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Notification information system android-based for spreading school information

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ABSTRACT

School is a place where students can learn a lot, but beside as a place to learning, the school also has many events and activities that must be attended by students, or even sometimes must be attended by parents. To give information or invintation to the parents, some school give information by manual letter, email, social media or online chatting, but all that method to spread information has a weakness, because sometimes information that shown or give to parents or to students, often not accepted by students or parents, and beside that, to spread message to a lot people need a lot time and need a lot cost. To solve this issue, in this study will be build Android-based information notification application with push messaging services, where if there a new information from the school, the students or parents will receive notification new information to their Android smartphone, and after that, the details of this information can be seen in the applications. To get acceptance user result, we using user acceptance test (UAT) was conducted using the TAM method, the result has positive results were 84.88% from parent or student's side and obtained 84.67% from school administration's perspective as provider information, which means this system can be accepted and as expected by the user who receiving the information and by the school as information provider.

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1. INTRODUCTION

Information in the modern society in the current era is very easy to obtain using smartphones or via social media or by online chatting [1-3], however, information about events or activities at school or specific institution is sometimes difficult to obtain [4-6], because the institution or school in Tangerang area, Indonesia mostly are not using the latest technology yet to spread information yet, for example, some school still using manual letter or using short message service (SMS) [7] or phone to spread information to they members, so with such a manual method, the institution or school need an extra costs and extra time to spread the information to many person or members in they group [8-10]. In research by R. Sharma [7], text-messaging or short message service is used to solve the problem spread information [7, 11-13], but in the result of research, he decleared, that this method is less or even not effective, because, the sms cannot send message with a picture and it need a lot of costs to implement this spread information method. Spreading information using social media is also less effective if the number of members is so many [12, 14], the problem using social media is

how to know the right members and fake members, because sometime the user profile is not show he/her real name and also with this method has a serious problem when the school want to give personal information to they student or parent such as student grade information or financial information or student's case in school that occurs just only for specific students [15, 16]. And also, because the notification of information from social media that received by members is often submerged by other social media activities [2, 17], so the information will be gone before the parents notice the information.

By using an online chatting application for information spreading, also found some deficiencies [9, 18], such as, the members of the online chatting application group can send a reply to the information provider [19-21], that reply from other members in online chatting causes a new problems, such as, the main information that is sink down or lost in the conversation, so other member that not see main information yet, will be hard to found the main information in that conversation [22-25]. This research purpose is to solve the information spreading problem by creating an android-based information system with push messaging notification, where the information sent by the sender will appear on the recipient's main notification page, with that method, is hope, that spreading information can increase information reception by parent or student and can reduce information spreading costs.

2. RESEARCH METHOD

This research methodology is as follow: problem identification, literature review, system design, application development, testing and evaluation. Testing and evaluation is carried out at a private school located in Tangerang, Indonesia. This system development is divided into two parts, first parts is the creation of a content management system (CMS) for the school as a provider of information and the other parts is mobile applications for parents and students. The process of providing information notifications starts from a school adminstrator sending a text message or an image, then the information data is sent to the database server for data storage information and in the same time, the data sent to Google push messaging to be forwarded to the members, either in groups or to personal, all sending information flow is shown in Figure 1.

