QUESTDONE APPLICATION WITH SOCIAL NETWORKING FEATURES AS THE ACTUAL WORLD INTERACTION MEDIA ON ANDROID SMARTPHONE

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Abstract: The purpose of this research is the design and implementation of an application that allows users to play and socialize at the same time and directly with the environment around the Android-based smart phone. This application is also expected to be a campaign media for a new product or specific event. The used method consists of two ways: the methods of analysis and design. The method of analysis includes the study of literatures, questionnaires, and comparisons with similar applications. The design method used for this research is Scrum. The obtained results are an application that helps users of Android-based smart phone to do social interaction and provide knowledge about the route that users will be addressed. It is also used as a new campaign media for entrepreneurs who want to promote a product or event. Furthermore, this application is also built with interesting but not complex design, thus allowing users to easily use it. The conclusions are this application provides experience for users to visit various places and can be a media campaign for a new product or specific event. It also becomes a tool of social interaction and useful for finding location of friends.

Keywords: Applications; Social Networking; Interaction; Real World; Smartphone; Android

INTRODUCTION

Along with the technology development nowadays, especially in communication, community needs mobile communication tool or mobile phone that can be carried to ease daily activity. Companies like Samsung, Apple, Blackberry, etc. have done research to fulfill communication needs of the community by embedding various applications and features in developed mobile phone.

When observing the development of mobile phone at this time, mobile phone technology is more leaning toward smartphone. The smartphone itself is mobile device operated with certain operating system. Smartphone combines the majority functions on hand phone, Personal Digital Assistant (PDA), audio player, digital camera, and camcorder, Global Positioning System (GPS) receiver, and Personal Computer (PC) to encourage computation skills and modern connectivity [1]. The operating system has been used largely on smartphone nowadays, namely: Android that is developed by Google, iOS that is developed by Apple, Blackberry OS that is developed by BlackBerry, and Windows Phone that is developed by Microsoft.
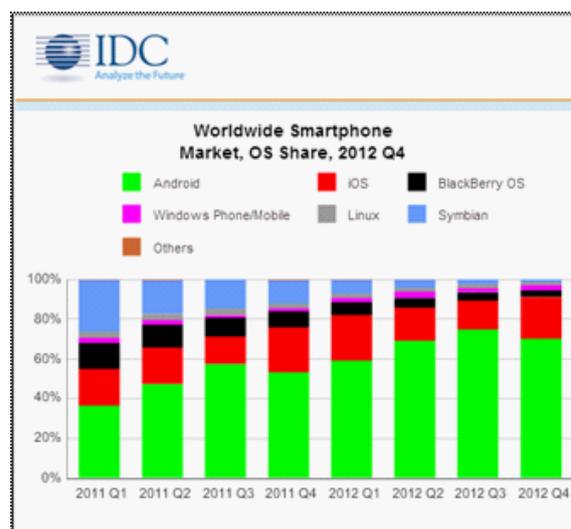

Fig 1: Worldwide Smartphone Market

It is obviously seen on Fig 1, according to the done result by International Data Corporation (IDC), Android has the highest market share among

other Smartphone. The differences of the significant market share occurs since Android is an open source operating system which covers operating system, middleware and application that is so much in demand and it can be developed broadly as expected.

On Android smartphone, it can be found the base feature and additional feature like social networking feature. It can be found by installing application such as Path, Instagram, LINE, etc. into Android smartphone. Social networking is a collection of individuals that forming a group in a purpose to gather and share a lot of information, like how to cook, sport, job, business, and other topics [2]. For some users, social networking can be used as search engine and a promotion media that is more cost-effective and it can be seen by many people in short time.

But half of social networking that exists at this time only relies on interaction between user and virtual world interface. Due to that, the user can not directly interact with the environment and socialize significantly. This kind of interaction also occurs on advertising media, where advertisement only delivers information but cannot create direct interaction that involves user and the offered product.

Seeing the problem, the process of designing and implementing the applications are carried out to facilitate the user to play and socialize with the environment at once. The name of the application is QuestDone or shortened to QD, it will be developed on smartphone Android based. Android has a lot of version since it was released for the first time. Every time new version is released, it has upgrades like bug fixed or new features [3]. The application that will be designed is going to operate in Android operating system with Gingerbread as minimum version (2.3).

