E-MyKad : An Online Identity Representation System for Malaysia's Internet Community

By

Rizal bin Yusoff

Dissertation submitted in partial fulfilment of

the requirements for the

Bachelor of Technology (Hons)

(Information Communication Technology)

September 2013

UniversitiTeknologi PETRONAS

Bandar Seri Iskandar,

31750 Tronoh

Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

E-MyKad : An Online Identity Representation System for Malaysia's Internet Community

by

Rizal Bin Yusoff

Dissertation submitted in partial fulfilment of

the requirements for the

Bachelor of Technology (Hons)

(Information Communication Technology)

Approved by,

_____

(Dr. Lukman A Rahim)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

September 2013

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.

_____

RIZAL BIN YUSOFF

ABSTRACT

The emergence of the internet since the evolution of Web 2.0 has brought many people attentions towards the security of the internet itself. For many years, the online community in the world including Malaysia has increase dramatically. The people are using the internet mostly to interact and socialize with others and to do the online transactions such as selling and buying things. Such progress of the online environment has raised the issue such as the security, privacy and also the trust issue. On the first part of this research paper, the author will prove that there is the need of one system or platform that can be used to verify user's identity on the internet. The author will do this by examine the current issues regarding cybercrimes in Malaysia and linked it to the various researches and media related materials. The author is choosing Malaysia as the reference for this research is because there is no particular system yet that is being built in order to verify the user's online identity. Additionally, there is the urge from Prime Minister of Malaysia that there is a need for Malaysia government to study a proposal for all bloggers and portal owners to identify themselves on their sites. In this paper, the author will focus on the trust issue of the online community by analyzing the online identity representation. The author is more interested in finding the right identity attributes and the way of how they can be used to verify the person's real identity. To examine this, the author will study the previous researches and current products that are available in order to help conducting this research. After the correct materials and data have been found, the author will design the research methodology that is specifically fit the purpose of this research. Among the methodology that being suggested is qualitative study, profile modelling and testing, algorithm analysis and testing, and feedback analysis. At the end of this paper, there will be a suggestion on how the end system should looks like. The author will address about what are lacking on the current related system that have been built and what functions that can be improved. Additionally, there will be suggestion from the author on the important features that the end system should have.

ACKNOWLEDGEMENTS

Firstly, I would like to thanks Allah S.W.T for giving me strength to complete this Final Year project research.

This Final Year Project certainly would not be completed without support from the people around me. Thus, this appreciation goes to my parents, family and friends which always been there to support me, giving ideas and so on until this final year project have completed. Through this acknowledgements, I also would like to express my greatest and sincere gratitude to my supervisor which always been very helpful and giving me valuable guidance, supports and advices.

Lastly, I would like to thank everyone that involved in this project either directly or indirectly. Without all of your advices, helps, and support, this project would never has become what it is today.

Thank you,

_____

RIZAL BIN YUSOFF

Contents

CHAPTER 1
INTRODUCTION

1.1 Background of Study

Digital identity or online self-representation is the active research area with many inputs or evident came from the large collection of recent and past papers being published by researchers from a range of diverse fields. By studying those papers, it could give us the understanding on the current research problem and the approaches to be taken to solve those problems.

In this chapter, the author will specifically present a clear understanding of the research background by first defined the definition of identity and 'online identity and self representation' in **Section 1.1.1** and **Section 1.1.2** .Then the author will state on the importance of having the digital self-representation by analyzing the Rise of Social Networking Site and Cybercrime cases in **Section 1.1.3**.

1.1.1 Definitions of Identity

The definition of identity could be different depending on the field of the study and situation. For examples, in the physical world (Pato, 2003) defines the identity of an individual as the set of information known about that person. This set of information, could be in term of name, date of birth, place of birth, nationality, aces, religion and so on, that can be used to distinguish one person from another. These unique attributes allow us to verify the legitimacy of someone's claim to the identity by using the numerous method of authentication such as by using DNA, fingerprints, and legal documents such as birth certificate and identification card.

In the other case such as in mathematics, identity is often said to be a relation each thing bears to itself and to no other thing (Relative Identity, 2007) . This means, 'x' is the same to exactly 'x' and equivalent in its value. From this perspective, if we analyze the case in term of person's identity we can say that two persons cannot both be the same person and sharing a single identity.

On the other hand, in the social context, a person usually imposes different personalities within different situations. For example, a person can be a patient when he goes to hospitals to seek for treatment, a person can also be a citizen of a country as well as being a part of family members. In each character, the person will usually very selective in term of what information they expose. Thus, in this context, the author defines identity as the attributes of a person that he/she might reveal in a certain situation.

1.1.2 Online Identity and Self-Representation

In the paper of Self-Representation of Online Identity in Collected Hyperlinks, (Russell & Stutzman) defined online identity as the representation of one's persona in a digital context. By referring to the website named claimID (http://claimID.com), they added that the primary factor in this representation is the collection of links that represent an individual in search. The author believes that this approach in the person's online representation is a valid approach since most of our works online nowadays has references. Take blogging activity as the example. Most of the blog's author has their own profile's link that could represent him/her as the blogger. The profile's link is apparently a link that will show a website page that contains the user's or the blog author's information which can be used to described who is the person behind the writing.

Since the emergence of the social networking sites such as Friendster (www.friendster.com), Myspace (www.myspace.com) and Facebook (www.facebook.com), this kind of digital profile has become a current trend for presenting one's identity on the internet. This statement is supported by (Danah & Jeffrey, 2006) in their paper of "Profiles as Conversation: Networked Identity Performance on Friendster". It gives the chance for people to describe who they really are or who they would like to be. Thus usually, the digital profile created will often consist of the information such as what the person looks like, how the person behave, where he live, and how the other person can contact or get in touch with him/her.

1.2 Problem Statement

The rising of Internet has endangered more people than it could before. For example, the emergence of social networks has created many of the problems that we haven't experience in the past such as identity fraud, multiple identities and privacy issue. Thus, studying online identity representation perhaps will give us clearer view on how we could solve or reduce all of these problems.

Within this section, the author will address some major problems with the internet users nowadays in relation to online identity representation. First, there will be the explanation on why people don't reveal their true self's identity on the internet (Section 1.2.1). Then, the author will address the lack of identity verification system (Section 1.2.2) and finally the lack of trust management on online social networking sites.

1.2.1 Self-representation of Identity

In real-world, identity can be presented by physical appearance, person's behavior and body language but in the online world, it is difficult for us to put a standard of measure in order to trust the representation of the identity. This is because, interaction in an online environment are mainly based on texts and images.

There are two types of people in online environment. One is the person that will reveal a variety of information on their profile, and one is the person that is uncertain on how to represent their identity. Thus, making people to hide their identity by making fantasy character, impersonate other known people, and even appear to be anonymous. This anonymity enables people to use various personalities and often lead towards misrepresentation (Ford & Strauss, 2008).

1.2.2 Lack of Identity Verification System

We see millions of people sign up for different types of web services nowadays, but there is no method being implemented yet to really verify the identity of these people. The best method of verification system that has been implemented nowadays is the sms verification. This verification method is usually being implemented on the social network to prove the person's identity. Unfortunately, this verification method is usually optional for the user's and contains many loop holes and limitation. For example, someone could just borrowing someone's phone to receive the SMS code and just use that code to verify the fake profile or information that he/she just created. Furthermore, this verification method need to be implemented repeatedly depending on how many sites that the user need to be verified as there is no centralize system that can be use across the online network. According to (Fairhurst, 2003), one method that can be used to verify the identity is to use biometric to translate physical identifiers into digital terms. The physical identifiers that could be used to authenticate users are including fingerprints, iris scan and facial scan. Unfortunately, at this point of writing, there is no comprehensive implementation yet for the usage of internet users. Even though it is possible, the technology itself would require the third party device such as fingerprints scanner to be implemented, which would require every person that want to use this service to invest their money.

1.2.3 Lack of trust Management

As the profile information can be misinterpreted for privacy and personal reasons, this will create new threats and security issues. The question is, how is that for us to get the users trust so that they will share their personal information in order to verify themselves?

This will require a huge efforts and thinking in order to make this collaboration successful. Even if the end system would be automatic, participants have every rights to ask where did the information goes after the process of verification is over. By understanding this trust management problem, the author could propose an identity models that could be used in gaining trust from the participants. An identity model that is reliable combined with the good verification system, would make the internet a better and safer place for everyone.

1.3 Objectives

In the virtual world, it is really difficult to verify one's identity either by looking at his/her online profile or examine one's behavior such as in writing. Thus, the objective of this research is:-

- To develop a web-based system that consists of user's profile which can be used by people to determine how much they can trust a person in an online world.
- To analyze different types of identity to discover how people hide or fake their identities on the internet.
- To investigate important identity attributes in order to create a verified online identity representation system's profile.
- To identify best algorithm in building the level of trust for the person's identity profile.
- To analyze whether people's communication patterns can help supporting the level of trust about people's identity.

By having the understanding on these five things, it is perhaps that a good end system of online identity representation could be built. These five things will help the system in having more control on the mechanism to verify one's identity whether it is true or not.

1.4 Scope of Study

In this research paper, the author will focus more on how to validate identity information and how the users could use their verified identity information to convince others that they are who they say they are. While validating the identity is the main focus area, the issues on protecting the identity is not. Protecting the identity could raise the different concerns like privacy, anonymity, multiple identities and identity fraud which are out of the scope of this research.

For the scope of users, the author will target the Universiti Teknologi Petronas students as the beta tester of the end system. This is because, it will be easier for the author to get the results and feedbacks regarding the end system. Later, in order to get more feedbacks and in order to

test more on the system performance, the author will try to release the system to the students of other universities.

1.4.1 Research Questions

There are some research questions that are important to be analyzed based on this research paper's objectives:

1) What types of identities that people often used to hide and fake their identities on the internet?

2) What identity attributes are important in order to build user's profile?

3) What algorithm is best to be used in indicating trust level of a person/profile?

4) How are people's feedbacks and rating can help increasing the level of trust of person's identity?

1.5 Relevancy of the Project

1.5.1 Rise of Social Networking Site and Cybercrime cases

Social networking site or service is a platform to build social networks or social relations among people who, for example, share interests, activities, backgrounds, or real-life connections (Social Networking Service, 2013) . They are increasingly attracting the attention of academic and industry researchers intrigued by their affordances and reach (Boyd & Ellison, 2008) . In general, the social network sites itself can be categorized into four different category which is forum and event listing sites, work related contexts, relationship and dating services, college communities network of friends as well as music and other interests. Some examples of the websites are Orkut, LinkedIn, Match and Facebook. The number of these kinds of social networking sites is growing rapidly since the emergence of Web 2.0. Web 2.0 is the second phase in the Web's evolution, harnesses the Web in a more interactive and collaborative manner, emphasizing peers' social interaction and collective intelligence, and

presents new opportunities for leveraging the Web and engaging its users more effectively (Murugesan, 2007) .

Apart from this, in February 2013, The Malaysian Insider reported that there are about 13.6 million Facebook users in Malaysia out of a 28.3 million-strong population, which is a 48 per cent penetration of the population, according to monitoring website socialbakers.com (Zahiid, 2013). It is also stated that, according to the Oxford Internet Institute, Malaysia along with Brazil, has the highest Twitter use in the world. Apparently, this shows us that nearly half of Malaysian populations are using social media as the medium of interaction.

As the number the number of social media interaction increases, it raises concerns on how secure this new medium of interaction is. According to (Yun, 2013) , seventy-nine out of 100 people who tend to spend at least 49 hours a week on social network, will fall victim to cybercrime, said CyberSecurity Malaysia chief executive officer Dr Amirudin Abdul Wahab. With Malaysian being the world's biggest social network addict (Russell J. , 2010), this has put Malaysian people at high risk to involve with cybercrime cases. Example of cybercrime cases which involve social media that are mostly reported are fraud and scam. One example of fraud cases is a person with unconfirmed identity was posing as another person to take advantage on other peoples in a forum site (www.carigold.com).

FIGURE 1.1 : SCREENSHOT OF SCAM ISSUE ON CARIGOLD.COM (01-06-2013)

FIGURE 1.1 told us that there is a scammer with the name of Izat has posing as Selipar2010 (the other user's nickname) in order to trick victims into transferring their money to his bank's account. The scammer simply tells his victims that he is in oversea and there is some interesting deal from him. As he was telling this under the popular name in the forum ('Selipar2010') , he was easily gaining trust from others.

Meanwhile, there is also a fraud case which involves UTP (Universiti Teknologi PETRONAS). Recently, on 22nd of June 2013 there is a post on SRCUTP Facebook page, which informing that there is the ex-student of UTP which has been scamming the UTP's student into transferring money into his bank's account. Based on the people respond, he usually tricked his victims by promising them that he will return the money twice the amount that they have given him. The amount that he asked will usually be around RM50, and he promised his victims that when he got money, he will return RM100 to them when he got money. The screenshots below will tell more about this case:

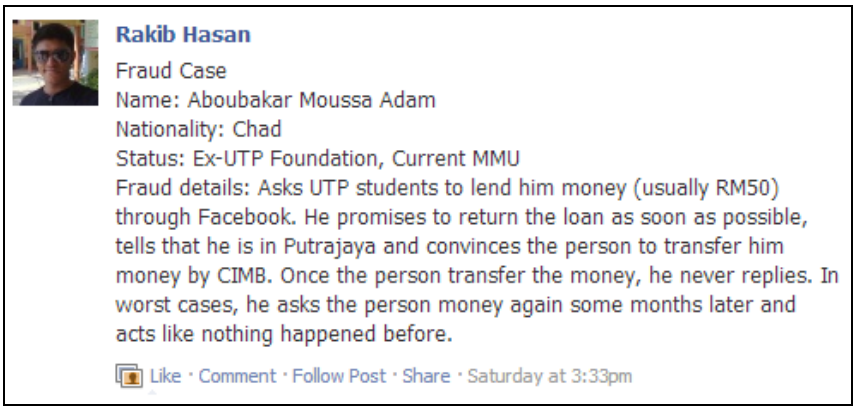


FIGURE 1.2 : ORIGINAL POST FROM FACEBOOK

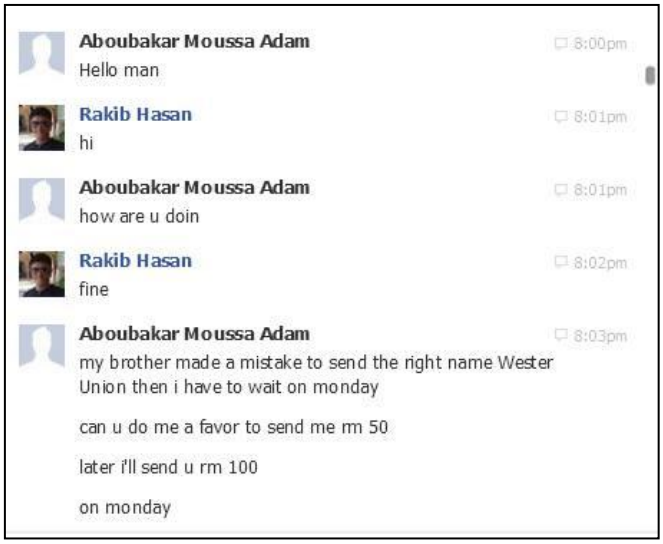


FIGURE 1.3 : CONVERSATION BETWEEN SCAMMER AND HIS VICTIM

FIGURE 1.4 : CONVERSATION BETWEEN SCAMMER AND HIS VICTIM

The above conversation's screenshots were taken from the replies of the students on the original Facebook post about this fraud case (refer FIGURE 2) . These screenshots tell us how this ex-student of UTP tricked his victim. Based on the replies, many of his victims were happens to be his friends and that is how he could easily gaining trust from them.

