

# Design and Implementation of the Hadith Search System Based on Android

Winarno, Muh. Zuhri, Agus Waluyo, Noor Malihah

**Abstract:** In this paper, the writers present a Hadith search system based on Android for students in higher education of IAIN Salatiga called Hadith Search System (HSS). The Hadith search system based was constructed based on Research and Development (R&D) design. Inviting 15 students (pilot study) and 25 students (main study), data was collected through documentations, interviews, Focus Group Discussions (FGD), and questionnaires. The aspects tested include functionality, usability, reliability, performance and supportability. The finding shows that the web-based lecturer evaluation system of the Hadith search system based on Android for students in IAIN Salatiga 2018 was feasible because the system has met four aspects of system testing: functionality (score 4.5/excellent category), usability (score 4.7/excellent category), supportability (score 4.8/excellent category), performance (93%).

**Keywords:** Search system, Hadith, android

## I. INTRODUCTION

For Muslims, Quran and Hadith becomes the primary of knowledge of life. Hadith literally means words or conversations. In Islamic terminology the term hadith means to report / record a statement and action of the Prophet Muhammad[1]. Hadith is what is narrated from the Prophet Muhammad, whether in the form of words, deeds, his provisions (Arabic: taqrîr), physical nature or moral character, from the journey before and after he was appointed as a Prophet (Arabic: bi'tsah)[2][3]. So, the meaning of the hadith is similar to the sunnah. The word hadith which experiences the expansion of meaning so that it is synonymous with the sunnah, then at this time it can mean all the words (sayings), deeds, provisions and agreements of the Prophet Muhammad that were made into provisions or laws. The use of media in the learning process is one of the efforts to create more meaningful and quality learning[4][5][6]. The use of media in the learning process aims that the learning process can take place in an efficient and efficient manner so that the quality of education can be improved. In the past few decades, ownership of mobile devices (mobile devices) has increased (Mireku et al, 2017). This is due to the increasing affordability of these devices by the community[7] (Latuheru, 1988:15).

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The increasing number of people who own and use mobile devices opens opportunities for the use of technology devices to move in the world of education. The use of mobile devices in the learning process is then known as mobile learning as a learning learner that is not silent in one place or learning activity that occurs when learners make use of mobile technology devices (O'Malley, 2003: 16). The presence of m-learning is not going to be able to replace e-learning (electronic learning) which is normal let alone replace face-to-face learning in class. M-learning attendance is intended as a complement to existing learning and provides opportunities for students to relearn material that is not mastered wherever and whenever. This certainly can provide a different experience in the learning process for students. Therefore, the development of Android applications as a medium to learn mathematics needs to be developed[8]. The application developed is devoted to distance material in three dimensional space. The application is an Adobe AIR Runtime based Android application (Adobe Integrated Runtime) that uses the Adobe Flash Professional CS6 application.

Besides being able to operate on Android devices, this application can also be operated on computers or laptops with Window operating systems. Along with the development of science and technology, Mobile-based applications are growing as well. The development of technology is one of the most important things that must be followed by humans, for example mobile phones that were originally only communication media now have more basic functions, and various kinds of pictures can be felt in various cellphones including video, camera, document, and others. Just like computers, mobile devices today can be installed with a variety of programs. And what is in great demand now is an Android-based application program. Android itself has the main goal to advance the innovation of mobile mobile devices so that users are able to explore capabilities and add more experience than their competitors in terms of systems, as well as their applications (Ani SW, 2016, 21). Recently, this android-based application are used as innovation in education[9][10]

