking, providing a customer self service portal, and general help desk reporting and tracking features.



Source: http://www.userscape.com/products/helpspot/

Figure 1: Sample of HelpSpot System

It is one of the most used help desk system based on its characteristics:-

- Ease of use - leveraging modern web based technologies for an improved user experience, for staff and customers alike.
- Integration - pulling support inquires from a variety of submission points and real-time inclusion of other IT data.
- Flexibility with customization - well designed customer fields and reporting tags allow for the flexibility you need in a reportable format.

Another example of a good helpdesk system is Liberum HelpDesk. Taken from its website, Liberum Help Desk is the complete help desk solution for small to medium sized businesses and organizations. software provides a simple, easy to use web interface for managing and tracking technical support problems.

Liberum Help Desk is open sourced under the GPL license and free for use. The help desk software is written in HTML and ASP and is easily modified and customized.

The key features of the systems are:-

- Completely web-based
- E-mail notifications
- Can utilize Windows authentication, so you don't need to manage another database of users
- Allows for better communication between users and support reps: users can view progress on problems and submit additional information
- Built-in reporting to keep track of support reps, which departments are making requests, and what types of problems are being reported
- Easily customizable to fit your needs

2.1 User acceptance of information technology

Dillon, A. and Morris, M said that user acceptance is defined as the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support. In order to gain that acceptance, every system created must have some characteristics that will attract the users.

According to Rogers (1995) innovation diffusion theory, user acceptance of a technology is determined by five characteristics:

- relative advantage (the extent to which it offers improvements over available tools),
- compatibility (its consistency with social practices and norms among its users),
- complexity (its ease of use or learning),
- trialability (the opportunity to try an innovation before committing to use it),
- observability (the extent to which the technology's gains are clear to see).

As a product of information technology, any automated helpdesk system should focus on these characteristics in order to make sure users can accept the system.

2.2 Technology Acceptance Model

According to Wikipedia (2008), Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new software package, a number of factors influence their decision about how and when they will use it.

Fred Davis (1989) wrote in his research that the factors are:

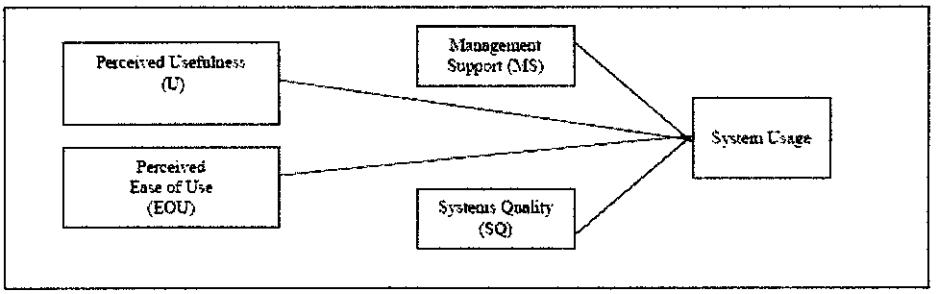
- Perceived usefulness (PU) - The degree to which a person believes that using a particular system would enhance his or her job performance.
- Perceived ease-of-use (PEOU) - The degree to which a person believes that using a particular system would be free from effort.

According to Davis, Fred D. (1989)

> *The technology acceptance model (TAM) specifies the causal relationships between system design features, perceived usefulness, perceived ease of use, attitude toward using, and actual usage behavior. Attitude theory from psychology provides the rationale for hypothesized model relationships, and validated measures were used to operationalize model variables.*

Because of this model provides a mechanis presentation by which design choices influence user acceptance, it will help in forecasting and evaluating user acceptance of the research helpdesk system..

Leslie Leung (2003) had used different approach in her project empirical research utilizing the technology acceptance model (tam) on software usage. She stated her study adopts the technology acceptance model (TAM) with usage as the dependent variable and perceived usefulness (U) and ease of use (EOU) as independent variables from the original model while including two external variables which are management support (MS) and Systems Quality (SQ). The software that she used is MS Access.



Source: http://www.idea-group.com/downloads/excerpts/2003/DavisEx.pdf

Figure 2: TAM model with Management Support and System Quality variables

Summary and descriptive statistics, along with reliability estimates, validity estimates, and multiple regression were conducted:-

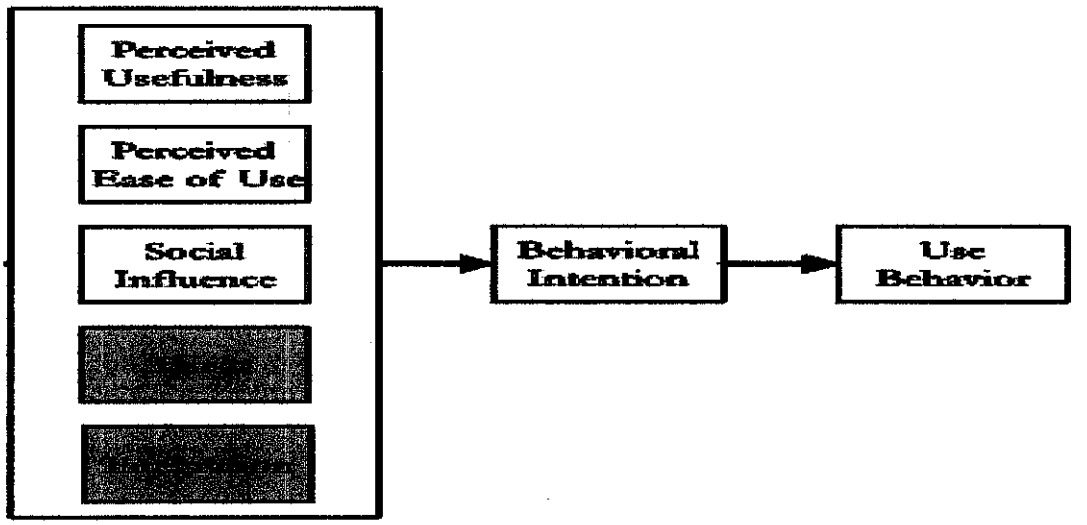
- There were 114 usable returned surveys from a population of 250 potential participants for a return rate of 45.6%.
- The regression results indicated that perceived usefulness and perceived ease of use were related to MS Access usage, while management support and system quality were not related to MS Access usage.

On the other hand, there had been a study on TAM in a more specific scope which is pervasive computing.

According to Kay Conelly (2007)

> *This paper is a first step towards a predictive model of user acceptance in pervasive computing environments. We conclude the paper outlining the next steps to fully instantiate the model. Ultimately, the model can be used to direct research efforts and resources towards those applications most likely to be used by people.*

As the system is more complex and it is narrowed down, the TAM model is different than Leslie Leung's where it does not include any external variables. Instead there are some additions to the dependant variables. Based on four factors; work environment, trust, integration and demographics, three variables (social influence, trust and integration) are added in to analyze how pervasive computing users come to accept a more complicated, high-intelligent system.



Source: http://www.cs.indiana.edu/~connelly/Use07.pdf

Figure 3 : Pervasive Technology Acceptance Model

He mentions that with technologies becoming pervasive in our lives, both at work and at play, there is a need to extend technology acceptance models to account for this domain and user group. Pervasive computing moves away from the traditional desktop model of computing towards having technology embedded in the environment.

Tino Fenech (1998) also uses TAM behavioral constructs of perceived usefulness and perceived ease of use were tested for predicting user acceptance of the World Wide Web (Web). However, the suthor focuses on creating a perfect Tam model for his research groups. The results indicate a poor fit for the model until the introduction an additional construct, computer self-efficacy.

Measure of fit	***Recommended values***	***Revised TAM***
Chi-squared divided by degrees of freedom (chi^2/df)	Less than 3.0	0.984
Non-Normed Fit Index (NNFI)	Greater than 0.9	0.952
Comparative Fit Index (CFI)	Greater than 0.9	0.998
Goodness of Fit Index (GFI)	Greater than 0.9	0.957
Adjusted Goodness of Fit Index (AGFI)	Greater than 0.8	0.890
Root Mean Square Residual (RMSR)	Less than 1.0	0.054

Table 1. Goodness of fit measures and results for the final TAM

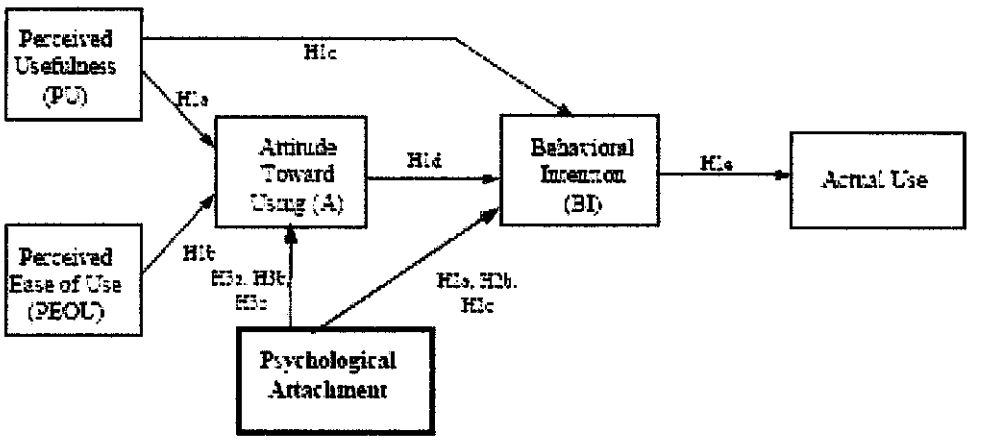
Source: http://www7.scu.edu.au/1839/com1839.htm

Figure 4: Goodness of fit measures and results for the final TAM

According to Tino Fenech (1998)

> *The study concludes that these constructs are inadequate for that purpose with the adjusted goodness of fit no better than 0.556 through application of the Technology Acceptance model. The secondary purpose of the study was to test the inclusion of the behavioural construct of computer self-efficacy within TAM for application to the World Wide Web. This later test was successful with the TAM adjusted goodness of fit of 0.890 once the additional construct, computer self-efficacy, was included in the Technology Acceptance Model.*

Yogesh Malhotra and Dennis F. Galletta (1999) on the other hand, approach the model by taking into consideration of psychological attachment. Their studies is to extend the model to account social influences in user acceptance.