So, based on these two cases, we can see that trust issue is playing important role here. The victims usually were too easy to believe the person that they were dealing with. This happens because there is no standard measure to identify whether or not they can trust that person or not. On the national and global scale level, we can see that there is really a need for a person

to state or verify who they really are, so that fewer cases on this will happen. When we really know who that person really is on the internet, there will be less possibility that the person will doing any scam or fraud cases. Indeed, there will be less cases of insulation. The example of insulation case is when 'Woman detained for allegedly insulting Agong on Facebook' (Zolkepli, 2013).

This trust and insulation issue on social media is not only limited to the site like Facebook, indeed there is also the need for us to pay attention on the other important sites such as blogging platform and portals. There is a lot of owners of the blog and portal out there that often write awful things that may result in insulting other peoples. Usually, this kind of matter increase rapidly during the important events like Malaysia's General Election 2013. During this events, many writers tend to write anonymously to either write something bad about others or spread false information to confuse other people such as the election's results. These cases were getting worse if the writer writes anonymously. Meaning, we don't know who is behind the writings, not even their name and this worries us, as anybody could write anything freely about anybody or anything.

Thus, it was a good thing to hear that our Prime Minister, Dato' Seri Najib Razak said that government of Malaysia to study a proposal for all bloggers and portal owners to identify themselves on their sites (PM: Bloggers may be asked to state identity, 2013) . Furthermore, he also said in NST (New Straits Times) on 12 June 2013, that "I want to urge the people to propose the best form of monitoring and control to ensure what is written in the social media do not breach the laws" (Practice freedom of speech within Msian norms - Najib, 2013) .

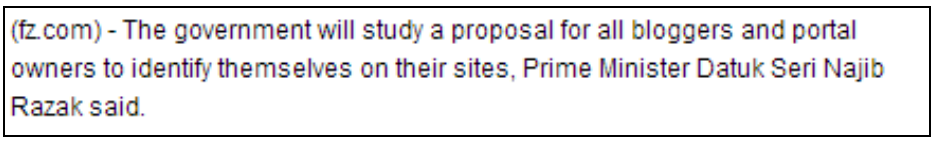

(fz.com) - The government will study a proposal for all bloggers and portal owners to identify themselves on their sites, Prime Minister Datuk Seri Najib Razak said.

FIGURE 1.3 DATO' SERI NAJIB'S QUOTE 1

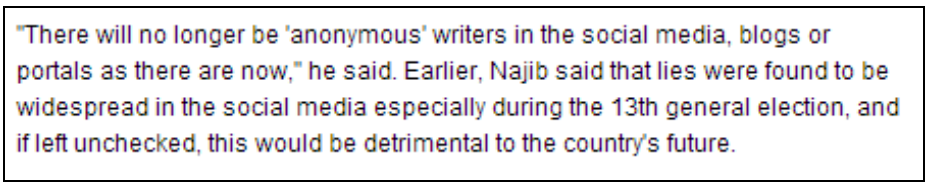

"There will no longer be 'anonymous' writers in the social media, blogs or portals as there are now," he said. Earlier, Najib said that lies were found to be widespread in the social media especially during the 13th general election, and if left unchecked, this would be detrimental to the country's future.

FIGURE 1.4 DATO' SERI NAJIB'S QUOTE 2

Thus, the author suggests that the end system that acts like physical identity card which users can use to verify themselves in an online world. This an system should contains the user's identity attributes that have been verified such as their names, address, phone number and so on.

CHAPTER 2
LITERATURE REVIEW

This chapter aims to review some works related with the ideas for detecting and providing the online identity representation. Several previous researches have stated what approaches that they were using including data mining while some of them were addressing the problem on how to verify online identities. These researches are including (Airoldi & Malin, 2004) , (Russell & Stutzman, 2007) and (Stutzman & Russell, 2006) , and

However, there is little similarity between this research paper and those researches as none of them propose a method to directly solve the problem of detecting and verifying the identity of the person and how the identity could be distributed and use across the online network.

Thus, this section will highlight some of the projects that provide the nearly same solution to these research paper's problems (Section 2.1) and some of the researches related to the evaluation of the online communities (Section 2.2)

2.1 Online Identity Representation Systems

An online identity representation system is a system that manages to represent the person identity across the online worlds. It will acts like the digital signature or identification card for the virtual world so that the persons can use it to verify they really are who they say they are.

At this point of writing, there was no online identity representation system specifically for Malaysian yet, but there are few of them that were developed for a certain countries. The example of these systems is miiCard, Netverify.

2.1.1 miiCard

miiCard is a service that uses bank-account data to verify online identities. (Which firms will profit from proving your identity online?, 2013) . The reason of they using the bank-account data to verify the user's identity is because links between the online and offline world are often cumbersome and ineffective. This means that there is the uncertainty on how the method such as e-mailing a scanned copy of a passport, for example, or showing a utility bill, really prove the identity of the person. This concerns being raised because all of those documents, even they are genuine, they may have been stolen, faked, cloned or borrowed, and utility bills

can be forged. But by using user's bank-account data to verify online identities, there will be possibilities that it will pop up more questions than it answers. Privacy issue for example, will be really hard to be handled.

Whatever it is, there were only several countries that can use this miiCard system, and Malaysia is not one of them (see FIGURE 2.1 below).

FIGURE 2.1 LIST OF COUNTRIES SUPPORTED BY MIICARD

2.1.2 Netverify

Unlike miiCard, Netverify is a platform which provides users with real-time ID verification. Rather than focusing on building the profile of online identity representation like this research paper is intended to, Netverify on the other hand focusing on building the system that could be used as a scanner for user's identity document such as identity card, driver license and passport. The site's focus is more on e-commerce system transaction .Based on what written on it's website, Netverify enable the person's web-site or mobile app with ID and document scanning and verification.

For smartphone users, it creates the authentication by using Android and iOS smartphone cameras and government issued driver's licenses, ID cards and passports (Griffin, 2013). Other than being used for online transactions, it also can be can be used for hiring new employees, a babysitter, caretaker and business models where verifications are a critical part of their operations, such as car rentals.

However, Netverify system is more on providing the developer or the owner of a site a platform for their buyers to easily making the online activities with them.

Below are the screenshots on how someone can use their legal identity document to verify themselves by using Netverify

FIGURE 2.2 EXAMPLE ON HOW SOMEONE CAN USE NETVERIFY

One of the drawback of Netverify from the author's opinion is that the system is focusing more on the activities which involve transactions such as online payments and rental services. Thus, there is the limitation in which case the person cannot use their Netverify info for general purpose like informing other users that he/she is a verified person on the internet by just showing some link or credential. Indeed, rather than acts like a digital identification on the internet, Netverify is more of an aiding tool for making data entry of the person's credential easier.

2.1.3 ClaimID

ClaimID is a service that lets you claim the information that is about you online (Cashmore, 2006). That information is then will be linked with your name, providing people an easy way to distinguish what information is about you and what information isn't about you online. By doing so, people will get more relevant information about you and this will offer much help for people that are applying for a job for example. By using ClaimID, the potential employer could know what online information is actually about his/her potential employee and what online information are not about that other person which share that potential employee's name. The value proposition of ClaimID is that, rather than using search engine to gain

information about someone, people nowadays can just refer to that specific person's ClaimID profile to know about his/her online information. But the problem is, people would eventually end up of using the search engine anyway due to lack of information on the someone's ClaimID profile.

Below is the screenshot of Fred Stutzman's profile (co-founder of ClaimID) :

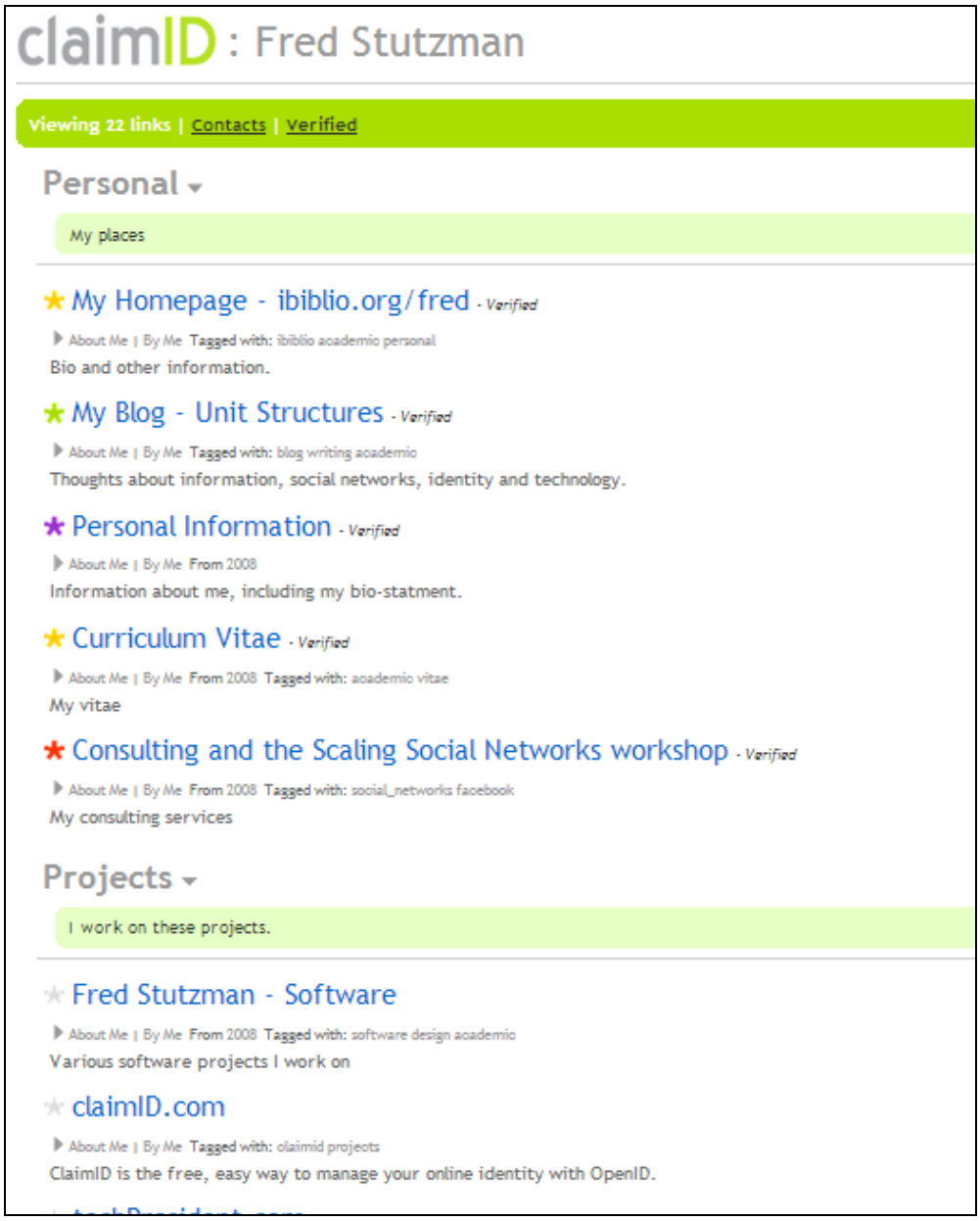


FIGURE 2.3 EXAMPLE OF CLAIMID'S PROFILE

2.2 Online Identity Evaluation

The evaluation of online identity is important as it will tell us which identity attributes are important so that the good end system for online identity representation could be built. To do this, the author will analyze the past research paper within this particular section.

As the result of enormous expansion of online social networking, many of the important identity attributes could be analyze through the social network sites. Based on the online searching, it has been found out that many studies related to social network analysis have been carried out. These studies could be traced back as early as 1995 through (Bechar-Israeli, 1995) which indicates that there is a strong link between one's nickname and personality. Meanwhile, (Stutzman, 2006) was comparing common identity elements being used in the social networking sites (refer FIGURE 2.4).

Common Identity Elements	UNC Dir.	TheFacebook	MySpace	Friendster
Name	Yes	Yes*	Yes*	Yes*
Email Address	Yes	Yes*	Yes*	Yes*
Physical Address	Yes	Yes	No	No
Phone Number	Yes	Yes	No	No
Academic Classification	Yes	Yes*	No	No
Major	Yes	Yes	No	No
Website/Rss	Yes	Yes	No	Yes
Academic Status	Yes	Yes	No	No
Gender	No	Yes	Yes*	Yes*
Hometown	No	Yes	Yes	Yes
Birthdate	No	Yes	Yes*	Yes*
Photo	No	Yes	Yes	Yes
Friend Network	No	Yes	Yes	Yes
Group Affiliation	No	Yes	Yes	Yes
Sexual Orientation	No	Yes	Yes	Yes
Relationship Status	No	Yes	Yes	Yes*
Interests	No	Yes	Yes	Yes
Job/Occupation	No	Yes	Yes	Yes
Favorite Music	No	Yes	Yes	Yes
Favorite Books	No	Yes	Yes	Yes
Favorite Movies	No	Yes	Yes	Yes
Personal Statement	No	Yes	Yes	Yes
Favorite TV Shows	No	No	Yes	Yes
School Information	Implied	Yes*	Yes	Yes
Zip Code	Implied	Yes	Yes*	Yes*
Country	Implied	No	Yes*	Yes*

FIGURE 2.4 COMMON IDENTITY ELEMENTS

Although Friendster has already changed it's type of operation into gaming social network, most of the identity elements that being used before such as name, email address and gender are still being used. These identity elements of course are not just being used by these three

social networks and indeed many of the current social networks, forums and portals were also using these.