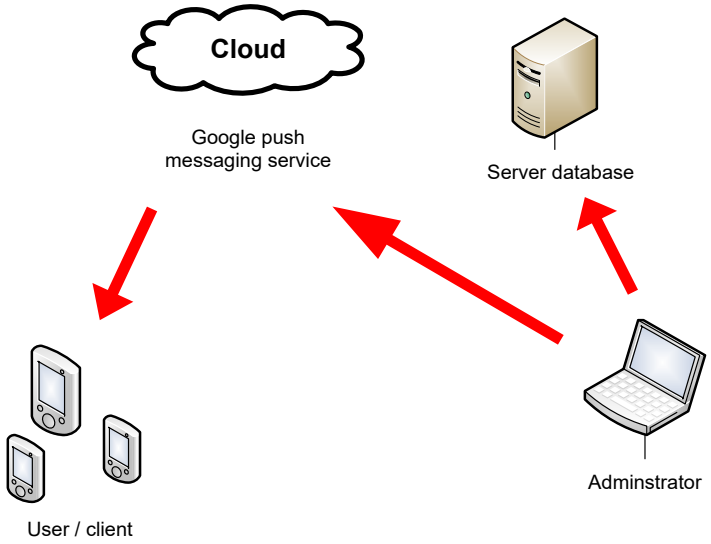


Figure 1. Sending information flow from administrator to members

As shown in the flowchart overview at Figure 2, It can be seen that information can be provided by logging into the content management system (CMS), when the login is successful, the user can select the desired information menu category, and after filling in the data and storing the data, there are two running process, namely saving the data into the database and send a message to the google push notification, which informs that there is a new message from the school, and then, the notification message will be display on each user's smartphone. After the user receives the notification message, the user will enter the application, if the user has not logged in, then the user is required to log in first, after logging in, they can select the information menu they want to read, after selecting the information, the application will retrieve the latest information data from the database in accordance with information menu selected by the user.

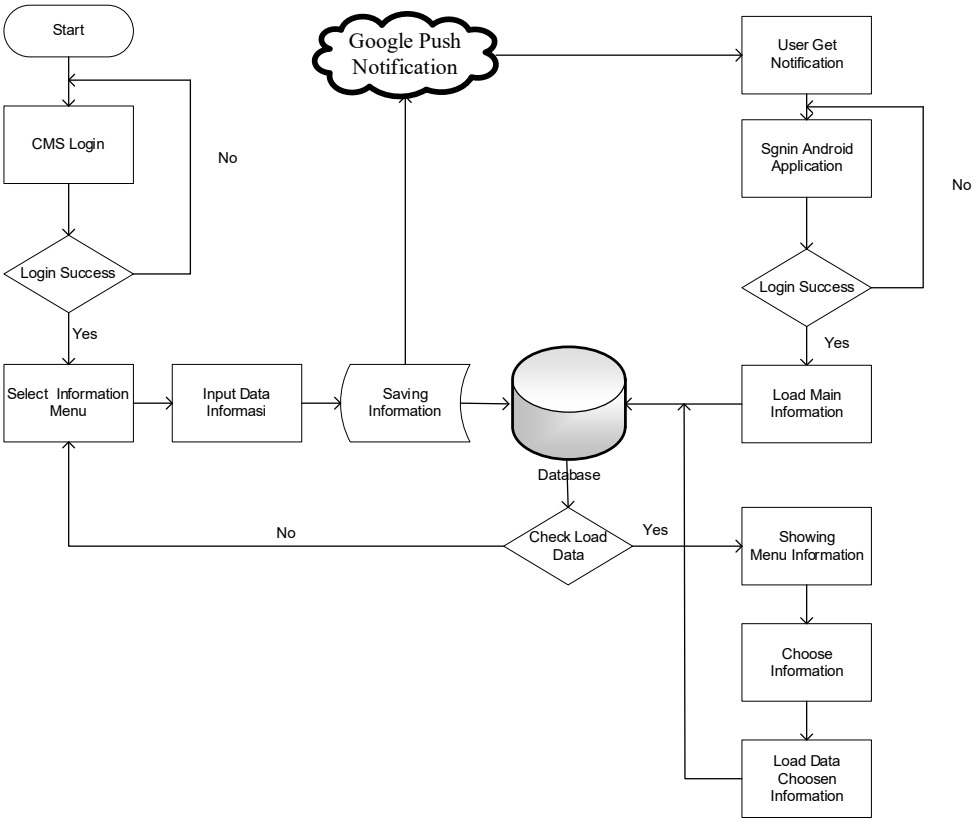


Figure 2. Flowchart notification information system

3. RESULTS AND ANALYSIS

3.1. Content management system

The results of this study are in web applications and mobile applications, where the web application will be used by the school administrator for spreading information to student or parent, while the mobile application will be used by students or parents to receive information that sent from the school administrator to their mobile devices. In the content management system application that shown in Figure 3 that used by schools for spreading information, there are many menu information categories that can be choose to spreading information to parents or students according to the category.

