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## Management Information in Rural Area: A Case Study of Rancasalak Village in Garut, Indonesia

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### Abstract

Information and communication technologies (ICTs) have become a help for human kind in communication, such as TV, radio, newspaper, and internet. However, the availability of media is not much help in disseminating program information required by the local villagers. Conventional methods which are running currently are less effective because of possibility in information losing, not reaching the community body, and the absence of data storage of local program. This paper will present problems faced by the village of Rancasalak in the dissemination of information and recommend alternative solutions by combining LCD technology, Web-based applications and SMS gateway to solve the problem.

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### 1. Introduction

Media is the most effective means of communication if done right on the target [1]. Now, mass media strongly support public communications. Information technology development is increasingly diverse and more sophisticated, in increased information media context such as TV, radio, magazines, internet, newspapers, etc. Unfortunately, there is still lack of the government's role in utilization of media. Supporting infrastructure such as computers and mobile phones are currently available in the village, but its use has not been optimized. In recent

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years, the dissemination of information in village is done conventionally. Information from the central government is sent through a letter to the village head. Then it is proceed to the sub-region village community leaders and ultimately it arrives to the community. Generally chief village or representative uses sound system in mosques and establish the information just once. By using this method, it is possible in losing of information, the information could not reach community and archive/database of information is not stored neatly.

Communication activities are mainly described as delivering, deploying and improving relevant information presented to public. Information submitted by information provider needs to be understood by the public so that what information provider means can be accepted and implemented [2]. Communication role is very important to be noted because right communication channels could improve community participation on government programs. In current implementation, the flow of communication is still brought in conventional communication, by using socio-cultural system and social structure of society. Seeing this communication process allows is slow, because between the provider and recipient information does not be directly related information [3]. With this condition, there needs to be government's role to take advantage of the availability of the media as a means of communication to the public. Recommended media is providing digital media communication that is public information boards combined with web-based applications as a means of announcing information managed by the administrator, as well as the SMS gateway as a means of receiving feedback and information requests from the public. The information can be delivered in the form of information about education, health, agriculture, religious activities, etc.

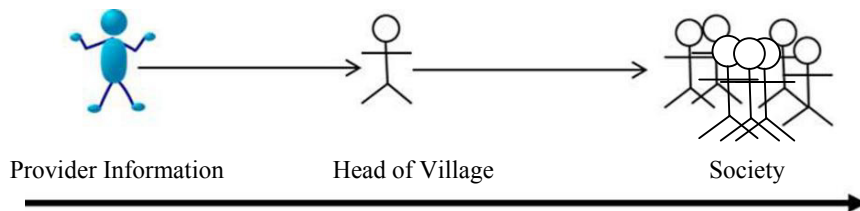


Fig. 1. Flow of information in conventonal process

## 2. Work Background

### 2.1. SMS Gateway

SMS Gateway is a telecommunications network facility for sending or receiving Short Message Service (SMS) transmission to or from a telecommunications network that support SMS, most messages are eventually routed into the mobile phone network [4]. SMS gateway can be connected with other media such as SMSC (Short Message Service Center) which has functions: reception of text message (SMS) from wireless network users, storage of text message, forwarding of text message, delivery of text message (SMS) to wireless network users, and maintenance of unique time stamps in text message [5].

SMS Gateway has a function as a liaison between the ESME (External Short Message Entity) and the SMSC. Communication between ESME and SMS gateway can use SMPP protocol or HTTP, while to the SMSC using SMPP. ESME on this application is used as a means of communication between administrators with provider information via Web based application. Meanwhile SMSC serves as a connection on the network to send messages via mobile phone. To run the SMS gateway server requires computer components, hardware and software applications. SMS Gateway Service will be used as a feedback and request service information from the public.

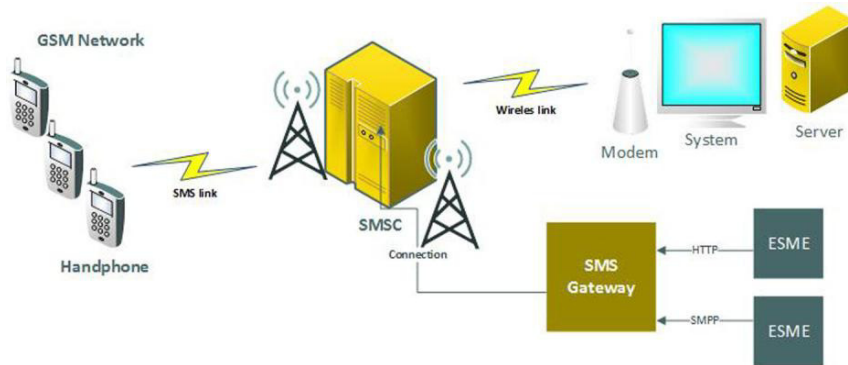


Fig. 2. SMS gateway working

## 2.2. Web Based Application

Web application is an application that accessed by users over a network such as the internet or an intranet. The term may also mean a computer software application that is coded in a browser supported programming language (JavaScript combined with HTML) and reliant on a common to render the application executable [6]. This Web application made to manage the information which will publish to society. Data which will be distributed can be stored in a database.