2.3 Fake Identities

One of the challenges in developing online identity representation system is to make sure that the user is using their real name for their profile. So, we could built a database which contains list of possible fake name such as “anonymous”, “robocop” and many more. To built this kind of database a research need to be done to see which kind of fake names that the users usually use. Furthermore, the database can also be built from the list that we can found on the internet. The example is from (Bracey, 2007) which in her article has listed several lists of fake names categorizes as “Punny” names, Fictional characters and Biblical characters. Refer the figure below :

“Punny” names:

- Patty O’Furniture
- Ann Chovey
- Hazel Nutt
- Chris P. Bacon
- Marsha Mellow
- Olive Yew
- Barb Akew
- Aida Bugg
- Maureen Biologist
- Teri Dactyl
- Peg Legge
- Allie Grater
- Liz Erd
- A. Mused
- Constance Noring
- Lois Di Nominator
- Minnie Van Ryder
- Lynn O’Leeum
- P. Ann O’Recital
- Ray O’Sun
- Ray Sin
- Isabelle Ringing

Fictional and characters:

- Lois Lane
- Clark Kent
- Ralph and Alice Kramden
- Holly Golightly
- Liza Doolittle
- Henry Higgins
- Joseph Arimathea
- Mary Magdalene
- Simon Cyrene
- Dixie Normous (“Austin Powers”)
- Felicity Shagwell (“Austin Powers”)
- Ivana Humpalot (“Austin Powers”)
- Plenty O’Toole (“Bond” movies)
- Tiffany Case (“Bond” movies)
- Shady Tree (“Bond” movies)
- Kissy Suzuki (“Bond” movies)
- Pussy Galore (“Bond” movies)
- Honey Ryder (“Bond” movies)
- Sylvia Trench (“Bond” movies)
- Lupe Lamora (“Bond” movies)
- May Day (“Bond” movies)
- Jenny Flex (“Bond” movies)
- Penelope Smallbone (“Bond” movies)

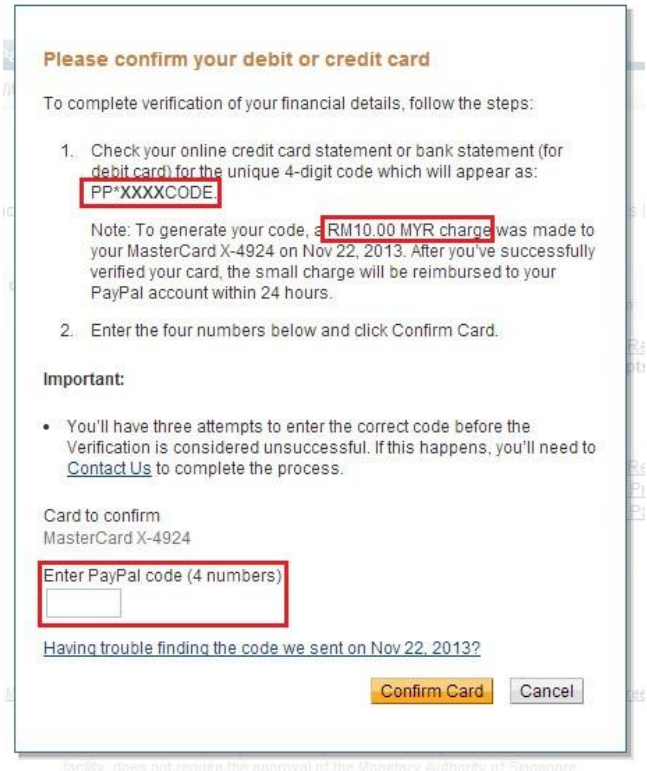
Biblical Purely made up:

- Melody Sunshine
- Dustin Trailblazer
- Donald Canard (Donald Duck)
- Michael J. Reynard (Michael J Fox)
- Michael Souris (Mickey Mouse)

FIGURE 2.5 EXAMPLE OF FAKE NAMES

2.4 User's Identity Verification

The other challenge of building the identity representation system is to verify that the user that registered is the real user/person. Meaning he/she is not using somebody else's identity for the account that he/she registered. To solve this there is a couple of method that can be used and referred to such as the manual verification method from lelong.com.my site and the automatic method from paypal.com. Below is the comparison of both of the two methods :

	Lelong.com.my	Paypal.com
Screenshot		
Things required from user	Mykad, Bill header	Credit card/Debit card

Process	Administrator from government body or somebody which is related will manually approve and verify the user.	Paypment gateway such as :  

CHAPTER 3
METHODOLOGY

3.1 Method of Conducting Research

3.1.1 Quantitative and Qualitative Study

One of the research approaches that being used in this research is Quantitative Study and Qualitative Study. These two methods were used to analyse Question 1 of this research's question. These methods of study were conducted by using interviews, surveys and questionnaires that were distributed to the students and lecturers of Universiti teknologi PETRONAS.

In the survey, there was a series of questions. For example, in one section, the participants were asked to create a fake profile for themselves by inserting fake information about them. From the answers given, the author then analysed the fake informations and categorized the profiles into different types.

3.1.2 Profile Modelling and Testing

The author has created a simple web page that contains a couple of profiles. There were two simple profile created (namely profile A and Profile B) and each profile has different identity attributes such as gender, email address and others. The link to this simple web page was spread around, and the person that open up this web page were have to choose whether they prefer to deal an activities with the person of from Profile A or the person from Profile B.

Based on the result, a chart has been drawn to clearly show which identity attributes have most influence.

3.1.3 Algorithm Analysis and Testing

The best algorithm has been chosen in order to build the level of trust for each profile in the end system. To see which algorithm is the best, the author has conducted the algorithm analysis and testing.

For this, the author has created the dummy profile. On the front-end of this profile, there was a section to show the 'level of trust' for that profile. This 'level of trust' section is simply an indicator to show how many percent that this profile can be trusted. For the back-end of this section, the author has attempted to apply the codes based on several different algorithm to see which performance is better and accurate.

To begin with, the author suggest on using Evolutionary Algorithm. In artificial intelligence, an evolutionary algorithm (EA) is a subset of evolutionary computation, a generic population-based metaheuristic optimization algorithm (Evolutionary algorithm, 2013). An EA uses mechanisms inspired by biological evolution, such as reproduction, mutation, recombination, and selection.

```
BEGIN
  INITIALISE population with random candidate solutions;
  EVALUATE each candidate;
  REPEAT UNTIL ( TERMINATION CONDITION is satisfied ) DO
    1 SELECT parents;
    2 RECOMBINE pairs of parents;
    3 MUTATE the resulting offspring;
    4 EVALUATE new candidates;
    5 SELECT individuals for the next generation;
  OD
END
```

FIGURE 3.1 THE GENERAL SCHEME OF AN EVALUTIONARY ALGORITHM IN PSEUDOCODE

3.1.4 Feedbacks Analysis

The author has analysed what is the best way for people to give feedback for the users. The author has manually refer to the known websites that already used the feedbacks and rating system such as youtube.com, imdb.com, and so on, and will then select the feedback and rating concept that best suit the end system.

3.2 Requirement Analysis and Specification

3.2.1 Functional Requirements

3.2.1.1 User Requirement

The user's profile from the system shall be used as a representation tool/platform for people to verify themselves on the internet.

3.2.1.2 System Requirement

- The system shall has form for new user to register and use the system
- The system shall enable user to share link of their profile to the other site of the internet
- The system shall enable user to share their online E-Mykad picture to the other site of the internet
- The system shall enable user to leave feedbacks/rating to the other users profile.
- The system shall enable user to report bad/fake profile to the administrator.
- The system shall have form for the user to upload or fill their details such as full name, identity card and bill in order for them to get verified.
- The system shall allow user to use their credit card data to verify themselves.
- The system shall allow administrator to approve/deny any users.

3.2.2 Non-Functional Requirements

3.2.2.1 User Requirement

The system shall be accessible both by the registered and also the non-registered users at any time except if the server goes down.

3.2.2.2 System Requirement

- The registered user could access their profile section and others' but not the administrator section.
- The administrator can access both the profile and the administrator sections.
- Public user can view the profiles of the registered users but wont be able to leave feedback or rating.

3.2.3 DOMAIN REQUIREMENT

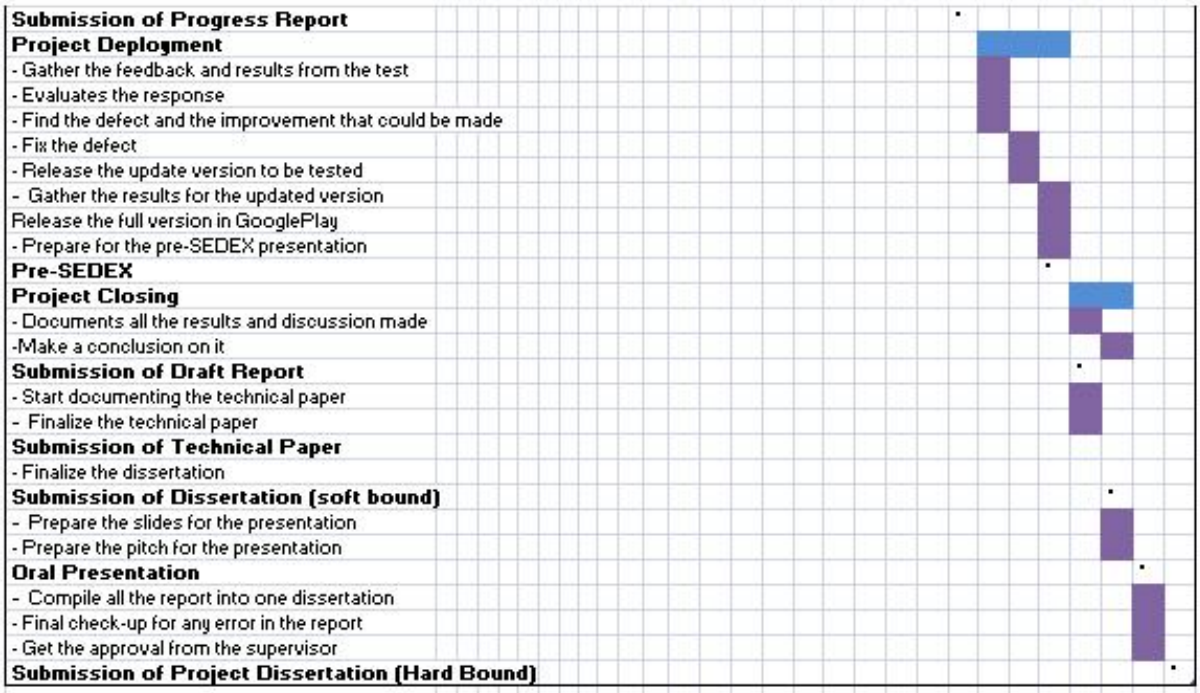
3.2.3.1 User Requirement

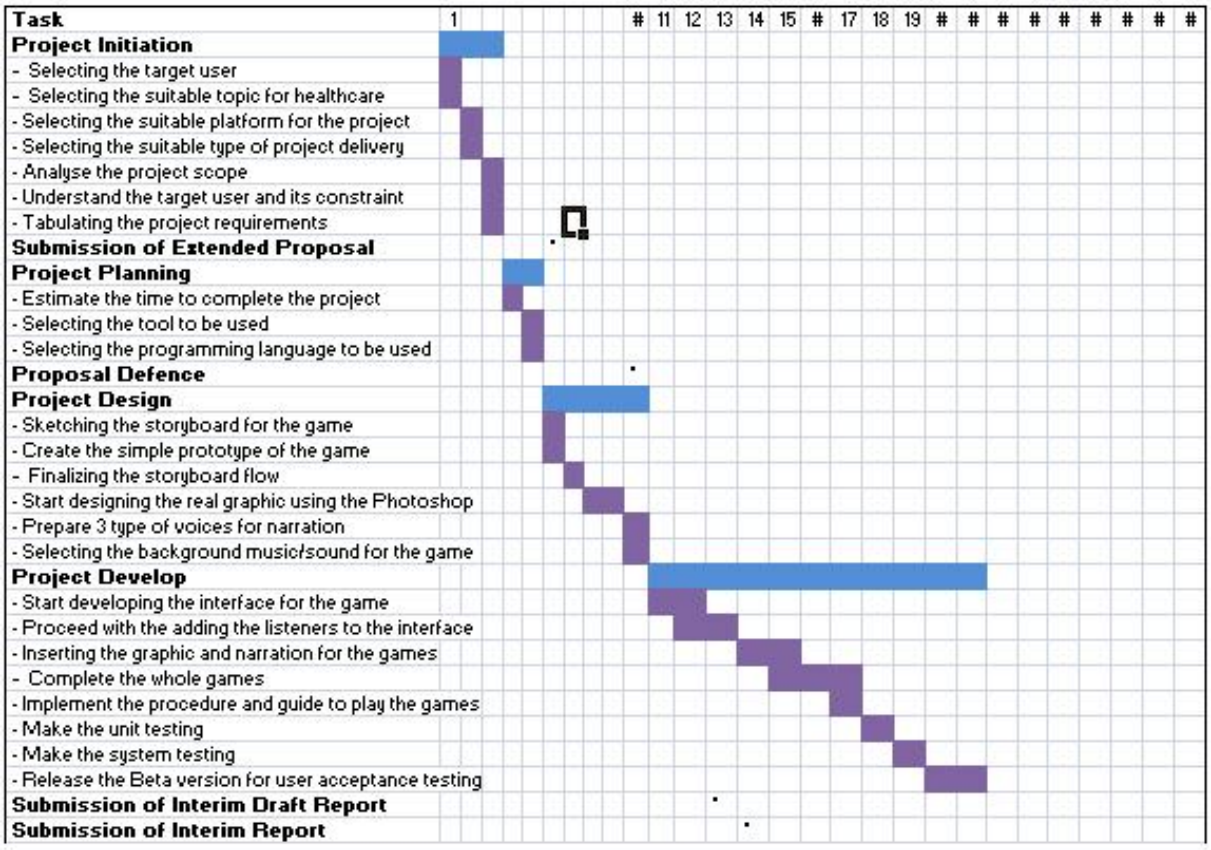
The system shall be accessible by the user using any browser or devices.

3.2.3.2 System Requirement

- The system shall be accessible even if the users are using different type of browser such as Internet Explorer, Mozilla Firefox or Google Chrome.
- The system shall be accessible even if the users are using different type of devices such as Android Phone, Apple Iphone or Windows Phone.

3.3 Project Method and Activities





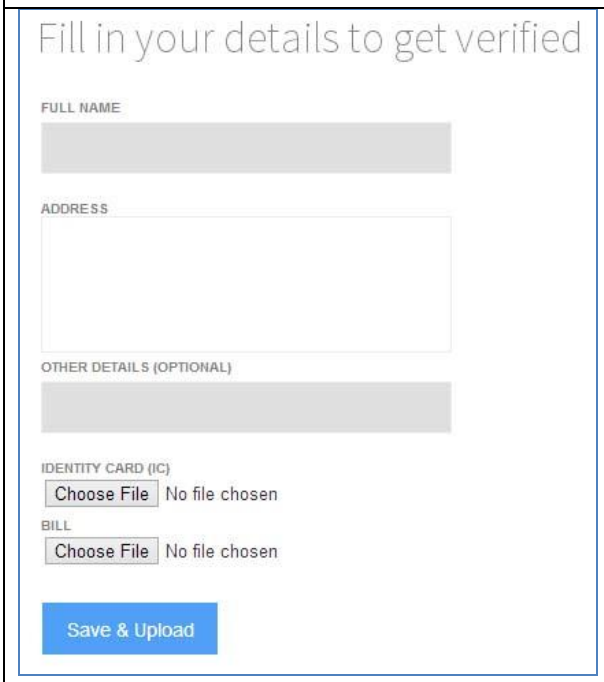
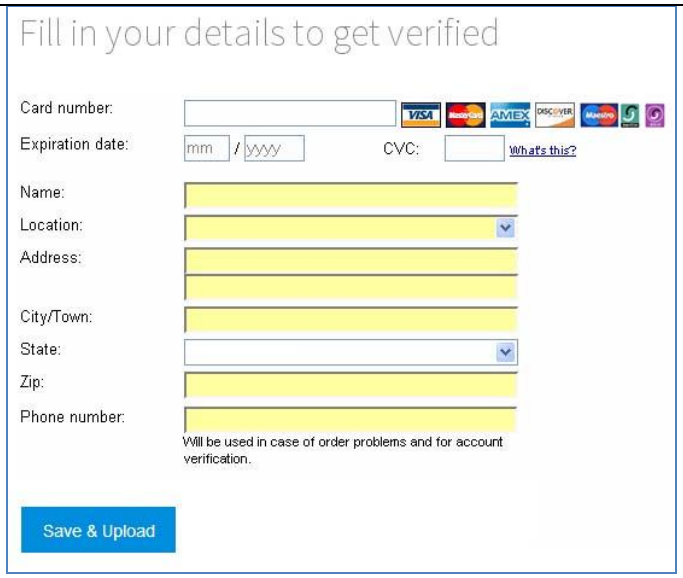
CHAPTER 4
RESULT & DISCUSSION

