Articles

Android-Based Mobile Learning Information System in Management of Learning Activities Faculty of Science and Technology Buddhi Dharma University

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A B S T R A C T

Teaching and learning activities, especially in Higher Education, from time to time develop along with the development of technology, the teaching and learning activities at the Faculty of Science and Technology of the Buddhi Dharma University used a manual system in the form of face-to-face class. The system (for several courses and meetings) developed into distance learning (e-learning) where lecturers and students did not meet in the classroom but through the internet media. The e-learning system was developed into a mobile learning system, which is using an Android-based. In the mobile learning system, lecturers can provide material and assignments to students. Students can view and download the material by smartphone. Students also can submit assignments. Beside that admin can provide information about the seminar to be held. Students can choose that to be followed and register by smartphone. This application system can be run well and can help facilitate the process of teaching and learning activities for lecturers and students. Lecturers can upload material and assignments for students. The university can provide information about the seminar and the seminar registration process.

INTRODUCTION

Today's technological developments have penetrated most aspects of life. Almost all activities of daily living in business, education, organization, use a computerized system. Using smart phone by the community is not limited to communication, but has progressed to various activities such as email, chat, social media, and business transactions. In the field of education, the teaching and learning process utilizes many information technology (IT) as a tool in teaching and learning activities (KBM). The KBM process uses multimedia facilities, so it is more effective and efficient. The process of teaching and learning in tertiary institutions (PT), in part, is no longer in the

form of face-to-face class, but through distance learning (e-learning).

Globalization triggers a shift in education, from face-to-face education to more open education [1].

Information technology can give birth to new features in the world of education. Internet technology can create e-learning or distance education [2].

Education is a system because it consists of several components, namely organizing institutions, lecturers, students, facilities and others. A system consists of several parts or components that are integrated to achieve a goal [3].

In e-learning, lecturers can provide course material, assignments, assessments through the application system. Students can download material and submit assignments through the application system. The university can submit seminar information or any information through the application system. The teaching and learning process becomes effective and efficient, because there is no need for face-to-face meetings in the classroom, but the essence of KBM can still take place because of the 2-way communication between lecturers and students.

The media for e-learning is not limited to computers but can use smart phones. Mobile learning is not limited to long-distance learning, but can be developed and added to several applications such as assessment systems (value processing), attendance systems, monitoring systems for student attendance in class by parents. A system that is connected with its environment through the flow of resources is called an open system [4].

Android is an operating system that is very popular in the community. Almost all sophisticated gadgets have an Android-based operating system, ranging from watches, smart phone, tablet PCs, cameras. Even soon the android will be implemented into a computer [5].

The growth of the Android-based device market is driving the growth of Android-based application development. Android SDK makes it easy for anyone to create applications. Android is a collection of software that contains libraries, debuggers (program error finding tools) and emulators (mimicking the drive device), documentation, sample code, and guides. Android can be used on several devices [6].

I. METHOD

The process of developing a system of teaching and learning activities in FST-UBD is as follows:

MANUAL BASED LEARNING SYSTEM

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COMPUTER-BASED TEACHING LEARNING SYSTEM

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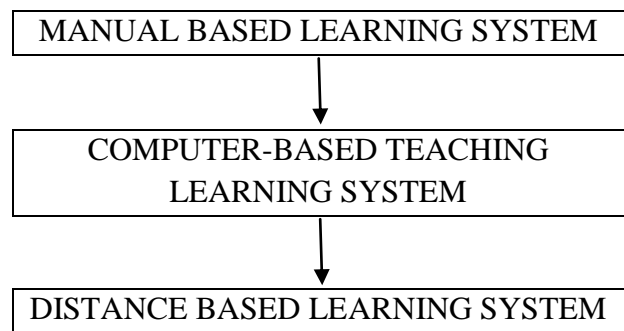| DISTANCE BASED LEARNING SYSTEM |
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Figure 1. Framework

The system developed is a computer-based remote learning system (e-learning) into a distance learning system using an android-based smart phone (mobile learning).

The stages in developing this application system include:

1. Research Analysis, consisting of:
   a. Planning.
      It is an activity to design a system that will be made / developed and the facilities/infrastructure needed.

   b. Analysis.
      This stage is used to analyze the system to be made, the process of development, simulation and operation.

   c. The design.
      This stage is used to create a system design that will be created to produce a good and useful system.

d. Implementation.
This stage is used for the implementation of the system that is made so that it can be used by the parties concerned.

