

## The Development and Usability of an Enhanced Job Vacancy Finder Using a Mapping Mechanism

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### Abstract:

*There are a lot of job vacancy finders existing today on the Internet. Using the existing concepts of these job vacancy finders, the researchers created a way to enhance by including an interactive map in the site. The enhanced job vacancy finder's main objective is to give every job seeker a view of the geographic location of the company that the seeker is interested to with the use of the given map. The researcher was able to make use of the Google Maps API's for the development and implementation of this study. The researcher conducted a functionality test in a form of checklist and a usability test in a form of questionnaire. With the tests conducted, results show that the enhanced job vacancy finder is functional and provides a geographical view of locations of the jobs. Result of usability test shows that 50% of the users agree that the system is usable, the other 50% contributes to neutral and disagree. This is because others may still want to explore more with the system. Since the basic functionalities and mapping mechanism of the system was achieved, the system can be used to help job seekers in their quest for a job. It is recommended that another study may be conducted for a rigid usability test.*

**Key words:** Online Map Job Portal, Online Job Mapping, Web Job Mapping, Online Job Application, Online Job

## **1. Introduction**

Society today is very preoccupied with technology innovations to improve the way of life. Everybody relies on the Internet when in need of information, entertainment, socialization, education, advertisement and many more. People want everything to be made easier.

For how many years, the continuous development of web portals had been of great help for people around the globe. The Internet had changed the way of disseminating information regarding different things. Compared to the original Internet search engines, Internet portals offer a more structured, navigable interface. Browsing an organized hierarchy of categories developed by people who scoured the Internet for relevant and useful websites is more effective than issuing a keyword search against the entire Web. A job portal is a site that provides great benefit to people for their businesses. For job seekers, it also provides content and application functionality in a way that is both useful and meaningful to the end users. As stated by Gifford Watkins in [www.atlanticwebfitters.ca](http://www.atlanticwebfitters.ca), "Job portal is the most popular and widely used recruitment tool nowadays. It allows seeker to search for a position and for companies. It serves as a selling tool to attract talent and expertise of an employee."

Now, one of those challenging undertakings of an individual is finding a job in line with one's preference, like the location of the establishment. However, the world is really keen on innovation. The shift from the times where one has to be in a certain place to make job inquiries or even join job fairs to attain employment is evident. Today, one can almost do everything online.

Job portals that facilitate job hunting range from large scale generalist sites to niche job boards for job categories such as engineering, legalities, insurance, social work, teaching, mobile application development, including cross-sector

categories such as green jobs, ethical jobs, and seasonal jobs. Users can typically deposit their résumés and submit them to potential employers and recruiters for review, while employers and recruiters can post job advertisements and search for potential employees.

Job Portals have changed the methodology of recruitment and job-search, making it easier for companies and professionals to interact and avail the best of opportunities. Thus more and more employers & recruitment agencies today are dependent more on the Job Portal Database & Tools for acquiring the right talent while the number of Job-Seekers turning to this online means as opposed to other methods is also increasing exponentially. Having been in this field for a significant time, we have undertaken the requisites of such Job Portals and the Job Website Development. (aumentoglobal.com) Since there are already existing job portals, this research study focuses only on developing an enhanced job vacancy finder that would help people find job vacancies easier in terms of finding specific locations through the mapping scheme. This study also focuses its implementation in the city of Cagayan de Oro.

## **2. Statement of the Problem**

According to the results of the interview conducted by the researchers, the difficulty in job hunting is to find the location of an establishment or company. Since some existing employment websites today usually provides a textual description of the establishment's address only, applicants who are not familiar with the place would find it difficult to find the establishment's location.

### 3. The Research Objectives

#### 3.1 General Objective

The main objective of this study is to develop an enhanced job vacancy finder using a mapping mechanism.

#### 3.2 Specific Objectives. Specifically this study aims to

1. design a web-based enhanced job vacancy finder using a mapping mechanism to view a clearer picture of the company's location.
2. implement an enhanced job vacancy finder that would allow a job seeker to find job postings based on his preference, skills or location.
3. test the functionality and usability of the system.