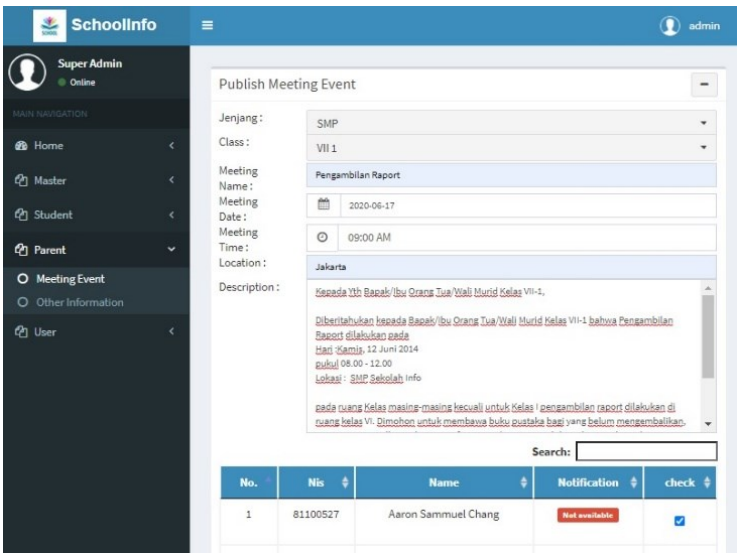


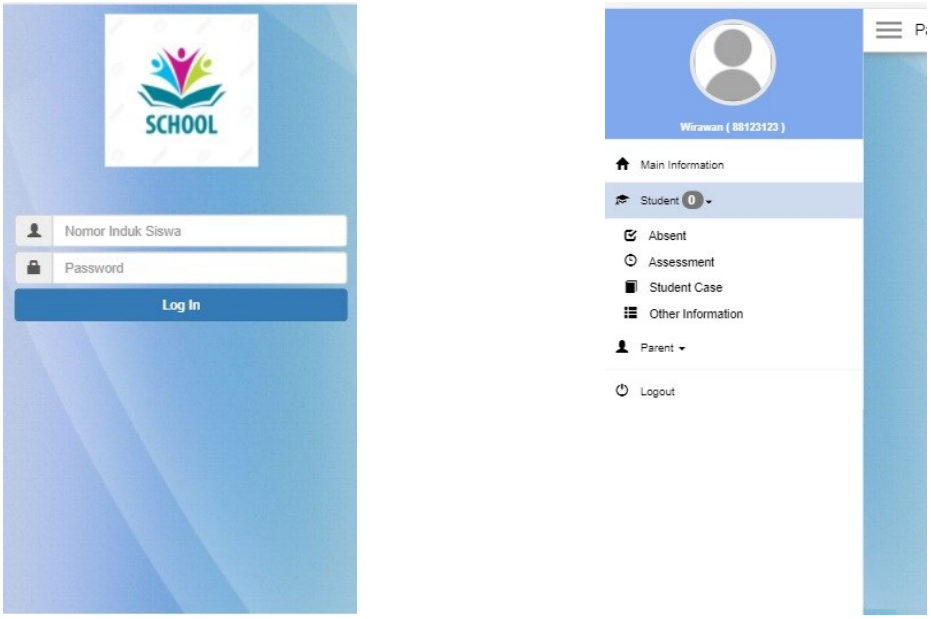
Figure 3. Content management system for spreading information

The master menu in the content management system contains data sources needed to spreading information, such as student detailed or parent information that is useful for sending notification information to user devices. The student menu contains a menu of information related to students, such as student attendance, student grades, student cases and other information, this student information menu can be accessed by parents and students. The parent menu contains information that is shown to the parents, such as invitations to school activities and other information notes from the school that parents should know, this menu can only be accessed by parents.

3.2. Android information application

After sending information by school administrator, students and parents that already registered from the selected class, will get notification information as shown in Figure 4, when the notification is clicked by user, it will open the information notification application. In the Android application that used by student users or parents, login is required to can access the menu information as shown in Figure 5 (a), log in using the student identity numbers and password that was previously registered in the content management system application by the school administrator. Then the user will be able to select the category information option menu as shown in Figure 5 (b).