2. Data collection.

Data collection methods in this study include:
   a. Observation.
   Observation is the first step, carried out by observing and assessing research objects and places that can support the conduct of research to be successful.

   b. Interview.
   The interview is an attempt to obtain some input or information about the system to be developed. Interviews were conducted with students, lecturers and faculty/university representatives.

   c. Literature review.
   A literature study is conducted to obtain a theoretical basis and other articles that are related to the research theme, so that a complete picture of the research topic is obtained.

The developed system is expected to be able to help implement KBM to be more effective and efficient. Research methods that function to assist the implementation of work to be more effective and efficient are action research methods [7].

In this android-based mobile learning application system, the lecturers can provide lecture material and give assignments. The course material is uploaded through the application system in stages or all at once. Assignments for students are uploaded regularly according to the number of assignments in one semester.

The system developed is based on Android because it is cheaper and most smart phone are now based on Android. According to the EMS Team, Android is open source, applications can be downloaded for free and the operating system can be modified [7].

In general, students have smart phone with sufficient specifications to install applications that are developed. Android has a simple but elegant interface. [5]

In developing the system, the Java programming language is used. Java is an object-oriented programming language. Java is usually used for developing internet-based applications. Java is a programming language that can be run on various computers including smart phone [8].

For students, this application system can facilitate the learning process because there is no need to write in a book but simply by opening the application on a smart phone then seeing the material that has been uploaded by the lecturer. If needed, the material can be downloaded and then printed on paper. Assignments from lecturers can be seen and downloaded and then done and uploaded via mobile phones.

Students can install application systems developed through Playstore on mobile. Playstore is a large market made by Google which was made to publish his creation [9].

The University can provide seminar information periodically, Students can see the seminars to be held at the University and choose the seminars to be followed. Students can register for the seminar via mobile.
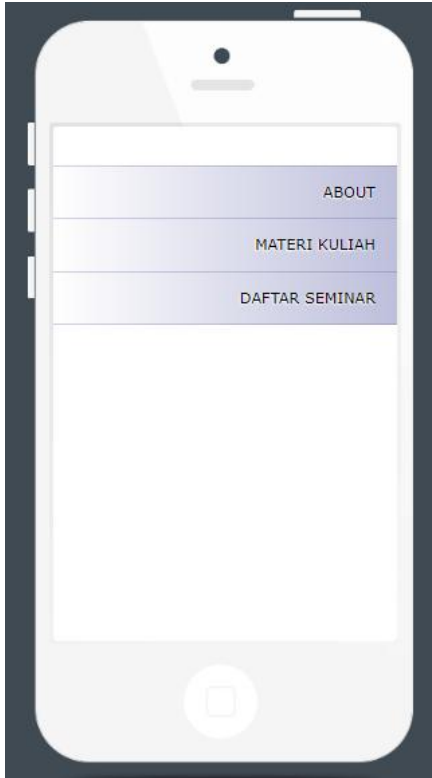
Figure 2. Display the main application system.

On the main menu there are 3 Menus, that is: ABOUT, LECTURE MATERIAL and SEMINAR LIST.

1. ABOUT:
This menu contains all information related to University and Faculty. This information is not static, but can be developed or revised and adjusted to the future development of the University and Faculty.
This menu contains about:
   a. The history of the Boen Tek Bio Association (BTB) as a foundation that houses UBD, the fields of activity in BTB and others.
   b. The mission of UBD and FST.
   c. Study programs in UBD.
   d. History of the development of High Schools in the auspices of BTB to become University.
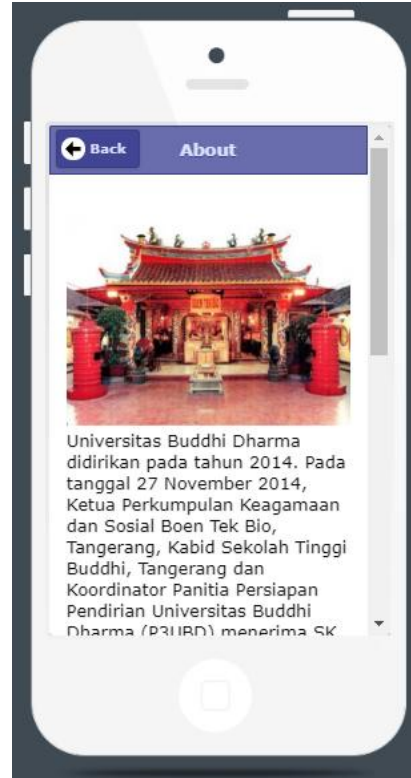
Figure 3. ABOUT menu details.