Source: *http://www.brint.org/technologyacceptance.pdf*

Figure 5: Research Model: TAM Extended to Account for Social Influences

The study did not show any statistically significant relationship between social influences and behavioral intentions. Two possible explanations might account for this observation. First, attitudes represent the value system of the users and the effect of the social influence on the fit of the use of the new technology with the user's value system seems prominent. Second, behavioral intentions are indirectly affected by attitude.

Yogesh Malhotra and Dennis F. Galletta (1999)

Effective use of new information technologies is likely to require more than simple compliance. A failure to develop psychological attachment among potential users may require the organization to bear the increased costs associated with more sophisticated control systems and/or diminishing performance returns on increasing information technology investments. Given the ongoing trend toward end-user computing and greater role of users' self-determination in interacting with increasingly flexible technologies in remote and virtual environments, the theory of social influences seems to offer a rich understanding of user behavior in the implementation of new communication, coordination and collaboration technologies.

2.3 Issues regarding helpdesk system

In an article wrote by Paul Smith (2006), he identified three solutions to improve helpdesk system.

Some of the problems he noted were:

- Poor phone answering skills with the majority of calls being answered on speaker-phone, whilst swearing with heavy metal music in the background.
- Lack of management
- No system(s) or procedures in place to keep track of calls and problems
- No central call person

He said that a helpdesk system management should be alert and reply as soon as possible to the users. Helpdesk system also need to be easy for them and useful, meaning that it answers the purpose of the system.

Paul Smith (2006)

> *To get the best out of your support team, give them all the training they need and easy to use tools, that take minutes to learn. A good help desk system is THE ingredient that will take you to the next level in customer service. It is with this tool that you can blow away your competition.*

On another issue, in an interview done by Brian P Watson (2007) with Bob Otto, Otto recommended that a system should be easy for the users to communicate with. The issue is regarding how procedures and environment have become more complex and dynamic. Although the challenge to make system look impressive, the end-users are the one who will benefit from it.

Otto said

> *Third, simplify. The computer has taken over your life, so I want it to be intuitive [for people to operate and manage]. I also test my own dog food. Everything we build has to pass the "Bob" factor. I put myself in the place of the lowest common denominator, of someone who might not have a high school degree. I look at how people could be intimidated by technology, and I don't want them to have a hard time.*

Andrew Dillon (2001) addressed in his paper that demographic of the users also play a vital role in the acceptance of the system. Higher education demographic tend to have positive response towards adapting new system while the lower it gets, the more resentful they are to try new information technology. The obvious difference is towards demographic that has experienced using new technology which they seems open to any new system. He also said that training also will impact the acceptance of the a technology as the users have become familiar with the system.

He said

> *Coupling demographic variables with contextual knowledge improves matters substantially and variables such as training, experience and user involvement, correlate well with acceptance of new technology.*

2.4 General Characteristics of Good Website Content

It is easy to create a web page. But building a website without taking care of it's elements and characteristics can create bad website. In order to create good website, some guidelines have to be followed.

According to Robin Williams (2008)

> *Often the difference, even for beginning designers, is simply a matter of eliminating certain features that are guaranteed to make a page look amateurish. Go through the list of things that people--designers and non-designers--from around the country have cited as the things that make the difference between a well-designed and a poorly designed web page.*

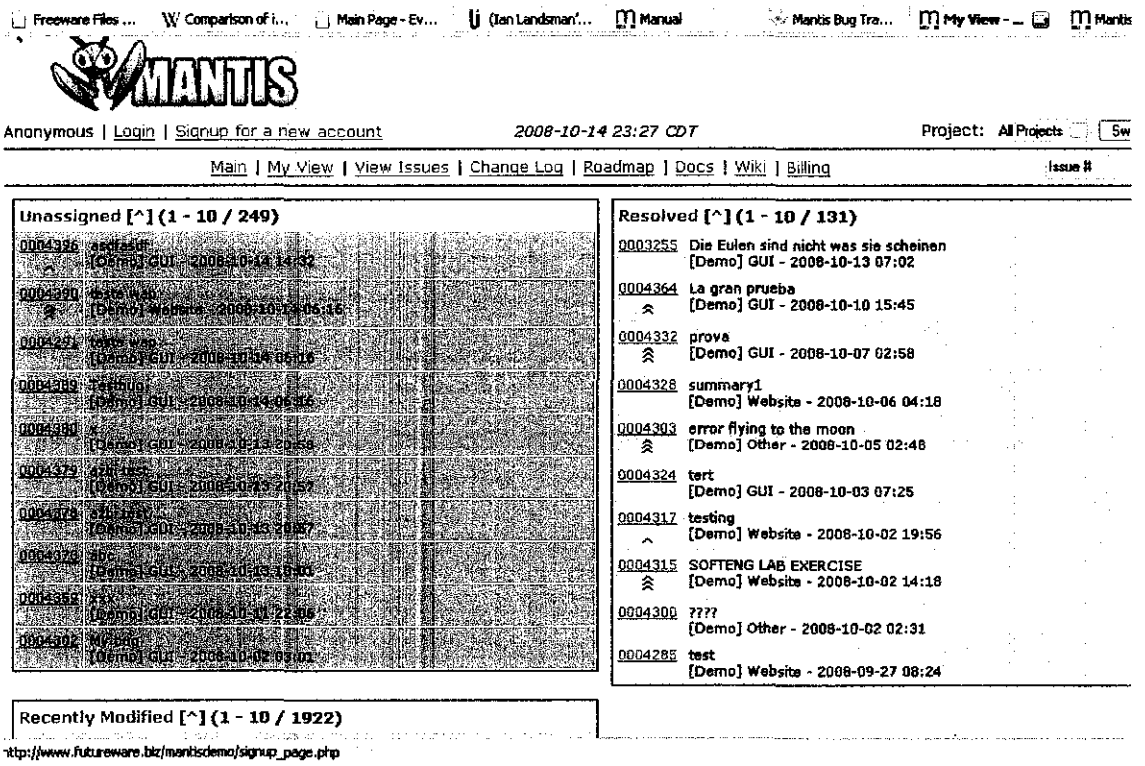
Some guidance in writing a good website are as follow:

- Write your website content with human visitors in mind - not the search engines.
- Use proper grammar and spellings. (UK or US English?)
- Provide useful information
- Unique content (borrow concepts but do not steal content)
- Write in easy to understand language
- Make your titles interesting - Try to have your keyword in your title
- Break down entire content into smaller paragraphs.
- Try to put your main points in bulleted lists - it helps your readers!
- Add keywords in your content wherever applicable - BUT do not overdo!
- Use call to actions wherever applicable.

The first example is Mantis. Mantis is a free popular web-based bugtracking system (feature list). It is written in the PHP scripting language and works with MySQL, MS SQL, and PostgreSQL databases and a web server.

Although it is very simple without attractive images and design, the system attracts users by building a page that is easy to understand and easy to navigate. The links to its main pages are at the top of the page and the importance of each element is emphasized by making it in a hierarchy. For an example, the first line is about user login/register, the second line is about the system helpdesk main functions while the third area displays the detailed functions of the system (unassigned/resolved cases).

Another example that can be looked at is the usage of color association. Red represents unassigned cases while green represents resolved cases. The color represents appropriate category of the cases making it easier for user to recognize.



Source: http://www.mantis.com/

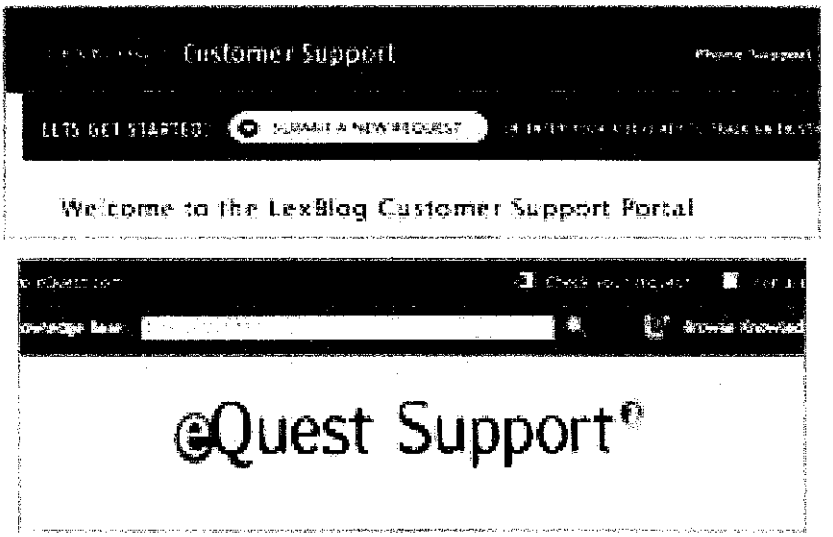
Figure 7: Mantis Helpdesk System

The second example is more advanced than Mantis in designs and functionality, Helpspot. Helpspot had given some examples in creating online helpdesk system that is not just to be simple and useful, but it need to have elements that will make it appeals to the users.

In these examples, the developer use bold design. The developer put in mind that current trend wants website with edgy and bold look, appearance that will catch the users' attention. They design are simple yet catchy. Simple and welcoming words are used. Links, buttons and search engine are located at the right place, appropriate to the standard guidelines but at the same time, not rigidly placed, giving them distant characteristics.

In addition, it is located at the top of the page, making it easier for user to see and navigate across pages in the website.

These two examples are custom-made for companies that requested the design for their employees.



Source: http://www.userscape.com/products/helpspot/

Figure 7: Sample of HelpSpot System Welcome Page

CHAPTER 3

METHODOLOGY / PROJECT WORK

3.1 Methodology

There are many ways to do methodology for the project. One way is by using prototyping. Prototyping or software prototyping is an activity during certain software development, is the creation of prototypes (incomplete versions of the software program being developed).

A prototype typically simulates only a few aspects of the features of the eventual program, and may be completely different from the eventual implementation. Prototyping is especially good for designing good human-computer interfaces.

It has been argued that prototyping, in some form or another, should be used all the time. However, prototyping is most beneficial in systems that will have many interactions with the users.