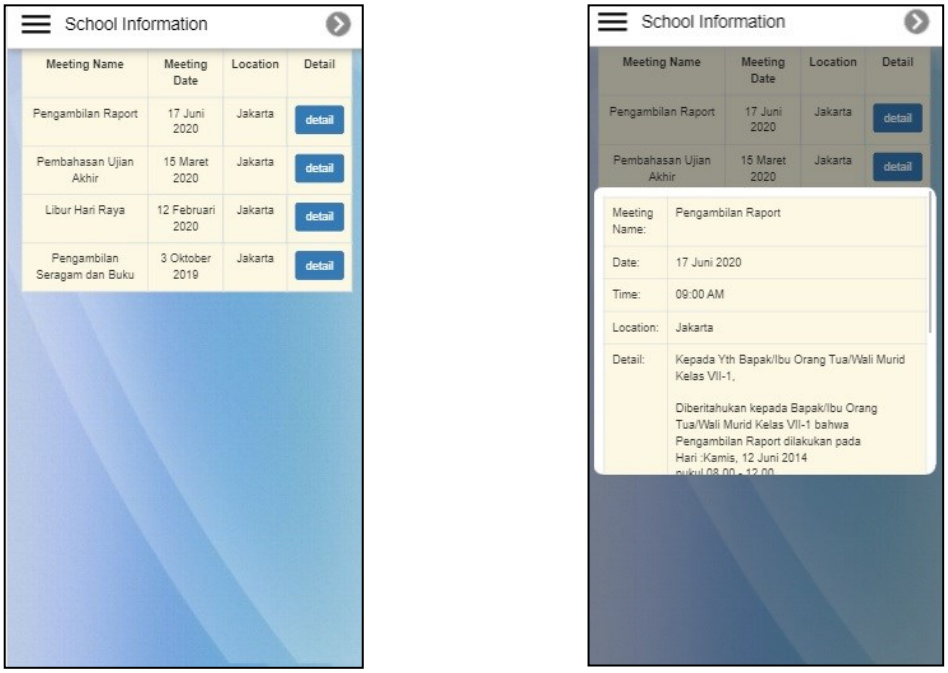
Figure 4. Sample notification informasi in user device



(a) (b)

Figure 5. Display login menu and application options menu

In Figure 6 (a) shows a menu list of information based on the information category that has been previously selected, where in the menu only the title of the information is shown along with the date the information was spreading, to find out the detailed information provided by the school, the user can press the detail button, so that the detailed information that has been sent can be seen, as shown in Figure 6 (b).



(a) (b)

Figure 6. List information and detail information

3.3. Testing and discussion

After the CMS and Android applications have been made, the application is tested to the three respondend school administration as provider information and some of parents or students, which totaled 80 student and 23 parents as receipient of the information to find out the level of user acceptance. Testing is carried out by explaining to the user how to use the application and features, then the user is asked to try the application. After the user tries the application for several days, the questionnaire was given to determine the level of user acceptance of the application that have been built. Does the user feel helped by information notification application.

Besides user acceptance testing of the application, also carried out comparison of the costs for spreading information between applications spreading school information and SMS that was to do with some school in Tangerang area. And the result was found that costs with application were much cheaper and more efficient because using the application spreading information did not cost money for spreading information, but with SMS to spreading information is very expensive, depending numbers of student or parent in school. In Table 1, shows a comparison table using information spreading applications and using SMS that costs 300 rupiah for one student.

For user acceptance results from the questionnaires that have been filled in by the respondents, the results of user acceptance by parents and students are 84.67%. As for the results of acceptance of school administration users as providers and spreading of information, the results are obtained 84.88%, who stated that the application was very helpful and made it easier for them to spreading school information to all school members or to specific student or parents.

Table 1. Comparison table between using SMS and application spreading information

Numbers of Student	SMS cost	Application Cost	Savings
500	Rp. 150,000	Rp. 0	Rp. 150,000
700	Rp. 210,000	Rp. 0	Rp. 210,000
1000	Rp. 300,000	Rp. 0	Rp. 300,000

4. CONCLUSION

Based from all discussions that we had explained and from the results that obtained, it can be concluded that, with using the information notification system can facilitate and help school's administration to spreading information to parents or students, this result can be proved from the level of user acceptance this system is 84.67%. Also, with the information notification system can save the cost of spreading information from the school to parents or students and even the school no need cost anymore to spreading information to the parent or student. By using the information notification system on a smart phone can make it easier for parents to receive information from the school, this statement can be proved from the results of the user acceptance test with the TAM method, the result show 84.88% agree that with this information notification system is helpfull. In the next research, research will be focus on spreading public information or other information such as social and religious activities in school, and with opening the column comment to that public information, will be able to establish friendship between fellow students and parents or maybe that will inflict negative impact.

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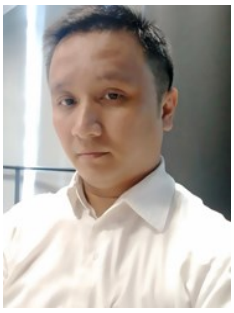

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