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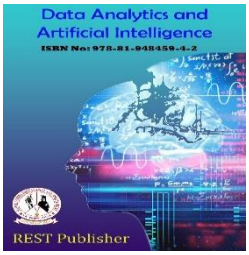

E-Learning Application Using Android

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Abstract : *Learning is the major economy for everyone's life. Android-based mobile learning in learning strategy courses is a product that has been developed in android. An international educational institute is providing its educational services through both offline in campuses as well as online by using E-learning platform with the help of web applications. Now it wants to develop an interactive E-learning android mobile application for its students. This application will help the students in learning by using their smartphones. It will not only fasten the learning process of the students but also help them in learning in an easy way. Students will use this application for ease of learning from different platforms. It can be concluded that Android-based mobile learning is effectively used in the Learning Strategy course Educational Technology Study Program, Faculty of Teacher Education. An observation was also used to get first-hand information on the access of learning material from e-learning platform. It makes learners at any time at any place they want to get the knowledge without having Internet in their android mobile device. Future researchers may link between mobile based learning application and other aspects of e-learning platform.*

1. INTRODUCTION

E-learning refers to the use of various kinds of electronic media and information and communication technologies (ICT) in education. E-learning is an inclusive terminology that encompasses all forms of educational technology that electronically or technologically support learning and teaching. Depending on whether a particular aspect, component or delivery method is given emphasis, e-learning may be termed technology-enhanced learning (TEL), computer-based training (CBT), internet-based training (IBT), web-based training (WBT), online education, virtual education, or digital educational collaboration. E-learning includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, and computer-based learning, as well as local intranet/extranet and web-based learning. Information and communication systems, whether free-standing or based on either local networks or the Internet in networked learning, underlay many e-learning processes. E-learning can occur in or out of the classroom. It can be self-paced, asynchronous learning or may be instructor-led, synchronous learning. E-learning is suited to distance learning and flexible learning, but it can also be used in conjunction with face-to-face teaching, in which case the term blended learning is commonly used. It is commonly thought that new technologies make a big difference in education. Many proponents of e-learning believe that everyone must be equipped with basic knowledge of technology, as well as use it as a medium to reach educational goal. E-learning has given people in college accessibility to data, wherever one looks data of e-learning is there, there are many different sometimes mobile devices as well as their many ways that these benefit people around the globe anytime, anywhere access to data. This can improve interactions between students and their instructors for their classes, this can allow students with tools which they can use for different purposes and use independently supports problem base actions.

2. OBJECTIVE

Enhance the quality of learning and teaching. Meet the learning style or needs of students. Improve the efficiency and effectiveness. Improve user-accessibility and time flexibility to engage learners in the learning process. To give students a clear understanding of where they are headed. Existing System Currently, there are different methods that have been applied for the purpose of students learning at University of Tourism Technology and Business Studies (UTB). Apart from the traditional way of teaching where students sit in class and learn or search for books to read, E-Learning has also been incorporated to support this way of learning. In some cases, both the system works same and they provided much of

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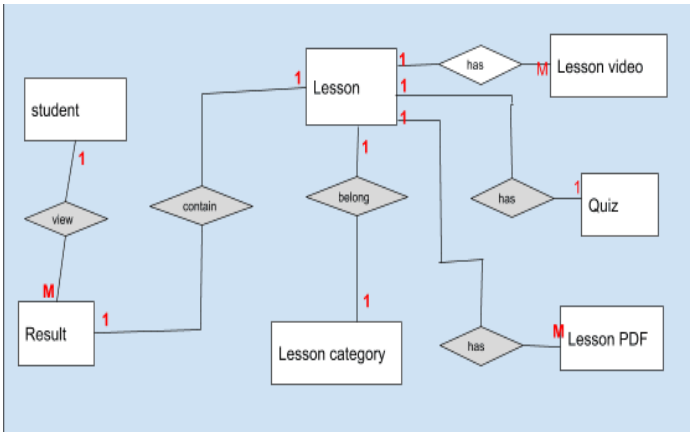
services to the user. But because of the some problems they lose their popularity. For the case of traditional system, students will only learn when the teacher is available but cannot do extra studies since the materials are only what are provided in class. In E-Learning, the drawback comes in when student are not able to do extra practical, self-assessment (like quiz) or research without being connected to the Internet.