According to John Crinnion (1991)

> *It has been found that prototyping is very effective in the analysis and design of on-line systems, especially for transaction processing, where the use of screen dialogs is much more in evidence. The greater the interaction between the computer and the user, the greater the benefit is that can be obtained from building a quick system and letting the user play with it.*

There are many types of prototyping such as incremental (The final product is built as separate prototypes and at the end the separate prototypes are merged in an overall design), extreme (It breaks down web development into three phases, each one based on the preceding one) and throwaway. The author believe using the basic prototyping as the best methods in developing this project as there is still a current helpdesk system being used and the prototype will be improved based from user feedbacks.

The Analysis, Design, and Implementation phases performed concurrently and on each cycle resulting in a system prototype that will be reviewed. The cycle repeated continually based on the respondents' comments until the prototype successfully meets the requirements. The last prototype will then be called the system.

Prototyping development needs only initial basic analysis and design, but as the result important system functions may not be recognized until somewhere in the middle of project timeline. Thus there is a possibility to alter the initial design decision and start all over again from the beginning. It can delivers system quickly to users, though it not exactly meets the requirements.

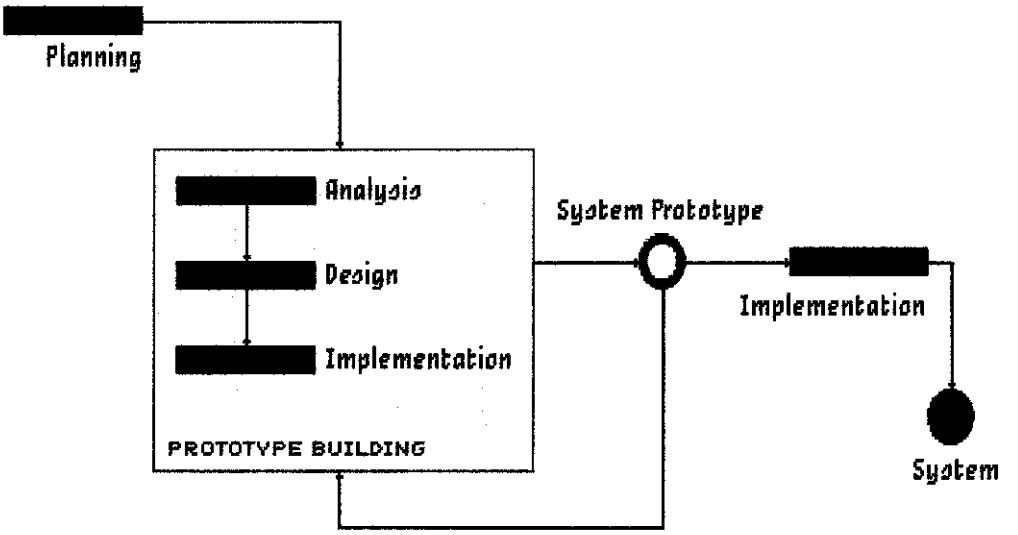


Figure 6: The project prototype methodology

Prototyping

- After preliminary requirements gathering is accomplished, a simple working model of the system is constructed to visually show the users what their requirements may look like when they are implemented into a finished system.
- Can be done quickly. If the users can get quick feedback on their requirements, they may be able to refine them early in the development of the software.
- At the end of the finalized prototype, it will be given to the ITMS for implementation.

3.1.1 Information gathering

- Studying the system – To know how the system works and what are the methods used to make sure end user use the system. It is also to study the effectiveness of the system.

- Interview – To interview the users of UTP helpdesk system and the helpdesk personnels. Probably in each department, one person will be interviewed.

- Questionnaire – An objective way to gather information from people as opposed to interview. This method is also to cater the problem of time consuming with the interview methods, more people can be catered at the same time and the answer will be more precise and objective.

3.1.2 Prototyping development

- Studying other system – To get into more details on helpdesk system

- Researches through internet, books and journals – To gather as much information as could in building a better system and framework.

- Study on the techniques and methods to organize user acceptance.

- Prototype development and testing – To test whether the user will accept the system or not.

3.2 Tools and equipments

These are the tools and equipments used in creating the prototype for the helpdesk system:-

- Database - MySQL
- Programming language – php, ASP.net, Javascript
- Software – VertrigoServ and PHPMyAdmin

MySQl is used as it is open-sourced and is very compatible with HTML and ASP.net. php, APS.net and Javascript will be used as programming language as the system is an online system.

PHPMyAdmin is administration application that will help to manage MySQL with Graphical User Interface, making it easier to be managed.

Vertrigo is used as it compile all the tools needed into one software and it helps to configure the server and database automatically.

However, the tools and equipments used may be changed.

3.3 Project workflows

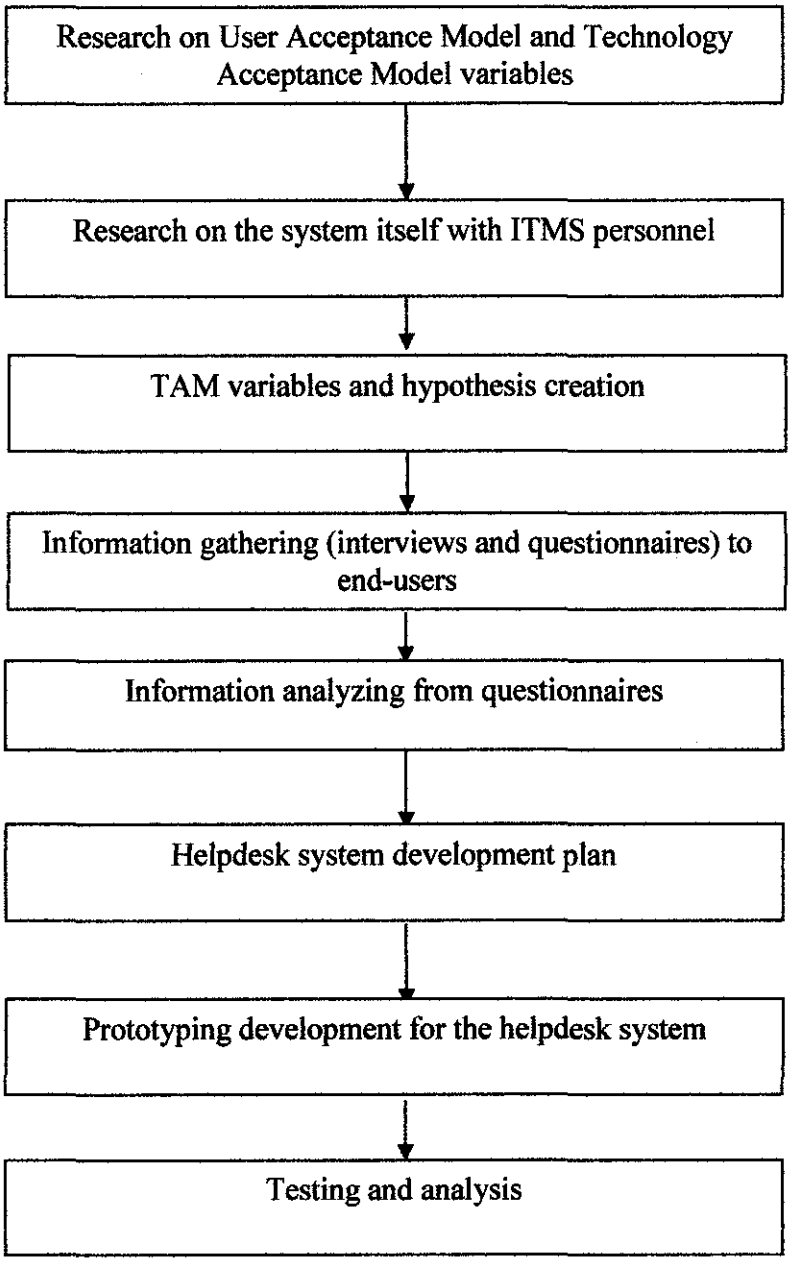


Figure 7: Workflow of the project

3.4 Storyboard

The prototype will follow the design of current UTP helpdesk system as not to run away from the system that is familiar by the users.

However, improvements will be made in the design, applying bolder looking design. Some changes will also be made to the navigation and information area to study which one is better, either the current helpdesk system or the prototype.

As the project progress, changes will also be made after the first testing of the prototype. Feedbacks from users will be gathered and improvements from their feedbacks will be made.

CHAPTER 4

RESULTS AND FINDINGS

4.1 Hypothesis created

In doing the research, the author focuses on the system itself without taking into account of external variables. This scope is chosen because the project is aim to find the best way to make users feel likely to use the system without any other factors.

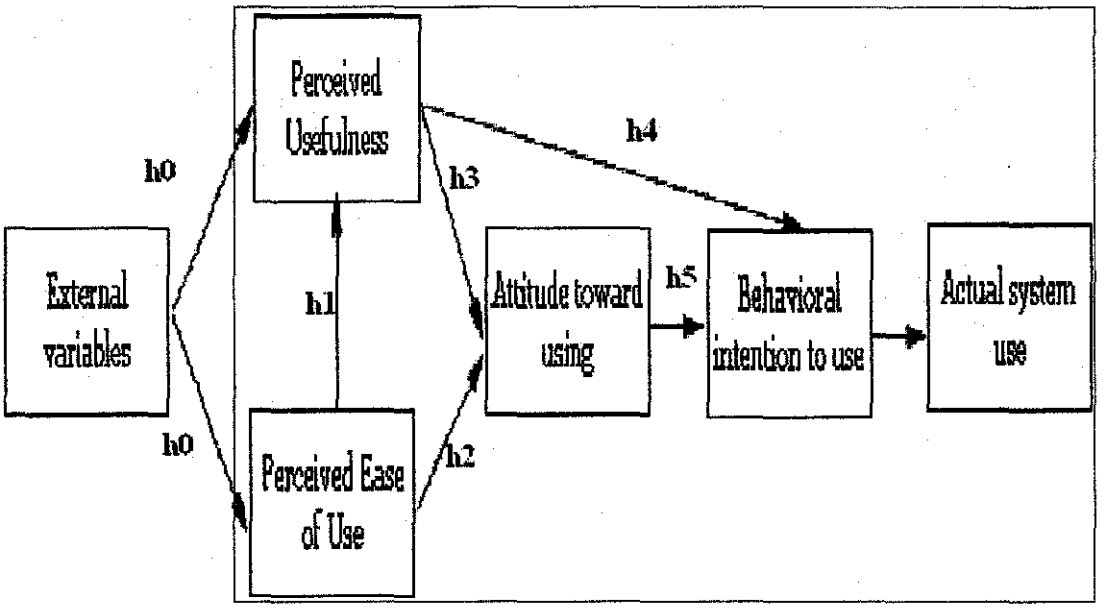


Figure 8: Research area of *Technology Acceptance Model*

However, after the first survey has been done, it is clear there are external factors that lead to the lack of usage among users. There are some additional factors included inside the model that clearly affecting the acceptance of UTP helpdesk system.