MySQL is a popular choice of database for use in web applications [7]. This database was chosen because of its ability to capture information on application and SMS gateway which is open source [8]. The availability this database is used to store data published information, maintain data security. The advantages of MySQL are easier to use and supports many facilities acquisition costs low.

## 3. Research Method & Analysis Finding

Gathering information related to this problem is obtained by qualitative method. The main advantages of qualitative methods is that they generate a dialogue with participants, letting you know what people really feel [9]. The Shape of method is by doing interview with the head of the field of social welfare Rancasalak village which has the responsibility to help the head of village in disseminating information to improve the welfare of the community and collect data related to a village program. After conducting interview with head of social welfare at the village office Rancasalak, the result of research found that information dissemination is carried out in the village is still done conventionally. Where the information comes from the government centre submitted to the head of the village sub district (neighborhoods) to be announced by the sound system of each mosque. Then the data information and the level of community participation in the program was not recorded so the data are not documented. Announcements information generally done only once, the rest rely on word of mouth information. Information content which is usually spread by the village include information on health (health posts), hygiene (clean Friday), agriculture (farming socialization, poor sales of rice), social programs (nursing homes), religious programs (mauled, recitation, qurban , zakat), education (scholarships, competitions), and demographic (identity card, birth certificate, family card), etc.

After seen vision Rancasalak village have alignment with vision district of Garut, which is “To realize Rancasalak village which religious, smart, healthy, advanced and independent”. With a common vision will be able to align activities of district with rural policy. Thus, we should effort to spruce information dissemination management in rural area. They (chief of social welfare) want to development information system which may help them to regulate dissemination information in the village. So, the delivery of information can spread effectively, and increase the level of community participation.

### 3.1. Statistic of Communication Media

Based on interview, obtained statistical data communication media used by villagers of Rancasalak. Based on statistic data in 2012, Rancasalak village has population 9459 person. From the number of this population communication tools are used by them can be seen in the following table:

Table 1 Statistic of communication media in Rancasalak village

Media	Total	Percentage (%)
Public Telephone	1	0.01
Home Telephone	173	1.83
Internet Shop	2	0.02
Handphone	5750	60.79
Television	2679	28.32
Radio	2379	25.15

Looking at data, obtained information that a majority of villagers Rancasalak accustomed to using mobile phones for both SMS and phone. Of the total population, there are 60.79% have a mobile phone. It can support when the implementation of SMS gateway solutions as a means of delivering feedback, and proposes a means of publishing information.

### 3.2. Analysis Finding

Following data have been obtained from the results of the interview, can be analyzed user needs for technology solutions required. Here in Table 2 will be presented in the analysis:

Table 2 Analysis requirement for system

Category	Administrator	Society
<b>Main Requirement</b>	Having a system which can communicate between admin of village and central government as provider information. And then, system can receive feedback from community	Community can access all the information which available in the village
<b>Main Problem</b>	There is no system which can integrate using technology between information provider and society. And there is no data storage	Society still often find unknown information about village program
<b>Solving Problem</b>	Create web based application for transfer information from provider content information to society and for store database. We also can use SMS gateway to get feedback and suggestion information content from society. And procurement LCD screen to access information	Using mobile phone media to participate in providing feedback and propose content information using SMS gateway facility.
<b>Alternative Technology</b>	Computer, Web based application, SMS gateway and LCD Screen	SMS gateway
<b>Behaviour</b>	Provide service for society to spread information	Giving feedback and suggestion content information

## 4. Recommendation

From the analysis of the existing problems can be recommended design solution is to build a system that can help the spread of information in the village by utilizing media technology available in the community effectively. For example, with the availability of computers and the Internet can build web-based applications as a means of communication with the center, the availability of large amounts of mobile phone users in the community can use

the SMS gateway as a facility to provide feedback opportunities, as well as providing LCD Screen as a means to access information.

The advantage with system management local made it possible to increase community participation in disseminating information. Information content is not only dominated by information from the center only, but can come from the people themselves. Information such as information about local events, general information about the village, and other information that is not managed by central government

#### 4.1. Design Application Architecture

Strategic planning is designed to prepare information for management plan analysis, design and development of computer-based systems. In information engineering methodologies, each step can be viewed from two sides of the data and activity. For strategic planning in terms of data, can be reviewed against the requirements needed by the system. While in the activity, review its strategic direction is the use of technology to improve system performance [10].