### 4. Methodology

#### 4.1 Design Guide for the Enhance Job Vacancy Finder.

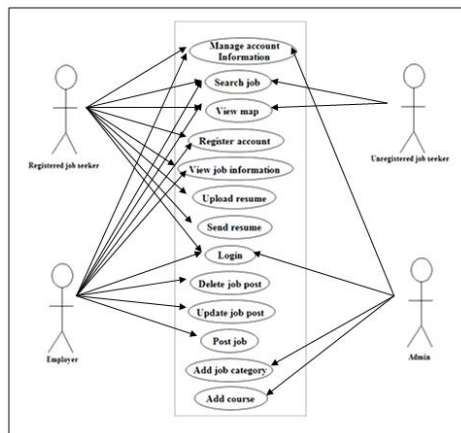


Figure 1: Use-case diagram for Enhanced Job Vacancy Finder

Figure 1 shows the utilization of Unified Modeling Language(UML) use-case diagram. UML Use Case Diagrams can be used to describe the functionality of a system in a horizontal way. That is, rather than merely representing the details of individual features of your system, UML Use-Case



search criteria offered by the site for the job seeker to categorically search a job in accordance to the job seeker's preferences. These four search criteria are the following: search by keyword (K), search by location (L), search by job category (C), and search by job position (P). Case values represent the criteria in searching. For example, case value 10 has the binary value of 1010. The first occurrence of value 1 is in column Keyword. The next occurrence of value 1 is in the column Category. The system response to the search criteria of the job seeker will be search the database given the *keyword* and the *category* specified by the job seeker.

### 4.3 Enhanced Job Vacancy Finder System Implementation

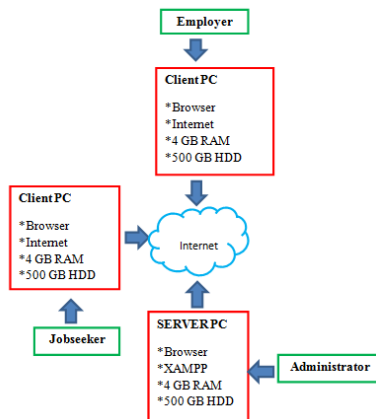


Figure 2 System Architecture

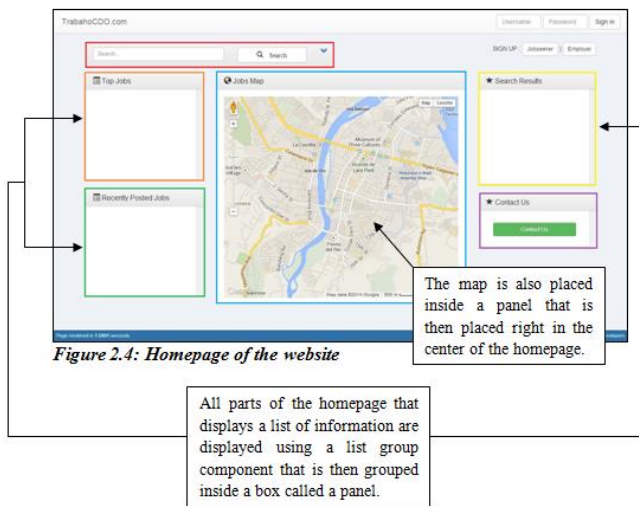
Figure 2 graphically shows the units that are needed by the users when using the site. The Employer and the Job Seeker will only need a client PC that is connected to the internet. The Administrator will need a server pc in order to managed accounts both for client and employer. The jobseeker and employer client pc needs only a computer that has browser while the server pc needs both the browser and software XAMPP. This software XAMPP is a software that handles the execution of MySQL database and the Php programming

language. The programming languages used in the implementation of this study were PHP, Ajax and Javascript.

#### 4.4 Testing

The researchers used the two type of testing. These are the functionality testing and the usability testing. Functional testing is a type of testing that bases its test cases on the specifications of the software component under test. Functions are tested by feeding them input and examining the output. (en.wikipedia.org/wiki/Functional\_testing). The researchers listed down every function that each user of the site is allowed to do. These functions are then recorded to know how functional the site is. Usability testing is a technique used in user-centered interaction design to evaluate a product by testing it on users. (en.wikipedia.org/wiki/Usability\_testing).

