4th ICITB

DESIGNING MOBILE-BASED DECISION SUPPORT SYSTEM FOR DETERMINING POLICE OFFICE LOCATIONS USING FORWARD CHAINING METHOD

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ABSTRACT

A number of people are recently increasing so that some places are needed to be built and used for them. One of the needed places is the police headquarter. The police headquarter is the social facility used to improve the security in the social life. The police headquarter is recently accessible so that the crime rates in the certain region are reduced. The other factors determining the feasibility of the locations to build the police headquarter are a number of people, a level of high vulnerability, a number of schools, the ethnic groups, the new regions, and the inter-provincial passing area. The problem statement of this research was that the police headquarter locations were not well-distributed. To solve this problem, the mobile-based decision support system was built by using the forward chaining method for determining the police headquarter location. This system consisted of 16 criteria that helped provide feasibility to establish the police headquarter. The criteria were safe and rarely-conflict, highly potential for conflicts, highly public order insecurity, highly public order security, inter-provincial passing area, non-interprovincial passing area, recent established regions, non-recent established regions, the number of people around 3000, the number of people under 3000, the number of schools over 10 schools, the number of schools under 10 schools, the number of social community over 50 people, the rarely number of social organizations, the number of ethnic groups reaching 20-40, and the number of ethnic groups under 20-40. The result of this research showed that this system was able to facilitate the police to determine the police headquarter locations using the rule so that the decision was created whether the police headquarter was able to be established in certain districts and beneficial for the people.

Keywords: **Decision Support System, Forward Chaining, Mobile**

I. INTRODUCTION

The more the number of people, the greater the place to meet the needs of the community, one of which is the Police Station which is to increase the sense of security in living in a community. With the presence of a police station, residents will feel safe and the security of the area is also more secure.

The level of crime is quite high, making police stations needed in every area especially in big cities. Thuggery, mugging, pickpocketing in several regions are increasingly prevalent. And there are also some of the biggest cases, among others, the breakdown which leads to the loss of one's life. With the presence of police stations in areas that are easily accessible, can reduce crime rates in the region.

The area and facilities as well as the distance of the police station area are sometimes one of the obstacles which cannot be established by the police station, where the police station is important for enhancing security and security for the local residents. In addition there are many other factors that determine the feasibility of a place for the establishment of a police station.

The several factors that determine the feasibility of establishing a police station are close to settlements, vulnerable areas, have adequate road access and are located in areas that have a population of 3000 people. All of these conditions make it easier for the public to report criminal actions or simply report the loss of valuables.

1.2 Scope of Research

a. criteria for determining a proper location set up police stations in the area of bandar lampung and surrounding areas.
b. how much is the appropriate place to set up the police station with an area of.
c. an ideal range to set up a police station.

II. LITERATURE REVIEW

2.1 decision Support System

Concept of a decision support system (DSS) first raised in the early 1970 by Michael Scott Mortondengan term Management Decision System. The system is a computer-based system that is indicated to aid decision makers by making use of the data and the specific model to solve a variety of problems that are not structured.

2. 2 System

Understanding the system according to some experts, according to Tata Sutabri (2012:6) in the book the analysis of information system, basically the system is a group of elements that closely with one another, which works together to achieve goals certain.

Furthermore, according to McLeod quoted by Jacob in the book Introduction to information systems (2012:1) extended the system is a group of elements that is integrated with a common purpose to achieve the goal.

2.3 Forward Chaining

Forward Chaining is a method or technique of tracking searches forward starting with the information and the incorporation of rule to generate a conclusion or goal. (Russell Norvig, p. S, 2003). Advanced tracking is very good if it works with problems that started with the recording of the initial information and wants to achieve a final settlement, because the whole process will be done sequentially. Here is a diagram of the Forward Chaining in General to produce a goal.