## II. METHODOLOGY

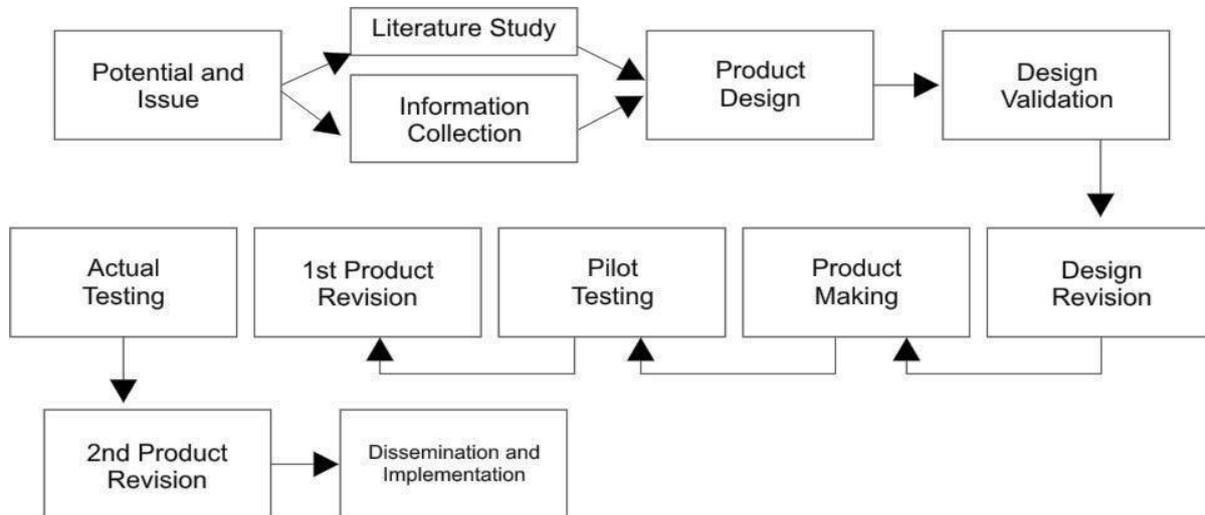
The method used in the development of this Android-based Hadith tracking system is Research and Development. "Educational research and development (R & D) is a process used to develop and validate educational products" [11]. In this research and development steps are simplified, from ten steps into three main stages, namely: preliminary study of

model development, and testing or validation, implementation in the actual context. Research and development methods are processes or methods used to create, validate and develop products. In other words, research and development is a research method used to produce certain products and test the effectiveness of these products [12]. The R & D steps taken are as follows;

**1. Product Development Phase**

In the first stage in the development of an Android-based Hadith traceability product, the steps taken followed the

steps proposed by Kendal and Kendal and Pressman which included: (1) selection and analysis of existing needs, (2) prototyping, (3) formation (use of methods), (4) implementation (coding), (5) evaluation (testing and validating), and (6) improvement and refinement[13]. The R & D steps are described as follows:



**Fig. 1 Steps to research and develop the making of an Android-based Hadith search system**

**2. Product Implementation Stage**

The second stage is the product implementation phase, in the process of product implementation the Android-based Hadith tracking system will be implemented in the real situation. The place of research and development is carried out at the State Islamic Institute (IAIN) Salatiga for a period of 8 months, namely April 2018 to December 2018. The development procedure in this research is carried out within a certain period of time. The stages of the research carried out are selected essential and must pass a product design, namely: (1) analysis and identification of needs, (2) system design, (3) product creation (coding), (4) product feasibility testing, (5) product testing, (6) product implementation, and (7) product revision. Program testing is used to obtain products that have quality requirements as a software Testing techniques in this study refer to including: white box testing methods and black box testing. Black box testing is a procedural testing of aspects of the system that are built with more goals at the output as a process of input. Before the trial, the android-based Hadith tracking system that was created was carried out by expert validation activities with FGD (Focus Group Discussion) techniques by 3 experts including: 1 Root Science Hadith, 1 expert from Indonesian linguists, and 1 IT expert. The trial of the Android-based Hadith product tracking system in this development research will be carried out as follows: 1). The trial design was conducted to determine the ability and feasibility of an Android-based Hadith tracking system Online. The testing process is done using the help of an android set. 2). This R & D research was carried out in the IAIN Salatiga computer laboratory, for the development process of the Android-

based Hadith tracking system. 3). Small group trials of 15 people focused on assessing matters relating to the feasibility and operational ease of the Android-based Hadith tracking system. 4). A large group trial for end users of 25 people was centered in the IAIN Salatiga computer laboratory room. The steps taken in a large group trial are: 1). Installing (installation) an Android-based Hadith tracking system. 2). Providing 30 minutes of explanation to all respondents about the Android-based Hadith tracking system. 3). Provide an explanation of the specific provisions that must be done in accessing the Android-based Hadith tracking system. 4). Conducted an initial demo of the Android-based Hadith tracking system. Prepare instruments to obtain data for the results of the trial consisting of: (1) guidelines for observation and performance evaluation of respondents to observe what can be done and what has not been done / not done by the respondent; (2) questionnaires relating to the Android-based Hadith tracking system (as used in small group trials)

**3. Data Types**

The data needed in this study include: (a) qualitative data in the form of functions needed in the program, prospective program users and minimum hardware standards used in the program and internal test results on program functionality; and (b) quantitative data in the form of questionnaires on student responses during the trial, and IT experts on the Android-based Hadith tracking system and program performance results.



The instrument used to collect data in research includes:1)  
Questionnaire About Aspects of Display of Android-based  
Hadith tracking system.