#### 4.5 Graphical User Interface Design



**Figure 3 Enhanced Job Vacancy Finder Homepage**

Figure 3 shows the enhanced job vacancy finder's homepage that contains panels, list groups, text fields, buttons, and dropdown menus. Each component is dependent to other

components for the site to function well. The homepage of the site, by design, gives any user a hint of what the site can do.

## 5. Results and Discussions

### 5.1 Preliminary Data Entry

#### a. Jobseeker's Registration Form

Figure 4 shows the registration form that the job seeker needs to fill-out in order to create an account in the site. This information is important in the job-matching feature of the site. The data used for job-matching are those specified by jobseeker's course and skills.

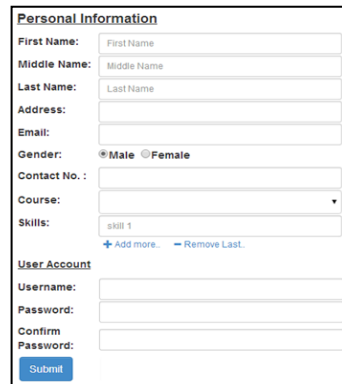


Figure 4: Job Seeker Registration Form

#### b. Employer Registration Form

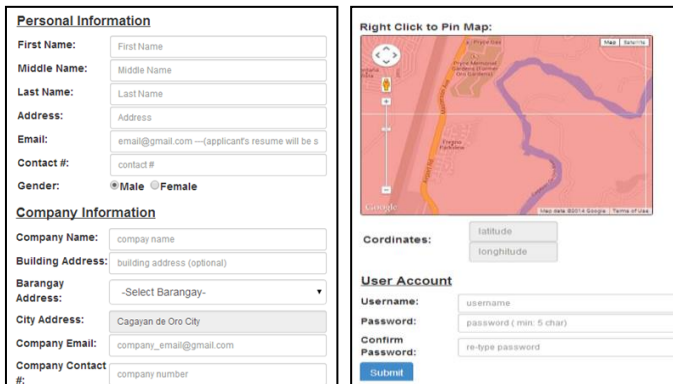


Figure 5: Employer's Registration Form

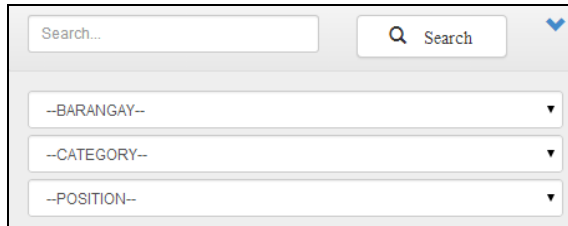
Figure 5 shows the registration form for the employer. The employer needs to provide basic information such as owner's/manager's personal data. Company information is also important specifically about its address and its location in the



map. Once the employer specifies its address, a map is limited only in the barangay area.

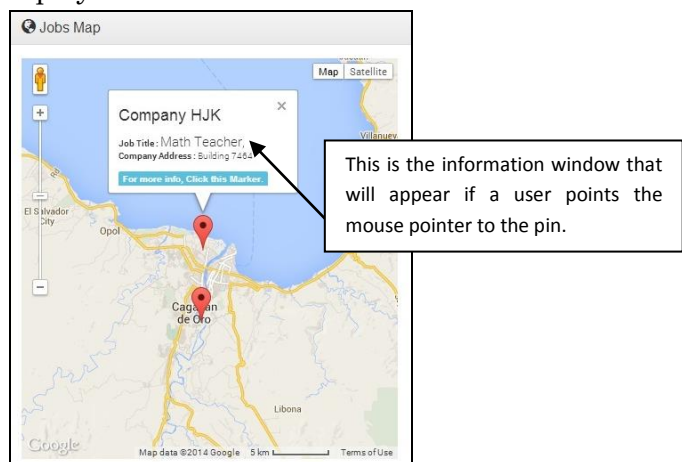
## 5.2 Search Results

### 5.2.1 The Search Bar



**Figure 6: The Search Bar**

Figure 6 shows the search bar. This interface lets the job seeker specify search preferences. These preferences are search by keyword, by barangay, by category, and by position. The search by keyword can be entered in the through the textbox labeled “Search”. The other preferences such as barangay, category and position can also be selected. The content of the “Barangay” drop down box are static data based in the listing of barangays in Cagayan de Oro City. The content of “Category” and “Position” combo box are the data extracted from the data provided by the employer.



