TRACER STUDY SYSTEM PORTAL-BASED SOCIAL NETWORK TO OPTIMIZE DATA COLLECTION ON HIGHER EDUCATION GRADUATES

Fitri Marisa[1], Dedi Usman Efendi[2] , Indah Dwi Mumpuni[3]

Widyagama University of Malang[1],
Widyagama University of Malang, Indonesia [2],
Jl. Borobudur No 35 Malang Jl. Borobudur No 35 Malang[1] , STIMATA Malang[2],
Indonesia, Jl LA Sicipto No 249 Malang, Indonesia[3].
dedi_usman@yahoo.co.id[1], fitrimarisa@widyagama.ac.id[2] ,
indahstimata@yahoo.com[3] .

ABSTRACT

Background: Universities need to conduct data searches to graduate. This data can be used in a variety of needs. A media needed to connect between the faculty graduates or graduates with other graduates so that they can be interconnected. But it is constrained because most colleges difficulty in recruiting alumni data despite already done in various media. It is necessary for a more effective alternative media for support in collecting data of graduates. **Method:** The design of the portal using social network approach. So the first step is to design the parent website Tracer Study focus to accommodate the main data of graduates who are equipped with an interactive community features. Prototype portal tested and evaluated based on benchmarks dynamic, informative, and communicative, further refined to achieve an increase in visitors in every time data is consistent with the conditions or no distortion. **Conclusion:** The results of this research is a tracer study portal with social network approach to be one of the alternative media to attract graduates to interact with the media, and also that benefits the institution of data collection becomes more optimal.

KEY WORDS

Portal, Tracer Study, Social Network, Website, Alumni.

1. Introduction

Graduates are an important stakeholder in higher education. Their presence became a part of the academic community that determines the quality of higher education. tracer study is a research activity to perform searches periodically a higher education's graduates periodically so that it can produce results of the evaluation of higher education, career prospects, the ability of graduates and the needs of the user based on the opinions and the track record of the activities of graduates. [1] [2] Almost all higher education have tried to trace the data of graduates, but the results are still not satisfactory. They have done several ways to perform tracer study, among

other things, to distribute questionnaires by mail, e-mail, mailing lists, graduation, graduate meetings, and others. [3]. Meanwhile the paper questionnaire or telephone interview with the media is not efficient because it can not be efficient in cost and predicted that the questionnaire and the interview did not get to the intended target. [4].

One improvement efforts have been made by several universities, namely to build the E-Tracer study by utilizing electronic media, but in reality it has not been optimally until today. [5]. Common obstacles faced by these activities is the inhibition of data collection due to several things: the level of interest in the media graduates tend to be low, and affordability of tracer technology is still limited. The impact of this is less than optimal in data processing due to limited data availability. So we need a strategic effort to build a more effective media to capture and process data tracer study. Based on that, this study aimed at providing support for the system in the form Tracer Study portal-based social network.

2. Related Work

There are three concepts that will be applied in building a portal tracer study: interactive content, packaged in the form of a community, and involving securities data. Several similar studies have been conducted, among others [6] do the crawl data through a web-based GIS and mapping graduates are presented in tabular form or spatial intended for interested stakeholders both internal and external. Research [7] to produce web-based system tracer study incorporating updates alumni activities, and the online questionnaire. These features are intended to provide information about the graduates for the community and is also useful for the graduates themselves.

Research [8] focused on the application of clustering on the web mining techniques to gain skill grouping of university graduates seen from the historical work. More specifically regarding clustering, research [9] using Frequent Contextual Termset (FCT) to classify the document text consists of three datasets are datasets news, the dataset abstract, and the dataset results of a Web search by using the tools K-Means , Data mining tracer study by cluster has also been done on the study whereas [10] has a target performance of different knowledge.