Example:

There are 10 rules that are stored in the knowledge base are:

R1: if A and B then C
R2: if C then D
R3: if A and E then F
R4: if A then G
R5: if F and G then D
R6: if G and E then H
R7: if C and H then I
R8: if I and A then J
Rohrbaugh R9: if G then J
R10: if J then K
The initial facts provided only A and E, want to prove whether the K-value is true. Forward chaining reasoning process is shown in the image below:

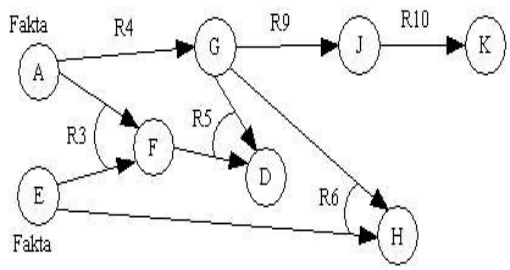

Figure 1 Flow of Forward Chaining

2.4 Police station
According to the great dictionary of bahasa indonesia (KBBI) Police Office is the Office of Police Affairs worked on the spot. All the Affairs of the police as criminal affairs, handle things that make Community fret, memperoses perpetrators of crimes, where to report all forms of harmful actions that have been in ataur in Act 1945.

2.5 Mobile
According to Imam Mulhim (2014), a Mobile can be interpreted as an easy transfer from one place to the other, for example terminal means that mobile phone phone that can switch easily from one place to another without going termination or disconnection of communication. Mobile application system is an application that can be used even though the user move easily from one place to another without termination or disconnection of communication. This application can be accessed through wireless devices such as pagers, such as cell phones and PDAS.

2.6 Method Protoype models
Pressman (2012), stating that the prototype model is an effective method in designing software. Prototype model begins with a gather needs. Developers and customers to meet and define the whole object of the software, identify all the known needs and then do "Flash design". Flash design focuses on the representation of aspects of the software that will be visible to the customers or the user (e.g., the approach of the input and output format). Design of lightning led to the construction of a prototype.

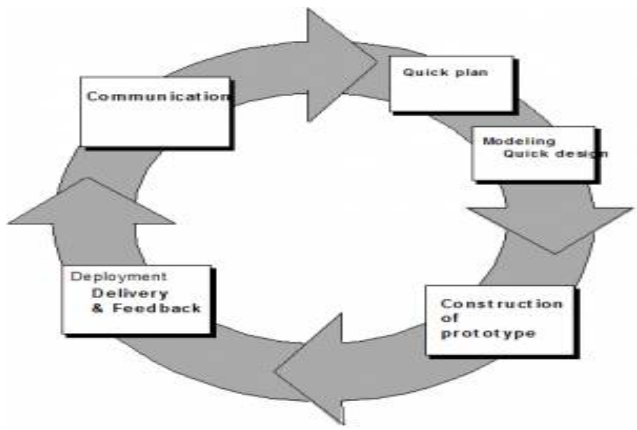

Figure 2 Prototype Model. According to Roger s. Pressman, Ph.d. Edition 7 (2012)

The fifth iteration of this process continues until all requirements are met. Prototype-prototype created to satisfy the needs of clients and to build software faster, but not all of the prototypes can be utilized. For the sake of clients needs better prototype made by me can be used.

2.7 the Unified Modeling Language (UML)

According to Rosa a. S and Salahudin (2011, p. 131), unified modeling language (UML) is a standardized language that is widely used in the industry to define the requirement, making application and design, as well as describe the architecture in object-oriented programming.

Thus, the author can be expressed that the method of UML (Unified Modeling Language) is a method or a language used in interpreting, explaining, model, defines a system with symbols the specific aims to give detailed explanations of the system.

2.8 Data Base

According to Indrajani (2015:69), the data are facts of mentahkemudian managed to produce important information bagisebuah firms or organizations. with a Database Management System (DBMS) and the database itself. Some terms in the database that are commonly used include:

1. Files

Understanding file is a collection of similar records have the same length elements, attributes, data all valuenya be different however.

2. Record

The record is a collection of elements that are interrelated informs about the full entry

3. Field

Sense field is an item of information diatara other information items form the record.