2. LECTURE MATERIALS
This menu can be used to:
   a. For lecturers, this menu can be used to upload lecture material, in the form of text (words), slides (ppt), images or videos. Lecture material from the first meeting to the last meeting or in stages.
   b. For students, this menu can be used to open and download lecture material that has been uploaded by the lecturer.

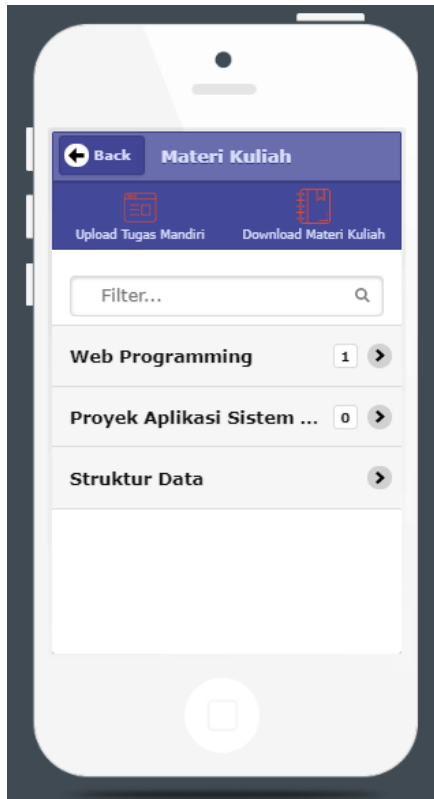If this menu is clicked, a sub-menu will appear as follows:

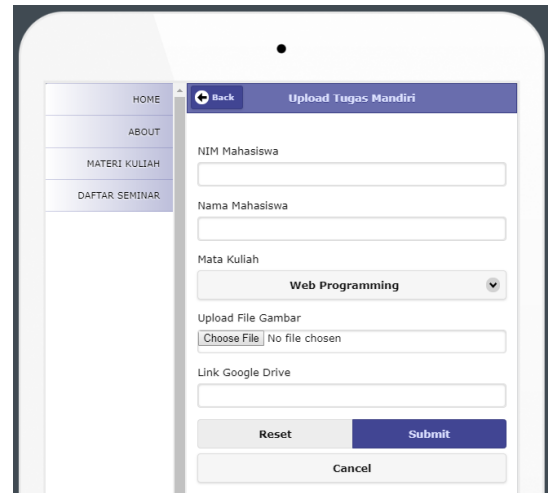**Figure 4.** Display the start menu of Lecture Material.

Figure 5. Display upload of independent tasks

Figure 6. Display the Download Lecture Material menu.
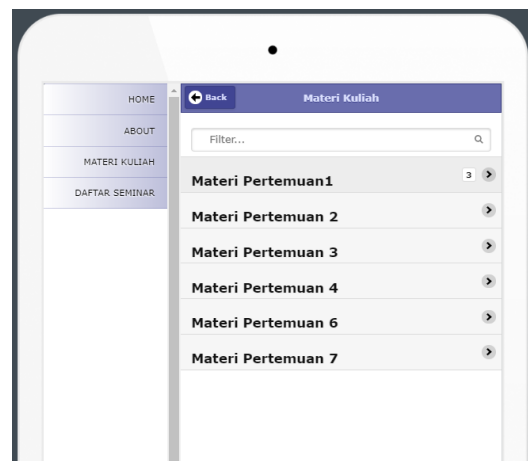
Figure 7. Display Detailed Lecture Material Menu.

Sub Menu Material Lectures are:
1.1. Upload Independent Tasks.
This menu is used to upload assignments given by the lecturer.
1.2. Download Lecture Materials.
This menu is used to open or download lecture material and there are also links to other sources.
2.3. List of Lecture Materials.
This menu can be used to view or open lecture materials that are already in the database.
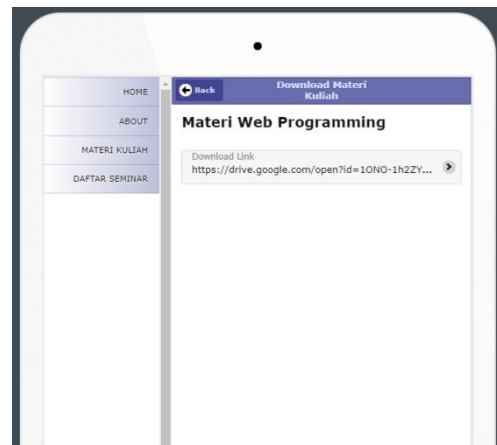
Students can open to view and or download the material for the first meeting until the last meeting.