Social network extraction deals with the extraction of online social networks from a wide variety of online resources. These resources include web documents, e-mail communication, Internet relay chats, web usage logs, event logs, instant messenger logs, online blogs etc. Social network extraction is beneficial for many Web mining and social network applications such as expert finding for research guidance, potential speakers and contributors for conferences, journals, workshops, product recommendation, targeted advertising etc. . To support the social [11] network approach, has done some web design technologies include research [12] can be adopted to present information in a web that is easily understood by the user with a web-based learning. The concept of learning can be adopted for the web site needs to have a character tracer study should be easily understood and operated by the user. Meanwhile, in the study [13] which generates personalized web design for academicians can be adopted to add some types of personalization features that fit the needs of the parent web tracer study for the purposes of data collection.

3. System Design

3.1 Roadmap of Master Framework

On the whole, this study aimed at providing support for the system in the form Tracer Study based multiplatform portal and web mining techniques to capture and process data in order to optimize graduates and with due regard to data security. Multiplatform implemented in the form of support graduates of data networking facilities built in two platforms: web and android so ensuring media access for graduates. While Web services technology is used to integrate data tracer between web and android platform. Web services provide ease of connecting information even from different technologies are realized in the form of XML messages operations that can be accessed in the network. [14] dan [15]. Then proceed with the processing and data mining using clustering web mining techniques. Clustering is a technique of grouping data into clusters based on certain parameters so that the generated objects in the same cluster have a high degree of similarity, or objects in different clusters have high dissimilarity. [10]. This research focuses on finding alumni and matching skill grouping occupations according to skill graduates.

The system design is built based on our previous work [12] and [13], but with several improvements. This is described as a road map toward a master's research portal integration tracer-based multiplatform system and web mining.

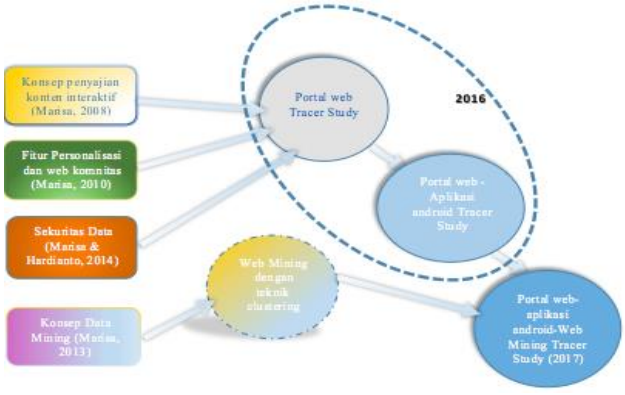

Figure 1: Roadmap of master Framework

Based parent roadmap in Figure 1, this study completed at the stage of application development web portal tracer-based social network that can be accessed in the web and android platform. It will use three concept : interactive content, packaged in the form of a community, and involving securities data.

3.2 Fishbode Diagram of Master Framework

Here is presented a draft design of the portal fishbone diagram tracer in Figure 2. Object of green indicate the focus of discussion in this study. The focus is the development of web systems tracer-based social network.

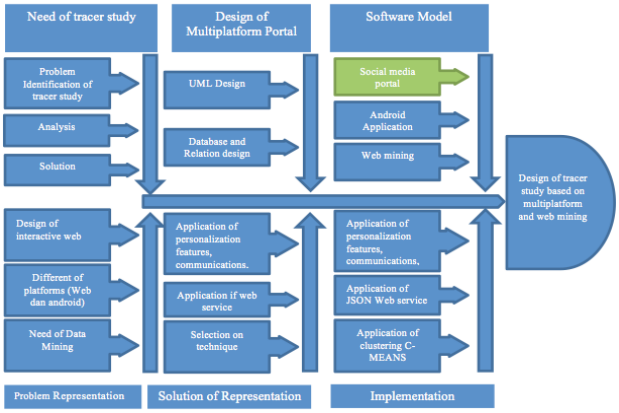

Figure 2: Fishbone Diagram

Fishbone diagram illustrates the involvement of the technology used in the interconnection between problems, solutions, and implementation.

