2010/11

ANALYSIS AND DESIGN DOCUMENT

LOCAL HOLD'EM POKER FOR THE
GOOGLE ANDROID OS

BACHELOR OF SCIENCE (H) IN SOFTWARE
SYSTEMS DEVELOPMENT

V.1

9TH DECEMBER 2010

TABLE OF CONTENTS

TABLE OF FIGURES

1. INTRODUCTION

This document will give an account of the analysis that has been undertaken and the results reached for this final year project, Local Hold'em Poker for the Google Android OS, for the course, Bachelor of Science (H) in Software Systems Development. The findings will be described under the following headings: Chosen Platform, Game Type, Main Aim, Target Audience, Software Functionality, Connectivity, Tools and Technologies, Game Design, Methods and Methodologies, Risk Analysis, and Competitive and Market Analysis.

2. CHOSEN PLATFORM

The project will be developed for the Google Android OS because the Android is an emerging market and is becoming the main competitor to Apple's iPhone. This holds huge significance for open source development of mobile applications because the Android Market is open to all developers to upload their work and receive feedback from a worldwide audience where as the iPhone App Store is much larger and due to this has become much more difficult to enter by "red-tape" procedures. Developers have waited weeks or even months for their applications to be published in the App Store.

The paid app feature of the Android Market only became available to Irish developers and users on the 30th September 2010. According to Tim Bray (2010), this enables developers to publish and sell their paid apps and games on the Android Market which makes the platform much more lucrative and attractive to develop on.

3. GAME TYPE

Local Hold'em Poker will be a completely **free-to-play** multiplayer Texas Hold'em Poker game that can be operated through local connections, (e.g.) Bluetooth and an ad-hoc wireless network, on a Google Android OS compatible phone. Texas Hold'em (also known as hold'em) is a version of the card game poker. After much research of the available Android games and applications, it has been found that a project of this type is currently not available on the market as of 12th November 2010.

Development of this type of game was chosen because Texas Hold'em Poker has exploded in popularity in the last ten years or so and according to Clark (2006), during this time hold'em replaced seven-card stud as the most common game in U.S. casinos. This is a massive step in the right direction in the popularity and recognition stakes for the game. Texas Hold'em is played in homes, pubs, casinos, online, on television and on some mobiles at the moment. This makes hold'em accessible to a huge audience and a vast market which gives this project potential commercial value.

Refer to Figure 15.1 in the Appendices for a Use Case diagram of the project.

4. MAIN AIM

The main aim of this project is to develop a fully functional and completely **free-to-play** local multiplayer Texas Hold'em Poker game that will run on the Android OS. By local, as mentioned in the game title "Local Hold'em Poker", it is meant that the game will be completely playable

offline, (i.e.) the user will not need an internet connection. This will guarantee one of the most important features of the game, the free-to-play feature.

5. TARGET AUDIENCE

The target audience for this project will be Android compatible phone users who have used or have an interest in using poker apps and games on their phone. It will appeal to friends, groups and clubs who wish to play hold'em with their peers locally without having to pay any fee for the service, (e.g.) connection fees, data transfer fees etc. It is envisaged that the game will be made available on the Android Market for download.

6. SOFTWARE FUNCTIONALITY

6.1. FEATURES
1. The game will run on the Google Android OS.
2. The user can play one-on-one ("heads up") or multiplayer Texas Hold'em Poker with other human players through a Bluetooth connection and possibly wireless (see feature 10).
3. Up to four players can play a game.
4. Each player can register their details, via their phone, to keep a record of their results, head-to-heads and an overall league table.
5. The game will be free-to-play.
6. The game will be available for download from the Android Market.
7. The user interface will be simplistic, yet friendly.
8. The user will be able to play Limit and No limit hold'em.
9. The user can choose their avatar that displays while playing.

Due to time constraints the following features may not be included in the final release candidate but every effort will be made to include them.

10. The user will be able to play one-on-one ("heads up") or multiplayer Texas Hold'em Poker with computer generated players.
11. The user can play one-on-one ("heads up") or multiplayer Texas Hold'em Poker with other human players through a wireless ad hoc network connection. At the time of writing this document, ad hoc networks are not supported by the Android OS.

7. CONNECTIVITY

Local connectivity is a vital feature to the successful completion of this project because it will enable the multiplayer aspect and ensure the free-to-play mantra of the game. The factors that have to be considered when choosing a primary connectivity network are:

- the Android OS supports the network
- the range of the network
- the drain on the battery power of the phone
- the transmit speed of the network

WirelessArea Network	Range	Power Drain	Transmit Speed*	Example	Primary Application/ Usage Scenario
Wireless Personal Area Network (WPAN)	10 m	Low	800 Kbps	Bluetooth	Cable replacement between nearby devices
Wireless Local Area Network (WLAN)	100 m (to an access point)	Medium	11 Mbps	Wi-Fi (IEEE 802.11b)	Accessing an existing Ethernet network run on cables