1. LIST OF SEMINAR

This menu can be used to:
1. For faculty, it can be used to provide information about the seminar to be held. Information includes topic of the seminar, the speaker, time of implementation and cost of the seminar.
2. For students, it can be used to open, see seminars to be held by the faculty. Students can also register for selected seminars and will be followed.
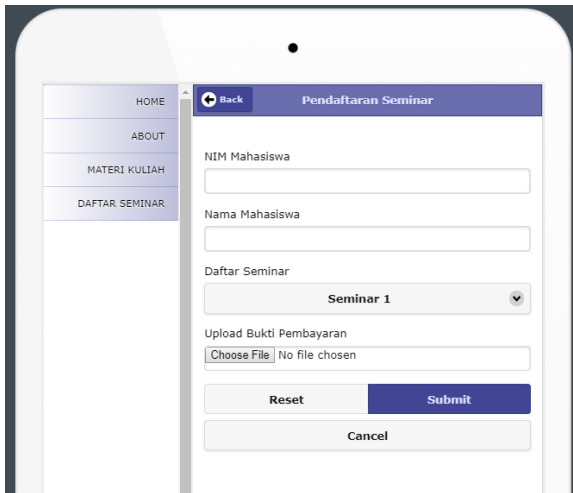

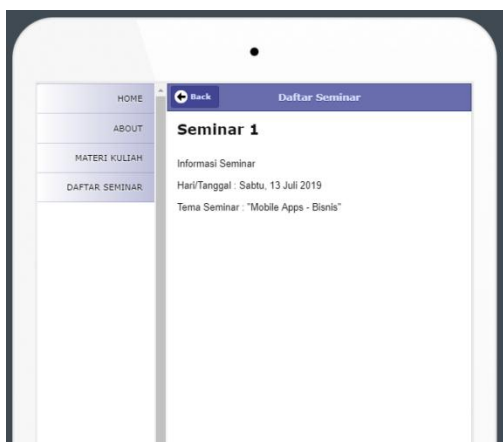**Figure 8.** Display Seminar Registration menu

Figure 9. Display menu to register for the seminar.

II. DISCUSSION

The mobile learning system developed is based on Android and installed on a smart phone. Lecturers and students can install this application system by downloading it.

In this system, lecturers can upload lecture material and provide independent assignments. All lecturers can use this application facility, and can upload material in stages or all at once. Lecturers can periodically give assignments to students and check assignments from students.

Students can view, open or download course material from the lecturer and open and know the assignments of the lecturer and convey the task to the lecturer. The University can make seminar information and seminar registration to be held.

This system is proven to be effective and efficient and can help in KBM, because KBM is not limited by space and time, so that it becomes more practical, effective and efficient.

III. CONCLUSION

Android-based Mobile Learning application system can be installed and applied to smart phones so can help lecturers and students in teaching and learning activities. The teaching and learning process becomes more practical, effective and efficient.

IV. ACKNOWLEDGEMENT

REFERENCE

[1]   Sutabri, Tata (2014). Pengantar Teknologi Informasi. Andi. Yogyakarta.
[2]   Kadir, Abdul dan Terra Ch. Triwahyuni (2013). Pengantar Teknologi Informasi. Andi. Yogyakarta.
[3]   Sutabri, Tata (2005). Sistem Informasi Manajemen. Andi. Yogyakarta.
[4]   Raymond Mcleod, Jr (1995). Sistem Informasi Manajemen (terjemahan), Jilid I. Prenhallindo. Jakarta.
[5]   Irsyad, Hanif (2016). Aplikasi Android dalam 5 menit. Elex Media Komputindo. Jakarta.
[6]   Buana, Kresna Rengga (2009). Membuat *Content Mobile* dengan J2ME. Binus University. Jakarta.
[7]   Tim EMS (2015). Pemrograman Android dalam Sehari. Elex Media Komputindo. Jakarta.
[8]   Ramadhani, Cipta (2015). Dasar-dasar Algoritma dan Struktur Data dengan Bahasa Java. Andi. Yogyakarta.
[9]   Hidayat, Muhammad Nur (2014). Jurus Rahasia Menguasai Pemrograman Android. Elex Media Komputindo. Jakarta.

BIOGRAPHY

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