3.3 Design of Features and Connectivity

Figure 3: Design of features and connectivity

The design features in Figure 3 is designed to realize the features in the portal. Each menu connected to each other. Interactive concept features accommodated by the "information" that there is a facility to share files, respond to comments, and post pictures. The concept of community accommodated by almost all post menu that facilitates the sharing of information and features "liker symbol". The concept of securities accommodated by email authentication on each user registration.

4. Result and Discussion

The draft contained coding programs implemented in PHP, MySQL, and some libraries in PHP. Development of a program to produce a prototype web published in temporary domain to test the system. The draft is still an initial framework and are still being developed to complement the features that have been compiled in the draft. Preliminary results of the implementation of the system is in the form of four essential modules namely the registration and user authentication, log in and log out, posting information, and reply between users. Some examples of already built can be seen in Figure 4, Figure 5, Figure 6, Figure 7, Figure 8, Figure 9, Figure 10, and Figure 11.

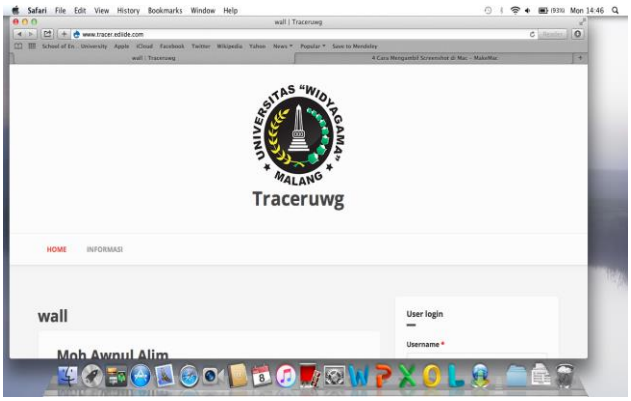

Figure 4 : Main Menu

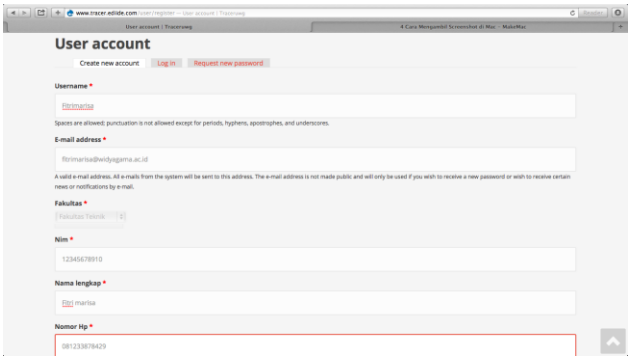

Figure 5: User Registration

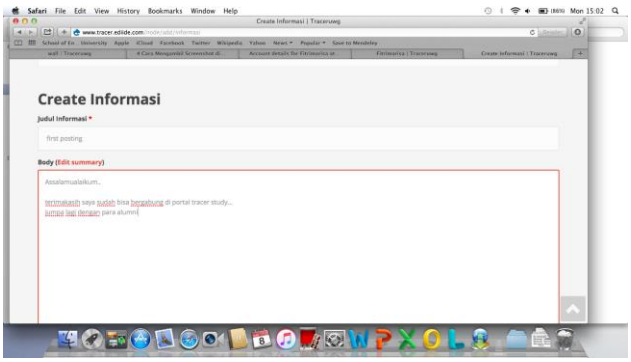

Figure 6: User Posting

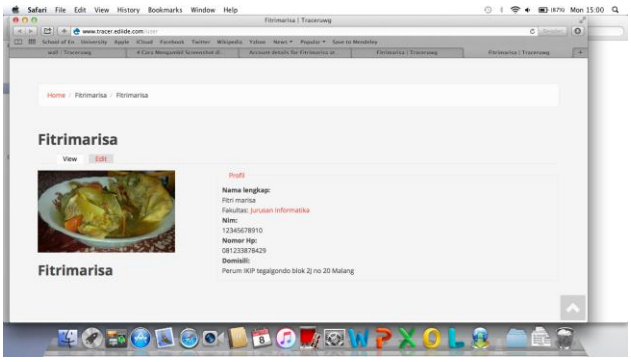

Figure 7 : User Profile

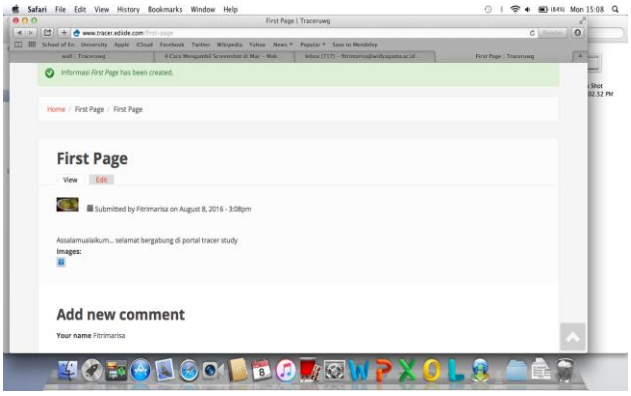

Figure 8: Result of User's Posting

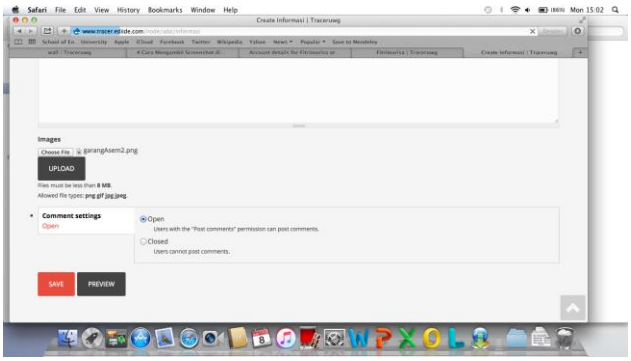

Figure 9: Upload file

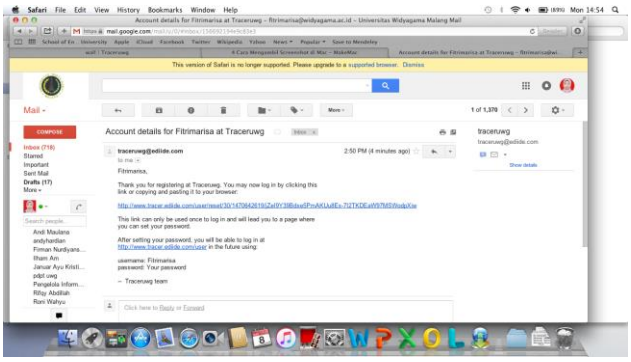

Figure 10: Email Autentication

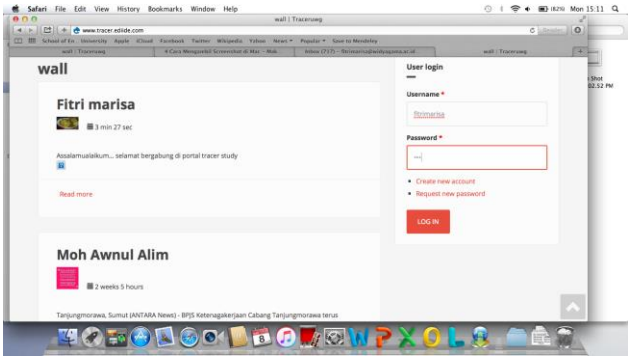

Figure 11: Log in and log out Features

5. Conclusion and Future Work

Development of a web-based system tracer study of social networks can be one of the effective methods to become media tracer because it allows the user to be interested in interacting with the system. Three were already applied the concept of interactive, community, and securities and to accommodate the needs and interests of the user in the system web tracer study. By implementing portal tracer-based social network that universities have the means to facilitate communication between alumni and alumni of the academics.