The author believes in order for the system to be used by the users, it needs to be exposed and guided by the system management team. At the same time, end-users' experience and knowledge of about information technology also play some roles in the hypothesis.

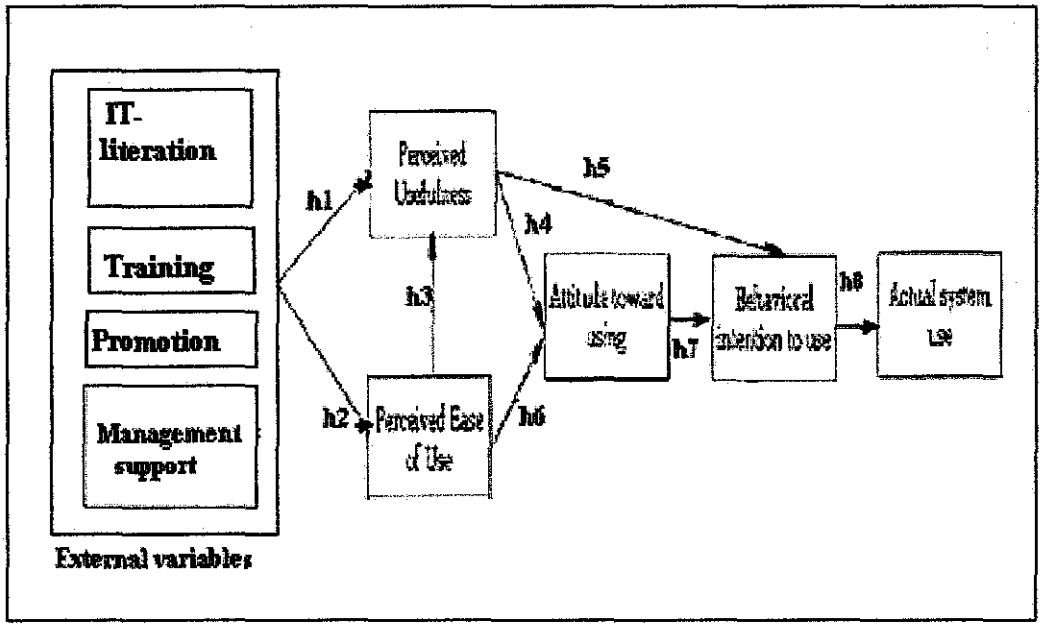


Figure 9: *Technology Acceptance Model for UTP Helpdesk System*

The hypotheses are as below, including the hypothesis for external variables. They are labeled 0 as they are not intended to be studied in the project.

- **Hypothesis 1.** There is a positive relationship between external variables and perceived usefulness for using the system.

- **Hypothesis 2.** There is a positive relationship between external variables and perceived ease of use for using the system.

- **Hypothesis 3.** There is a positive relationship between ease of use and a perceived usefulness.

- **Hypothesis 4.** There is a positive relationship between perceived usefulness and attitude.

- **Hypothesis 5.** There is a positive relationship between perceived usefulness and a user's intention to use the system.

- **Hypothesis 6.** There is a positive relationship between perceived ease of use and attitude.

- **Hypothesis7.** There is a positive relationship between attitude and intention to use the system.

- **Hypothesis8.** There is a positive relationship between intention to use the system and actual system use.

4. 2 Results of the survey

In order to test the hypothesis of TAM, questionnaire was constructed to be given to the end users of UTP helpdesk system. It contains five questions for every internal variable.

The questions are constructed based from the basic questions as below:-

- Perceived usefulness
  - Using ??? increases productivity
  - Using ??? enhances my effectiveness on the job
  - Using ??? makes it easier to do my job
- Ease of use
  - Learning to operate ?? was easy for me
  - I find ??? to be flexible to interact with
  - It was easy for me to become skillful at using ???
  - I find ??? easy to use
- Predict future usage
  - I predict I will use ?? on a regular basis in the future
  - I predict I will use ??? on a regular basis in the future

The survey questionnaire was done throughout the university new academic block, excluding Chancellor Complex, Pocket C and Pocket D.

80 survey forms were distributed to every academic department and the author was able to collect 45 replies with 39 valid results (48.75%). Out of 39 replies, only 15 (38.5%) results said that they have used the system.

Below are the data of the survey results. For each graph, the X-axis comprise of the questions in the title section.

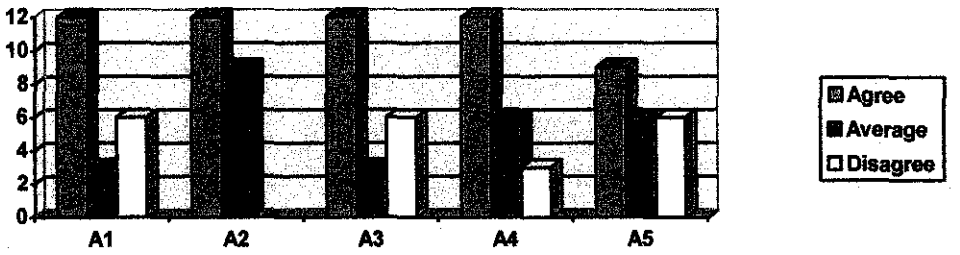


Figure 10: Graph for System Perceived Usability

A1. I am able to post my problems through the system.
A2. I received attentions immediately after sending my problems
A3. My problems resolved quickly by using the system.
A4. Using the system would enhance my effectiveness on the job
A5. I find the system manage the past problems very well.

52.35% of the respondents are positive towards the usability of the system. They find it to have the functions they want and agree that the system responds immediately to their requests.

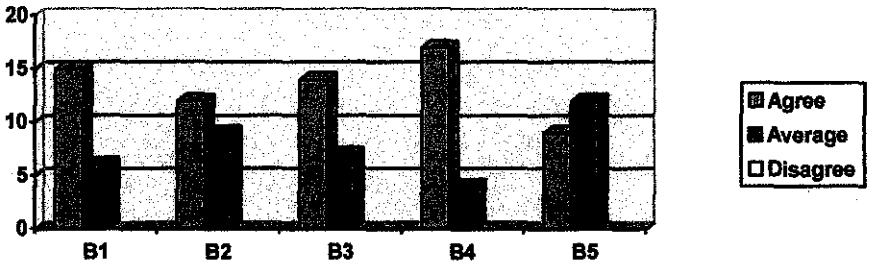


Figure 11: Graph for Perceived Ease of Use

B1. I find its easy learning to use the system.
B2. I would find it easy to get the system to do what I want it to do
B3. My interaction with the system would be clear and understandable
B4. I would find the system to be flexible to interact with
B5. It is easier to navigate because the fonts are easy to read, terms used are easy, placement of buttons and hyperlinks are at the right locations and consistent

63.8% of the respondents said that the system is easy to use and they can understand how to use the system easily. None of the answers indicate that it is hard to use, indicating that they are satisfied with the system ease of use.

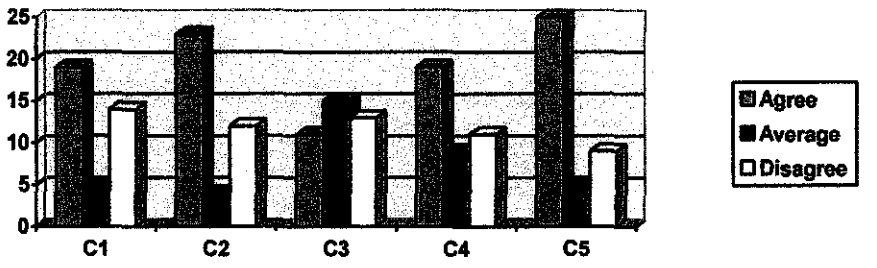


Figure 12: Graph for Attitude Towards The System

C1. I like the ideas of using online-helpdesk system
C2. I like using the system in solving my problems than using the phone calls.
C3. I use this system because it is a procedure of ITMS.
C4. I am eager to learn about using the system.
C5. I think the system is a great improvement to our helpdesk management

50% of the respondents have positive attitude towards the system. They think it is a great idea of using online helpdesk system. They do not use the system as a procedure of ITMS but merely as the system is a great improvement to the manual helpdesk system.

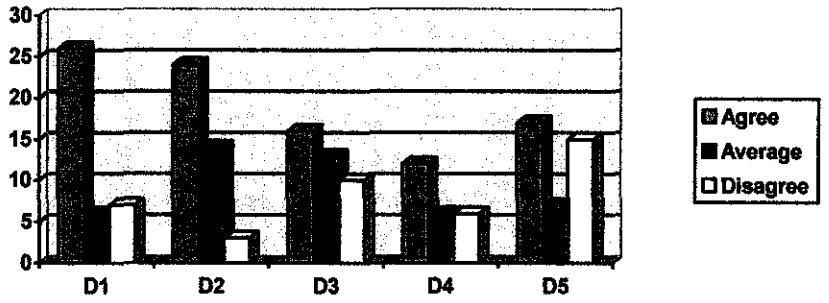


Figure 13: Graph for User Intention To Use

D1. I will make the system as my main helpdesk reference
D2. I will use the system whenever I have problems.
D3. I am intended to use it in checking old resolved problems
D4. I bookmarked the page to make it easy for me to visit.
D5. I intend to promote to or help my friends in using the system.

54.68% of respondents have positive intention to use the system. 70% of the respondents are positive that they will use the online helpdesk system as their main helpdesk reference. It indicates that they are willing to use the system when implemented wholly.