#### 4.2. Identification Business Process

This stage is a step to model business processes or activities of a public information flow occurring in the community. Find Figure 3(a) to see flow information managed.

#### 4.3. Design System Architecture

This stage is designing the communication system architecture is based on the identification of needs. Here is the picture in figure 3(b):

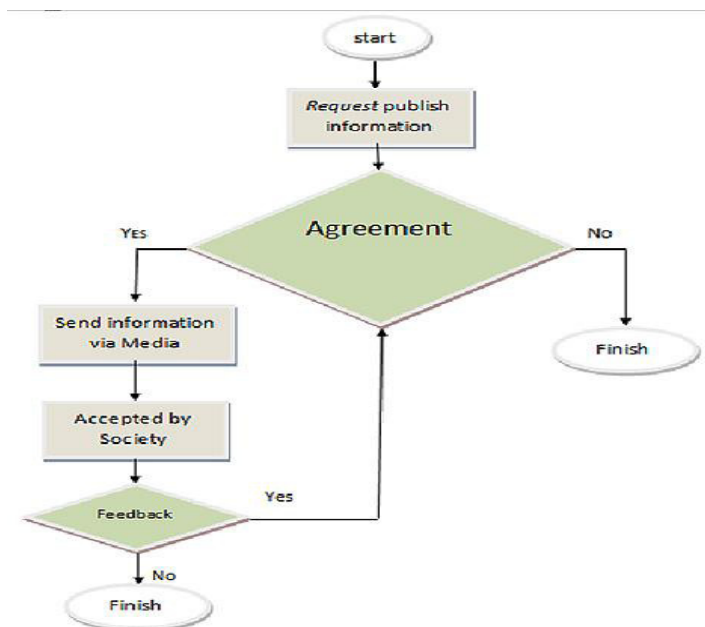


Fig. 3. (a) Flowchart request information in system;

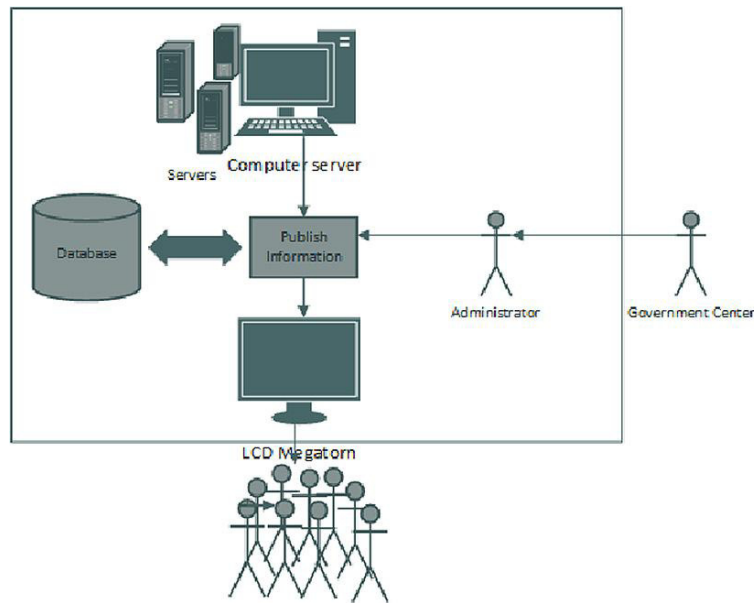


Fig. 3. (b) Architecture design system

#### 4.4. Spesification Need System

Hardware specifications needed to run the rural managerial information system is to use the operating system Windows 7, XP, linux especially for server [11].

- Processor : minimum 1Ghz
- RAM : minimum 512 MB
- Hard Disk : minimum 250 GB
- VGA card
- LAN card
- Monitor

Software can be used such as:

- Linux atau Windows 7
- Joomla 1.5.22 Stable or HTML5, css, ajax, javascript
- PHP version 5.2.15
- MySQL 3.23
- Apache 1.3
- Browser : Mozilla Firefox, Google Chrome, Internet Explorer, Squid

#### 4.5. Access Media

Access media serves as a source of information used by the final end user. For example access to services such as the screen is shaped like a LCD Screen which can be mounted on the outside of the field, rain-resistant and heat resistant.



Fig. 4. LCD screen in ITB

#### 5. Conclusion

The availability of communication media in the village could have been used to optimize the dissemination of information in rural. Conventional methods of dissemination of information that is currently underway will be retained. The new system is used as an alternative technology solutions that support the existing shortcomings in the conventional method can be handled by the new system. By combining new system and conventional method expected all information received by society.

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