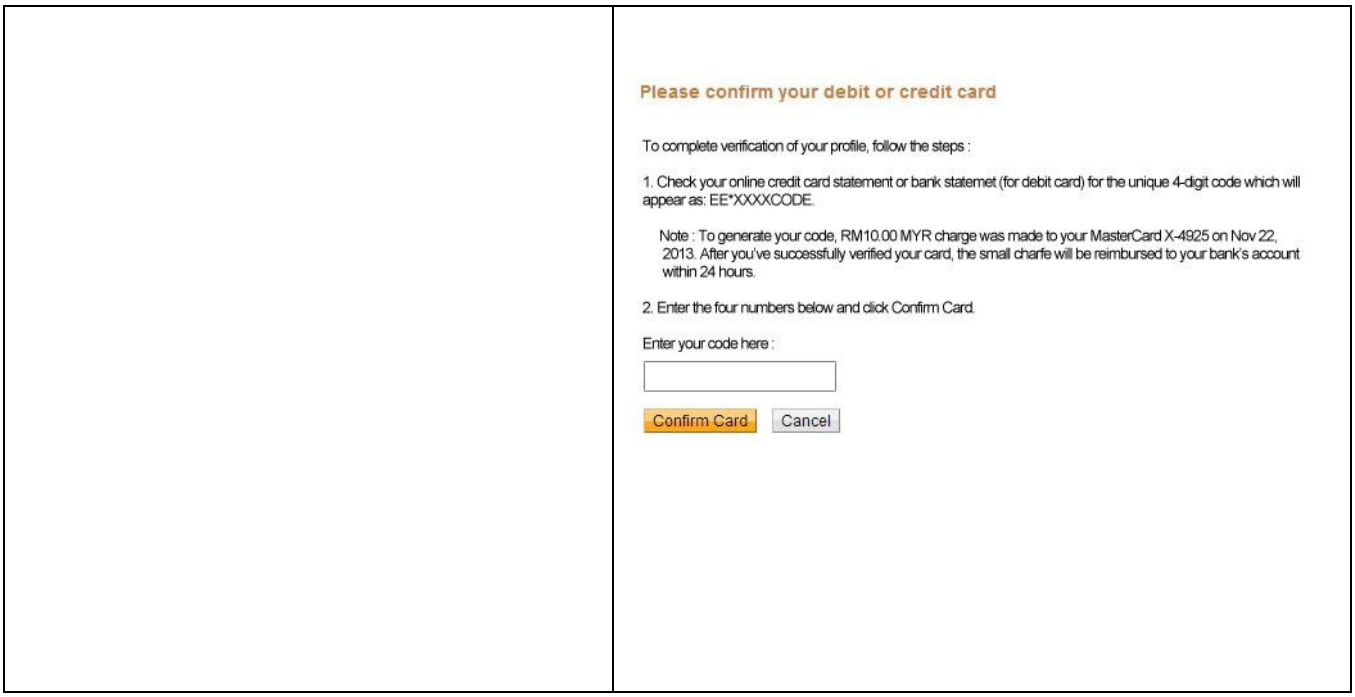
4.1 System Concept

The end system is an online platform (http://www.emykad.com) which anyone can register and get an e-mykad profile for themselves. Once they completed their profile, they can share the link of their profile to anyone that having a problem of trusting themselves.

Of course, in order to make other people to trust them more, they have to get their profile verified. There are two ways to get a verified profile, which is the manual way and also the automatic way.

The manual way will require the user to fill in a couple details about themselves such as their full name and address and is required to upload the copy of their mykad (physical/real identity card) together with the header of their bills (electrical bills, water bill etc.) and wait for the admininstrator to approve it manually. While the automatic way will require the users to fill in their credit card details. The small amount of money (eg. RM10) wiil be charged to the users credit card account and will then be reimbursed as soon as the user entered the verification code that they received from their credit card transaction history.

Interface of manual verification	Interfaces of auto verification
	



This verification steps is needed so that we know that the one that registered for e-mykad profile is the real person. This way of verification have been used in popular site such as lelong (manual verification) and paypal (auto verification). Thus, it is a great to able to implement this system in order to verify users' profile which the users can globally used on the internet to gain other people's trust.

To make sure that the user can gain even more trust from peoples, the author have also implemented a couple of extra things on the end system such as the feedback section, rating system and also the list of the user's sales/services page. This way, people will know what is the other people are saying about the user and could use that as the indicator of wether or not to trust them.

For the users, they can use the unique code given in their profile to display their own e-mykad on their own website (blog, online store, sales page etc.), so that the other people can straight away view their e-mykad profile whenever they feel it is needed. The user can also choose to provide the link to their e-mykad profile only when other people ask for it :

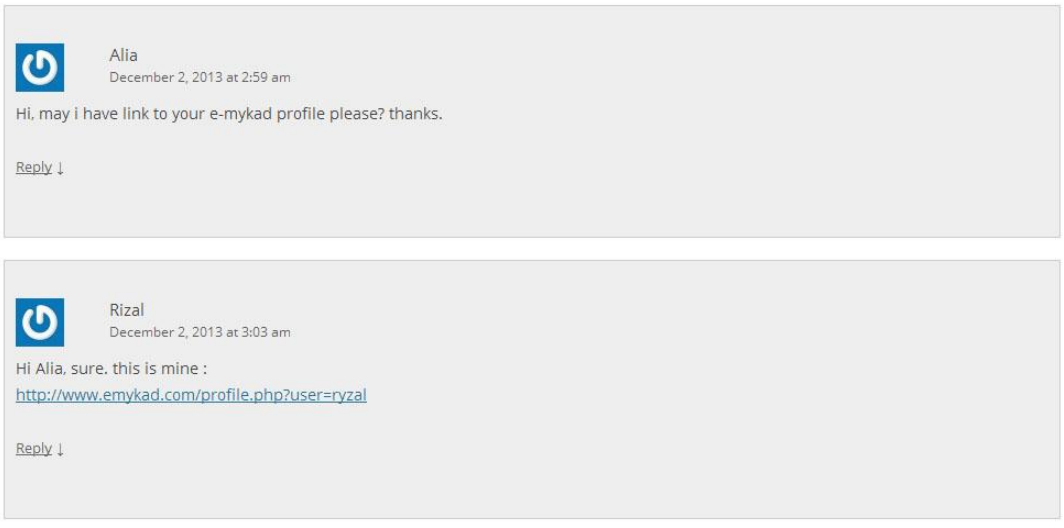
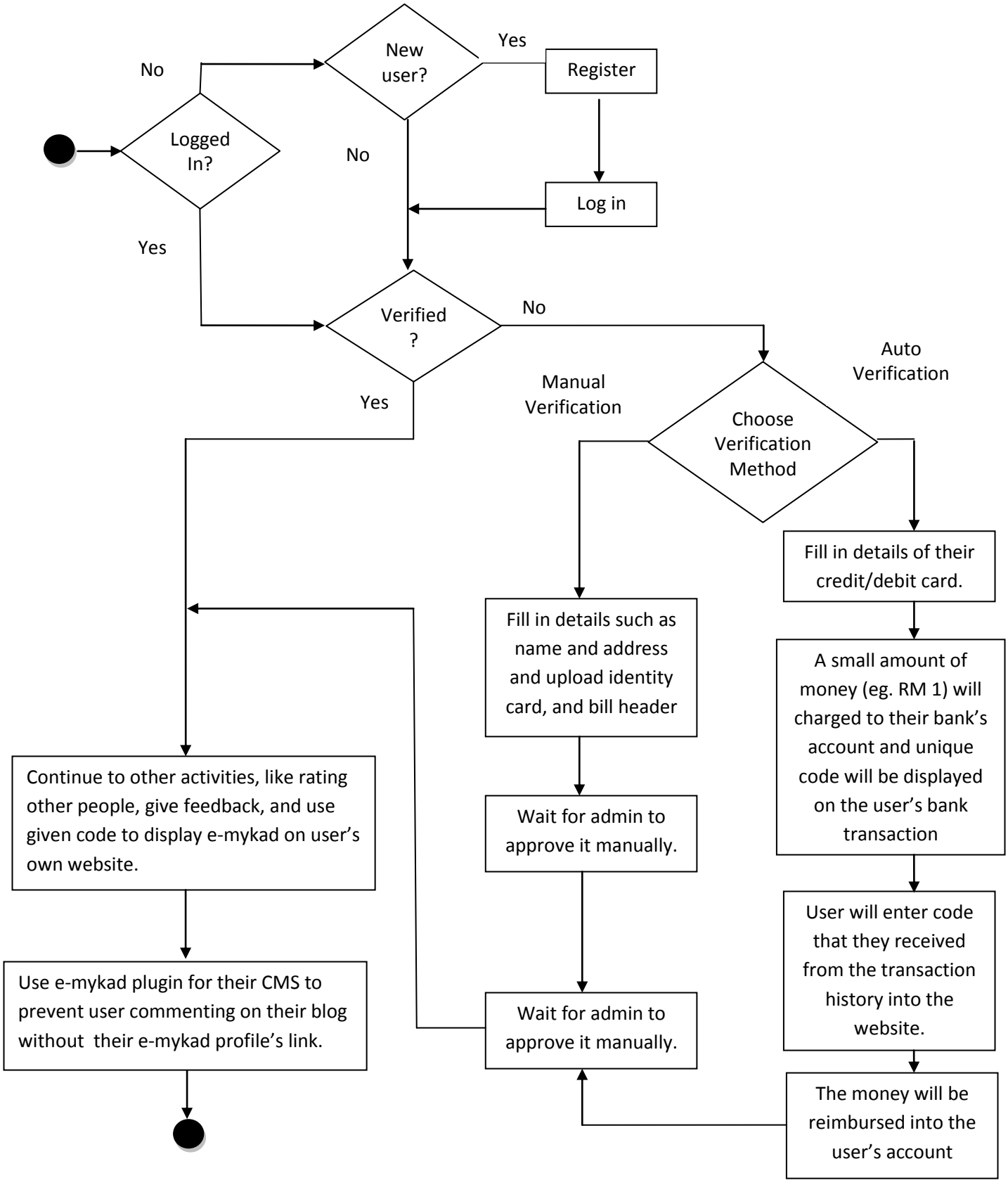


FIGURE 4.0 : EXAMPLE OF E-MYKAD USAGE

4.2 System Architecture

This section will describe the process flow of how the system works.