**Table. 1 Questionnaire on Aspects of Display of Android-based Hadith tracking system**

Aspects	Criteria Item	Score				
		5	4	3	2	1
Functionality (F)	Android-based hadiths provide the information needed (F1)					
	Android based hadiths include data processing (F2)					
	Android based hadiths are equipped with a search feature (F3)					
Usability (U)	Android-based hadiths are concise and easy to learn (U1)					
	Android based hadiths have an attractive display design for each interface (U2)					
	The layout in the information system design is very clearly organized (U3)					
Supportability (S)	Information system design makes it possible to operate from various android (S)					

#### 4. Data Analysis Techniques

The data analysis technique used in the development of this Android-based Hadith tracking system is evaluative descriptive analysis techniques and quantitative descriptive analysis techniques. Both of these techniques are used because in this study did not test the hypothesis. This study will examine the feasibility of the product used to evaluate the learning ability of participants using an Android-based Hadith tracking system. Evaluative descriptive analysis techniques are conducted to determine the feasibility, ability and effectiveness of product work in measuring the ability of test participants. Quantitative descriptive analysis techniques were conducted to describe the ability level of test participants as measured by computerized tests. Criteria for the ability of the test participants to be described in the ability of the test takers to be complete and the ability of the test takers who are not complete and the results of the test from computerized measurements will illustrate the value of the test participants' abilities according to their level of ability.

### III. RESEARCH RESULTS AND DISCUSSION

#### 1. Potential and Issue

The development of information and communication technology media in the present era shows how more and more communication media are circulating in the community. This is because there are so many innovations and metamorphosis rather than communication media that are endemic in today's society. One example that we can see is that people tend to use handheld telephones to become a medium of communication between one person to another who is in another place. Reality has become a phenomenon that is prevalent in the world community. But not only that there is another thing that is of concern, which, along with the passage of time, that mobile phones are often used to innovate into smart phones "smartphones". The community is now at peace - busy using various types of smartphones especially Android. This is in accordance with the ability, motivation, desires and needs of the community towards the usefulness of the media.

Now many students are switching to using an Android Smartphone to be used as a medium to access information

easily and quickly. This also happened among the students who in the observations of researchers were generations who were sensitive to new technologies and new innovations. Young people are known to be very close to things that are new and do not rule out the possibility that one of them is an Android smartphone which is almost a necessity for every student to be able to look "slang" or not outdated with new things. Android also includes new things for students now. The development of technology is getting faster and faster, especially technology information and communication. This makes humans like not separated by distance of space and time. With increasingly advanced technological developments, humans can make various kinds of equipment as a tool to run various activities to support productivity (Kompas.com, 2013).

A smartphone is a technology that cannot be separated from everyday life. Besides being easy to get, the smartphone is also easy to use anytime, anywhere and almost all people at this time already able to operate a smartphone. At present there are lots of smartphones which has been circulating in the community, starting from Java-based smartphones, Symbian, Blackberry, Windows Phone, iOS and Android. Therefore, smartphone is an effective media for supporting activities for society today. Along with the high level of mobility, in recent years amidst mobile devices or mobile devices. One mobile device the fastest is a smartphone where almost everyone has it. A smartphone that was supposed to be a communication tool is now more than basic functions.

Various kinds of features have been embedded, such as image processing and videos, document processing and so on. This can not be separated from use of the Operating System on a smartphone. Like a computer, smartphones can also be installed in a variety of desired applications. We see media use among students. When students use an Android smartphone, it is possible to achieve a purpose or goal rather than using the media. One form of utilization that we need to take is in accessing educational information, the reason being that this development is also in line with the

development of academic information systems at universities such as Academic Portal, digital library and the development of the internet world which now provides thousands and millions of links and webpages ( site) that contains educational things such as research, ejournal, ebook, encyclopedia, digital library that can be accessed online.

This activity is one form of communication using an Android smartphone. For that android is used as a medium by students to access educational information. More and more students are using Android smartphones, but not necessarily in the use of the media it is also used to access educational information. In this study the author raised about the use of an Android Smartphone in accessing educational information on communication students. Because communication science students specifically learn about various types of information media both understanding in theory and practice. The communication students also studied communication aspects in delivering information through the media.

2. Product Design

Android-based Hadith search system has been developed using the Android video programming language. have an account on Android called the Playstore account by creating an account in the PlayStore

3. Manufacture of Products, products produced

a. The initial menu of the Android-based Hadith search system

Hadith Search System (HSS)contains lecture material taught in Islamic religious colleges in Indonesia such as: intention, faith, doomsday, fasting, pilgrimage, leader, etc.

b. The design validation by hadith material experts, android experts and information technology experts

Limited trials were conducted on 5 hadith lecturers and 15 students in the Shariah IAIN faculty in Salatiga. Steps taken by asking lecturers and students in limited trial activities.

