

Implementation of an Android-based Application: Gollege Application (Chat and Dictionary Features)

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Abstrak

Pada saat ini, mahasiswa Fakultas Ilmu Terapan dapat mendapatkan informasi dari *student portal* mereka masing-masing. Namun, masih saja terdapat banyak mahasiswa yang melewatkan informasi yang disajikan di sana; hal ini dikarenakan beberapa hal seperti *interface* yang tidak nyaman digunakan di perangkat seperti Handphone dan kurangnya aplikasi tambahan yang dapat menguntungkan mereka seperti aplikasi *chatting* dan kamus. Untuk mengatasi hal tersebut, dibuatlah sebuah aplikasi bernama Gollege Application. Gollege Application adalah aplikasi berbasis Android yang memiliki 4 fitur. Istilah "Gollege" yang merupakan penggabungan dari kata Go dan College difungsikan untuk dapat diakses kapanpun oleh komunitas kampus. Fitur yang ditawarkan oleh aplikasi ini adalah portal, RSS reader, Instant Messaging, dan kamus. Keempat fitur ini dapat diakses secara bersamaan karena layoutnya berbentuk tab. Perangkat yang dipakai untuk membangun aplikasi ini adalah IDE Eclipse dan Android Virtual Device. Eclipse digunakan sebagai perangkat untuk *coding* sementara Android Virtual Device digunakan sebagai emulator untuk menjalankan aplikasi yang telah terkompilasi oleh Eclipse. Aplikasi Gollege ini diuji di Android versi 2.3 pada emulator dan *smartphone* Android dan semua fungsi berjalan dengan baik. Aplikasi Gollege merupakan solusi bagi mahasiswa yang membutuhkan akses student portal, berita, *chat* dan kamus dalam satu aplikasi.

Kata kunci: Android, Aplikasi, Portal, RSS Reader, Chat, Kamus

Abstract

At the present time, the students of Telkom Polytechnic can get various information through their own student portal. However, there are still many of them missing the information due to several problems it has such as the uncomfortable interface, inaccessibility, and lack of additional important application such as chatting and dictionary. To solve this problem, Gollege Application is hence developed. Gollege Application is an android-based application which has 4 features. "Gollege" which is an abbreviation fo Go + College which means that this application is on the go, and can be accessed anywhere and anytime by the college community. It consists of 4 features, they are portal, RSS reader, Instant messaging, and dictionary. These 4 features can be used simultaneously because the application has a tabbed-based layout. The tools used in developing this application is IDE Eclipse and Android Virtual Device. Eclipse is used as a tool for coding while Android Virtual Device is used for the emulator to run the compiled application from eclipse. Gollege application is tested to run in android 2.3 version, known as Gingerbread, on emulator and on real android smartphone and works well for all of the functions. Gollege application is a solution for students who need student portal, news, chat and dictionary in one application.

Keywords: Android, Application, Portal, RSS Reader, Chat, Dictionary

1. Introduction

Smartphone is preferred by many people because it offers continuous connection to the internet. Smartphone uses operating system such as Android, Blackberry, IOS, Windows 7 and 8, and every single of them has its own unique features to compete with each other; the current operating system dominating smartphone is Android.

Developed by Google, this operating system has many interesting features, especially in the latest version of Android 4.2 with code name Jelly Bean. One of the major advantages in Android compared to other competitors-operating system on smartphone is open source, in which people can develop their own applications for android easily and

freely. This becomes one of the reasons behind the making of this current study.

Making an application based on Android is thought to be the solution for the problems faced by the students of Polytechnic Telkom (henceforth Politel) regarding its information system. The students sometimes have difficult time in accessing the student portal of Politel due to its interface that cannot be accessed through mobile devices, especially mobile phones. Besides that, the students are also unaware of the Politel blog despite its informative content; this is due to the inaccessibility through the mobile device. Some other deficiencies of the current system are the lack of chatting application and dictionary application.

After looking at these problems, it is decided to make an application that features the solutions to these problems. The name of the application is "Gollege", an application that will be created and running on the Android platform which in fact is the operating system that is currently has a lot of users and open-source. Gollege is an application that consists of 4 features as solutions to the problem analysis before, they are Student portal feature, RSS News Feature, Chat Feature and Dictionary Feature. All of its features can be used simultaneously in a single application that allows users to use all the available features.