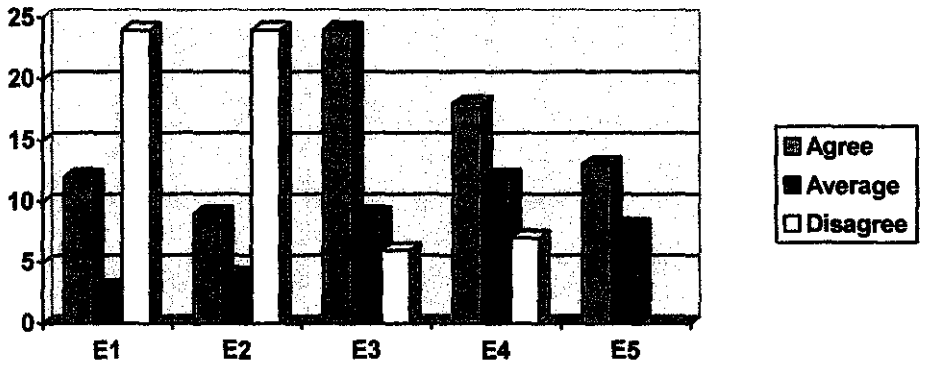


Figure 14: Graph for System Usage

E1. I am aware of the system and its availability to the lecturers
E2. I am familiar with the features of the system.
E3. I intend to use the system once I'm trained to use it.
E4. I am using / want to use the system as it is reliable and affective way for handling our problems.
E5. I am happy with the overall performance of the system so far.

42.26% respondents are positive with the system. While 60% of the respondents are not aware of the existence of the current UTP helpdesk system and 68% are not familiar with the features of it, 62% intend to use it once they are exposed to the system. None of the respondents who have used the system are not happy with the performances of the system.

4.3 External enhancements from the current system

The results shown indicates that most users who have experienced using the system are happy with the performance of the system but because of the lack of exposure to the end users, most of them do not really aware of the existence of the system. However, they are willing to learn and use the system in the future, given the exposure.

It is believed that the reason of the system not being fully utilized as a result of no exposures to the users. This may be due to lack of promotions during the introduction of the system. The other reason is may be due to insufficient amount of trainings provided to the users. It is a common problem faced by many IT technology when it comes to introducing new facilities as most of the lecturers are inexperienced in using familiar system or may be IT-alliterated.

The author believes in order to make sure that the system will be used by the end-users, ITMS should first and fore mostly promote the system to the end users. They need to know the availability of the system so that they are aware of its existence. Promotion need to be done via internet and through posters which should be posted at noticeable location such as the lifts at each building.

Secondly, training needed to be done formerly. Make the attendance compulsory to every staff and get support from the rector to gain more participation. Although the system is easy to use, the management need to bear in mind that some of the staff are IT-alliterate and afraid of using IT technology. So the importance is here where ITMS personnel can guide them and reduce the fear of using IT system. Training schedule need to be planned and organized to cater all staffs and it is advisable the training should be done more than once.

Thirdly, through the training, ITMS can identify which functions have problems that end-users find hard to use. End users can also voice their opinion at the end of the training through comment and survey to improvise the system.

Lastly, ITMS need to stay alert and responsive towards maintaining the usefulness of the system. This is more of an act of keeping the system alive as by using the system end-users, if they found it's harder and takes longer time for them to get reply, they might revert back to using manual reporting techniques. It is advisable to have certain policies regarding length of time to repond.

4.4 Comparison between good websites characteristics and UTP Helpdesk

One of the elements of good web design is a lack of the elements that make bad web design.

A comparison between the guidelines and UTP Helpdesk system had been done by the author and the results are as below:

Guideline	ITHelpdesk
Text	
Background does not interrupt the text	Yes
Text is big enough to read, but not too big	Yes
The information hierarchy is perfectly clear	Yes
Columns of text are narrower than in a book	Yes
Navigation	
Navigation buttons and bars are easy to understand and use	Yes
Navigation is consistent throughout web site	Yes
Navigation buttons and bars provide information	Yes
Frames, if used, are not obtrusive	Yes
A large site has an index or site map	Yes
Links	
Link colors coordinate with page colors	Yes
Links are underlined so they are instantly clear to the visitor	Yes
Graphics	
Buttons are not big and dorky	Yes
Every graphic has an alt label	Yes
Every graphic link has a matching text link	Yes
Graphics and backgrounds use browser-safe colors	Yes
Animated graphics turn off by themselves	Not applicable
General Design	
Pages download quickly	No
First page and home page fit into 640x460 pixel space	Yes

All pages have the immediate visual impact within 640x460	Yes
Good use of graphic elements to break up large areas of text	Yes
Every page in site looks like it belongs to the same site	Yes

Based on the guidelines above, the next few surveys asked the respondents on the current helpdesk system whether it follows the guidelines.

4. 5 Follow-up questionnaires

After the first survey, the author had focused the next questionnaires on several respondents who have given valid answers to help in enhancing the system. From the previous surveys, 10 respondents were willing to take part in doing system testing but due to commitment issues and time constraints, only 6 respondents were able to continue in the process.

From the guidelines above, the respondents are asked to answer the same questions if they find the current system matches the criteria, then they gave feedbacks. From the answers and feedbacks, the enhancements were created with a dummy system. The dummy system was brought back to them several times, with every time new enhancements were added in.

The targeted respondents towards these questionnaires are department assistants and a few lecturers whom find the system unfriendly and hard to use.

The end results were shown in the layouts of the prototype in the next topic.

4.6 Layout of helpdesk system dummy

The helpdesk system is based from the current UTP helpdesk system as this design will be evaluated by the end-users to know what enhancements can be made to improvised the current UTP helpdesk system.

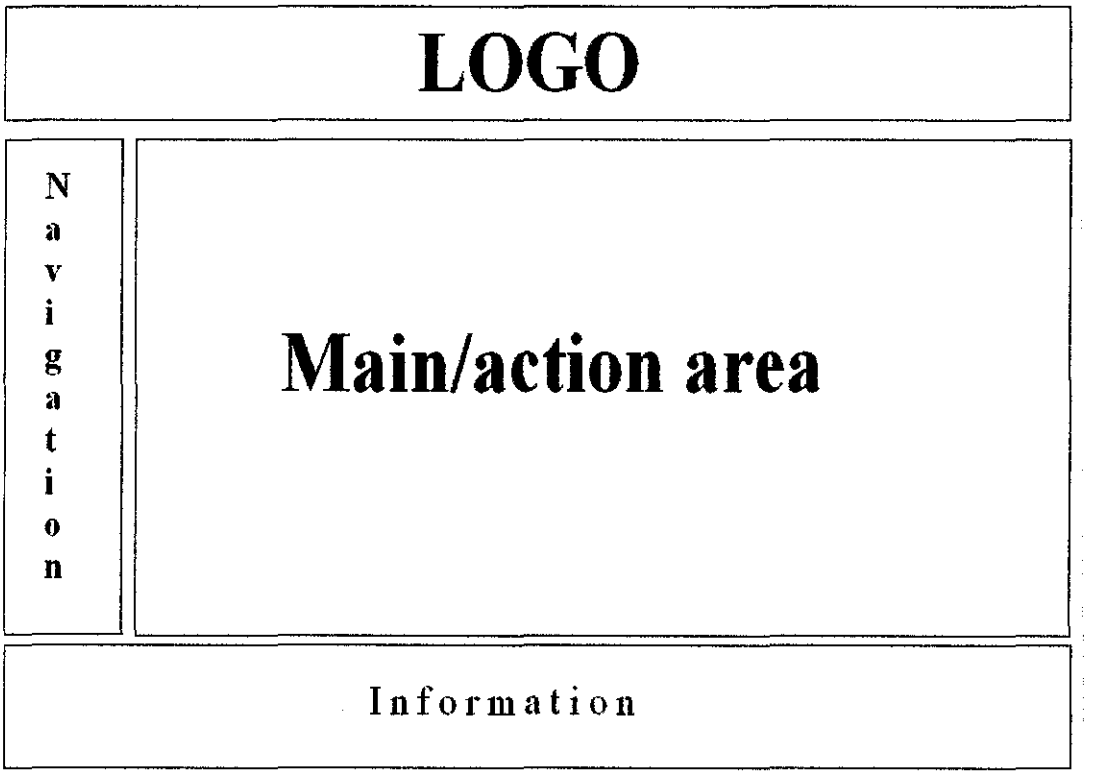


Figure 15: Proposed helpdesk layout

There are four main areas inside the layout. It follows the same design as UTP helpdesk system to familiarize it to the users.

- The logo at the top
- Navigation on the left
- Information on the bottom
- Action field at the main area.

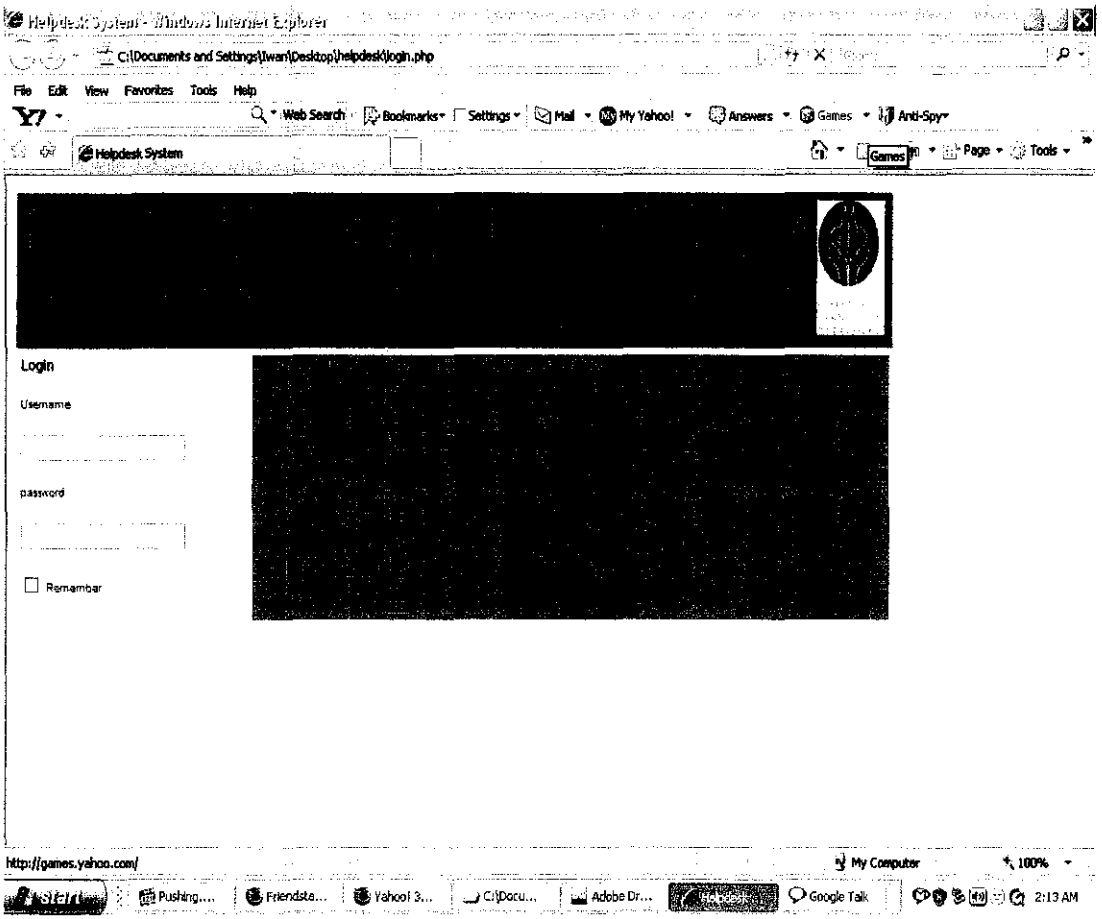


Figure 16: Login Page

Users will have to login in order to access the system. Only UTP lecturers and employees are able to use the system as the helpdesk intends to help mainly UTP staffs who are working in the new academic area. The username will be the matric card ID.