- 1) Open a playstore account with title: ide kreatif hadis android

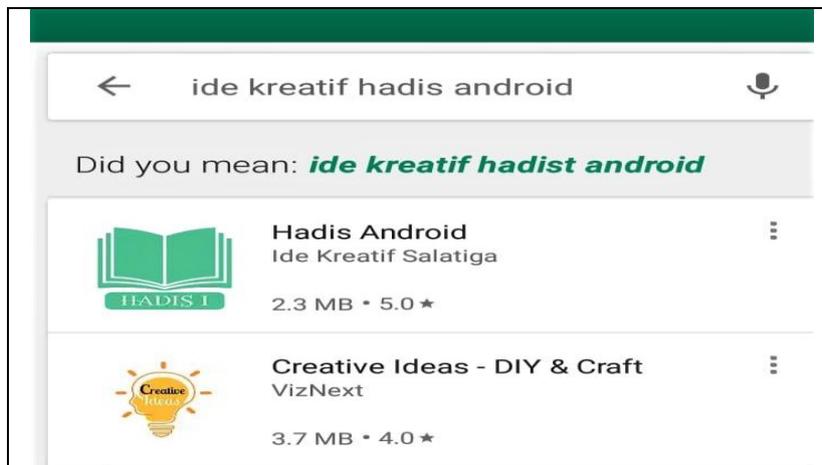


Fig. 2 Display in playstore

- 2) Main menu HSS



Fig. 3 Main menu HSS/Hadith search system

Limited trial activities were carried out for 15 lecturers and 30 students at IAIN Salatiga. The steps are the same as when the trial activities are limited. Product Revision 2 activities are carried out by looking at and accommodating input from the main field testing activities with the intention that the Android-based hadith search system products get the desired wealth

#### 4. Desimination and Implementation

The dissemination and implementation activities were carried out to the lecturers of UIN Medan and IAIN Salatiga. Summary of the final results of the research data in table 2 below

**Table. 2 Summary of the final results of the research data**

Aspects	Criteria Item	Mean
Functionality (F)	Android-based hadiths provide the information needed (F1)	4,5
	Android based hadiths include data processing (F2)	
	Android based hadiths are equipped with a search feature (F3)	
Usability (U)	Android-based hadiths are concise and easy to learn (U1)	4,7
	Android based hadiths have an attractive display design for each interface (U2)	
	The layout in the information system design is very clearly organized (U3)	
Supportability (S)	Information system design makes it possible to operate from various android (S)	4,8

#### IV. DISCUSSION

First, in the need analysis, basically the learning process is the process of communication between lecturers and students through verbal language as the main medium for delivering subject matter. lecturers as learning planners are required to be able to design learning by utilizing various types of media and appropriate learning resources so that the learning process takes place effectively and efficiently. The rapid advancement of Science and Technology, especially android on the one hand, has made it easier for lecturers to deliver learning material. With the help of learning hardware and software, lecturers can prepare learning effectively and efficiently. In addition, lecturers can also use more interesting media and learning resources so that they can increase students' interest in learning such as interactive CDs, multimedia learning and E-learning (Electronic Learning) based learning media where learning is no longer focused on lecturers and classes, but students can study wherever and whenever.

Hadith that must be taken subjects in all Islamic religious institutions in Indonesia including IAIN Salatiga. Currently the development of android is progressing very rapidly. Most students have an Android and become their needs. In learning a tool is needed that can be used to make learning easier and more efficient. One of the steps needed in learning is the use of android in the Hadith course. Android Development Tools (ADT) is a plugin used by android studio software designed for Android application development. ADT allows android studio to be used to create new android applications, create user interfaces, add components based on the Android API framework, debug applications, and package Android applications.

