

# SMS Gateway Based Vacancy of Work Vocation Information System on Pamekasan Region

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## ABSTRACT

The increased growth of the society in Pamekasan from year to year is directly proportional to the number of job seekers increase continuously. A large number of job seekers is not only due to the inadequate number of jobs, but also because of the slow and precise job information to the proper parties (the people who need jobs). Disnakertrans as an institution formed by the Government has made several attempts to minimize the number of job seekers, but until now the result obtained are not optimal, because there is no system that can accommodate the needs of both parties (providers and job seekers). Therefore, the research aims to create a website that accommodates data vacancies and job seekers. Later, the data is automatically going through the process of weighting by means of the Simple Additive Weighting, this method is expected to optimize the selection of a job based on the latest education, gender, and age that has been mentioned by job seekers when registering. Once the selection process is complete, the job information is sent via SMS Gateway to job seekers. This SMS will send the job information suitable with the number of job seekers who have posted on the website.

**Keywords:** job vacancy, Simple Additive Weighting (SAW), SMS Gateway

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## 1. Main text

Work is an activity of doing something with the aim of getting a reward or reward in the form of money or goods. The reward is what ultimately humans use to fulfill their daily needs. Each job has its own qualifications to determine who can enter it. Pamekasan is one of the regencies in East Java with an area of 792.24 km<sup>2</sup> and a population of 851,215 people consisting of 13 districts, 189 villages, and 178 villages [1]. Similar to other districts, Pamekasan also has various types of jobs, ranging from small industries to large companies. But not all people are able to enter the available employment. The Pamekasan Regency Manpower Office recorded that in 2011 there were 501 job seekers, in 2012 there were 690 job seekers, and in 2013 there were 3249 job seekers. This data shows quite a large number of job seekers that continue to grow from year to year.

One of the reasons for the difficulty of someone getting a job is because it is difficult to bring together job seekers with available job openings. That is because information about job vacancies is not fully received by job seekers [2]. In this case mistakes are not only made by the giver or recipient of the information, but can also be caused by the absence of an easy and affordable information distribution channel for both parties.

The social service for labor and transmigration (DISNAKERTRANS) as an institution formed by the government has a pretty heavy task in solving the unemployment problem. Some work programs that have been run by the Manpower Office to reduce the number of unemployed people are providing free training to the community, as well as collecting job seekers' data using a yellow card. However, not all government programs provide optimal results, because it is proven that every year the number of job seekers continues to grow.

To solve this problem, the authors offer a solution in the form of the use of technology that has evolved to channel information from job providers to job seekers. This technology is a website that is connected to the SMS Gateway facility. It is hoped that job vacancy information will arrive at job seekers easily, quickly, and precisely because it has gone through a selection process taken from the data of each job seeker.

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## 2. Literature Review

My Structure Query Language(MySql) is an Open Source Relational database management system (DBMS) that is available as free software under the General Public License (GPL). The database structure is stored in related tables. Because of its open source nature, MySql can be used and distributed both for individual and corporate interests free of charge, without requiring a license from the manufacturer. Mysql can be run on a

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variety of operating system platforms including Windows, Linux, Unix, Sun OS and others. MySQL consists of two parts, namely Server and Client. To be able to use MySQL, mysql server is first run. To run mysql server depends on the mysql operating system platform being installed. For example in Windows c: \ apache \ bin \ mysqld, while in linux / etc / rc.d/init.d/mysqld. After MySQL Server is run, the mysql client program is needed to administer the mysql server, among others, creating databases, creating tables, and others [6].

PHP stands for "Hypertext Preprocessor". PHP is a scripting programming language that is placed and processed on the server. The results of the process are sent to the client, using a browser. In terms of understanding, PHP is the easiest scripting language because it has many references. PHP has 8 data types, namely boolean, integer, float / double, string, array, object, resource, and null.

The word XAMPP actually has a meaning in each letter. Like the letter X which symbolizes that this program can be run on many operating systems, such as Windows, Linux, Mac OS, and Solaris. A comes from the word Apache which functions to produce the correct web pages to users based on PHP code written by the web page creator. Apache is open source, meaning that anyone can use, take, and even change the program code. Currently the latest version of Apache is ver 2.2.41. The third and fourth letters, M and P, are derived from the words MySQL and PHP (the explanation has been explained in the previous section). The last P is an abbreviation of Perl and is a programming language that was first developed by Larry Wall. The advantage of using XAMPP is to only install once it is available and several other modules [8].

