The Use of Whatsapp Gateway for Automatic Notification System

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Abstract. Whatsapp is a messaging application from facebook which many people use it. For using whatsapp, someone must have a mobile number. The mobile number will be account in whatsapp application. In addition for chat, whatsapp can be a tool for notification system. The notification system can broadcast the messages that called as Whatsapp Gateway. Whatsapp gateway can be implemented for the school notification system where the parents of students can receive notification from school. The Whatsapp gateway developed consists of fingerprint device, sender engine, management information system, and whatsapp gateway application. When someone checked their finger through fingerprint device, the fingerprint device will captured date and time then save it. The sender engine will checked data from fingerprint as periodically and send data to whatsapp gateway application through Application Programming Interface (API). To prevent blocking from whatsapp, whatsapp gateway will checked handphone number or whatsapp account from inbox message. If the handphone number or whatsapp account was found in inbox message, whatsapp gateway application will send message as notification.

1. Introduction

Whatsapp is an instant messaging application and multiplatform on smartphone where user can send or received message like Short Messaging Service (SMS) without using credit but internet connection [1]. Whatsapp is a messaging or chat application mobile based where almost people use it. This application can send message in many format types such as text, sound, image, and video. Whatsapp developed in multiplatform operating system of smartphone like android and ios. Whatsapp use handphone number as unique ID of account or user, so that for smartphone user which will registration whatsapp account must have handphone number.

Now, information requirement be important for someone. Whatsapp can used as media for deliver information well in peer to peer mode or broadcast mode. Using whatsapp, someone can deliver information in many format like text, image, sound, document, and video. By whatsapp capabilities, easy in use it, and many people use it as if whatsapp is a application that must be install on smartphone.

Information delivery via whatsapp can to do as manually or automaticaly. As manually, user send information by push Send button on whatsapp application. While as automaticaly, information delivery can to do by using computer on a system which is called whatsapp gateway. Whatsapp gateway is a gate for dissemination of information using whatsapp that can send message to hundreds of numbers as automaticaly and fast where connected as direct with database of whatsapp account numbers without retype on smartphone[2].
One of many whatsapp gateway implementation is notification system where this system can send something notification to someone. This system can be implemented for presence monitoring of someone in work or school. Apart from using whatsapp gateway, presence notification system also uses biometric device for identified someone using fingerprint, face recognition, retina, and etc. Result of identification then delivered to someone using whatsapp gateway.

Information system is procedures that to do on an organization to reach the goal where information used to decision maker in controlling management [3]. While according to [4], information system is a system on organization to processing daily transactions, provide information, and support to interested party. In this research, will development a information system where this system can manage information and send notification for presence monitoring someone in work or school. This information system using whatsapp gateway and biometric device that is fingerprint device. The fingerprint device is identification tool that general, cheap, and many people use it. According to [5], fingerprint device is a precense machine for employs on company using fingerprint, where every employe have fingerprint that different and precense machine can not be manipulated. While according to [6], fingerprint device is tool that can used identified fingerprint of someone for identifying using computation system.

Information system that developed is web based application. Web application is application that can be accessed using web browser via intranet network or internet [2]. While according to [7], web based application is a application that accessed via web using internet network or intranet. So, can be concluded that web based application is application that using other software for accessing that called web browser via computer network, intranet or internet.

The advantages of web based application according to (Nubatonis, 2020), among other: (a) without license, because license from application service provider, (b) do not need computer with high specification, (c) can run without install, (d) can run in multiplatform operating system, (e) can accessed using many media such as computer, notebook, and smartphone. While the weaknesses of web based application according to (Nubatonis, 2020) is web based application need high security dan computer network or internet connection.

2. Methods
The methods of this research can be shown on figure 1.

Fig. 1. Methods of Research

a) Requirement Analysis
The goal of this step is to get all anything information about information system development.

b) Whatsapp Gateway Exploration
The second step is whatsapp gateway exploration, where in this step is get all information about whatsapp gateway, how to work, and how to integrated with information system.

c) Fingerprint Device Exploration
This exploration to do on fingerprint device to get all information, how to work, and how to integrated with information system.
d) Information System Design  
Design of information system included system design, user interface, and database.

e) Information System Implementation  
This step is step to realization result of requirement analysis, exploration, and design become a web based information system.

f) Information System Testing  
The method of testing is blackbox methods. Blackbox method is functional testing of information system.

g) Conclusion  
The last step is get all conclusions of this research.

h) Result and Analysis  
Development of notification information system started by requirement analysis to get all information to develop web based information system. On this step, we decide to use fingerprint device of solution merk with type X105. The device of fingerprint can be show on figure 2.

![Fingerprint Device X105](image1)

**Fig. 2.** Fingerprint Device X105

The next step is design. This step included system design, database, and user interface. The system design of web based information system can be show on figure 3.

![System Design](image2)

**Fig. 3.** System Design
The workflow diagram of information system can be show on figure 4.

![Workflow Diagram of Information System](image)

**Fig. 4. Workflow Diagram of Information System**

When fingerprint device received data from user, the device will captured date and time then saved it to database on fingerprint device. Sender engine is a tool that installed and run on Personal Computer (PC) will checking data of fingerprint device as periodicaly. If data found, sender engine will send data to Management Information System (MIS) that installed and run in server via Application Programming Interface (API) using internet connection. The MIS will processing data become information then send it to whatsapp gateway. By whatsapp gateway, the information will send as notification to smartphone on whatsapp application using internet connection.

The database design can be show on figure 5.

![Database Design](image)

**Fig. 5. Database Design**

The next step is information system implementation where result of implementation can be show figure 6.
3. Conclusion
The conclusion of this research are:

a. Whatsapp gateway and fingerprint device can be integrated to notification information system and the information system can run as well.

b. Whatsapp gateway and fingerprint device that integrated on notification information system can send information as notification to smartphone on whatsapp application.
c. In information or notification delivery, need more time because delay on sender engine and delivery time on whatsapp gateway.

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