Writer along with colleague split the task to complete this paper, and on charge for working the parts for Chat Feature and Dictionary while my colleague working on Student Portal feature and RRS news. XMPP Openfire will be used as chat server and MySQL database will be used as database server.

2. Literature Review

2.1 Android

Android is the world's most popular mobile platform. With Android you can use all the Google apps you know and love, plus there are more than 600,000 apps and games available on Google Play to keep you entertained, alongside millions of songs and books, and thousands of movies. Android devices are already smart, and will only get smarter, with new features you won't find on any other platform, letting you focus on what's important and putting you in control of your mobile experience. [2]

2.2 Android SDK

Android SDK is an API tool (Application Programming Interface) necessary to begin developing applications on the Android platform using the Java programming language. Android is a subset software for mobile devices that includes operating system, middleware and key applications which is released by Google. Here are the following features that Android have:

- a. Framework application: it allows the use and removal of components available.
- b. Dalvik virtual machine: a virtual machine optimized for mobile devices.
- c. Graphics: charts in 2D and 3D graphics library based on OpenGL.
- d. SQLite: for data storage.
- e. Supports media: audio, video, and various image formats (MPEG4, H.264, MP3, AAC, AMR, JPG, PNG, GIF).
- f. GSM, Bluetooth, EDGE, 3G, 4G, and WiFi (hardware dependent).
- g. Cameras, Global Positioning System (GPS), compass, NFC, and accelerometer (hardware dependent). [4]

2.3 Android Development Tools (ADT)

Android Development Tools (ADT) is a plugin for the Eclipse IDE that is designed to give a powerful, integrated environment in which to build Android applications. ADT extends the capabilities of Eclipse to quickly set up new Android projects, create an application UI, add packages based on the Android Framework API, debug an applications using the Android SDK tools, and even export signed (or unsigned) .apk files in order to distribute your application. Developing in Eclipse with ADT is highly recommended and is the fastest way to get started. With the guided project setup it provides, as well as tools integration, custom XML editors, and debug output pane, ADT gives an incredible boost in developing Android applications. [2]

2.4 Eclipse

Eclipse is an Integrated Development Environment (IDE) to develop software and can run on any platform (platform-independent). Here is the nature of Eclipse:

- a. Multi-platform: Eclipse target operating system is Microsoft Windows, Linux, Solaris, AIX, HP-UX and Mac OS X.
- b. Multi-language: Eclipse developed in the Java programming language, but the Eclipse-based application development support other programming languages, such as C / C + +, Cobol, Python, Perl, PHP, and others.
- c. Multi-role: In addition to the IDE for application development, Eclipse can be used for activities in the software development cycle, such as documentation, test software, web development, and so forth.

Eclipse at the moment is one of the favorite IDE because of free and open source, which means that anyone can view the programming code of the software. Furthermore, the advantages of the Eclipse that makes it popular is its ability to be developed by the user with a component called a plugin. [4]

2.5 MySQL

MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. Free-software-open source projects that require a full-featured database management system often use MySQL [3].

2.6 Instant Messaging

Exchanging text messages in real time between two or more people logged into a particular service is known as Instant messaging (IM). It is considered more interactive than e-mail because messages are sent immediately, whereas e-mail messages can be queued up in a mail server for seconds or minutes. However, there are no elaborate page layout options in instant messaging as there are with e-mail. The basic operation is simple: type a brief message and press Enter.

This was first introduced by Israeli-based ICQ in 1996, which was later acquired by AOL. The major IM services are AOL's Instant Messenger (AIM), ICQ, Yahoo! Messenger, Google Talk, Jabber and Microsoft's incarnations: MSN Messenger, Windows Messenger and Windows Live Messenger. See AIM, ICQ, Yahoo! Messenger, Google Talk, Jabber, MSN Messenger, Windows Messenger and Windows Live Messenger [5].

2.7 Beem

The goal of Beem is to provide a full featured and easy to use a Jabber/XMPP client on Android.