III. RESEARCH METHOD

3.1 Data Collection Methods

Research Libraries

Do your research by way of studying the books and literature-literature in the library, the Academy or from elsewhere that relate directly or indirectly.

Field Research

This research is carried out directly on the object in question. This field of research includes:

Methods Of Observation

The review directly on the object of research with the aim to get the data – data that is used in the making of this expert system (observation data attached).

The Method Of Interview

Do faqs, ask for information or opinions to an expert in the field of setting up police station (the attached interview data).

Method Documentation

The technique of data collection is done by means of collecting data.

3.2 Methods of organizing

3.3 organizing Method using matrix table, which lists the feasibility and penentunya factors, more visible on the matrix kind of knowledge base the feasibility to establish the location of the police station and can be seen at penentunya Table 1 below:

Table 1 Lists the factors determining the feasibility and appropriateness of the location

NO	Criteria
1	The area of occurrence of a potentially great social conflict
2	The area is safe and rare conflict between citizens Prone ganguan kamtipnas
3	Almost very rare ganguan traffic between the province of Location
4	The location is not the traffic and people rarely travels to inter provincial road or aternatif
5	New areas due to the expansion of the regional
6	Not a new area of Expansion
7	The number of people reached 3000 souls
8	Not reach 3000 souls
9	The number of schools area > 10
10	The number of schools area < 10
11	The area has a number of more than 50 community organizations
12	There are many Peoples Reach 20 s / d 40 tribes.
13	Kedaton Area
14	Rajabasa Area
15	Kemiling Area
16	Tanjung Seneng Area

Rule 1
IF the area of occurrence of a potentially great social conflict
And prone to ganguan
And the location of traffic between the province of
And new areas due to the expansion of the regional
And the number of people reached 3000 souls
THEN The Location Eligible To Established Police Station

Rule 2
IF the area is secure and infrequent conflicts between citizens
And did not reach 3000 souls
And Almost very rare ganguan
And that location is not the traffic and people rarely travels to inter provincial road or aternatif
And Instead of the expansion area new access roads leading to that folder
THEN The Location Of Less Adequate To Establish A Police Station

Rule 3 IF the area of occurrence of a potentially great social conflict
And the area is safe and rare conflict between citizens
And the location of traffic between the province of
And new areas due to the expansion of the regional
And the number of people reached 3000 souls
THEN the location please review for established police station

Rule 4 IF the area of occurrence of a potentially great social conflict
And prone to ganguan AND the location of traffic between the province of
And new areas due to the expansion of the regional
And the number of people not reached 3000 souls
THEN The Location Eligible To Established Police Station

Rule 5
IF the area of occurrence of a potentially great social conflict
And frequent conflicts in the region
And the location of traffic between the province of
And Not new areas
And the number of people reached 3000 souls
THEN the location please review for established police station

Rule 6 IF the area of occurrence of a potentially great social conflict
And the area is safe and rare conflict between citizens
And the location of traffic between the province of
And new areas due to the expansion of the regional
And the number of people not reached 3000 souls
THEN Location Is Not Feasible For Established Police Station

Rule 7 IF the area of occurrence of a potentially great social komplik
And prone to ganguan
And the location of traffic between the province of
And Not new areas
And the number of people reached 3000 souls

THEN The Location Eligible To Established Police Station

Rule 8
IF the area of occurrence of a potentially great social conflict
And frequent conflicts in the region
And the location of traffic between the province of
And Not new areas
And the number of people reached 3000 souls
THEN the location please review for established police station

IV. FINDINGS AND DISCUSSION

4.1 Program implementation
Program implementation is explained how to run application programs that have been created on the computer. These applications can run on a stand alone computer or online. If you want to run this application on a stand alone computer, then the computer must be installed on the first web server application program. But if you want to run this application online, then it should have a domain site and web server.

4.2 the results of discussion of Program things to note before you run the application on a laptop computer as administrator is to make sure the connected computer with internet connection. To run this program can be done by installing an application that anyone taken, next after the application is installed perfectly, we can run the application.

