



Faculty of Computer Science and Information Technology

***ANDROID BASED SOCIAL MEDIA FOR RURAL COMMUNITY***

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Bachelor of Computer Science with Honours  
(Network Computing)

2014



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**ANDROID BASED SO**

**JRAL COMMUNITY**

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This project is submitted in partial fulfilment of the  
requirements for the degree of  
Bachelor of Computer Science  
(Network Computing)

Faculty Computer Science and Information Technology

UNIVERSITI MALAYSIA SARAWAK

2014

# **ANDROID BASED SOCIAL MEDIA FOR RURAL COMMUNITY**

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Projek ini merupakan salah satu keperluan untuk  
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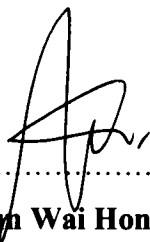
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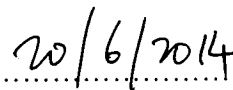
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## **ABSTRACT**

With the invention and evolution of telecommunication technology and mobile devices, the socialization and communication among communities become easier and nationwide, even worldwide. Many corporates and service providers are eyeing on the development of mobile application which allows them to earn more revenues while providing telecommunication services to users. However, the evolution does not bring advantage to rural residents due to some limitations such as insufficient of mobile network coverage, geographically scattered issues, as well as the requirements to achieve stable Internet connection. The difficulty in communication met within the rural communities can only be addressed as if a desired mobile text messaging application that supports local telecommunication services is provided.

In this project, the author proposes a localized social media application that runs on android mobile platforms. The target user of this system is the residents living in the rural areas whom always been neglected by the modern society and often low-educated. Through this chat application, the users are able to communicate with each other by sending or receiving messages for free without the presence of Internet. As long as they are connected to the network and registered to the system server, they are always able to communicate with each other for free. Other than the basic texting services, the system also provides other functionalities such as announcement and media sharing.

## ABSTRAK

*Penciptaan dan evolusi dalam bidang telekomunikasi teknologi dan peranti mudah-alih menyebabkan sosialisasi dan komunikasi bertambah mudah secara menyeluruh di seluruh negara mahupun di seluruh dunia. Ramai korporat dan pembekal perkhidmatan bertuju ke arah pembangunan aplikasi yang dipercayai akan membawa banyak manfaat malah membekalkan servis telekomunikasi kepada para pengguna. Namun begitu, perkembangan teknologi dalam bidang pembangunan aplikasi tidak membawa kebaikan kepada penduduk-penduduk di kawasan luar bandar. Sekatan seperti liputan rangkaian mobile yang terhad, populasi di luar bandar yang berpisah dan ketidakstabilan jaringan internet menyebabkan komunikasi di antara penduduk luar bandar adalah minimum. Masalah komunikasi dalam kalangan penduduk luar Bandar dapat diselesaikan melalui khusus mesej aplikasi yang membolehkan telekomunikasi servis tempatan.*

*Dalam projek ini, penulis mencadangkan satu system mesej yang beroperasi secara tempatan dan melalui platform Android. Pengguna system ini ialah golongan penduduk yang hidup di luar bandar. Golongan penduduk luar bandar mudah diabaikan oleh masyarakat moden dan kebanyakan adalah berpendidikan rendah. Dengan sistem mesej ini, pengguna-pengguna luar bandar dapat berkomunikasi antara satu sama lain. Mesej yang dihantar dan diterima adalah percuma dan tidak bergantung kepada jaringan Internet selagi pengguna tersebut telah mendaftar pada sistem dan sambungan rangkaian masih dihubungi. Selain daripada servis teks mesej, system ini juga mengandungi fungsi-fungsi yang lain seperti pengumuman dan kongsi maklumat media.*

# **CHAPTER 1: INTRODUCTION**

## **1.1 Introduction**

In Malaysia, there are remote rural areas where basic utilities such as water, electricity supply and communication service could not be provided. Currently there are organizations pouring efforts to such rural area, bringing technologies to improve their life quality. For example, electricity supply using solar system. Tele-centre using VSAT system providing internet services is built and more. For the purpose of this proposal, communication field that provided to the rural communities will be focus on. Due to the technologies used by the Tele-centre, there are some down side which explained at section below. Since there is no mobile network at rural areas, internet is the only communication medium. To overcome the problem, this proposal is proposed to develop an app to allow communication within the rural communities using LAN technologies.