To support features on this application, the of GPS technology that is provided on smartphone will be used. The GPS technology will be used as base from navigation system. GPS is a navigation system that functions to determine location, speed, and direction through more than 24-32 satellites that orbit 20000km (11000 nautical miles) above the earth receiving signal. The base principle of GPS is distance ranging between satellite and receiver from radio signal transmission. A receiver GPS needs four or more satellites to produce distance and use this information to conclude the location [4].

There are three types of GPS technology [5], which are: GPS-Phone, A-GPS, and Terrestrial Based Network Solutions. In this research, the used GPS technology is GPS-Phone. Beside GPS technology, this application will be built with JSON base and SQLite. JavaScript Object Notation (JSON) is lightweight data-interchange that based on JavaScript Programming Language. JSON based text/script with readable format and recognized by people to present simple data structure and associative array [6].

Meanwhile SQLite is open source database that is used in Android. SQLite supports database relational standard feature like SQL syntax [7].

By having this application, it is expected that the user of social network can enjoy games and socialize with surrounding environment. This application is also expected to be able to become search engine media (new product or activity) and promotion media.

METHOD

In developing QuestDone application process, some research methodologies is used, they are the analysis methods and the design methods. Analysis method consists of: (1) Literature study- reading literatures like book, journal, e-book, or article relates to operating system in Android, GPS, Human and Computer Interaction, Scrum Method, Unified Modeling Language (UML), Eclipse, SQLite, dan JavaScript Object Notation (JSON). (2) Questionnaire – to gather needed data and evaluation result from user, the questionnaire distribution is done to find proper and accurate data. (3) Comparison – doing comparison towards similar applications.

The design method that is used in designing and implementing the application is Scrum method [8]. These are important parts in Scrum method: (1) Backlog: Requirement list of project or features that have business value on customer. The additional needs or features can be done at anytime. (2) Sprints: The arrangement of activities needed to achieve the needs and features that have been determined on the backlog within a specified time period (usually 30 days). The changes are not allowed when the sprint is underway. (3) Scrum meetings: Scrum meetings team is usually done in a short time which is about 15minutes each day. (4) Demos: Software delivery to customer in order to be able to implement and demonstrate the evaluation by customer.

The User Needs Analysis

Questionnaire analysis is conducted by the distribution of 15 questions that are shared through discussion forums in cyberspace like Android user forum and Android community. The questions are about respondent data, the usage of Android smartphone by the respondent, respondent's habit in shopping and travelling and information sources from the respondent.

Based on the result, it can be concluded that half of the respondents are males who are young people at 21-30 years old. The majority of the respondents are college students whom mostly use Android operating system of Ice Cream Sandwich. Besides that, most of the respondents subscribe data package or internet in sizeable quota at the average of 1GB per month so they do not need to worry about running out the quota while using the application.

Most of the respondents use navigation application system in large intensity usage. Moreover, navigation application system on smartphone or PC tablet is useful for them.

Furthermore it can be concluded that the shopping intensity of the respondents in timescales one week is high enough, which is more than five times in a week. The respondents also like to travel with friends with the most destination is restaurant and shopping center. To know the event schedule, the respondents mostly see the schedule through online media. The interest of the respondents to redeem points or vouchers with a product or service is relatively high.

Thus it can be concluded that the target of the application design is male so the provided quest can be adapted with men's interest. With the usage of Google Maps, the route search to the quest's place can be done. Quest consists of three quest types, which are social, travelling, and shopping. Social type is based on the user's participation in an event that is held in certain period with the schedule available on the application. Travelling type is based on visiting certain places to finish the quest. Shopping type is based on the purchase of certain product to finish the quest. By completing the quest, the user will get point to buy voucher, which can be redeemed by a discount in certain merchant.