Beem is under constant development. Releases are usually frequent and driven by user contributions, such as bug reports and patches. Beem is free and contains no ads. All our code is open source and licensed under the GNU General Public License 3 and any later version. [1]

Features Available:

- a. Compatible with any standard XMPP server (Prosody, ejabberd, Openfire, Tigase, Google Talk, etc)
- b. SASL support
- c. Proxy (Socks4 Socks5 HTTP)
- d. Support of DNS SRV
- e. OTR.

3. Design and Implementation

3.1 Preview of the System

Broadly speaking, the system is comprised 4 features, the portal features, news, chat and dictionary in which these features are associated with a mysql database, web server XAMPP, openfire chat server and website blog.politeknitelkom.ac.id for RSS news.

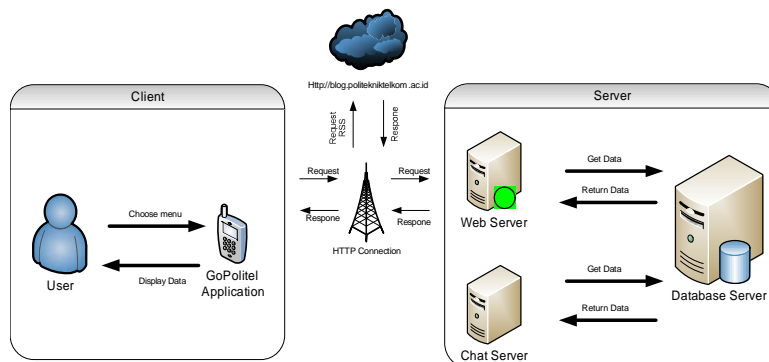


Figure 1. Client - Server

3.2 System Requirement Analysis

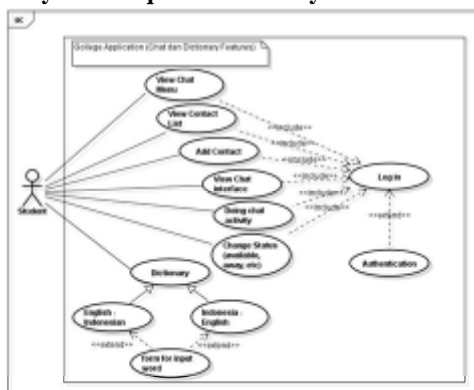


Figure 2. UseCase

3.3 Hardware and Software Requirement

3.3.1 System Development

- a. Laptop

TABLE 1
HARDWARE LAPTOP

Specification	Description
Processor	Intel Core i3-3110m @2,4GHz
RAM	8GB (2x4GB) PC3-12800
Operating System	Windows 8Pro WMC 64 bit

b. Handphone

TABLE 2
HARDWARE HANDPHONE

Specification	Description
Operating System	Android
Version	2.3.4 (Ginger Bread)
Processor	1GHz Scorpion
RAM	512MB
GPU	Adreno 205

c. Software

TABLE 3
SOFTWARE

Type	Software
Operating Sistem	Windows 8Pro WMC 64 Bit
Database System	MySQL
Designer Software	Microsoft Visio 2007, Astah

Project Documentation	Microsoft Office 2010
Programming Language	Java
IDE	Eclipse Juno 64 Bit
Web Server	XAMPP Apache
Server Chat	XMPP OpenFire
Virtual Engine	AVD Manager
API	Android SDK, Smack

3.3.2 System Implementation

TABLE 4
SYSTEM IMPLEMENTATION

Specification	Description
Operating System	Android
Version	2.3.x Gingerbread

4. Implementation and Testing

4.1 Implementation

From the flowchart in Figure 4 the following sequence of events can occur in the system:

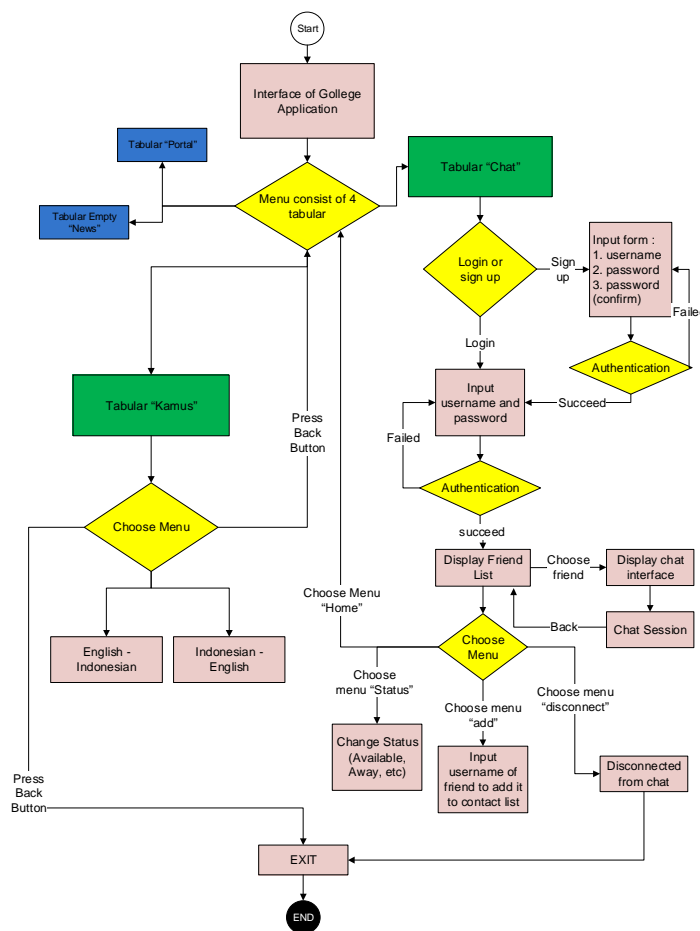


Figure 4. Flowchart

1. Users open the application Gollege and the system will display the application display consisting of 4 tabular, with tabular "Portal" as the default shown.
2. Choose the tabular "Chat", there will be a form to input a username and password to be able to use the chat feature, and also there is an option to register an account for Chat application Gollege.
3. Request sent to the openfire server which will then be processed and transmitted back to the application to then go into Gollege chat application which will display a list of contacts as the default display.
4. After that, the user can add contacts by selecting the "add" menu and enter the id/username belongs to a friend (if the friend has a chat account of Gollege).
5. If the friend has approved us, then user can begin a chat conversation.
6. Users can also select menu "Status" to choose the availability of account (available, away, etc)
7. Users can choose manu "Home" to return to the main 4 tabular display (the "Portal" tabular)
8. After that the user can disconnect from the chat feature by selecting the "Disconnect" menu.
9. And the last is a tabular "Dictionary" which is where we will have a dictionary Indonesian – English and English – Indonesian.
10. After selecting an existing menu, the system will displays the form fields that are used to translate words.

From the above sequence of events could also note that there are 2 menu is logged on to the portal login and login for the chat (where they are in different accounts)

In this paper, the part of the application which will be done by writer is chat and dictionary features in which the features of the portal and the RSS will be done by colleagues.

4.2 Testing

Testing is done from the Android Virtual Device (AVD) or known as Android Emulator. The testing itself has been screenshoted, to visualize how the application works.

First is testing about Chat feature:

- a. Display of AVD running android 2.3



Figure 5. Display of AVD Running Android 2.3

- b. Display of the Application Drawer showing the icon of Gollege Application

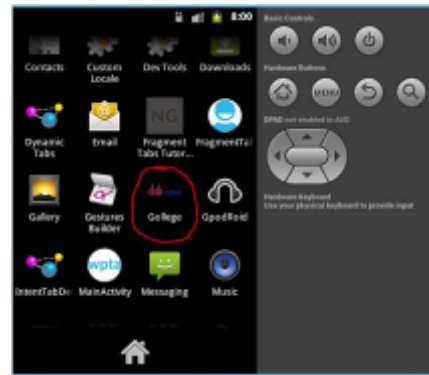


Figure 6. Display The Icon of Gollege Application

- c. To use this application, the user should have the account. A sign up button is also provided. After the user has his/her account, this is what the application shows after logging in.