## **1.2 Problem Statement**

The Internet connectivity in rural areas via satellite VSAT system is not always reliable and available for a consistent connection to communication server in the Internet. Thereby, villagers do not have a reliable communication. As a solution to this problem, by hosting the communication server locally for rural area will ensure much more reliable communication. A mobile app could provide social interaction within the local community through the communication server.

## **1.3 Objectives**

The objectives of this project are to:

- Develop a mobile application that provides social interaction for local community without the need of internet connection.

- Provide social interaction for rural community via mobile app that can be run on any of the android based devices.

#### 1.4 Brief Methodology

After reviewing the SDLC models, I decided to adapt Agile-SCRUM methodology in this project.

## Customized Agile-SCRUM Methodology

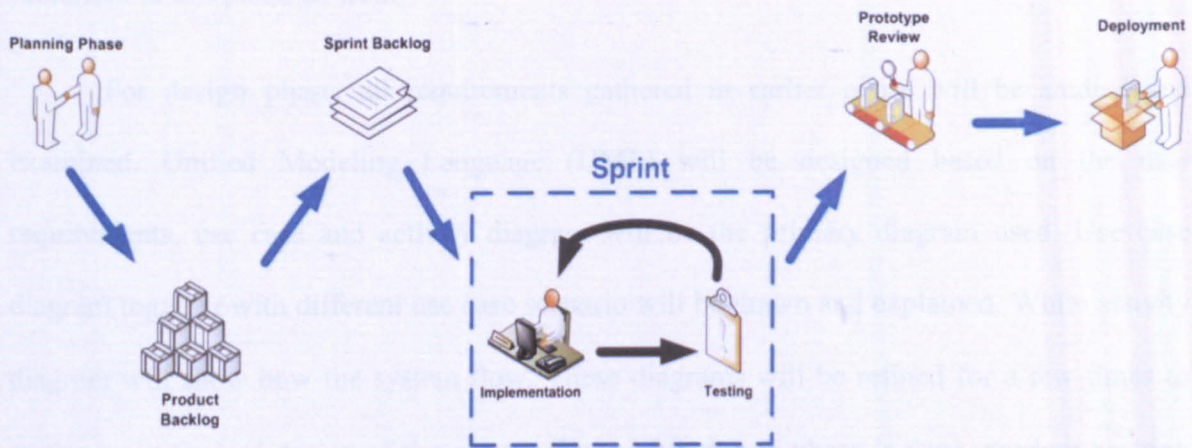


Figure 1: The phases of customized Agile-SCRUM methodology used in this project.

The reason for using Agile methodology is to have the flexibility to change in project requirement and ability to customize the methodology to suit each needs. Agile methodology allows delivers and demonstrates early partial working solution, so that the development process is fulfilling the project's requirements. On the other hand, it allow requirement to be change and modify immediately.

Agile model is iterative and incremental, each iteration involves some of the phases (planning, requirements analysis, design, implementation, and testing).

For **planning** phase, get permission to proceed with the project title of “Android-based social media apps for rural community”. Then a detailed proposal on the project would be proposed.

For **requirement analysis** phase, prepare product backlog which is a stack of sub-item of the whole project. When preparing product backlog, all requirements for sub-item are identified and documented. For example, the user stories, basic functionality of the app, additional features, app interfaces and etc. Besides that, the constraints of the app will be identified in this phase as well.