Similar Application Analysis

Similar application analysis gives brief illustration about the comparison between the similar applications and the application that is going to be built. Those applications have similar concepts of navigation and mapping. The applications have some similar features such as connectivity features of social networking, geo tagging, and system achievement. Although having the same features, the applications also have special feature as value-added. Due to many similar applications, so it will only be chosen some of the applications to be compared with the application that is going to be built. The advantages and disadvantages of each application is based on the user experience, user reviews on Google Play and descriptions in the official website and other discussion sites. Those applications that are going to be compared are Foursquare, Clingle, Wallit. These are summary of analysis result that has been done:

Table 1: Similar Application Analysis

Application	Operating System	Add Friend	Find Route	Quest Mission	Party	Add Places	Achievement	Check In	Radar	Connect to Social Media	Promotion and Discount
Foursquare	Blackberry iOS Android	✓	X	X	X	✓	✓	✓	✓	✓	X
Clingle	BlackBerry iOS Android Symbian	✓	✓	X	X	X	✓	✓	✓	✓	X
Wallit	iOS	✓	X	X	X	X	✓	✓	✓	✓	X

From the table above there are several criteria that are based on reference in observing the applications, namely supported operating system such as add friend, find route, quest mission, party, add place, achievement, check-in, radar, connect to social media, dan promotion and discount. Quest mission is meant by feature where the mission can be run in the exist application. The mission is divided into several categories like social mission, travelling mission, shopping mission, and special mission.

The social mission directs the user to the held events in public places. The purposes are to make the user to be more socialized with others through participation on public events, for example Halloween party in certain malls, visiting exhibition, and other activities. On travelling mission the user has to visit one place or destination and more concern about personal event, for example mission for visiting Reptile Museum in Taman MINI Indonesia Indah, visiting Borobudur Temple and other destinations. While shopping mission concerns on shopping activity, for example the user has to shop a certain product in certain places.

While running shopping mission the user can get discounts for buying certain product in determined places of the application developers and partner. Furthermore there is special mission that has not been covered in other missions, for example special mission will come up when the user has used the application during one week. Party feature is a

feature when the user can run a mission together with friends by making a group, the purpose is to make user can easily socialize and interact with others in running the missions, so it is not too monotone and it does not make user easily feel bored.

Since the half of smartphone users are using Android operating system, the first step of developing, designing and making this application run is in Android operating system. If it has worked well in Android operating system and it has a lot of users, the application development will be done on other operating systems such as iOs, BlackBerry, and Windows Phone. If the operating systems is more broadly in compatibility, the user will be wider

Application Design

Based on the user analysis and available similar applications, it is concluded that use case diagram will be the reference about used function in this application. The function of use case diagram is used in illustrating the interaction between system with external system and the user. Besides that it is also with whom will use the system and how the user interact with the system[9].

RESULT AND DISCUSSION

Based on the design result that has been done on previous chapter, these are the implementation result from the created design. The created application design based on the comparison display from ref [10] and ref [11].

Sign In and Sign Up
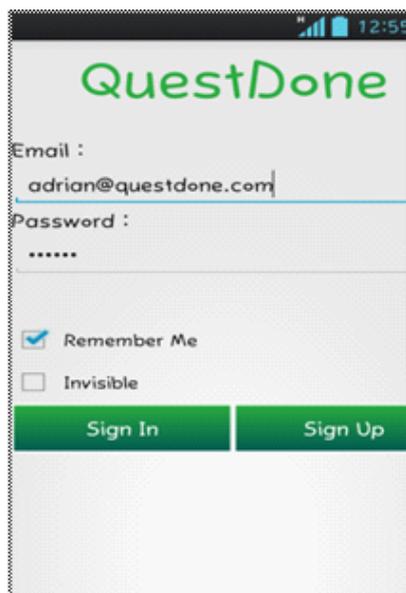
Fig 3: Sign In
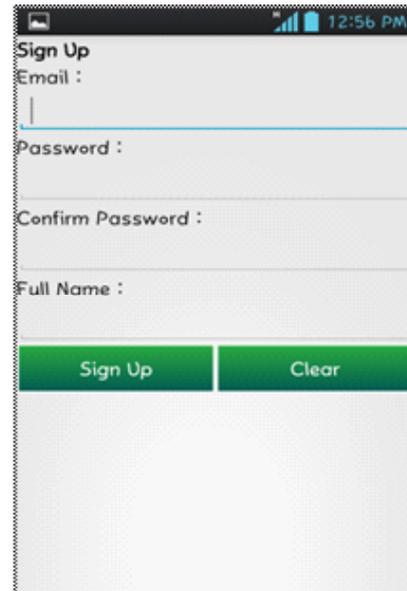
Fig 4: Sign Up