Figure 7. Login Process

- d. If login succeeded then system will display the contact list view

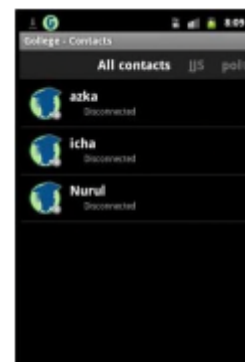


Figure 8. The Contact List View

- e. This application also has a feature to add friend by clicking menu (hard key) and

choose “Add a contact”. The display is as shown below.

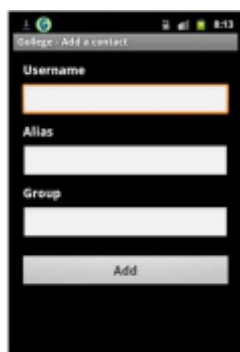


Figure 9. Menu Add Contact

Besides that, this application also provides a feature to change status by clicking “Change Status” in menu.

- f. To begin chatting session, simply click the contact name, and system will navigate to the chat view. In this feature, the user can also show emotion through emoticons by simply writing the character used for emoticons such as “:-D”. The example is shown below.

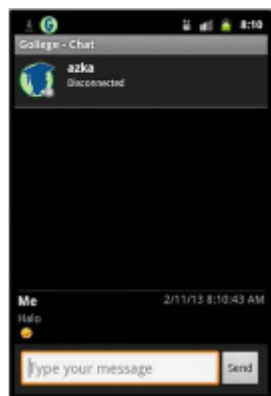


Figure 10. Emoticons

The following is how the Dictionary Feature was tested:

- a. The picture below shows how to reach the dictionary feature through the Main view of application.

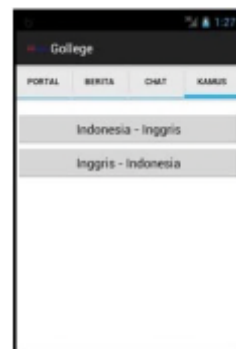


Figure 11. Dictionary Feature

- b. In this feature, the user can choose which translation mode to be used; whether it is “Indonesia – Inggris” to translate Indonesian to English or “Inggris – Indonesia” for vice versa. The following picture shows the display.

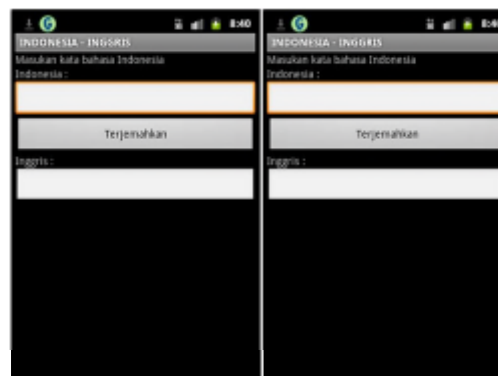


Figure 12. View Translate Indonesia Or English

- c. If the inputted word is not on the database then the application will notify the user as shown in the picture below.

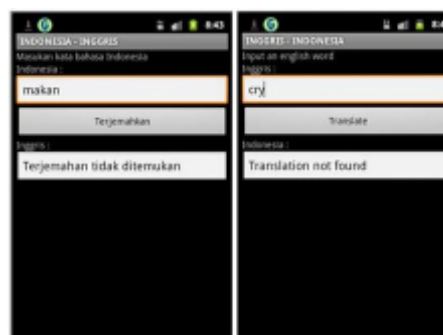


Figure 13. View Translation If Not Found

This dictionary feature can only translate one word at a time.

5. Conclusion and Suggestion

5.1 Conclusion

Based on what have been presented in this paper, this android application has conclusion which are:

1. Chat and Dictionary feature in Gollege can be used simultaneously within Gollege application.
2. The chat feature is connected to openfire server that has been configured beforeso their information can be accessed via server.
3. The dictionary can translate english and indonesian word correctly.

5.2 Suggestion

There are few things that can be improved for chat and dictionary feature, they are:

1. File transfer capability, nowadays file transfer is great feature in chatting so we can send and receive file while chatting.
2. The dictionary can be improved so they can give more information about the word i.e (verb, noun, adjective sample, etc).

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