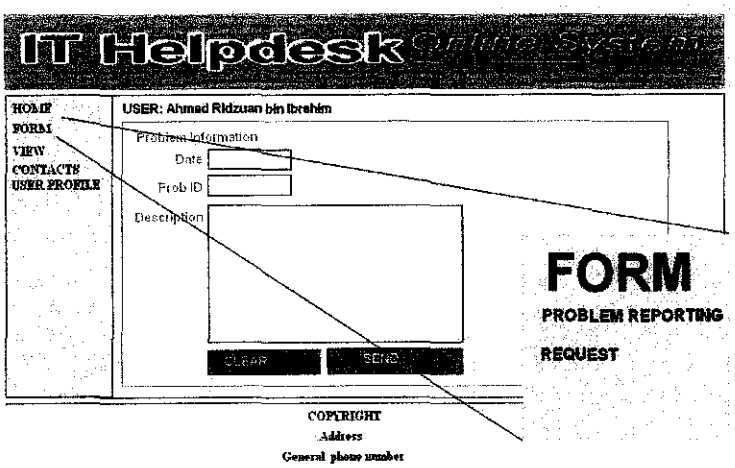


Figure 17: Navigation Bar

After login, the navigation will display list of pages that the users can access.

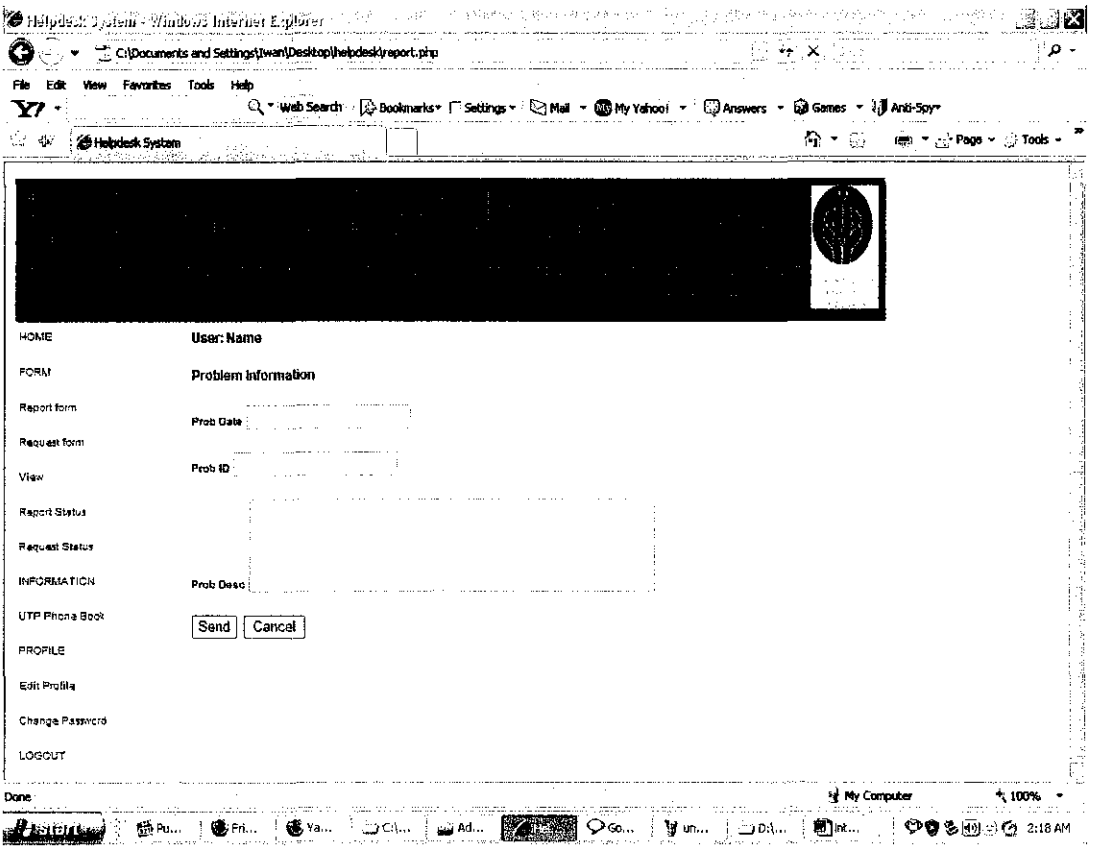


Figure 18: Problem Reporting Page

This page is used for reporting problems. Users will set the ID that is relating to the problem. For an example, if a lecturer having problems with printer, the ID will be computer hardware. The users will describe the problem in the description field.

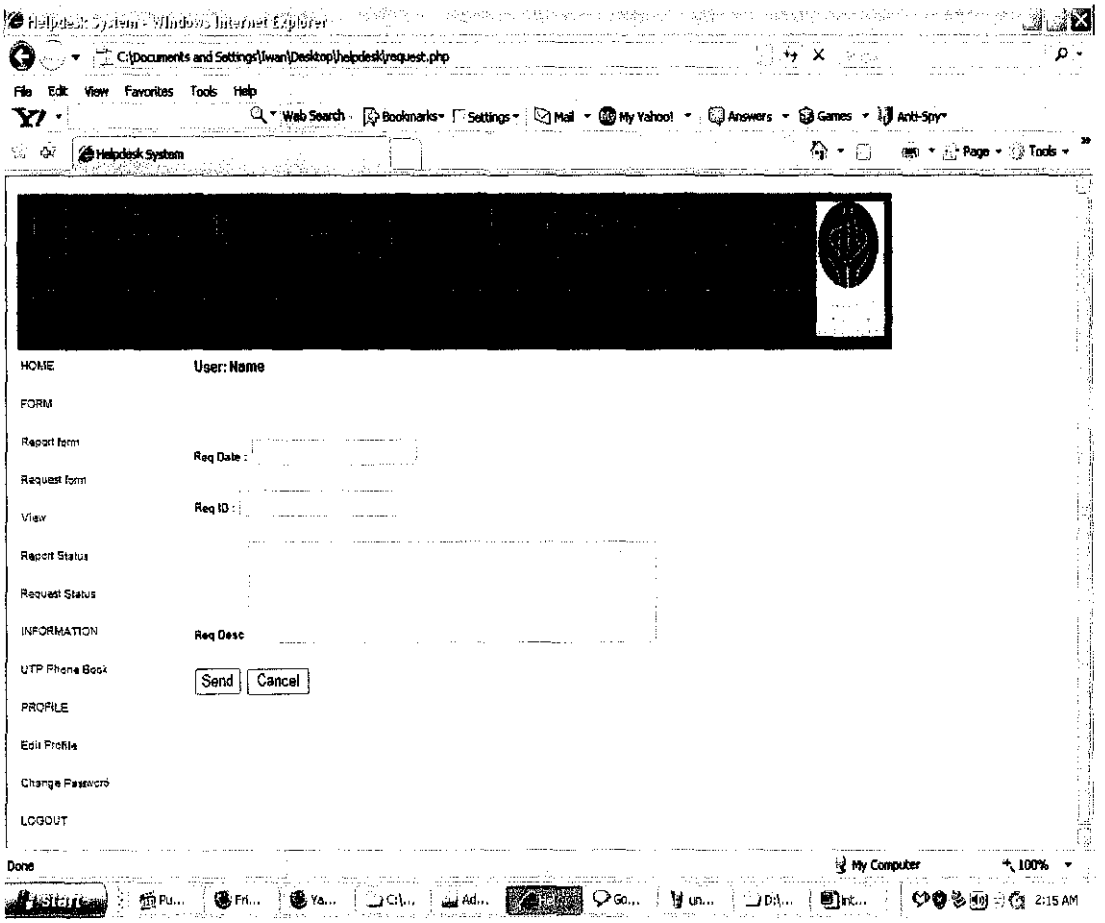


Figure 19: Request Reporting Page

Different from problem reporting page, request page is intended to be used for request purposes. The elements are the same as problem reporting. The users will describe the amounts and details (reasons, purposes, etc) of the request through the description field.