Fig 5: Main Screen

When running the application for the first time, sign in display will appear. If the user has no account yet the user is asked to do sign up. Main screen will appear if the user has succeeded login.
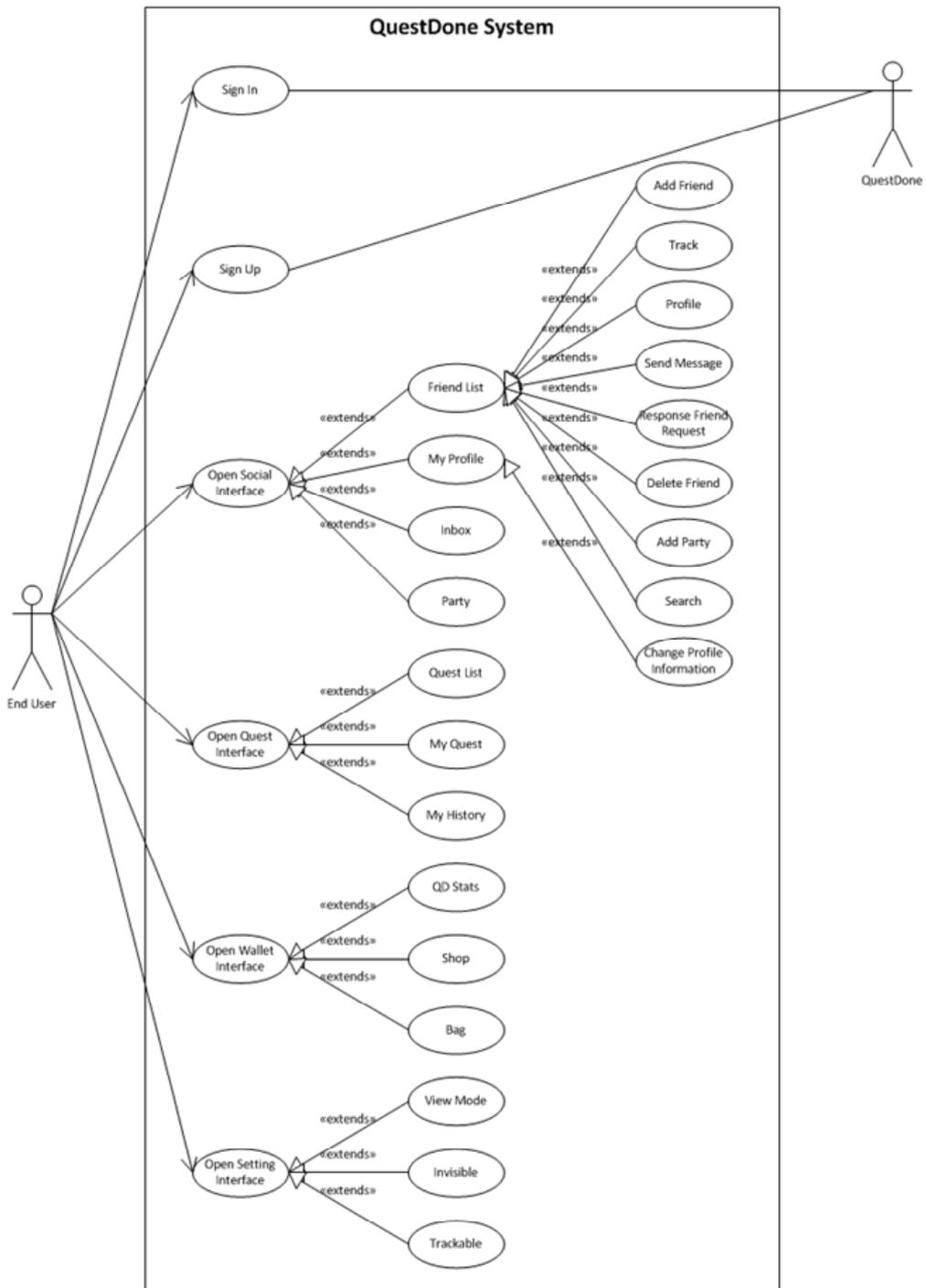
Fig 2: Use Case Diagram.