For **design** phase, all requirements gathered in earlier phase will be studied and examined. Unified Modeling Language (UML) will be designed based on the user requirements, use case and activity diagram will be the primary diagram used. Use case diagram together with different use case scenario will be drawn and explained. While activity diagram will show how the system flow. These diagrams will be refined for a few times to ensure an optimized design of the system flow. After design phase is done, product backlog (use cases) for Scrum-Agile model is prepared.

For **implementation** phase, sprint backlog will executed. Sprint backlog is to identify task required to accomplish each product backlog. During sprint backlog, UML class diagram will be designed for guidance in creating modules. Entity Relationship Diagram (ERD) will be designed based on the modules created to describe relationship between entities. After a sprint backlog is done, then development will start. At the end of this phase a partial working product is demonstrated to users.

For **testing** phase, the developed solution will go into unit testing and integration testing. Any error faced while testing would be fix in this phase. Users will be involved in this

phase where the solution is demonstrate to them, if the solution fit their needs then will iterate the whole process to another sub-item, else will repeat the whole process with the same sub-item.

For **Deployment** phase, after all product backlog is done, the system is combined and prepare to deploy. Product support will be done at this phase, where training will be provided if necessary.

### **1.5 Scope**

The scope for this mobile app is constrained to work in LAN (Local Area Network) only as the server will host locally. Device with the app could function only by connecting to the same network as the server. The target user would be villagers of rural area; therefore complexity of the app will keep to minimal.

### **1.6 Significance of project**

This project will give rural communities a communication medium. Currently, villagers could not communicate with other villagers from nearby village as telephone services are not available in their areas. This project will host a communication server locally and interact with a mobile app, so that villagers could communicate using smart phone within the community without needing internet access. As internet connection can be very expensive to maintain. They could just connect to the wifi available in their village and then they are able to communicate within the community.

Besides that, this mobile app would have additional features like multimedia sharing which allow villagers to create a virtual group and exchange information or multimedia sharing in this group. This feature would promote interaction between villagers and knowledge sharing within the communities.

## **1.7 Thesis Organization**

This thesis is divided into five chapters. First chapter is introduction which is shown in current report. Second chapter is literature review; comparison existing or similar application and general methodology is studied. In chapter 3 which is requirement analysis, user requirement, system features, and tool are discussed. In addition, overall application platform of the mobile app is discussed as well. For chapter 4, prototype is developed and implement in mobile phone. Final prototype is shown in this chapter as well. For chapter 5, testing is conducted and the result of testing is shown. For chapter 6, conclusion and future enhancement of the project are discussed.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

The purpose of this chapter is to conduct a background study for the proposed project. Several existing mobile applications that available in Google play store are reviewed. This study provides an insight on the requirements of the mobile app so that objectives planned could be achieved. Further down this report showed an overall concepts and features of similar existing apps. In addition, comparison and discussion is made for those existing apps. Finally, a critical analysis and conclusion is done to give an appropriate solution for the project.

### **2.2 Social media Applications**

Social media defines the interaction between peoples where they create, share or exchange information and ideas in virtual communities or networks (Ahlqvist, Bäck, Halonen, & Heinonen, 2008). It depends on web-based technologies or mobile technologies to give highly interactive platforms for users to share or exchange their ideas, information, personal messages and other content. Examples of social media are Facebook, Twitter, Instagram, and more.

Due to the emergence of mobile technologies, social media is implemented into mobile device called mobile social media (Lugano, 2008). Allow users to benefit the services of social media through their smartphones. Below is a list of features mobile social media.

- Media sharing
- Information sharing
- Group chatting
- Geo-tagging

- Personal profiling

### **2.3 Existing system**

There are many similar social media applications available in Google play store currently and will keep on increasing in the future. All of these applications have most of the features stated in section before, but still each of the application has their own features that target for specific group of users.