4.3 System Design (Updated)

4.3.1 User Section Design

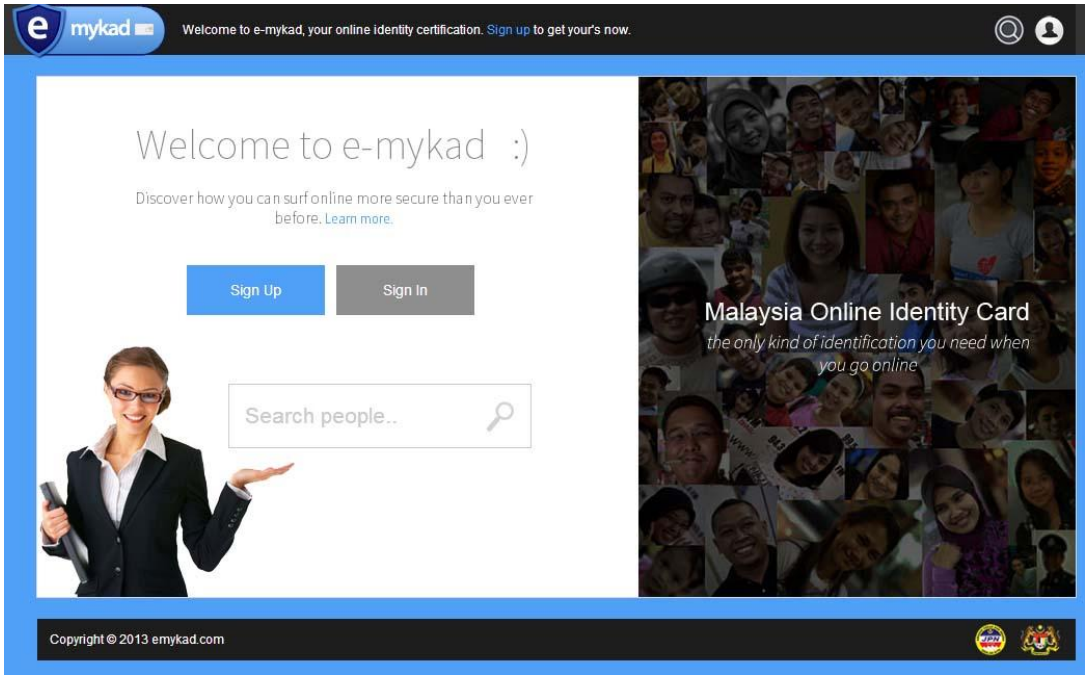


FIGURE 4.5 : HOMEPAGE

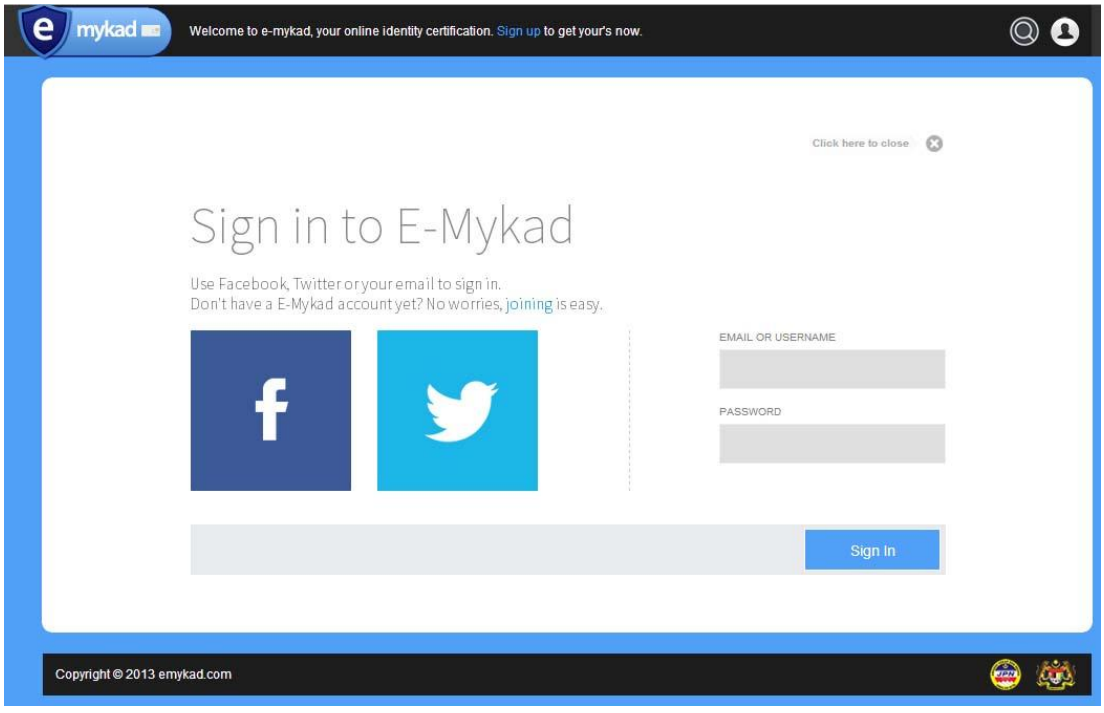


FIGURE 4.6 : SIGN IN PAGE

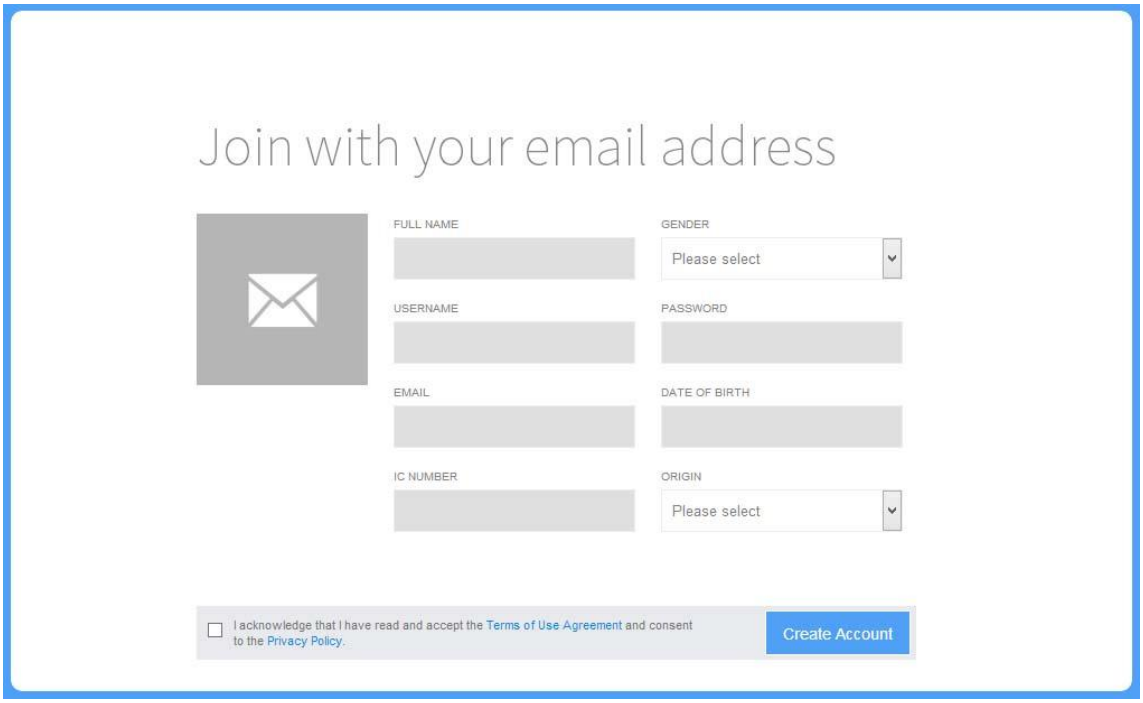


FIGURE 4.3 SIGN UP PAGE

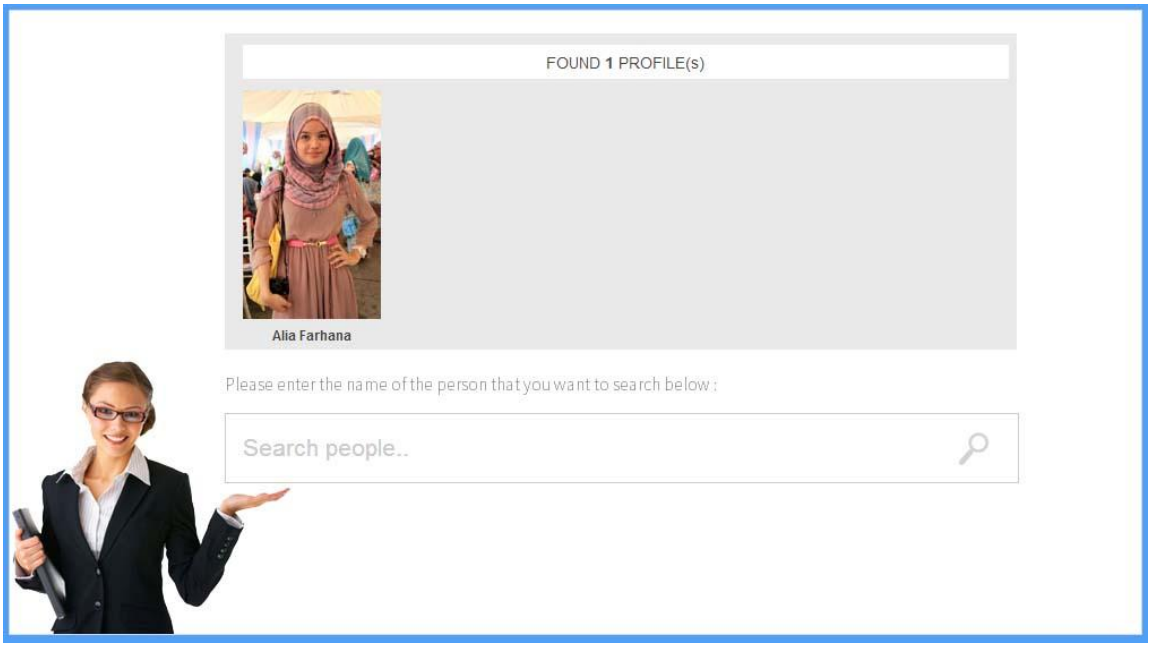


FIGURE 4.4 SEARCH & SEARCH'S RESULT PAGE

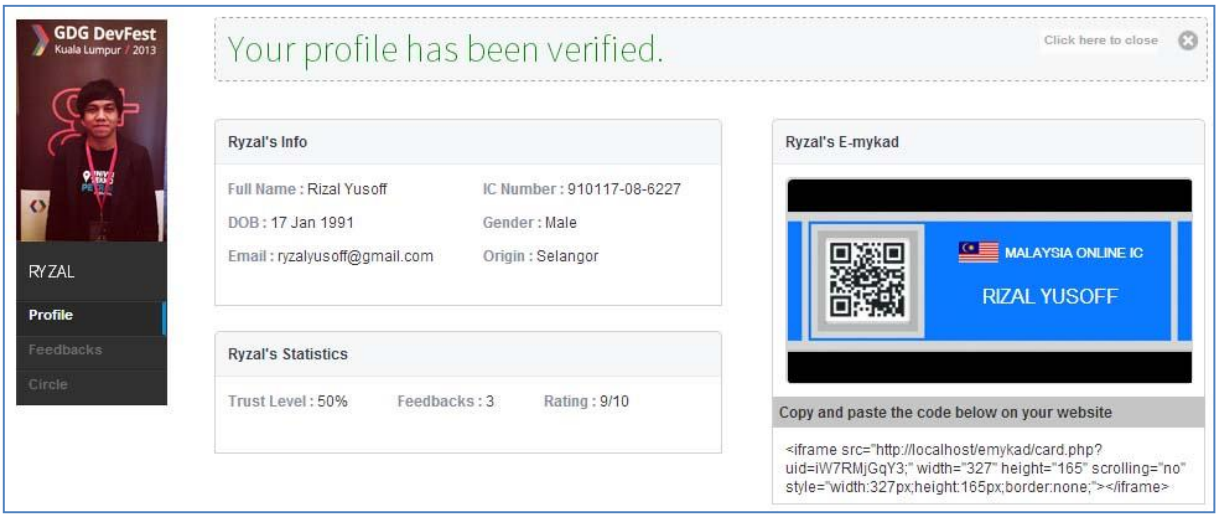


FIGURE 4.5 PROFILE PAGE

On this profile page, there is notification that stated whether or not the user has been verified. Then, there is the user's profile picture, user's details and also the image of user's e-mykad and little code so that user can display their e-mykad on their website.

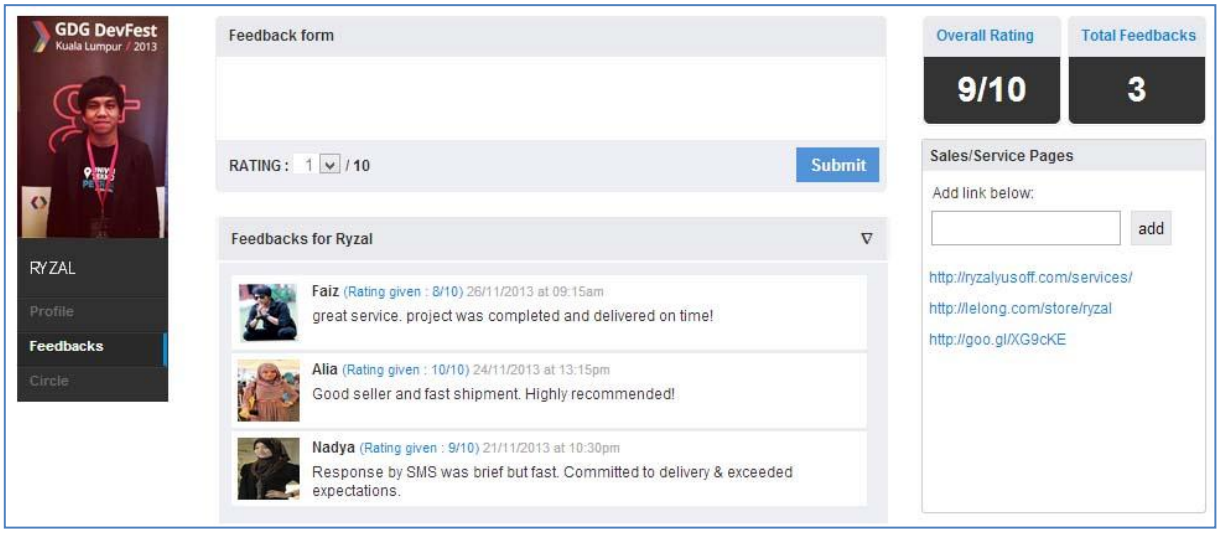


FIGURE 4.6 FEEDBACK PAGE

On this feedback page, other registered users can leave feedback for the user as well as give the rating for the products or services that they delivered. Other than that, user can also see the overall rating of that particular user as well as the URL / links to their sales or services web pages.

4.3.2 Administrator Section Design

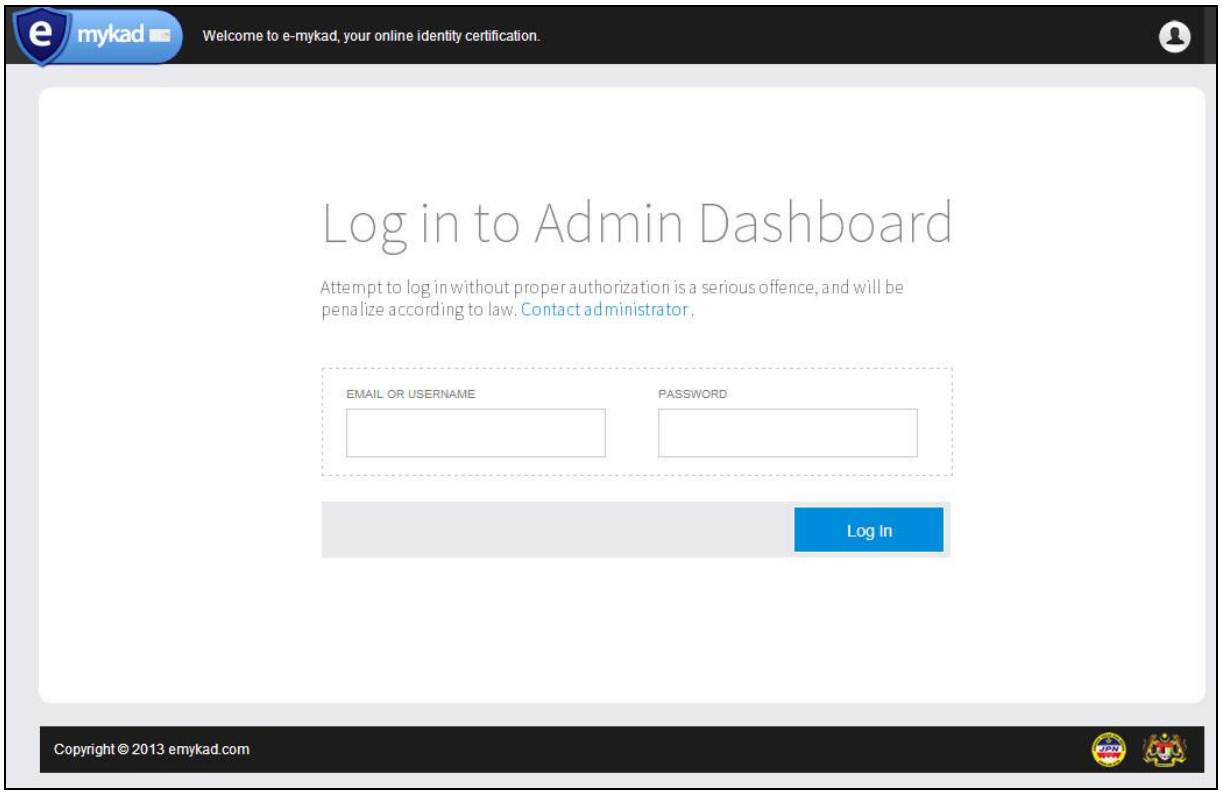


FIGURE 4.7 ADMINISTRATOR HOMEPAGE

FIGURE 4.8 ADMINISTRATOR APPROVAL PAGE

FIGURE 4.9 APPROVAL DETAILS PAGE

FIGURE 4.10 APPROVAL DETAILS BEING ZOOMED IN

4.4 System Implementation

4.4.1 Sample of Important Codes

4.4.1.1 Check User's Registration

```php
<?php

include 'include/credential.php';

if (isset($_POST['register'])) {

      $nama = $_POST['nama'];
      $username = $_POST['username'];
      $password = $_POST['password'];
      $level = 'user';
      $email = $_POST['email'];
      $gender = $_POST['gender'];
      $dob = $_POST['dob'];
      $ic_num = $_POST['ic_num'];
      $origin = $_POST['origin'];
      $verified = '0';

    $bad_name=array("anonymous","robocop","thor","superman","batman");
    $bad_match = 0;

    for($i=0; $i<count($bad_name); $i++ ){
        if($nama == $bad_name[$i]){
            $bad_match = 1;
        }
```

```
    }


    if ($bad_match == 0) {


      // generate user id (UID)

      $length = 10;

      $randomString =
substr(str_shuffle("0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRS
TUVWXYZ"), 0, $length);


....
```

One of the way to make sure that the users reveal the true identity of themselves is by checking whether or not they use the real name. The sample code above is a prototype of the end system which at the beginning of it will compare the name that user entered to the sample list of the bad names . Of course, later this code will be improved so that it will compare the names to the huger database (refer Figure 2.5)

4.4.1.2 Overall User's Rating

This overall rating is generated by figuring out the average rating from all the rating that the user got from other people.

```
<?php

// GENERATE OVERALL RATING ATA

$total_rating = 0;

$sql = mysql_query("SELECT * FROM feedback WHERE mid='$mid'");
$total_comments = mysql_num_rows($sql);

while($row = mysql_fetch_array($sql)) {

    $rating = $row['rating'];
    $total_rating += $row['rating'];
}

if ($total_rating > 0) {
    $overal_rating = $total_rating/$total_comments;
} else {
    $overall_rating = 1;
}

?>
```

4.4.1.3 Administrator Approval

When the administrator choose to approve the user, the code will update the database with verified=1 but if the administrator choose to deny the user, the code will update the database with verified=-1;

```
if (isset($_POST['approve'])) {

    $vid = $_POST['vid'];

    $uid = $_POST['uid'];


    $reason = $_POST['reason'];

    $admin = $_POST['admin'];


    $sql = "UPDATE verify SET verified='1' WHERE id='$vid'";

    $sql2 = "UPDATE users SET verified='1' WHERE uid='$uid'";

    $sql3 = "UPDATE verify SET reason='$reason' WHERE id='$vid'";

    $sql4 = "UPDATE verify SET admin='$admin' WHERE id='$vid'";


    if(mysql_query($sql) && mysql_query($sql2) && mysql_query($sql3) &&
mysql_query($sql4) ){

        //echo "success";

        header("Location: vdetails.php?vid=".$vid."&update=success");

    } else {

        echo "error" . mysql_error();

    }



} else if (isset($_POST['deny'])) {

    $vid = $_POST['vid'];

    $uid = $_POST['uid'];
```

```
    $reason = $_POST['reason'];

    $admin = $_POST['admin'];


    $sql = "UPDATE verify SET verified='-1' WHERE id='$vid'";

    $sql2 = "UPDATE users SET verified='-1' WHERE uid='$uid'";

    $sql3 = "UPDATE verify SET reason='$reason' WHERE id='$vid'";

    $sql4 = "UPDATE verify SET admin='$admin' WHERE id='$vid'";

……
```