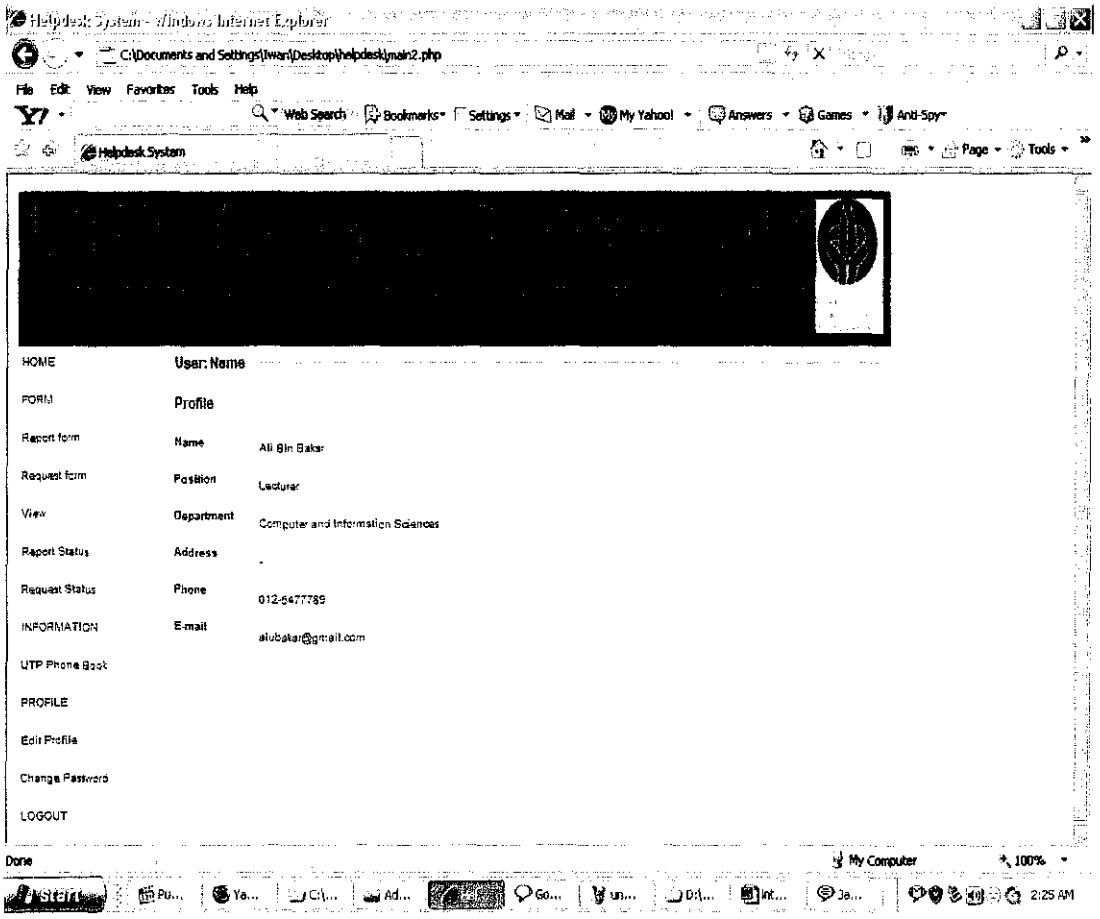


Figure 20: User Profile Page

Profile page will display the uses who have logged in. Personal details can be null to protect user's confidentiality. Details can be edited through Edit Profile link at the navigation area.

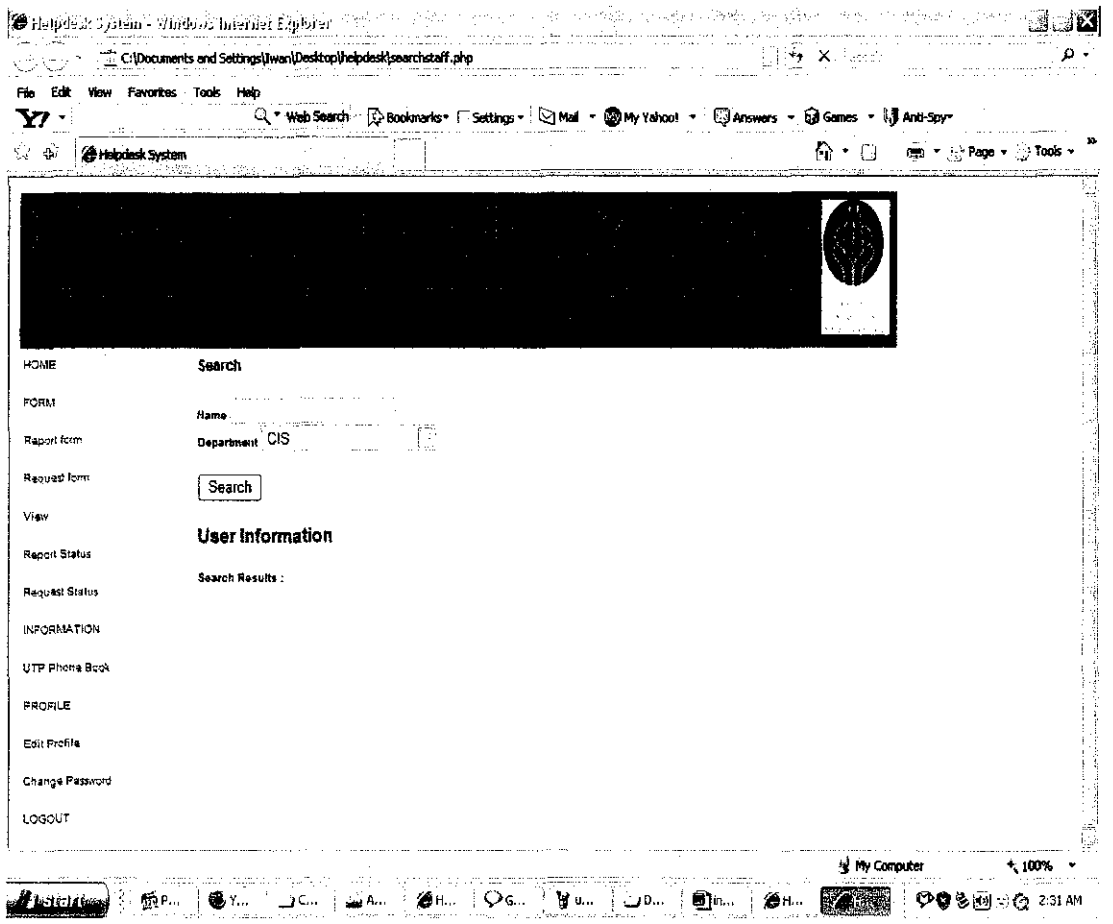


Figure 21: Search Page

Search page is the page where users can search for UTP staffs. It can be searched through name or department. After keying in names and selecting department, the results will be displayed under the search field. User can search without having to key in the name. More than one results will appear based on the key words given by the users.

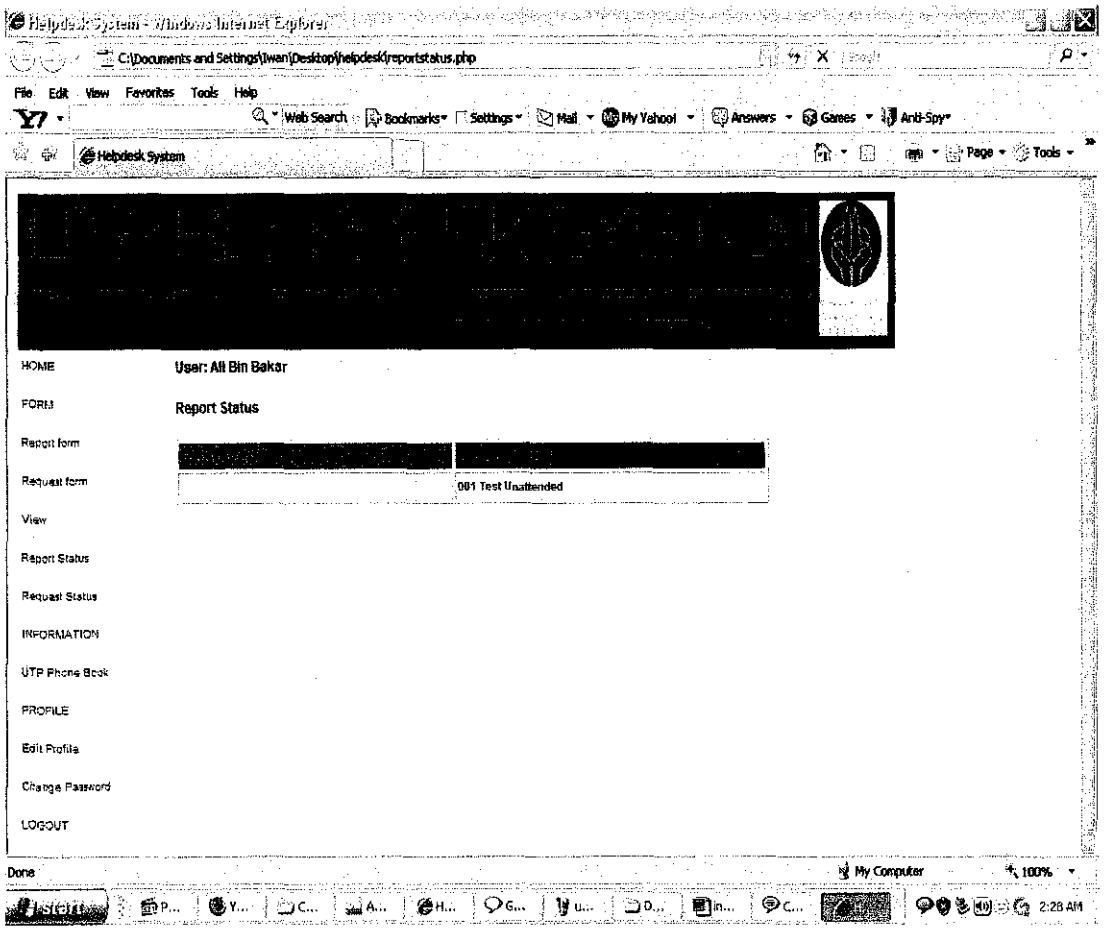


Figure 22: View Status Page

View page will view reports status. If the report has been handled, it will be put under resolved field while the unhandled report will be put under unresolved field. Users can check the reports by clicking on the reports displayed on the page.

4.7 Internal (System) enhancements from the current system

From the testing that had been done, these are the results given by the respondents:-

- Less word should be used. Make the system looks simple and easy to understand.
- Organize every page in navigation bar so that users can directly pick the pages they want to go as fast as possible.
- Make the system look more attractive.
- Use attractive buttons.
- Functionality issues
    - Users want the system to be responsive and alert them. Tell them when the report has been read, resolved, etc.
    - They feel login function is unfriendly function. They hope the system will log in itself or no login function at all. This can be handles by automatic log in through intranet password or 'remember me' button.
    - Request function – They hope the request report response will also include advises and guides in requesting for certain events that already been done.