The common features of mobile social media apps are cross-platform instant messaging app for smartphones. Which means that, phone with different OS could communicate with each other using the same app. Besides that, most of the apps utilize internet technology to provide services to users. Meaning that, users could send their message without any charges except for the internet connection itself.

The following section below will provide an analysis on three top social media apps in Google play store. In addition, comparison table will be shown at the end of the section.

#### **2.3.1 Whatsapp Messenger by WhatsApp Inc.**

Whatsapp Messenger is a proprietary instant messaging services mobile application developed by WhatsApp Inc. This application is one of the popular mobile apps for social media (mainly on private and group texting). Currently, the app has been downloaded more than 100 million times on Google play store with a review rating of 4.5 over 5 (“WhatsApp Messenger - Android Apps on Google Play,” n.d.).

The attraction of Whatsapp is its speedy setup and performance (Klinefelter, 2013). It does not require user to create an account and re-add their friends and family into the application contact list. The app uses phone number as an account ID and access user

phonebook to add whoever is in the phonebook also has a Whatsapp account into the app contact list. Besides that, Whatsapp has a clean and simple interface which gives a user friendly user experience. Last but not least, Whatsapp's performance is very good. The app has high responsiveness in sending messages out and smooth interface.

Besides of the basic messaging features, Whatsapp allow group chats, media (photos, voice & videos) sharing and share location. Group chats allow user to invite more than one person into the chat room and start a discussion. While media sharing and location sharing allow users to post media or location info into the chat to share with others. Lastly, Whatsapp allow block or unblock contact for those who getting spam messages. In addition, Whatsapp designed it interface to be very user friendly, user can customize the background of the chat room and utilize each of the features within three moves.

The downside of Whatsapp is that it does not have video call features. Although it provide call features but it is using mobile network instead of internet and this would be charge by network provider. Another cons of this app is it only search contact in phonebook but not also in Facebook friend list, as Facebook is the top social networking where users have more networking on Facebook.

Although Whatsapp does not provide video call and free call into it, it is a lightweight and simple social media app providing optimized essential features to users. Giving the best users experience through its optimized interface.

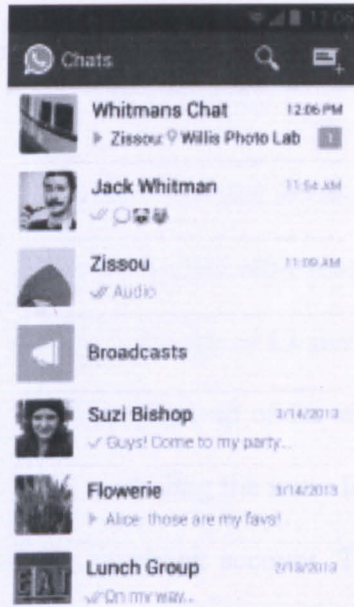


Figure 2.0: Screenshot of the main page of Whatsapp which directly show list of recent chat.

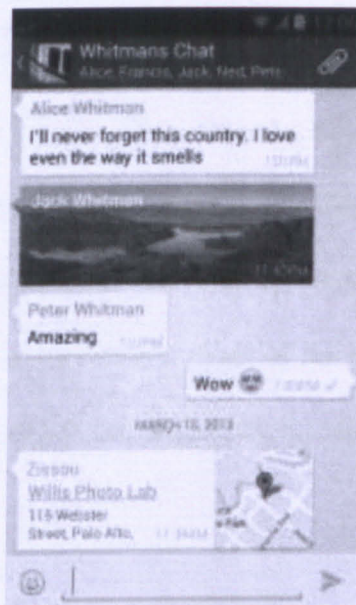


Figure 2.1: Screenshot of group chat with user sharing picture and location information in the chat room.

### 2.3.2 Facebook mobile app by Facebook

Facebook mobile app is a dedicated application for Facebook, providing most of the features that could be found on Facebook website. This is one of the top download mobile