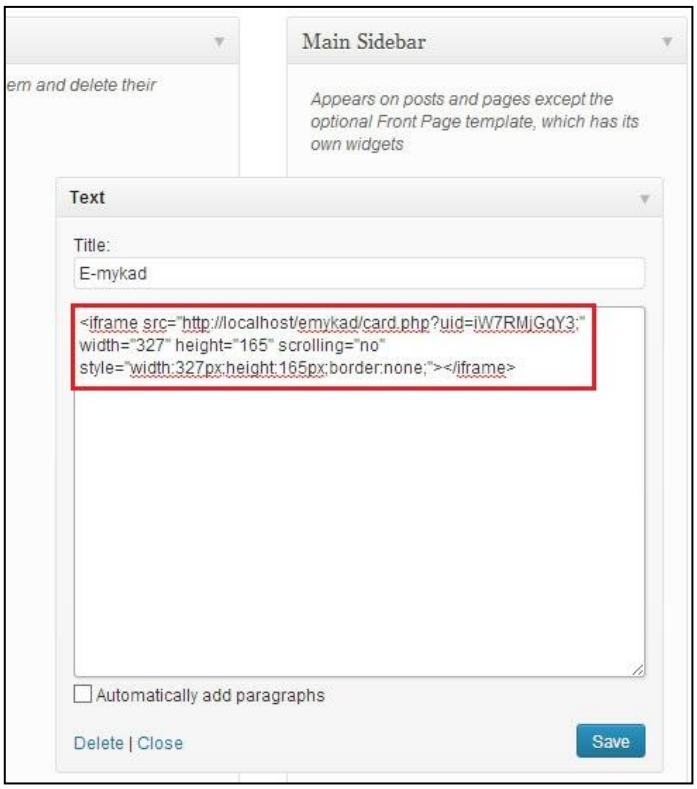
4.4.1.4 Wordpress Plugin

```
    $fields   =  array(

        'author' => '<p class="comment-form-author">' . '<label
for="author">' . __( 'Name' ) . ( $req ? ' <span class="required">*</span>'
: '' ) . '</label> ' .

                    '<input id="author" name="author" type="text" value="'
. esc_attr( $commenter['comment_author'] ) . '" size="30"' . $aria_req . '
/></p>',

        'email'  => '<p class="comment-form-email"><label for="email">' .
__( 'Email' ) . ( $req ? ' <span class="required">*</span>' : '' ) .
'</label> ' .

                    '<input id="email" name="email" ' . ( $html5 ?
'type="email"' : 'type="text"' ) . ' value="' . esc_attr(
$commenter['comment_author_email'] ) . '" size="30"' . $aria_req . '
/></p>',

        'url'    => '<p class="comment-form-url"><label for="url">' . __(
'E-mykad Profile' ) . ( $req ? ' <span class="required">*</span>' : '' ) .
'</label> ' .

                    '<input id="url" name="url" ' . ( $html5 ? 'type="url"'
: 'type="text"' ) . ' value="' . esc_attr( $commenter['comment_author_url']
) . '" size="30" /></p>',

    );
```

By using the wordpress plugin, wordpress user can add one more field to their blog's comment section which is the E-mykad URL field. So the user that want to comment on their blog, need to fill in this field first before being able to comment.

4.4.2 Example of E-mykad Usage/Implementation

1) For user that uses wordpress blogging platform, they could paste the code from their profile to the widget section for their website's sidebar to display their e-mykad.



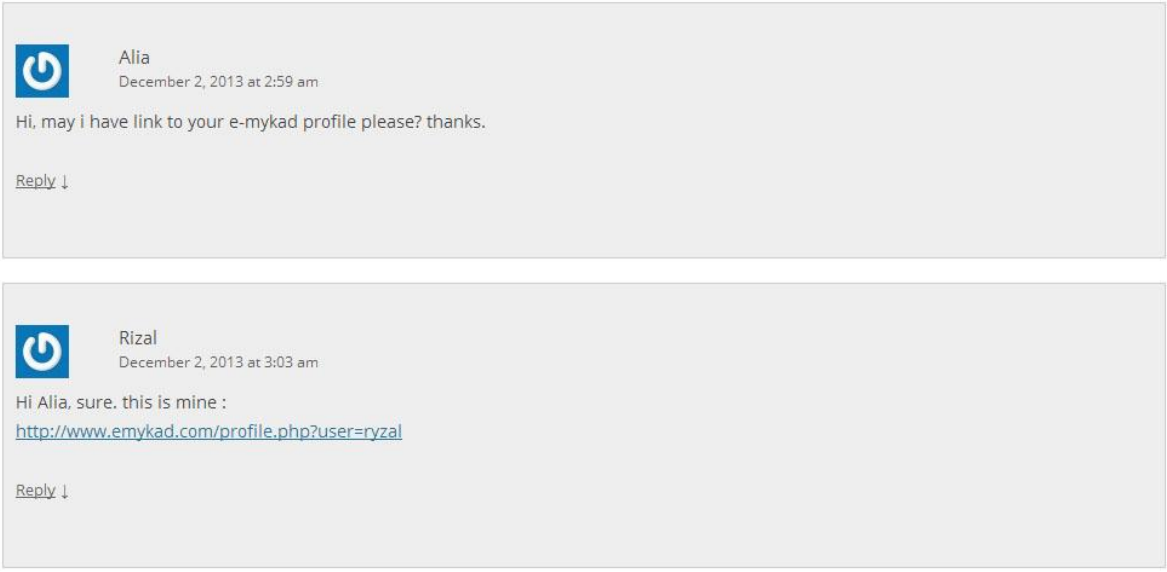
2) The user can also embed the code directly into their sales page to display their e-mykad.

Iphone 5 16gb White

- Age of item is around 1 month old
- Condition 95% good
- Warranty till 17th October 2014 by Apple Store Malysia
- Packages come with full set

My E-mykad Profile :

3) The user can also just providing the link to their emykad-profile when being ask by other people.



Alia
December 2, 2013 at 2:59 am

Hi, may i have link to your e-mykad profile please? thanks.

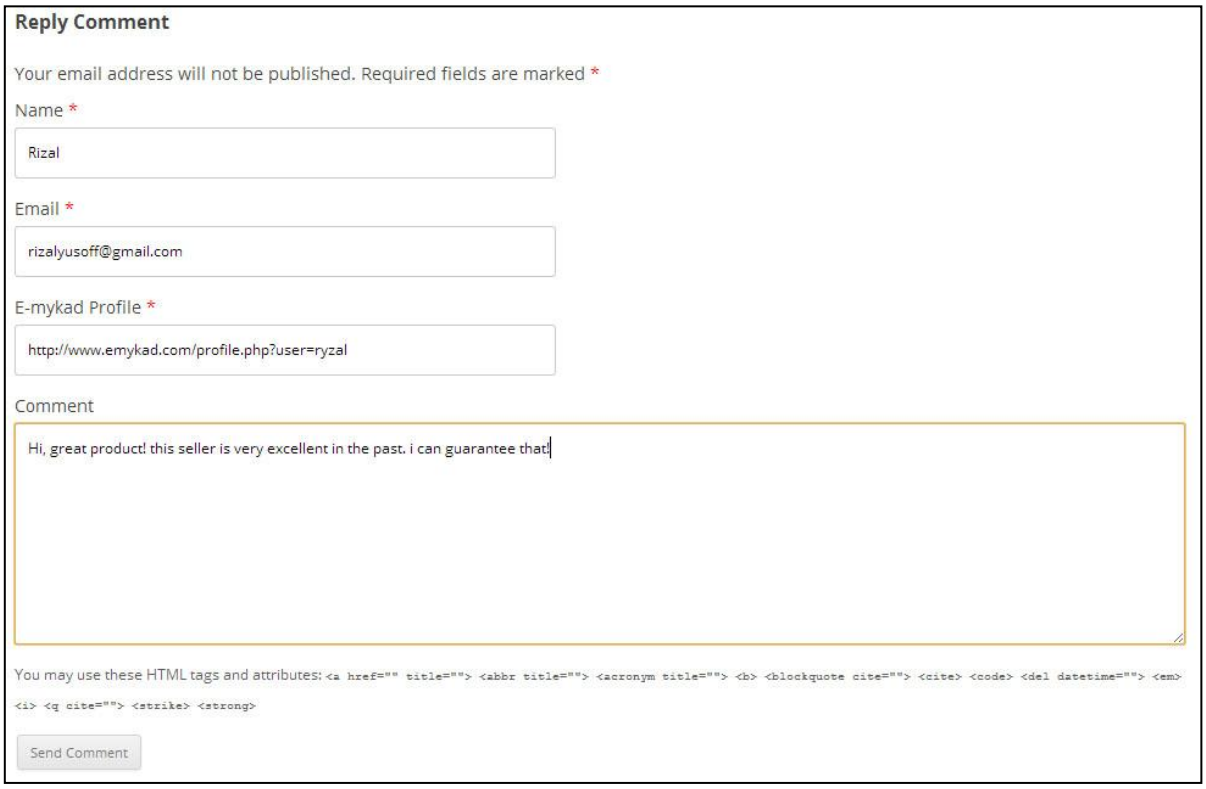
Reply ↓

Rizal
December 2, 2013 at 3:03 am

Hi Alia, sure. this is mine :
http://www.emykad.com/profile.php?user=ryzal

Reply ↓

4) The user can install plugin on their wordpress platform, to urge people to provide their E-mykad URL before commenting.



Reply Comment

Your email address will not be published. Required fields are marked *

Name *

Rizal

Email *

rizalyusoff@gmail.com

E-mykad Profile *

http://www.emykad.com/profile.php?user=ryzal

Comment

Hi, great product! this seller is very excellent in the past. i can guarantee that!

You may use these HTML tags and attributes: <a href="" title=""> <abbr title=""> <acronym title=""> <b> <blockquote cite=""> <cite> <code> <del datetime=""> <i> <q cite=""> <strike>

Send Comment

4.5 Experiment Design

TEST CASE 1

Objective of the test : To verify whether user can login correctly by using correct credentials

Validation test / Fault test : Validation test

Component being tested : System's login form

Input being tested : Correct user's username and password

Expected output : User logged in successfully and being redirected to his/her profile.

Actual output : User logged in successfully and being redirected to his/her profile.

TEST CASE 2

Objective of the test : To verify whether user can login if using wrong credentials

Validation test / Fault test : Fault test

Component being tested : System's login form

Input being tested : Wrong user's username and password

Expected output : User fail to log in and system display error message.

Actual output : User fail to log in and system display error message.

TEST CASE 3

Objective of the test : To verify whether user can login if using sql query on the login form

Validation test / Fault test : Fault test

Component being tested : System's login form

Input being tested : Sql query on the password's field

Expected output : User fail to log in and system display error message.

Actual output : User fail to log in and system display error message.

TEST CASE 4

Objective of the test : To verify whether user can login if using random symbols on the login form

Validation test / Fault test : Fault test

Component being tested : System's login form

Input being tested : Random symbols on username's and password's field

Expected output : User fail to log in and system display error message.

Actual output : User fail to log in and system display error message.

TEST CASE 5

Objective of the test : To verify whether user can login correctly if entered very long input on username's and password's field

Validation test / Fault test : Fault test

Component being tested : System's login form

Input being tested : Very long input on username's and password's field

Expected output : User fail to register and system display error message.

Actual output : User fail to register and system display error message.

TEST CASE 6

Objective of the test : To verify whether user can login correctly if entered very short input on username's and password's field

Validation test / Fault test : Fault test

Component being tested : System's login form

Input being tested : Very short input on username's and password's field

Expected output : User fail to register and system display error message.

Actual output : User fail to register and system display error message.

TEST CASE 7

Objective of the test : To verify whether user can register correctly if using correct input (allowed words (A-Z , 0-9)/symbols (!@#$^&*)) on username's and password's field

Validation test / Fault test : Validation test

Component being tested : System's registration form

Input being tested : Allowed words and symbols on username's and password's field

Expected output : User successfully registered and user being redirected to the system's login page.

Actual output : User successfully registered and user being redirected to the system's login page.

TEST CASE 8

Objective of the test : To verify whether user can register correctly if using wrong input (unallowed symbols(%*_+";,?/~\)) on username's and password's field

Validation test / Fault test : Validation test

Component being tested : System's registration form

Input being tested : Unallowed symbols (%*_+";,?/~\) on username's and password's field

Expected output : User successfully registered and user being redirected to the system's login page.

Actual output : User successfully registered and user being redirected to the system's login page.

TEST CASE 9

Objective of the test : To verify whether user can register correctly if entered very long input on username's and password's field

Validation test / Fault test : Fault test

Component being tested : System's registration form

Input being tested : Very long input on username's and password's field

Expected output : User fail to register and system display error message.

Actual output : User fail to register and system display error message.

TEST CASE 10

Objective of the test : To verify whether user can correctly share their own "E-Mykad" picture on the other site on the internet.

Validation test / Fault test : Validation Test

Component being tested : User's Profile "E-mykad"

Input being tested : "E-mykad" code being embedded onto other site's file

Expected output : User's "E-mykad" picture will be shown at the site which the code has been put.

Actual output : User's "E-mykad" picture being shown at the intended place.

TEST CASE 11

Objective of the test : To verify whether user can leave comments/feedback on user's profile if very short input has been entered/sent.

Validation test / Fault test : Fault test

Component being tested : Users' profile feedback form

Input being tested : Very short input on feedback's form field

Expected output : User fail to leave feedback and system display error message.

Actual output : fail to leave feedback and system display error message.

TEST CASE 12

Objective of the test : To verify whether user can leave comments/feedback on user's profile if very long input has been entered/sent.

Validation test / Fault test : Fault test

Component being tested : Users' profile feedback form

Input being tested : Very long input on feedback's form field

Expected output : User fail to leave feedback and system display error message.

Actual output : User fail to leave feedback and system display error message.

4.6 Discussion of Finding/Results

4.6.1 Finding from Qualitative & Quantitative Study

4.6.1.1 Finding from Qualitative Study

The participants from this study were interviewed with one big open-ended question. The questions is as follows :

QUESTION : How do you know that a profile is fake?