**Figure 7: Sample Search result**

Figure 7 shows a sample display of search results. Once the jobseeker hover the mouse to a flag, the basic information of a company will be displayed. This display also has the capacity to zoom in locations.

## 5.3 Functionality and Usability Test Result

### 5.3.1 Functionality testing

The researchers listed down every function that each user of the site is allowed to do. These functions are then recorded to know how functional the site is.

#### a. Administrator

**Table 2: List of functional and non-functional administrator functions**

	Functional	Non-Functional
1. Can login	✓	
2. Can create new category	✓	
3. Can update category	✓	
4. Can delete category		✓
5. Can create new course	✓	
6. Can update course	✓	
7. Can delete course		✓
8. Can confirm an employer	✓	
9. Can reject an employer	✓	
10. Can update profile	✓	
11. Can update account	✓	
12. Can receive feedbacks via email	✓	

Table 2 shows a list of functions that an administrator can and cannot do. This table reflects the results of the functionality test that the researchers did.

## **b. Employer**

**Table 3: List of functional and non-functional employer functions**

	<b>Functional</b>	<b>Non-Functional</b>
1. Can create an employer account	✓	
2. Can login	✓	
3. Can create new job posts	✓	
4. Can update job posts	✓	
5. Can delete job posts	✓	
6. Can update personal profile	✓	
7. Can update company profile	✓	
8. Can update account	✓	
9. Can send feedbacks to administrator	✓	

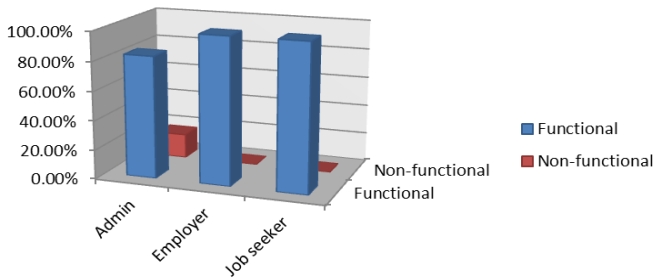
Table 3 shows a list of functions that an employer can do. This table reflects the results of the functionality test that the researchers did.

## **c. Job seeker**

**Table 4: List of functional and non-functional job seeker functions**

	<b>Functional</b>	<b>Non-Functional</b>
1. Can create a personal account	✓	
2. Can login	✓	
3. Can search jobs by job category	✓	
4. Can search jobs by job position	✓	
5. Can search jobs by company location	✓	
6. Can view site top jobs	✓	
7. Can view suggested jobs based on skills	✓	
8. Can upload resume	✓	
9. Can send resume	✓	
10. Can update profile	✓	
11. Can update account	✓	
12. Can send feedbacks to administrator via email	✓	

Table 4 shows a list of functions that a job seeker can do. This table reflects the results of the functionality test that the researchers did.



**Figure 8: Summary results of the functionality test**

Figure 8 summarizes the results of the functionality test that had been conducted by the researchers. Most of the functions, based on the results of the test, are functional, and only a little percentage of functions are non-functional.