5.1 Future Work

Future work in this research is to improve the features of portal features, enhance tracer android based applications that match the needs of the data portal tracer study. Once the data generated in the portal optimally collected, the

next stage is the mining site tracer system with clustering techniques to generate the alumni groupings based on the skills that can be used as consideration in curriculum improvement.

Acknowledgement

Author would like to thank to the Indonesia Ministry of Research Technology and Higher Education that provide the grant to conduct the research.

References

[1] L. Suharti and F. P. Laksono, "Studi Penelusuran (Tracer Study) Terhadap Alumni Program Studi Manajemen Fakultas Ekonomika dan Bisnis Universitas Kristen Satya Wacana," in *PROCEEDING call for Paper Pekan Ilmiah Dosen FEB-UKSW*, 2012.

[2] P. Bouaduo and N. Ady, "Tracer Study As A Paradigm For The Enhancement Of Quality Course Programmes Devalopment in Higher Education Institutions in South Africa," 2009.

[3] S. Indriasari, "Sistem Informasi Berbasis Web untuk Membantu Kegiatan Tracer Studi Program Diploma Institut Pertanian Bogor," *Jurnal Sains Terapan*, vol. 2, no. II, p. 85, 2012.

[4] R. Chandra, R. and S. Ruhama, "Pengembangan E-Tracer Study pada Perguruan Tinggi," in *Konferensi Nasional Sistem Informasi 2014*, Makasar, 2014.

[5] Renny, R. Chandra, S. Ruhama and M. Sarjono, "Exploring Indonesian Web Based Career Center Discrepancy of Web Popularity and Type of Services," *UACEE International Journal of Advances in Computer Science and its Applications*, vol. 2, no. 3, pp. 212-216, 2013.

[6] Y. Kurniawan, "Sistem Informasi Gerografis Pemetaan Alumni pada Perguran Tinggi (Studi Kasus Universitas Ma Chung)," in *Seminar Nasional Ilmu Komputer (SNAIK 2013)*, Samarinda, 2013.

[7] G. Kartono and N. Hermanto, "Rancang Bangun Sistem Tracer Study Online pada STMIk AMIKOM Purwokerto," in *SEMANTIK 2013*, Purwokerto, 2013.

[8] N. A. A. Bakar, A. Mustapha and K. M. Nasir, "Clustering Analysis for Empowering Skills in Graduate Employability Model," *Aurtralian Journal of Basic and Applied Science*, vol. 7, no. 14, pp. 21-28, 2013.

[9] T. M. Akhriza, Y. MA and J. LI, "Text Clustering Using Frequent Contextual Termset," in *International Conference on Information Management, Innovation Management, and Industrial Engineering*, Shanghai, 2011.

[10] C. L. Simbolon, N. Kusumastuti and B. Irawan, "Clustering Lulusan Mahasiswa Matematika FMIPA Untan Pontianak Menggunakan Algoritma Fuzzy C-Means," *BIMASTER*, vol. 2, no. 1, pp. 21-26, 2013.

[11] T. Arif, r. Ali and M. Asger, "Social Network Extraction: A Review of Automattic," *International Journal of Computer Application*, vol. 95, no. 1, p. 1, 2014.

[12] F. Marisa, "Pengembangan Web Based Learning dalam Matakuliah Algoritma Pemrograman 1 di STMIK Pradnya Paramita Malang," *JITIKA*, vol. 3, no. 1, pp. 13-18, 2008.

[13] F. Marisa, "Desain Web Personal Sebagai Sarana Penyampaian Informasi bagi Sivitas Akademika STMIK Pradnya Paramita," *Journal Teknologi Informasi*, vol. 1, no. 1, p. 13, 2010.

[14] D. S. Purnamasari, "Web Service Sebagai Solusi Integrasi Data Pada Sistem Informasi Akademik Universitas Bina Darma," Universitas Bina Darma, Palembang, 2008.

[15] A. D. Laksito, "Implementasi Web Service pada Aplikasi Pengisian Kartu Rencana Studi Mahasiswa," STMIK AMIKOM, Yogyakarta, 2012.