CHAPTER 5

CONCLUSION

Acceptance is one of the crucial keys to successful software choice and use. Currently, UTP online helpdesk system is not been used well by the targeted users.

In order to understand the situation, Technology Acceptance Model is implemented in the research to understand why it is not been utilized. At the same time, similar systems are also studied to find out why they are popular among the users.

To make sure that the system is acceptable, some guidelines has to be followed. The study on guidelines to build good website is done.

The project will use prototyping in developing the system as many testing phase will be done to find the best characteristics of an online helpdesk system. Methods and tools are also discussed.

In results and discussions, the results of surveys indicate that most users are not aware of the current existing system. The system follows the guidelines of good website characteristics. It is assumed that the reason of the system not been used by the end users are they are not exposed to the system fully, thus making them unaware of its existence. At the same time, some improvements for the system also been done.

In the future, the author hopes to document the planning of promotions and training in order to cater the external variables of TAM. At the same time, improvement on notifications on management responses towards the reports is currently undergoing.

Hopefully the project will achieve its objectives, benefits the targeted people and the project will improve the usability of the helpdesk system.

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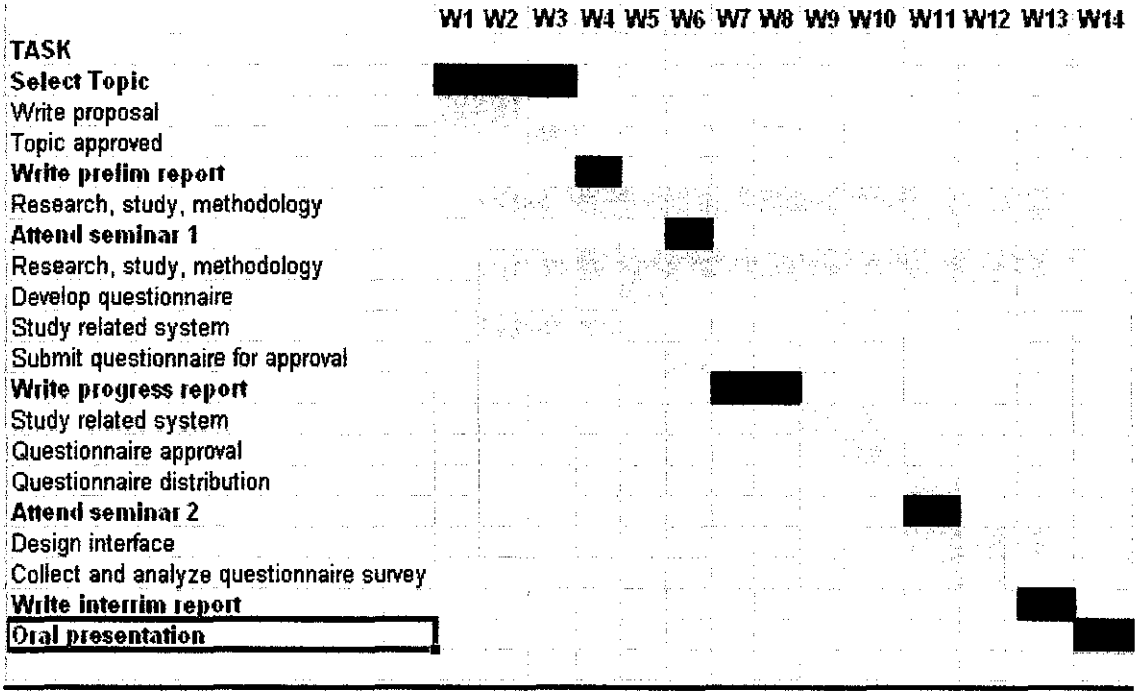
APPENDICES

Appendix 1 GANTT CHART

FYP1



FYP2

	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15
ASK															
esearch work on sues regarding lpdesk system bmission of ogress report 1 esearch work s ntinue															
ototype testing bmission of ogress report 2															
minar															
ster exhibition bmission of sertation oftbound)															
al presentation bmission of sertation ardbound)															

Appendix 2 SURVEY QUESTIONNAIRES

USER ACCEPTANCE SURVEY FOR FINAL YEAR PROJECT

This survey is intended for aiding the final year project regarding study of user acceptance for UTP helpdesk system. The project of objective is to find how well the system been accepted by the users and to know what improvements can be made. It is also intended to find the best characteristics in building a helpdesk system.

Name (Optional) : _____

Department : _____

Years in UTP : _____

Gender

M		F	

Age

20-29		30-39		40-49		50-59		60-Above	

1. Have you accessed UTP Helpdesk System? _____
2. If you have, how often do you access it? _____
3. If there any problems regarding Information Technology, do you refer to the system for support? _____

PERCEIVED USEFULNESS		1	2	3	4	5	6	7	
1. I am able to post my problems through the system.	Strongly agree								Strongly disagree
2. I received attentions immediately after sending my problems	Strongly agree								Strongly disagree
3. My problems resolved quickly by using the system.	Strongly agree								Strongly disagree
4. Using the system would enhance my effectiveness on the job	Strongly agree								Strongly disagree
5. I find the system manage the past problems very well.	Strongly agree								Strongly disagree
PERCEIVED EASE OF USE		1	2	3	4	5	6	7	
1. I find its easy learning to use the system.	Strongly agree								Strongly disagree
2. I would find it easy to get the system to do what I want it to do	Strongly agree								Strongly disagree
3. My interaction with the system would be clear and understandable	Strongly agree								Strongly disagree
4. I would find the system to be flexible to interact with	Strongly agree								Strongly disagree
5. It is easier to navigate because the fonts are easy to read, terms used are easy, placement of buttons and hyperlinks are at the right locations and consistent	Strongly agree								Strongly disagree

		1	2	3	4	5	6	7	
ATTITUDE TOWARDS									
1. I like the ideas of using online-helpdesk system	Strongly agree								Strongly disagree
2. I like using the system in solving my problems than using the phone calls.	Strongly agree								Strongly disagree
3. I use this system because it is a procedure of ITMS.	Strongly agree								Strongly disagree
4. I am eager to learn about using the system.	Strongly agree								Strongly disagree
5. I think the system is a great improvement to our helpdesk management	Strongly agree								Strongly disagree
INTENTION TO USE		1	2	3	4	5	6	7	
1. I will make the system as my main helpdesk reference	Strongly agree								Strongly disagree
2. I will use the system whenever I have problems.	Strongly agree								Strongly disagree
3. I am intended to use it in checking old resolved problems	Strongly agree								Strongly disagree
4. I bookmarked the page to make it easy for me to visit.	Strongly agree								Strongly disagree
5. I intend to promote to or help my friends in using the system.	Strongly agree								Strongly disagree
SYSTEM USAGE		1	2	3	4	5	6	7	
1. I am aware of the system and its availability to the lecturers	Strongly agree								Strongly disagree
2. I am familiar with the features of the system.	Strongly agree								Strongly disagree
3. I intend to use the system once I'm trained to use it.	Strongly agree								Strongly disagree
4. I am using / want to use the system as it is reliable and affective way for handling our problems.	Strongly agree								Strongly disagree
5. I am happy with the overall performance of the system so far.	Strongly agree								Strongly disagree

List the aspect(s) you like about the system

1. _____

2. _____

3. _____

List the aspect(s) you don't like about the system

1. _____

2. _____

3. _____

Comments

_____
_____
_____
_____
_____

Thank you for your participation.

Appendix 3: Survey results

A	1	2	3	4	5	6	7
A1	9		3	3	4	2	
A2		7	5	9			
A3		8	4	4	5		
A4		8	4	7	2		
A5		2	1	2	2		
B							
B1	4	7	4	6			
B2	3	6	3	9			
B3	3	3	6	9			
B4	3	9	7	5			
B5	3	6		12			
C							
C1	13	6		5	4	4	6
C2	15	8		4		5	7
C3	9	2		15		6	7
C4	13	6		9	5	3	3
C5	14	6	5	5	6		3
D							
D1	9	9	8	6	7		
D2	6	8	8	14	3		
D3	6	10		13	6		4
D4	3	9		6		3	3
D5	5	9	3	7	5	5	5
E							
E1	3	3	6	3	6	9	9
E2	6		3	4	3	2	19
E3	16	5	3	9	6		
E4	8	6	4	10		6	5
E5	9	9		12	4		3

UTP Helpdesk System Questionnaire

This questionnaire is for the purpose of Final Year Project regarding the study of UTP helpdesk system. The project of objective is to find how well the system been accepted by the users and to know what improvements can be made. It is also intended to find the best chin building a helpdesk system.

Have you used UTP Onlone Helpdesk System?

Yes		No	

If you have, how do you find the system?

Below expectation		Satisfactory		Above expectation	

Is it better than using the manual helpdesk system?

Yes		No	

How did you know about the system?

From ITMS department	
From colleagues (lecturers, staffs)	
From students	
Self-discovery	

If you haven't used the system, why?

I don't know about the system	
I don't have time to use it	
I prefer calling than going online	
I am not really familiar with information technology	

Did you receive any e-mail, notification or exposure about the system?
Yes

Based on your experience, what do you think about the system from the categories below?

Guideline	Y/N
Text	
Background does not interrupt the text	
Text is big enough to read, but not too big	
The information hierarchy is perfectly clear	
Columns of text are narrower than in a book	
Navigation	
Navigation buttons and bars are easy to understand and use	
Navigation is consistent throughout web site	
Navigation buttons and bars provide information	
Frames, if used, are not obtrusive	
A large site has an index or site map	

Links

- Link colors coordinate with page colors ☐
- Links are underlined so they are instantly clear to the visitor ☐

Graphics

- Buttons are not big and dorky ☐
- Every graphic has an alt label ☐
- Every graphic link has a matching text link ☐
- Graphics and backgrounds use browser-safe colors ☐
- Animated graphics turn off by themselves ☐

General Design

- Pages download quickly ☐
- First page and home page fit into 640x460 pixel space ☐
- All pages have the immediate visual impact within 640x460 ☐
- Good use of graphic elements to break up large areas of text ☐
- Every page in site looks like it belongs to the same site ☐

What is your opinion on the functions? (Problem reporting, report status, etc)

Does the functions easy to be used? What can be improved?

Does the system respond to your problems efficiently? What can be improved?

In order to promote the system, what initiatives can be made?