Social Menu

Fig 6: Friend List Screen

Fig 7: Friend Choices

Fig 8: Writing Message

On social menu, the user will get features to interact with others such as add friend, chatting, and see friend's position. Furthermore, there is also menu to see the user's profile. Before the user can talk with other users, the user has to be friend first.
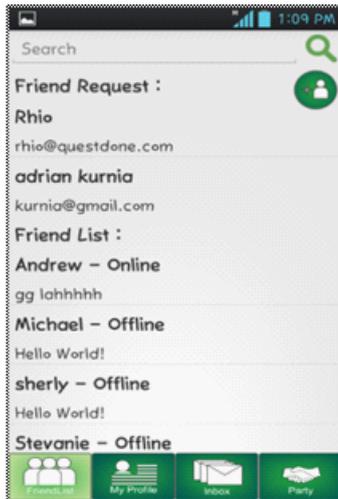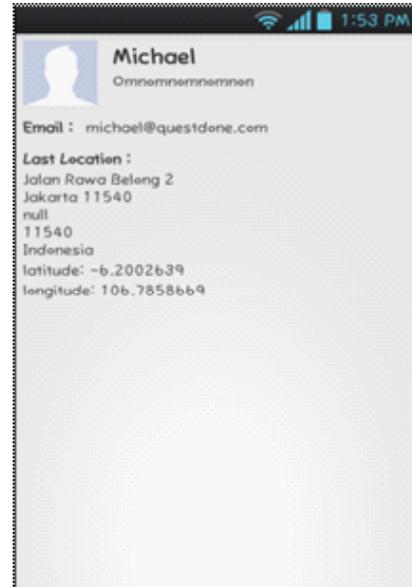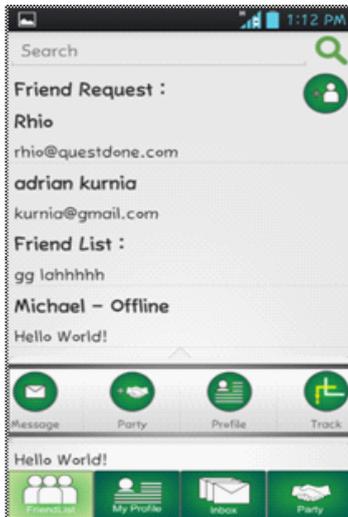

Fig 9: My Profile Screen

Fig 10: Track Screen

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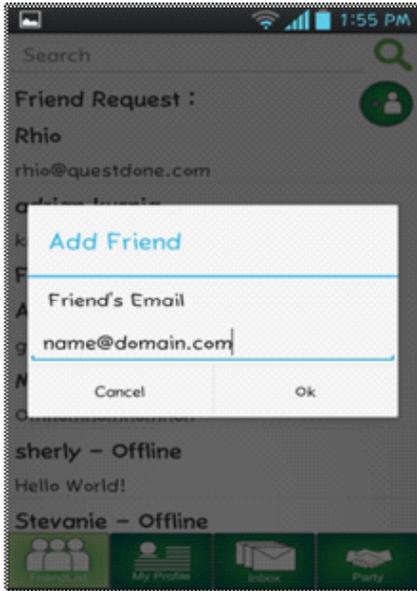
Fig 11: Add Friend

Track function is function that can track the other users' position that has become friend in QuestDone application. Its function is to do quest together or only to follow friend and go to the same place.
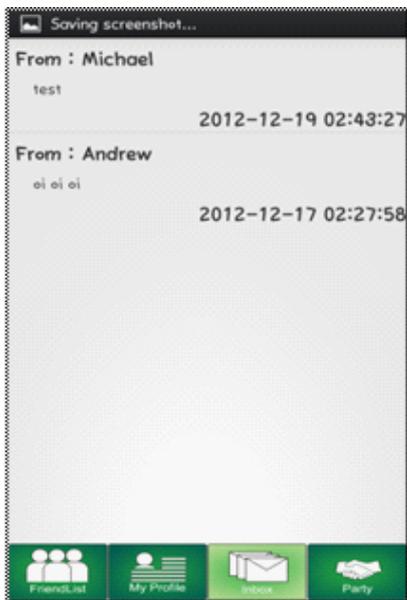