3. PROPOSED SYSTEM

This application consists of the real time E-learning concept that provides a reliable mobile learning application. In case you are offline then also one can learn from this app. This application basically consist of four part first part has tutorial part where the learning contents are placed; in second part practical and/or exercises are available for user; in third part quiz part is available and fourth part chat room has been integrated. If any query occurs to user then he/she will fire it on the lecturer chat room. The Lecturer (expert) on the other side will provide with solution to the user's query thus this application is real time application and provide free of cost m-learning.

4. DATA FLOW DAIGRAM



5. RESEACH METHODOLOGY

Methodology used: Research was conducted by the following steps:

1. Conduct Literature study in order to learn and understand mobile-based learning application researched by other researchers.
2. Explore and analyse UTB e-learning platform as a case study in this research. Analysis is done to find out how currently tutorials and self-assessment are done. Based on this analysis, table in database will be designed.
3. Conduct interview to 20 random people/students at UTB Kigali-Rwanda on the importance of Mobile Based Application for campus.
4. Research was conducted during May 2017 to January 2018.
5. A prototype was implemented to test its effectiveness and reliability. The test was done among a few students within this period of data collection.
6. Conclude the result of the application by conducting a phase conversion in order to summarize the research objective and to answer the problem.

Findings: During May 2017 including both campuses Kigali, total Population of BIT student at University of Tourism Technology and Business Studies (UTB) was 388. To conduct research, Sample size 20 BIT Students was calculated by applying

Overview of the Mobile Learning Application: Our application can be installed only on android platform phones. This application consists of the real time e-learning that provide a reliable mobile learning application. This app is used offline. It means no need to have Internet connectivity to use this app. This application basically consists of three-part first part has tutorial part where the learning contents are place and in second part chat room is available for user. If any query occurs to user, then he/she will fire it on the chat room. The user (expert) on the other side will provide the solution to the user's query, this application is real time application and provide free of cost e-learning. The application we have developed is to

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reduce some drawbacks of the existing system. This application is basically based on the Android smart phone. From the literature survey on the growth of mobile phones, it shows that this application has a wider scope area. The Application provides the reliable and convenient way for the mobile learning.

Technology Used:

In this application, the following technologies are used.

Android Studio IDE: Android Studio Integrated Development Environment (IDE), which also includes the Android Software Development Kit (SDK). Android Studio IDE includes tool windows, the code editor, the Designer tool, cloud-base file storage and Integrated Firebase Realtime Database. In addition, it also includes Google Play specific topics such a simple maps using the Google Maps Android API, in-app billing and submitting apps to the Google Play Developer Console. Advanced features of Android Studio such as Gradle build configuration and the implementation of build variants to target
multiple Android device types from a single project code base.

Java: Java is an object oriented; multithreaded programming language develop by Sun Microsystems in 1991. It is designed to be small, simple and portable across different platforms as well as operating system. The Popularity of Java is due to its unique technology that is designed on the basis of three key elements. They are usage of applets, powerful programming language constructs and a rich set of significant object classes. When a Java Program is compiled, it is translated into machine code or processor an instruction that is specific of the processor. In the Java development environment, there are two parts: a Java
Compiler and a Java Interpreter. The Compiler generates byte code (a set of instruction that resemble machine code but are not specific to any processor) instead of machine code and the interpreter executes the java program . In this research, Java is used to perform the server side/back-end operations.

Firebase: Firebase can power your app's backend, including data storage, user authentication, static hosting, and more. Focus on creating extraordinary user experiences. Build cross-platform native mobile and web apps with our Android, iOS, and JavaScript SDKs. You can also connect Firebase to your existing backend using our server-side libraries or our REST API.

Firebase Features

- **Real-time Database –** Firebase supports JSON data and all users connected to it receive live updates after every change.
- **Authentication –** We can use anonymous, password or different social authentications.
- **Hosting –** The applications can be deployed over secured connection to Firebase servers.

Firebase Advantages

- It is simple and user friendly. No need for complicated configuration.
- The data is real-time, which means that every
- The data is real-time, which means that every change will automatically update connected clients.
- Firebase offers simple control dashboard.
- There are a number of useful services to choose.

Firebase Limitations

Firebase free plan is limited to 50 connections and 100 MB of storage.

In this research Firebase real-time database has been used to implement real-time chat room.

6. CONCLUSION

The development of mobile applications is not an easy task. In this paper we present the main steps in development of a mobile learning application for Android. The application is not yet available on Google play store for download. The system developed includes the testing module. The testing result showed that the system worked correctly. Evaluation on the prototype will be conducted to assess the learning efficiency and effectiveness of this system. This system will persist to grow and the future work will include improving the content of the system by adding more modules; real time-class assessment quiz; a chat forum and more interactive learning options for the system.

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