Second,. In making the development of HSS, steps were taken to find the hadith references taught at IAIN Salatiga then included in the android application. Android is an operating system specifically designed for smartphones and tablets. The system is based on Linux which is used as the basic foundation of the Android operating system. Besides that, Android is also designed for mobile touchscreen devices. So that the operating system inside the smartphone and tablet is currently adjusting the specifications of the

class from low end to high end. Android is known as an open source operating system developed by Google. An open source or open operating system is a system that is granted by the developer and freedom to any party who wants to develop the android system. Interestingly, Android has a myriad of applications and games available on Google Playstore

The development of the operating system and its own application refers to the four principles namely Open Android is built to be truly open. For example, an application can retrieve and access key cellphone functions such as making calls, sending text messages, using a camera. This allows developers to make better applications. All applications are made the same Android operating system does not distinguish between core mobile applications and third-party applications, both types of applications can be built and have the same access to mobile phones and Users can fully manage the telephone according to their interests. Breaking the limits of Android applications discards various obstacles to building innovative new applications, for example, a developer can combine information from the web with individual data from a cellphone. For example, contact data, calendar, or geographical location, so as to provide information that is more compatible with Android, development can also build applications that allow users to view locations and connect with others. Fast and inexpensive application development Android provides access to various libraries and tools can be used to build Android applications. After the Android-based hadith search system application was successfully created, the application of this hadith was placed in the Google Playstore.

Third, the feasibility of HSS is as follows that the eligibility criteria in aspects of functionality, usability, reliability, performance, and supportability are determined so that it is feasible to use. declared feasible through 5 aspects of system testing, namely; aspects of functionality with a score of 4.5 (very good category), usability aspects

with a score of 4.7 (very good category), aspects of supportability with a score of 4.8 (very good category), performance aspects with a success rate of 95% , and reliability aspects with a success percentage of 93%.

### V. CONCLUSION

The findings of this study show that based on the need assesment, HSS is needed by students in IAIN Salatiga. This is supported by the condition of the students that mostly, students IAIN Salatiga have smart phones to support their daily communication. Also, hadith is a compulsory subject that the students should take. Thus, they need to access HSS to help. Also, the feasibility of HSS is that the eligibility criteria in aspects of functionality, usability, reliability, performance, and supportability are determined so that it is feasible to use. It is proper for a web-based lecture evaluation lecturer system to be used in Islamic higher education in order to facilitate the implementation of lecture evaluations conducted every semester so that the lecture process is better. In addition, it can increase visits to the college web so that it will help increase webometrics ranking

### REFERENCES

1. A. Al-Rumkhani, M. Al-Razgan, and A. Al-Faris, "TibbOnto: Knowledge Representation of Prophet Medicine (Tibb Al-Nabawi)," *Procedia Comput. Sci.*, vol. 82, no. March, pp. 138–142, 2016.
2. M. Batyrzhan, B. R. Kulzhanova, S. U. Abzhalov, and R. S. Mukhitdinov, "Significance of the Hadith of the Prophet Muhammad in Kazakh Proverbs and Sayings," *Procedia - Soc. Behav. Sci.*, vol. 116, no. 701, pp. 4899–4904, 2014.
3. M. Alkhatib, A. A. Monem, and K. Shaalan, "A Rich Arabic WordNet Resource for Al-Hadith Al-Shareef," *Procedia Comput. Sci.*, vol. 117, pp. 101–110, 2017.
4. S. E. E. Profile, "3G -MOBILE TECHNOLOGY IN EDUCATION," no. July, 2014.
5. O. Ozlem, G. T. Yamamoto, and D. Ugur, "Mobile learning technologies and educational applications," pp. 97–109, 2015.
6. K. Alsaadat, "Mobile Learning Technologies," *Int. J. Electr. Comput. Eng.*, vol. 7, no. 5, p. 2833, 2017.
7. Y. B. B. Öztaş, "The Increasing Importance of Mobile Marketing in the Light of the Improvement of Mobile Phones, Confronted Problems Encountered in Practice, Solution Offers and Expectations," *Procedia - Soc. Behav. Sci.*, vol. 195, pp. 1066–1073, 2015.
8. M. Ebner, "Mobile Applications for Math Education—How Should They Be Done?," *Mob. Learn. Math.*, no. March, p. 20, 2015.
9. H. F. El-Sofany, S. A. El-Seoud, H. M. Alwadani, and A. E. Alwadani, "Development of Mobile Educational Services Application to Improve Educational Outcomes using Android Technology," *Int. J. Interact. Mob. Technol.*, vol. 8, no. 2, p. 4, 2014.
10. Z. Masood and R. Hoda, "Math tutor: an interactive Android-based numeracy application for primary education," *Proceeding AUIC '14 Proc. Fifteenth Australas. User Interface Conf.*, vol. 150, pp. 3–10, 2014.
11. Borg, W.R. & Gall, M.D. (2003). *Education research an introduction*. New York: Von Hoffman Press, Inc
12. Sugiyono (Sugiyono). *Metode Penelitian dan Pengembangan: Research and Development/R&D*. Bandung: Alfabeta, 2015, p. 28
13. Rolston, D.W. (1988). *Principles of artificial intelligence and expert systems development*. Singapore: McGraw Hill Book, Co, p. 138