4.3 Application installation process

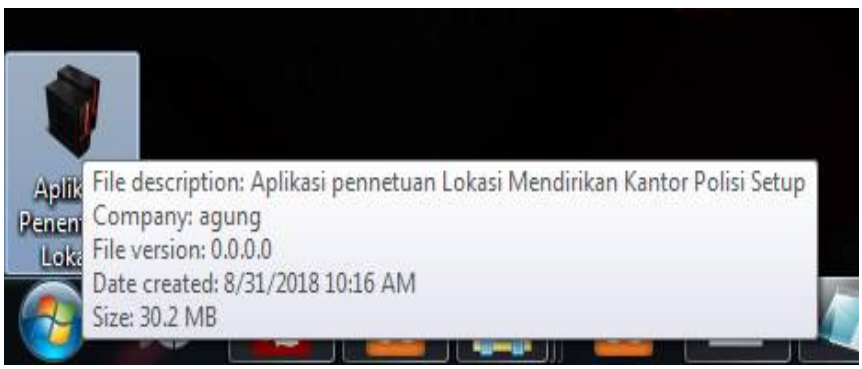

Figure 3. The Application Installation Process

. 4.3.1 Application main page

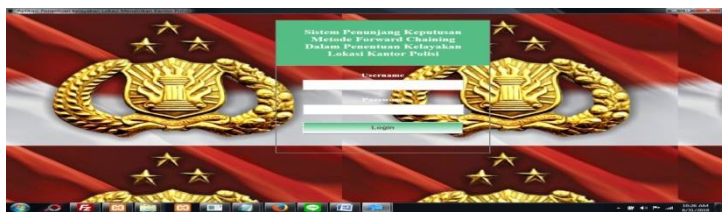

Figure 4. Home Page

. 4.3.2 Home Menu

Figure 5 Home Menu

4.3.3 Form Page the process Feasibility Test

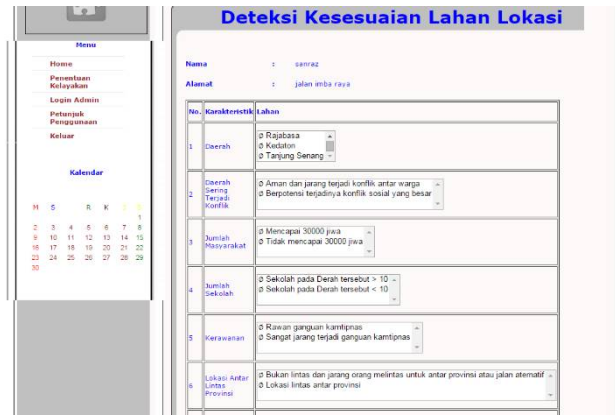

Figure 6 Test Process Eligibility Form Page

4.3.4 the eligibility results page

Figure 7 the result image Location feasibility

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4.4 Display Android Program

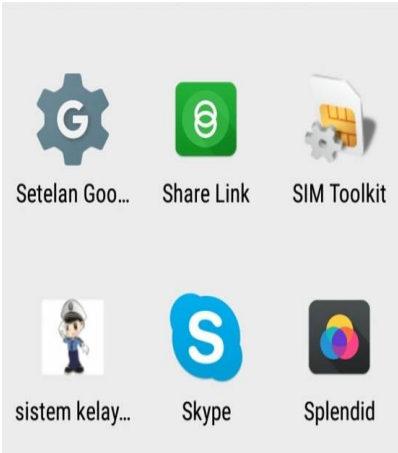

Figure 8 Display Application Icon (Mobile)

V. **CONCLUSION**

Based on the results of the analysis of problems and discussion of results, the conclusion of this research is to Produce a system of determining the feasibility of location-based mobile Police Office can assist the user in determining the appropriateness of the location of the police station to set up a proper police station. As well as applying the method of forward chaining as one method of decision making is to get information the results of the determination of the feasibility of establishing the location of the police station.

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