Fig 12: Inbox Screen

On inbox function, the user can see all messages that are sent to him/her. In this menu, the user can directly reply the receiving message. Moreover, it also has party function that can connect some users altogether to finish a quest.
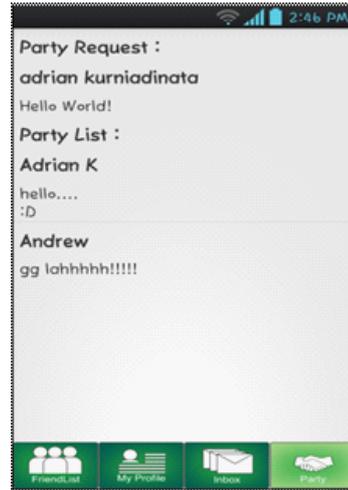

Fig 13: Party Display
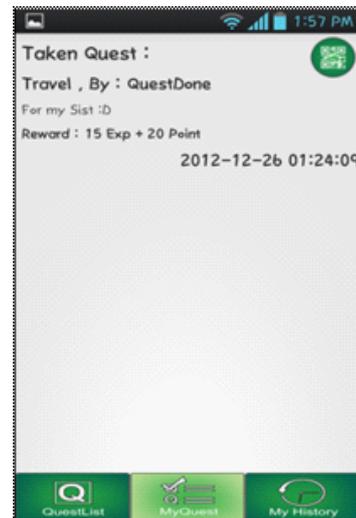
Quest Menu

Fig 14: Quest List Screen Display

Fig 15: My Quest Screen

Fig 16: My History Screen

Fig 18: QdStats Screen

Quest features are the main features in QuestDone application. In these features, the user can see the available features. In the menu, the user can choose the available quest. The user can do the quest individually or together with friend. All users that are in one party will end the quest.

After the user finish the quest, the user will get point as reward. The point can be used to redeem a promotion or unique things from cooperated merchants. The user can see the quest that has been completed on My History menu. The user can play the completed quest again but the user will not get point from the quest.
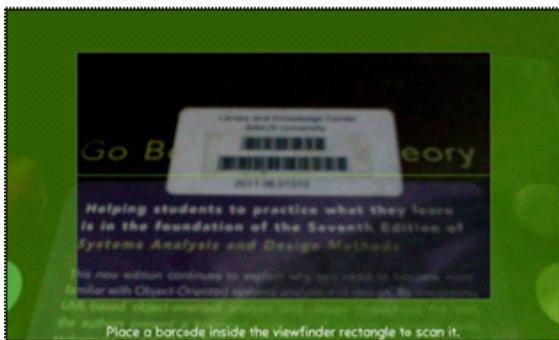

Fig 19: Shop Screen

Fig 17: Scan Screen

In several quest, the user will be asked to scan barcode or QRCode that function as marker of mission completed. This element is shown for adding happiness feature in finishing the quest
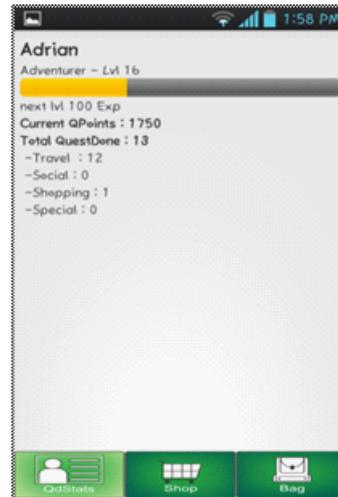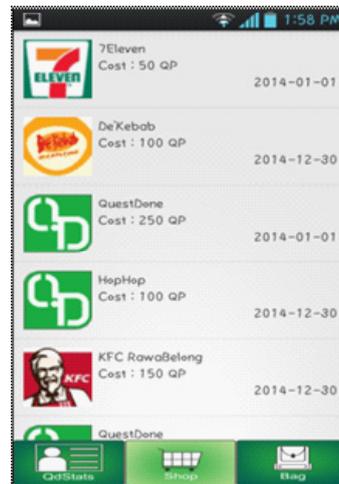