ANSWER 1 : *I know it is fake when the profile don't even have a profile picture, meaning that he/she just use a default profile picture.*

ANSWER 2: *The profile is fake if the number of his/her friend is very little even if the profile already registered long time ago.*

ANSWER 3: *The profile is fake if the user use weird kind of name, or names of other known/famous person such as "Presario 300" , "John Doe", or "Albert Einstein".*

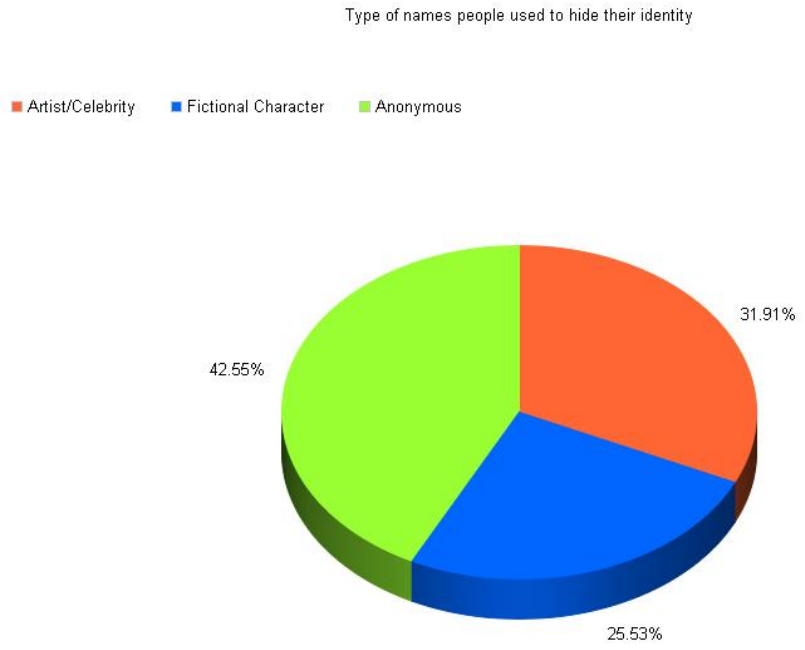
Based on the answers given, we can see that if more information are provided, it could help to gain the user's trust. For example, from **Answer 1**, if the user just simply change the default profile picture to a his/her real picture, he/she could gain more user trust. Same thing for **Answer 2** and **Answer 3**, if the user put more effort in be friend with other and also put his/her real name, he/she could also gain more trust from others.

4.6.1.2 Finding from Quantitative Study

There are 43 participants that were taken part in this study. The participants from this study were given a questionnaire with a series of close-ended question. The questions and their results are as follows:

QUESTION 1: Which type of names that you think people often used in order to hide their identity?

RESULT:



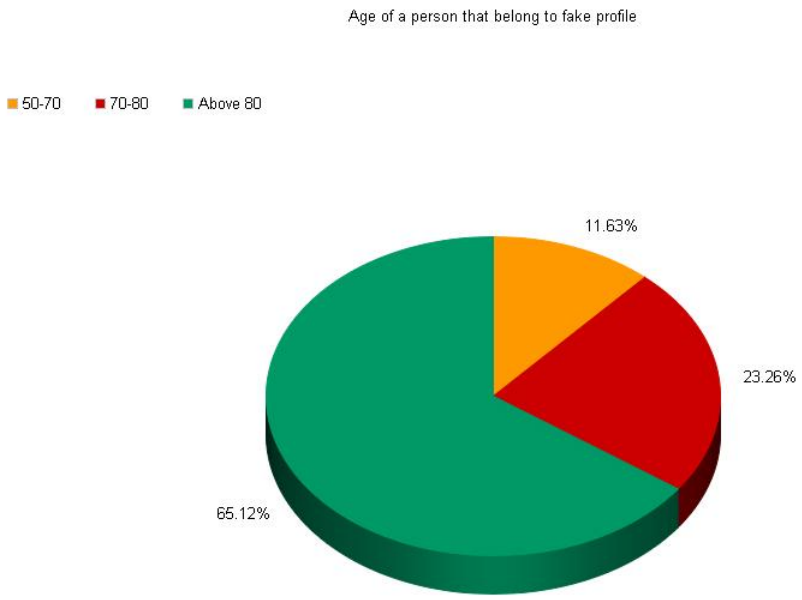
Question one was asked to find out what type of names were mostly used by people to hide their identity on the internet. From the result, it is known that the type of name that are most popular is "Anonymous" .This means that most of the internet users are prefer to appear completely unknown while they are on the internet. By having this fact, it will shows how much that this research project is really relevance to be done, because one of the major reason of why this research project being conducted is because of urge from the Prime Minister of Malaysia itself which said that all blog or portal owner must reveal their identities.

One of the main reason of why people prefer to appear as 'Anonymous " is simply because they are able to do so. If we look at most of the blog section nowadays (mostly on Blogger platform), we can see that user can select whether they want to verify themselves by using already registered account or they want to appear as "Anonymous". Most people will simply choose "Anonymous because" it will take less time to submit their comment. Additionally, sometime they just forgot the password for their account that already being registered.

So, if we have some system that is really reliable that can be used as the method of representing ourselves on the internet, a plugin or something can be developed to be integrated with blogger , wordpress or other blogging platform which will encourage and educate people to start verifying themselves.

QUESTION 2: What range of age of a person that you will consider belong to fake profile?

RESULT:

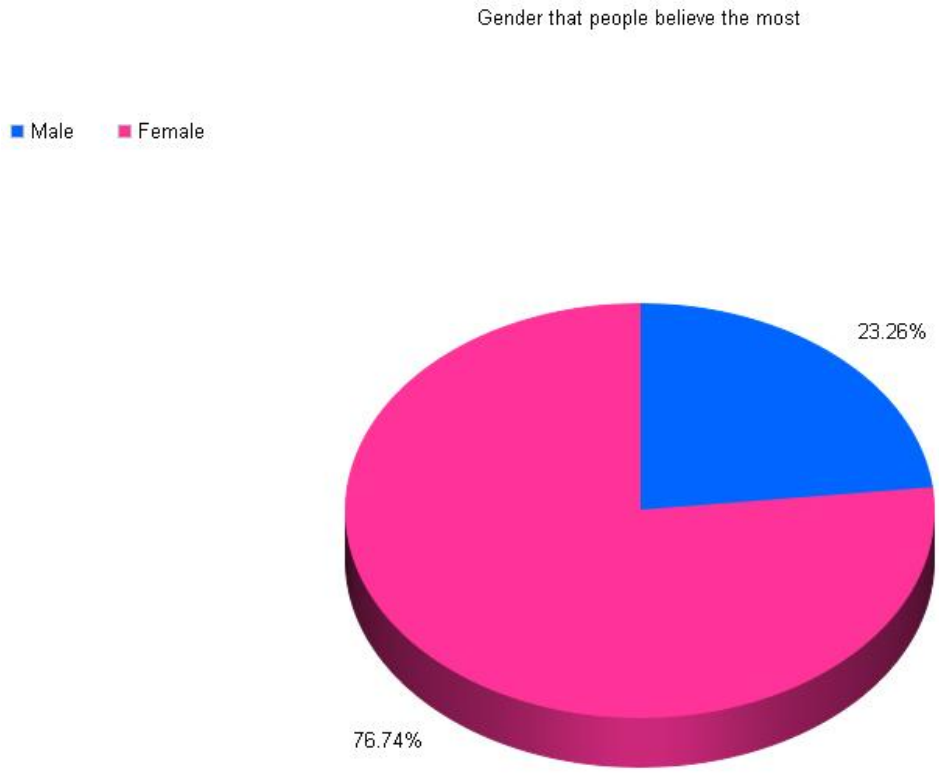


From the above result, we can see that most of the participants agree that most of the fake profiles are using range of age that is above 80 years old. Meaning, the older the age of the person on the profile, the most unlikely that we can trust that person.

There is two important things that can be getting from this finding. Firstly, as we know that there is most unlikely that a person of age more than 80 will actively using the internet, the author can design the system by limiting the age of a person up until 80 only. The second thing is that the author can just design and develop the system without worrying about the design or process of the system itself whether it will be feasible or not for people above the age of 80.

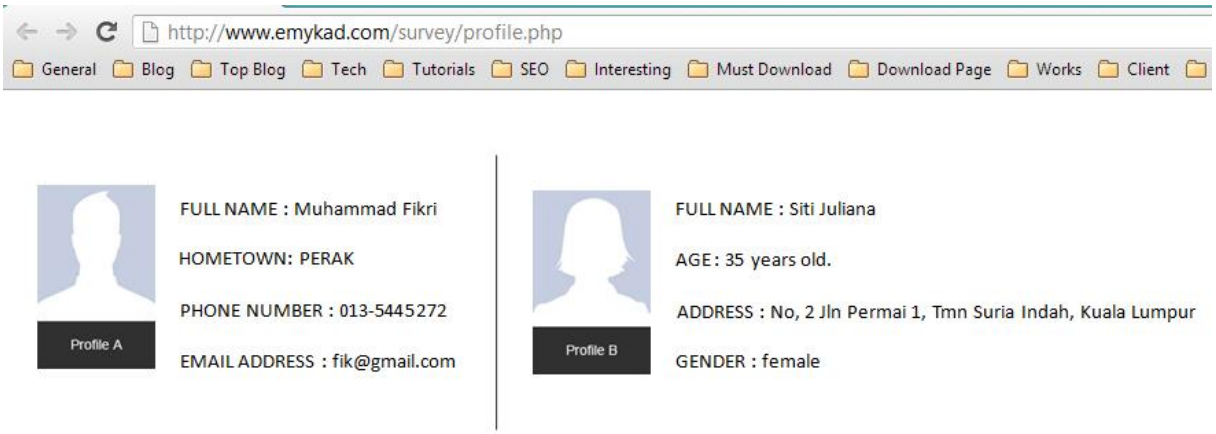
QUESTION 3: Which gender that you believe the most by having a look at just a profile?

RESULT:

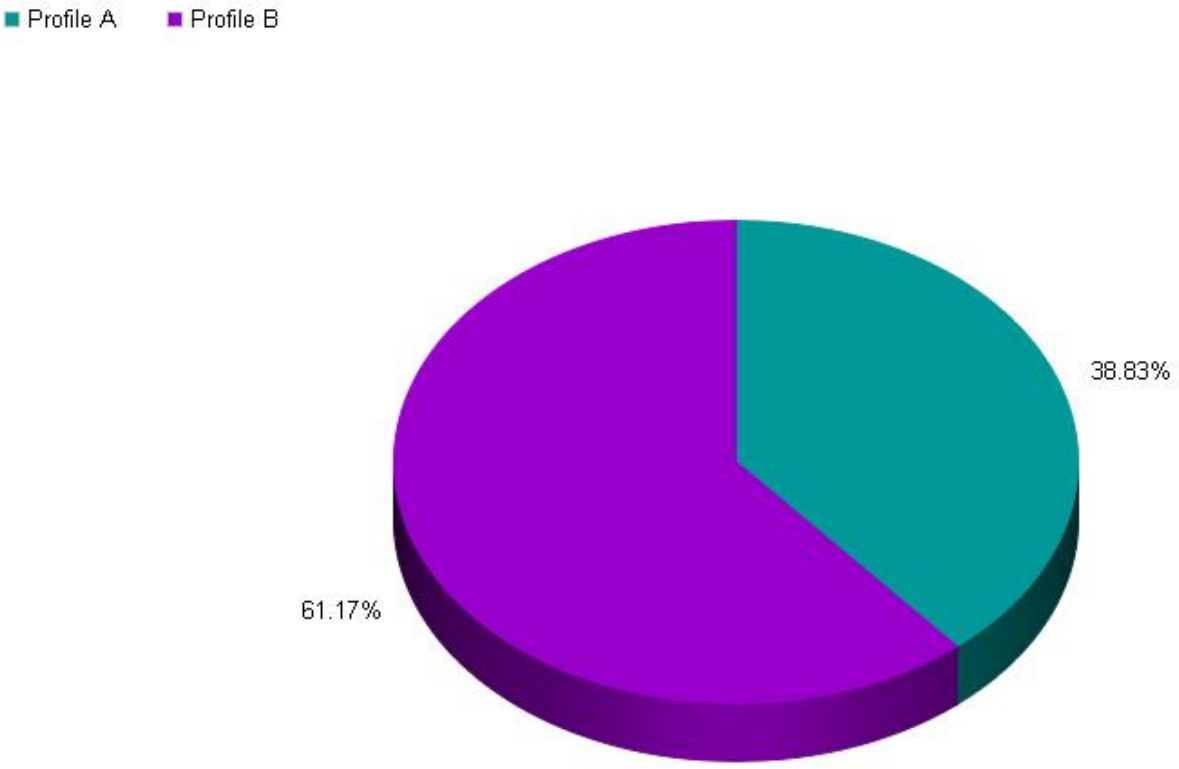


By looking at the chart above, it can be seen that people are most likely to believe in female user rather than male user. The significant of this result shows that gender is an important attributes that shall not be left out when designing the profile because it is one of the important key factor that could effect user's trust.

4.6.2 Finding from Profile Modelling and Testing



RESULT:



Based on the result above, it seems that Profile B is the most preferable profile compare to profile A. If we look back, Profile A has details such as Full Name, Hometown, Phone Number and also Email Address while Profile B has details such Full Name, Age, Address and Gender.

There are many possibilities of the reason why people choose Profile B over Profile A, but for the sake of the study, we are assuming that it is all related with the difference of the identity attributes between these two profiles.

The only identity attributes that are the same for both profile is the "full name". Thus, it is safe to assume that Full name is important. However, as the result indicate, we can see that age, address and gender are more important that hometown, phone number and email address. Thus, these identity attributes are the best to be put and used on the user's profile.

4.6.3 Algorithm Analysis and Testing

This part of study involves both the fourth and fifth objective of this research as it involve investigating and analysing what best algorithm to be used in the trust indicator as well as feedback rating for user's profile.

There are two algorithm that the author has identified which can be used for the end system for this research. The first one is the Evolutionary Algorithm and the second one is Bayesian Rating algorithm.

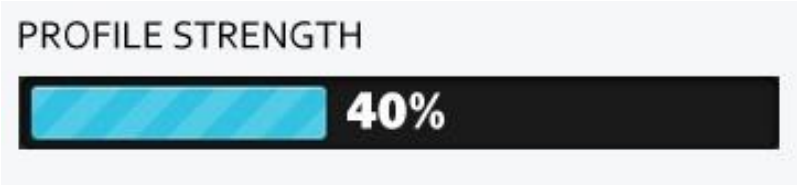
4.6.3.1 Evolutionary Algorithm

The Evolutionary Algorithm) is a subset of evolutionary computation, a generic population-based metaheuristic optimization algorithm. An EA uses mechanisms inspired by biological evolution, such as reproduction, mutation, recombination, and selection.

```
BEGIN
  INITIALISE population with random candidate solutions;
  EVALUATE each candidate;
  REPEAT UNTIL ( TERMINATION CONDITION is satisfied ) DO
    1 SELECT parents;
    2 RECOMBINE pairs of parents;
    3 MUTATE the resulting offspring;
    4 EVALUATE new candidates;
    5 SELECT individuals for the next generation;
  OD
END
```

FIGURE 3.1 THE GENERAL SCHEME OF AN EVALUTIONARY ALGORITHM IN PSEUDOCODE

This pseudo code will be used to code the trust level indicator on the user's profile. This trust leave indicator will be label as profile strength.



Below is the sample of code for displaying the progress bar :

```
// Loop through process
for($i=1; $i<=$total; $i++){
    // Calculate the percentation
    $percent = intval($i/$total * 100)."%";

    // Javascript for updating the progress bar and informa
tion
    echo '<script language="javascript">
    document.getElementById("progress").innerHTML="<div sty
le=\"width:'.$percent.';background-
color:#ddd;\"> </div>";
    document.getElementById("information").innerHTML="'.$i.
' row(s) processed.";
    </script>';

}
```

4.6.3.2 Bayesian Ratings Algorithm

There will be the rating indicator on the profile section. The rating given to user are based on couple of things/ couple of ways. For example, the user could just select from the dropdown box, how much they would like to rate a person in the scale of 1 to 10.