At first the Web was the information space on the internet, using hypertext technology the user was then guided to be able to find information by following the links provided in the Web document displayed by the browser. Today the internet is synonymous with the web, because it turns out that the web is able to spur the development of the internet so that with its popularity the web then becomes the standard interface for services available on the internet, from the start which was only as a provider of information until now can be used for communication such as E-mail and chatting and being able to conduct business transactions (E-Commerce), following polls, reading news and connecting to databases [9].

The SAW method is often also known as the weighted sum method. The basic concept of the SAW method is to find a weighted sum of the performance ratings for each alternative on all attributes. The SAW method requires the decision matrix normalization process (X) to a scale that can be compared with all available alternative ratings [4].

The steps in weighting with this method are as follows:

- Step 1 (Giving Criteria Weights)
- Step 2 (Weighing sub-criteria)
- Step 3 (Alternative Descriptions of each Criteria)
- Step 4 (Calculating Rating Value)

SMS Gateway is a device that offers messaging services to cellular networks from other media, or vice versa, making it possible to send or receive messages using a cell phone. An SMS Gateway system, generally consists of hardware components (servers / computers equipped with network devices) and software (applications used for message processing). And for a large system generally can use a database for data storage [10].

GNU All Mobile Management Utilities (GAMMU) is an application that can be used to manage various functions of mobile phones, modems and similar devices. GAMMU SMS Gateway is useful and very easy for us to send SMS in large quantities through a computer. Examples of applications that can be used as senders of Bulk SMS, SMS Polling, SMS Auto Reply, SMS on Demand, SMS Scheduler, and so forth.

The advantage of this API is that it allows an application with other applications to interact and interact. The programming language used by Google Maps which consists of HTML, Javascript, makes it possible to display Google Maps maps on other websites. In order for the Google Maps application to appear on certain websites, an API key is required. API key is a unique code generated by Google for a particular website, so that the Google Maps server can recognize [11].

### 3. Methods

Currently the Pamekasan Regency Manpower and Transmigration Office has used a website in the process of disseminating information on job vacancies as well as on jobseekers' data collection. But the website is not a special website for the people of Pamekasan Regency. This website is formed by the Department of Manpower and Transmigration (Depnakertrans) of East Java Province. The resulting output is not job search data in detail. But only limited to seeing the number of job seekers registered on the website. While complete job seeker's self data is only stored on a yellow card which certainly has a greater risk of insecurity in the storage and processing of data. The new system offered does not change the workflow too much that has been used by the Manpower Office. It is hoped that all parties concerned can use it easily. The new system flow that will be used can be seen in Figure.1

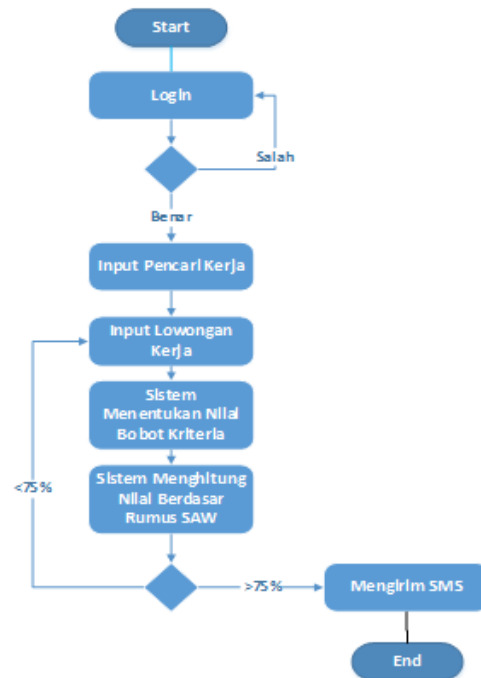


Figure 1. System flowchart

## 4. Implementtion

On the homepage all jobs that have been accommodated by the system will be displayed (vacancies that have been entered by the admin). On the start page, only information relating to the occupation, type of job vacancies, and the final time of registration will be displayed for those interested in registering for the vacancy. To see more detailed information, regarding the vacancies desired, system users only need to "click" details on the far right. The page views can be seen in Figure. 2

No	Jabatan	Lokasi	Akhir Pendaftaran	Detail
1	Kontributor Teknik Sipil	Programmer	2015-03-14	Detail
2	Property	Accounting Staff	2015-03-01	Detail
3	Pendidikan	Programmer	2015-03-01	Detail
4	Sistem Pemasaran	Administrasi	2015-03-01	Detail
5	Customer Service	Marketing Executive	2015-03-01	Detail
6	Pendidikan	Kontribusi Pemasaran	2015-03-01	Detail
7	Pendidikan	HRD Manager	2015-03-01	Detail
8	Desain	Kasir	2015-03-20	Detail
9	Elaborasi	Pelanggan Service	2015-03-14	Detail
10	Teknik	Kasir	2015-11-01	Detail

Figure.2 Homepage

To be able to get job information easily and quickly, job seekers must first register with this system. The data fields consist of ID card number (must be Pamekasan Regency ID), name, username, password, place of birth, date of birth, address, gender, cellphone number, last education, study program, and priority (the job sought). The appearance of the job search registration form page can be seen in Figure. 3.