Fig 20: Voucher Detail Screen

On wallet menu, the user can see the information about point that has been earned from finishing the quest. On this menu the user can see the development of running games. On shop screen, the user can see any offered voucher by the application and also partner. Price from each product will need QP or Qpoint. If the user choose one of the vouchers, it will show the voucher detail. Qpoint is earned from finishing the available quest.
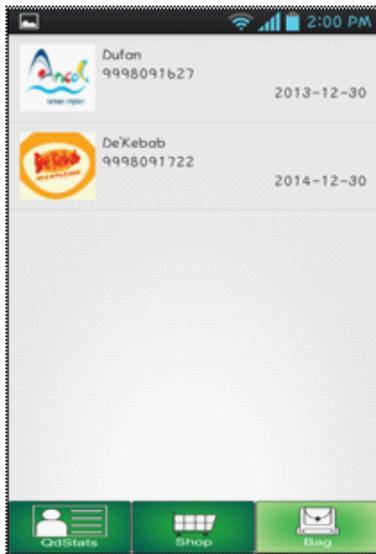
Menu Setting

Fig 23: Setting -Map Screen

Fig 21: Bag Screen

Fig 24: Setting - Account Screen

Fig 22: Barcode Screen

The product that has been purchased will appear in bag screen. In several things, barcode will be provided to ease partners in the transaction
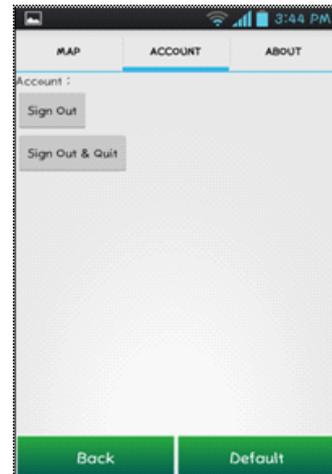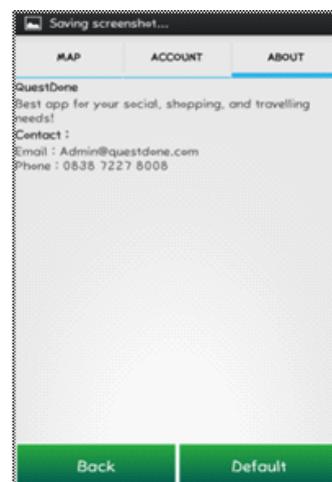

Fig 25: Setting – About Screen

On setting menu, the user can change the settings for map, account, and can also see about the application.

The User Evaluation

After doing the implementation from QuestDone application, the user's evaluation towards the application is done to get opinions and suggestions from the user. For the evaluation, the theory of five human factors measured from Ref [11] is used. The evaluation is done with the interview and involves 13 students and 5 businessmen.

Based on the evaluation, it can be concluded the advantages and disadvantages of QuestDone application. The advantages of Questdone are reasonable interface, simple navigation and easy to use, the game in the application is easy to be played and increasing the experience for visiting new places. The disadvantages of QuestDone application are to run the application with good performance it has to have strong internet connection, not have help feature for new user and it has no sent item on messaging feature.

Furthermore the businessmen consider that QuestDone application is possible to be a good and interesting promotion media, so the product or service can be recognized by many people through QuestDone. However there are some disagreed respondents since they think that promotion method on the QuestDone is not appropriate with the product or service that they need. For example, promoting food on the application will surely more effective than promoting heavy equipment on QuestDone application.

CONCLUSION

After doing the design, implementation, and evaluation of the application it can be concluded from the QuesDone application development: (1) QuestDone application has more advantages than other similar applications with the features like find route, quest mission, party, and discount and promotion. (2) QuestDone application can give experience for the user in visiting various places by doing the missions on the application. (3) QuestDone application gives knowledge and information about direction to a place and friend's location. (4) By interestingly and simply packed design and function, QuestDone application can easily use by knowledgeable intermittent users and also novice. (5) QuestDone application opens chance for the businessman who wants to promote the product or event that they have.

The suggestions to the application development to be a better application are: (1) Fixing the application performance if the obtained internet connection is low by fixing the algorithm. (2) Adding the how to use feature which helps the user that has difficulty in using the application (3) Developing the application for running in other operating systems like iOs on Apple, Windows Phone on Microsoft and BlackBerry OS on BlackBerry. (4) Fixing the messaging features so the sent messages to other users can be accessed in the sent item.

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