To accumulate it and give the overall rating based on this activity is quite simple. Below is part of the code used in developing this part of the end system:

```
// GENERATE OVERALL RATING DATA

    $total_rating = 0;

    $sql = mysql_query("SELECT * FROM feedback WHERE mid='$mid'");
      $total_comments = mysql_num_rows($sql);
    while($row = mysql_fetch_array($sql)){
        $rating = $row['rating'];
        $total_rating += $rating;
    }

    if ( $total_rating > 0) {
        $overall_rating = $total_rating/$total_comments;
    } else {
        $overall_rating = 1;
    }
```

From the above code, we could see that what we have to do is just dividing the accumulated rating and divide it with the total number of people that give the rating.

That is quite a simple thing to do if there is only way of giving a rating to a user. But how if there is other method involves? For example, if there is the like and dislike button, and each like and dislike from the user will be counted as part of the whole rating system?

Fortunately, a Bayesian Rating system could help us to get through this. The bayesian rating can be given as:

$$\bar{x} = \frac{Cm + \sum_{i=1}^{n} x_i}{C + n}$$

br = ((C* avg_rating) + (this_num_votes * this_rating)) / (C + this_num_votes)

Where

avg_rating: The average rating of each item (again, of those that have num_votes>0)

this_num_votes: number of votes for this item

this_rating: the rating of this item

C: is an ad-hoc constant. If it's high. It will require more votes for the adjusted (dampened) rating of an item to approach its original unadjusted value.

There is no point requiring 1000 votes for the item to rank 60% when each item only gets a handful of votes in average. So if the system receives less votes in general, C should be smaller.

To make the system adaptive we can assign C a self-adjusting value, such as "average number of votes". Which makes our formula.

```
br = ( (avg_num_votes * avg_rating) + (this_num_votes * this_rating) ) / (avg_num_votes + this_num_votes)
```

This formula works statistically better than the former one (i.e. dampenint the votes by record age).

That damping by record age algorithm was very dependent on time. On the contrary, this rating formula is totally independent of time.

It can be fine-tuned by adding :

-Dampening effect of time,

-Trustablility (karma) of voters

-Page views and site activity at the time of vote

-If we're voting a link, metadata for that link such as google pagerank, alexa rank etc.

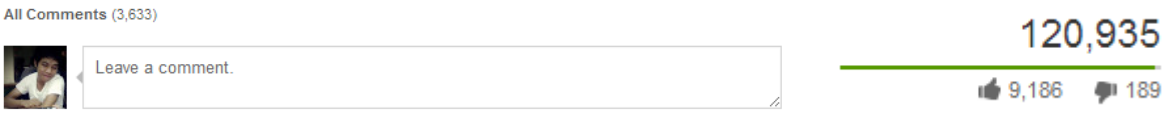
4.6.4 Feedbacks Analysis

Many popular sites have been implemented the feedback system to help their user giving rating to the certain element of their site such as the users, movies etc.

To look at the example of this system, the author has taken a couple websites such as youtube.com , facebook .com and imdb.com to look into.

4.6.4.1 Youtube.com

On youtube.com, the feedback system for its video is supported by its rating system (like/dislike). The user can choose separately whether to just leaving feedback for the particular video, or contribute to the video's rating by clicking what they called as like/dislike button.



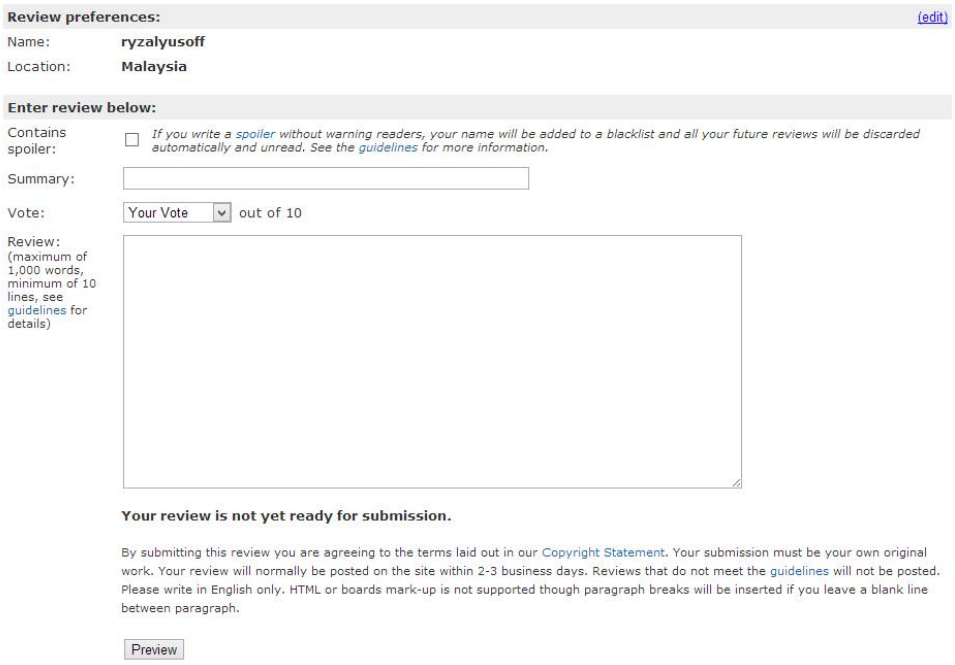
4.6.4.2 Facebook.com

For facebook.com, their feedback and rating system are the same like youtube.com, but instead for video, their feedback and rating system are for the user's status.

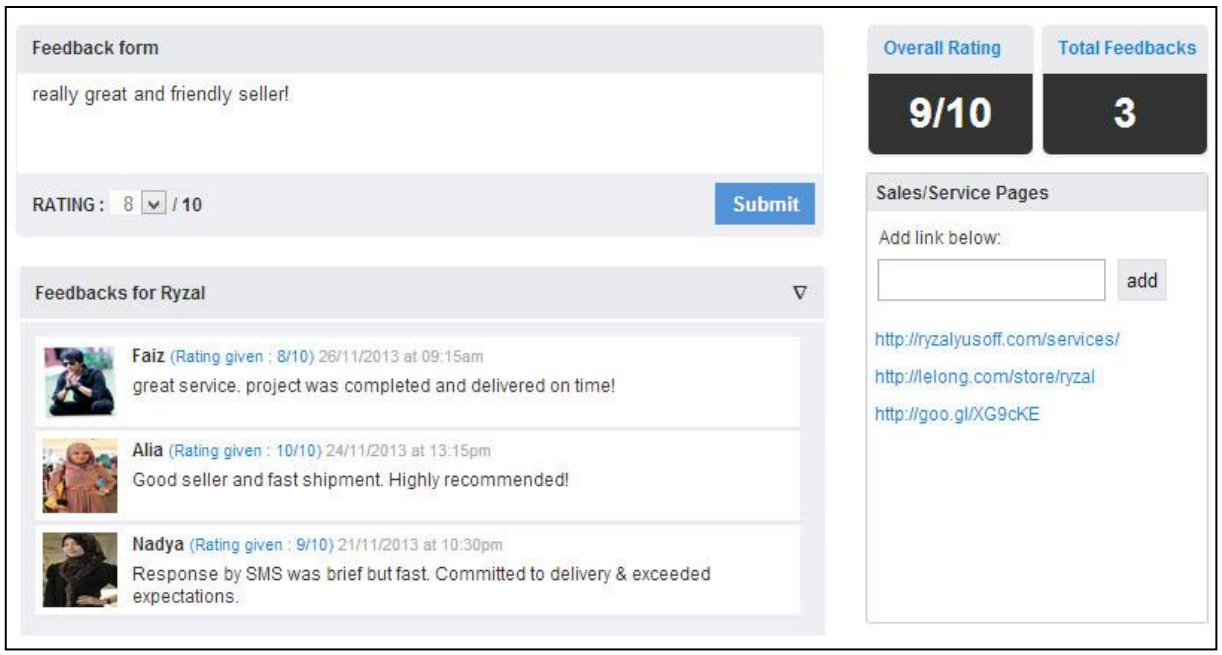
But the unique thing with facebook feedback system, is that they allow user to post a picture as the respond or feedback to the user's status

4.6.43 Imdb.com

Different from youtube or facebook, imdb allowing it's user to leave both rating and the feedback for the film simultaneously. User can select to vote for the movie in the scale of 1/10 by selecting the dropdown rating field that is provided and then continue giving the comment/feedback before click submit.



So, by using concepts from all these sites, the author came out with the feedback system which is almost similar to this :



The above is the screenshot of the end system's feedback section. On the left top part, there is the feedback form which user can enter their own feedback for the user and select rating ranging from 1 to 10. On the left bottom section, there is the previous feedbacks and rating given from the other people. On the top right side, there is the overall rating (based on the average rating), and also the number of the total feedbacks. And on the bottom right side, there is the links to the user's sales/service pages

CHAPTER 5
CONCLUSION & RECOMMENDATION

In this paper, the author has discussed several aspects of online identity representation. On the first chapter of this paper, the author has addressed the importance and the need of having online identity representation system by stating the most recent cases of cybercrimes on the online worlds today.

The rise of social networking sites together with the rise of cyber crimes' rate has made the need of having something that can act as our digital identity becomes so much important. By having something that acts as an online identity representation for ourselves, it will solve many of the problems that today's online community are facing. There were some of the system that nearly solves this problem, but unfortunately, the implementations of the system are not comprehensive. Meaning some system might have some good features but still they lack of something.

Thus, the author suggest that the end system with the name of e-Mykad (stands for electronic Mykad), which combines the features that the current systems have on one platform. The example of these features are like bank-data verification and hyperlinked claimed collection. On top of these features, there will be the additional features such as people's rating and comment sections where other peoples can give feedback to the specific person on his/her profile. By looking at the ratings given and feedbacks from the other peoples, it will increase the level of trust on that particular person, thus ensure peoples that he/she is safe to be having the online activity with.

However, the end system is focussing only on Malaysia community first as right now there is no any online identity representation system yet that focussing on Malaysia community. Additionally, there will be a lot easier to gain trust from peoples in Malaysia community if the system itself is focussing on Malaysia community only. For example, in term of giving the personal information, there will a lot easier for peoples in Malaysia to trust the Malaysia product or system rather than the system from outsiders. Furthermore, it will be a lot easier for the person that verify the user's credentials or information's to validate or verify the user as he/she is familiar with the Malaysian community.

At the time of this writing, the author has successfully built the system but with some limitations. Firstly, the automatic verification is still not being implemented yet because of the high security reason, money that need to be invested for the system, and the time range which is really short in order to build the system itself. Secondly, eventhough the system is already capable to be used for the users, we still need to find a way on how to encourage users to use this system while they are on the internet. Thirdly, it is probably a rational thing for the government to enforce a law which is related to this issue so that there will no longer be anonymous users as per suggestion of our prime minister, and this is probably the most difficult thing.

Lastly, as the users need to reveal themselves on the internet, there will of course a concern about the privacy of the users, and this will be the most difficult thing to solve. It is because, while there is the urge for us to encourage users to reveal themselves on the internet, we will still need to take care of the users privacy at the same time. So, of course there is a lot of trouble in order to encourage people to use the system itself.

Whatever it is, the author believes that as the crimes rate involving internet and Web 2.0 keep rising, we will need to start thinking and finding ways in order to decrease it. So , as the first step, we could use this E-mykad platform and see how far it can be used to help solving this issue. Later in the future, the author hopes that we can solve a few problem that the current system has, and a better version of E-mykad can be developed to help all people using the internet comfortably and safely.

REFERENCE

Airoldi, E., & Malin, B. (2004). *Data Mining Challenges for Electronic Safety : The Case of Fraudulent Intent Detection in E-Mails.* School of Computer Science Carnegie Mellon University.

Bechar-Israeli, H. (1995). Nicknames, Play and Identity on Internet Relay Chat. *Journal of Computer-Mediated Communication* .

Boyd, d. m., & Ellison, N. B. (2008). *Social Network Sites: Definition, History, and Scholarship.* InternationalCommunicationAssociation.

Bracey, R. (2007, 04 30). *Fake names for documentation*. Retrieved 12 2, 2013, from Rhonda Bracey: At Random: http://rhondabracey.com/2007/04/30/fake-names-for-documentation/

Cashmore, P. (2006, March 02). *ClaimID Doesn't Do It For Me*. Retrieved June 24, 2013, from Mashable: http://mashable.com/2006/03/01/claimid-doesnt-do-it-for-me/

Danah, B., & Jeffrey, H. (2006). *Profiles as Conversation: Networked Identity Performance on Friendster.* University of California, Berkeley.

Evolutionary algorithm. (2013). Retrieved June 25, 2013, from Wikipedia: http://en.wikipedia.org/wiki/Evolutionary_algorithm

Fairhurst, M. (2003). *Document Identity, Authentication and Ownership: The Future of Biometric Verification.*

Ford, B., & Strauss, J. (2008). *An Offline Foundation for Online Accountable Pseudonyms.* Massachusetts Institute of Technology.

Griffin, F. (2013, February 22). *Netverify Mobile, Jumio's Weapon Against Smartphone Fraud*. Retrieved June 24, 2013, from Mobility Techzone: http://www.mobilitytechzone.com/topics/mobile-devices/articles/327867-netverify-mobile-jumios-weapon-against-smartphone-fraud.htm

Murugesan, S. (2007). Understanding Web 2.0. *IT Professional* , 34 - 41.

Pato, J. (2003). *Identity Management: Setting Context* . Kluwer Academic.

PM: Bloggers may be asked to state identity. (2013, June 13). Retrieved June 24, 2013, from Malaysia Today: http://www.malaysia-today.net/mtcolumns/newscommentaries/57395-pm-bloggers-may-be-asked-to-state-identity

Practice freedom of speech within Msian norms - Najib. (2013, June 12). Retrieved June 24, 2013, from New Straits Time: http://www.nst.com.my/latest/practice-freedom-of-speech-within-msian-norms-najib-1.299260

Relative Identity. (2007 , November 5). Retrieved June 23, 2013, from Standford Encyclopedia of Philosophy: http://plato.stanford.edu/entries/identity-relative/

Russell, J. (2010, October 11). *Is Malaysia world's biggest social network addict?* Retrieved June 24, 2013, from asiancorrespondent.com: http://asiancorrespondent.com/41329/is-malaysia-the-worlds-biggest-social-networker/

Russell, T., & Stutzman, F. *Self-Representation of Online Identity in Collected Hyperlinks.*

Russell, T., & Stutzman, F. (2007). *Self-Representation of Online Identity in Collected Hyperlinks.*

Social Networking Service. (2013). Retrieved June 24, 2013, from Wikipedia: http://en.wikipedia.org/wiki/Social_networking_service

Stutzman, F. (2006). *An Evaluation of Identity-Sharing Behavior.*

Stutzman, F., & Russell, T. (2006). *ClaimID: A System for Personal Identity Management.*

Which firms will profit from proving your identity online? (2013, February 9). Retrieved June 24, 2013, from The Economist: http://www.economist.com/news/international/21571418-which-firms-will-profit-proving-your-identity-online-voucher-business

Yun, L. Y. (2013, April 06). *'79 per cent of social media users victims of cyber crime'*. Retrieved June 24, 2013, from Borneo Post Online: http://www.theborneopost.com/2013/04/06/79-per-cent-of-social-media-users-victims-of-cyber-crime/

Zahiid, S. J. (2013, February 27). *Najib: Election 2013 first social media election*. Retrieved June 24, 2013, from The Malaysian Insider: http://www.themalaysianinsider.com/malaysia/article/najib-election-2013-first-social-media-election

Zolkepli, F. (2013, June 4). *Woman detained for allegedly insulting Agong on Facebook*. Retrieved June 24, 2013, from The Star Online: http://thestar.com.my/news/story.asp?file=/2013/6/4/nation/20130604125614&sec=nation