Figure.3 Register Form

Adding work page works if the admin wants to add new job openings. Data that needs to be entered on this page consists of company name, occupation, job vacancies, recent education, majors, gender, maximum age, other information, and also the end of registration. However, please be aware that companies who want to disseminate job information through this system must be registered with the system. If the company is not yet registered, then the vacancy from that company also cannot be entered. Page views added to vacancies can be seen in Figure .4

Figure.4 Adding work page

In the process of weighting through the SAW method it takes several steps to produce the desired value. The stages are as follows:

Step 1 (Giving Criteria Weights)

Table 1 Criteria Weights

Criteria	Weight	
C1	Education	*
C2	Gender	*
C3	Age	*

\* = Weight value depends on determining job seeker's priority (50, 25, 25)

Step 2 (Weighing the sub-criteria)

L = Input job opening data

P = Input job seeker data

Table .2 Values of Educational Sub-Criteria

Sub-Criteria	Weight	
Education (P)	PL > PP	0
	PL < PP	50
	PL = PP	100

Table .3 Values of Sub-Criteria Gender

Sub-Criteria	Weight	
Gender (JK)	JKL > JKP	0
	JKL < JKP	0
	JKL = JKP	100

Table .4 Nilai Sub-Criteria Ages

Sub-Criteria	Weight	
Ages	AgeL > AgesP	100
	AgesL = AgesP	50
	AgesL < AgesP	0

Step 3 (Alternative Descriptions of each Criteria)

Alternative 1 = Contains the lowest value

Alternative 2 = Contains input values (X)

Alternative 3 = Contains the highest value

To use predetermined values, we must compare the data of job seekers and job openings. From the two data above, the following calculations can be made:

Table .5 First alternative value

Criteria	Alternative		
	lowest	X	Highest
C1	PL > PP	PL < PP	PL = PP
C2	JKL > JKP	JKL = JKP	JKL = JKP
C3	AgesL < Ages P	AgesL > Ages P	AgesL = AgesP

Table 6 Second alternative value

	C1	C2	C3
Low	0	0	0
X	50	100	100
High	100	100	100

Step 5 (Multiled matrix (R) with weight (W))

If the highest priority on education :

$$V1 = (0 \times 50) + (0 \times 25) + (0 \times 25) = 0$$

$$V2 = (0.5 \times 50) + (1 \times 25) + (1 \times 25) = 75$$

$$V3 = (1 \times 50) + (1 \times 25) + (1 \times 25) = 100$$

If the highest priority on gender:

$$V1 = (0 \times 25) + (0 \times 50) + (0 \times 25) = 0$$

$$V2 = (0.5 \times 25) + (1 \times 50) + (1 \times 25) = 87.5$$

$$V3 = (1 \times 25) + (1 \times 50) + (1 \times 25) = 100$$

If the highest priority on ages:

$$V1 = (0 \times 25) + (0 \times 25) + (0 \times 50) = 0$$

$$V2 = (0.5 \times 25) + (1 \times 25) + (1 \times 50) = 87.5$$

$$V3 = (1 \times 25) + (1 \times 25) + (1 \times 50) = 100$$

## 5. Conclusion

The increasing number of job seekers in Pamekasan Regency is not only due to the lack of job vacancies, in this case the lack of information dissemination also still has a significant role. The absence of a system that is able to optimally reach the needs of recipients and job providers makes the writer conduct research in this field. Author builds a system as a media channeling job information that will automatically select vacancies according to personal data and the ability of job seekers. In addition, this system is also directly connected to the SMS Gateway application so that it is hoped that it will later simplify and minimize the need for time and energy for the parties concerned. System works when the first time a job

seeker registers on the website, if after that there is a vacancy entered by the admin, then the selection process will begin and only job seekers who qualify for the vacancy will receive an SMS. This SMS can also play a two-way role, because job seekers can not only get SMS, but can also send SMS that will enter on the website and managed by the admin. The contents of the SMS can be in the form of notifications to stop (out) from the list of job seekers, or it can also contain criticisms and suggestions for the system used or for the Pamekasan District Manpower and Transmigration Office

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