### 5.3.2 Usability testing

**Table 5: Usability Test Evaluation Form and Result**

Questions	1	2	3
1. The visual design of the website is pleasant.	0%	30%	70%
2. I find the site user-friendly.	30%	50%	20%
3. Job posting and job searching isn't time consuming.	0%	30%	70%
4. Job posting and job searching is cost effective.	100%	0%	0%
5. It was easy enough to find the information I needed.	80%	10%	10%
6. The site is helpful.	60%	40%	0%
7. The presentation of the information is clear.	50%	40%	10%
8. The site, with proper optimization and more enhancements can clearly compete with other job portals existing today.	80%	20%	0%
9. In the future, I can possibly use this website.	70%	30%	0%
10. I am satisfied with this website.	30%	60%	10%
<b>Average Result</b>	<b>50%</b>	<b>31%</b>	<b>19%</b>

1 – Agree

2 – Neutral

3 – Disagree

Table 5 shows the evaluation form and the result of the usability test. The respondents for the usability test were given first an orientation about the system. And after the basic

orientation, the usability testing evaluation form was given to the user and let them rate the site's usability. Results shows that the 50% of the user agree to the usability of the system, 31% were still neutral maybe they still wanted to explore more with the system and 19% rated the usability of the system. Reasons maybe because of their background about the use of computer and the Internet itself.

## **6 Conclusions and Recommendations**

### **6.1 Conclusions**

The overall purpose of the enhanced job vacancy finder is to provide a visual presentation of current job posting for the job seekers. This job posting can be searched through typing a keyword, selecting a location or barangay, selecting a category of an establishment they wanted to apply or more importantly selecting by positions. A flag or balloon was displayed once there is a match to the search criteria provided by the jobseeker.

The design of the enhanced job vacancy finder was achieved through the utilization of UML Use case diagram, database design, and the use of binary logic concept. The design was able to guide the researcher in the implementation of their study. The screenshots provided in the results and discussion shows the success of the implementation of the study. The enhanced job vacancy finder homepage as shown in Figure 2.3 contains panels and sections that would provide information for the jobseeker together with the mapping mechanism. The display of the collections of flags in the map section for a list of job posting will provide jobseekers an idea and a help on the different locations of the establishment that he/she wanted to apply. The hurdle in the development is on the capture of the different criteria that a jobseeker would want to search. The larger the value of the cases means to capture a more specific preference of a jobseeker.

Functionality test also shows that most of the expected task for a jobseeker, administrator and company was achieved. And the result of usability test shows that 50% of the users agree that the system is usable. Though 31% of the users selected neutral because of the reason that they may want to explore more on the system given a longer amount of time. 19% of the user opted to disagree. Factors to consider in this context are their respective background in the use of computer and Internet itself.

## **6.2 Recommendations**

The system works like a typical job finder except that the system was enhanced through a mapping mechanism technique. The following recommendations are suggested as possible ways to improve this study:

1. The system focuses only on Cagayan de Oro City, which is only a limited area. The researchers recommend that the system should not only cover Cagayan de Oro City. But may create a framework for a Job Vacancy Finder with Mapping Mechanism.
2. To fully make the system reliable, the researchers recommend that the system, if possible, should connect to a specific government or business organization to assess the legitimacy of the company's given information.

## **BIBLIOGRAPHY**

Dixon, Pam. "The World Privacy Forum 2003 Job Search Privacy Study". Job Searching in the Networked Environment: Consumer Privacy Benchmarks, November 11, 2003, Online, December 12, 2013. <http://www.worldprivacyforum.org/2003/11/report-2003-job-search-privacy-study/>

- Heywood, Rus, “UML Use Case Diagrams: Tips and FAQ”, nd, <http://www.andrew.cmu.edu/course/90-754/umlucdfaq.html>
- Moon, William J. *Issues in Political Economy. The Dynamics of Internet Recruiting: An Economic Analysis*. Vol. 16. August 2007.
- Nivala, Anu-Maaria., Brewster, Stephen and Sarjakoski, Tina L. “Development of a Job Web Portal to capture industry’s needs by the University of Malaya”. Vol. 45 No. 2 pp. 129–138 Use and Users, Special Issue 2008
- Sharma, Vinky. “Impact of E-Recruitment on human resources supply chain management: An Empirical Investigation of service industry in Indian context”.
- Tambot, Kathrina Sison. “Job Portal for Don Mariano Marcos Memorial State University”.
- Werbel, James D., Song, Lyndia Song and Yan, Shifu. “The influence of external recruitment practices on Job search practices across domestic labor markets: a comparison of the United States and China”. International Journal of selection and assessment. Vol.16. 2, p. 93-101. 2008.