Figure 7.1. Characteristics of different Wireless Area Networks

The table above (Figure 7.1.) presents two types of wireless networks and their characteristics according to Man (2002) in a White Paper commissioned by Socket Communications Inc. Figure 7.1. holds useful information relating to the Local Hold'em project. It shows that a Wireless Personal Area Network (WPAN), (e.g.) Bluetooth, has a range of 10 metres, a low power drain and a transmit speed of 800 Kbps which makes this type of network lightweight and suitable to use with mobile phone applications. In the Android OS, APIs are provided to support Bluetooth settings. These APIs manage discoverability, connection to Bluetooth devices and act as a transport layer for data transfer between devices. Meier (2010) states that the following classes handle Bluetooth devices and connections:

- BluetoothAdapter – The Bluetooth Adapter represents the local Bluetooth device, (i.e.) the device your application is running
- BluetoothDevice – Each remote device with which you wish to communicate is represented as a BluetoothDevice
- BluetoothSocket – Call createRfcommSocketToServiceRecord on a remote Bluetooth Device object to create a Bluetooth Socket that will let you make a connection request to the remote device, and then initiate communications
- BluetoothServerSocket – By creating a Bluetooth Server Socket (using the listenUsingRfcommWithServiceRecord method) on your local Bluetooth Adapter, you can listen for incoming connection requests from Bluetooth Sockets on remote devices

The second network that is detailed in Figure 7.1. is a Wireless Local Area Network (WLAN), (e.g.) Wi-Fi. This network can have a range of 100 metres to an access point, a medium power drain and a transmit speed of 11 Mbps. Wi-Fi network connectivity is implemented in the Android OS but this does not support an ad hoc wireless network. This issue has been raised on the official Android development site on Google Code and is referred to as "Issue 82: wifi - support ad hoc networking" (Google Code 2008). The issue was initially raised in 2008 and was expected to be resolved in the latest version of the Android OS, called Froyo (2.2), but as of 12th November 2010, the issue remains unresolved.

Jradi and Reedtz (2010), two students of the Technical University of Denmark, offer a solution to the ad hoc network issue in their degree thesis. The goal of their project was to "design and implement a suitable distributed routing protocol to manage the communication among many Android devices, running concurrently". This protocol could be developed further and implemented into the Local Hold'em project to give the user a local connection with greater a range.

Before any card is dealt a player is designated as the "Dealer" for the hand. The player to the Dealer's left is designated the "small blind" and the next player on his left the "big blind". The small and big blinds are predefined amounts that have to be bet at the beginning of each hand. The Dealer, small blind and big blind rotate clockwise by one place after each hand has been completed and in some games, the blinds can increase in value after a full round of the table has been completed. This helps the game reach a conclusion by forcing players to bet. When there are two players playing or "heads up play" the Dealer gets the small blind and the other player gets the big blind.

Hold'em is a turned based game where each player has a predefined number of chips (money) at the beginning of the game to bet with. The game begins when the Dealer gives each player (including himself) two cards face down. The small and big blinds are entered into the "Pot" (this is the amount of chips that can be won in the hand) and each player, in turn, gets the choice to call (i.e. enter the same amount of chips as the big blind), fold, or raise. If a player raises, then all other players will have to call or re-raise to continue playing in the hand. In Limit hold'em, there is a "cap" on the number of raises in each round, generally three or four. This first round of betting is known as the "Pre-flop", shown in Figure 8.1.

The following five images, Figure 8.1., 8.2., 8.3., 8.4., and 8.5. are taken from FlopTurnRiver (2003).

Figure 8.1. The Pre-flop

After the first round of betting has been completed, the Dealer places three cards face up on the table. This is called the "Flop", shown in Figure 8.2. Another round of betting ensues and the remaining players have the choice to check (i.e. see the next card face up without betting if all other players check too), fold or raise.

Figure 8.2. The Flop

After all betting is complete on the Flop, a fourth card is placed face up on the table by the Dealer and this is called the "Turn", shown in Figure 8.3. A round of betting begins with the first player to the Dealer's left as always.

Figure 8.3. The Turn

When the betting concludes on the Turn, a fifth and final card is placed face up on the table called the "River", shown in Figure 8.4. The five cards are collectively called the "Community Cards". A final round of betting takes place.
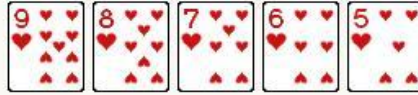

Figure 8.4. The River

When the betting concludes, the remaining players turn their cards face up and the player with the best hand wins. The Community cards are used by the players, with their own two cards, to create the best possible five card hand. In Figure 8.5., the ranking of poker hands is illustrated.
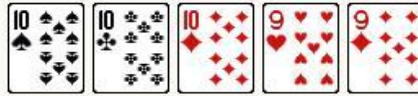
Figure 8.5. Poker Hands Ranking

9. TOOLS AND TECHNOLOGIES

9.1. HARDWARE
- Intel Core2 Duo T8300 @ 2.40 Ghz, 4.00 GB RAM – This is the specification of the laptop that the project will be developed with
- 2 x Samsung Galaxy Europa GT-I5500 Google Android OS phones – these are the phones that testing of the application will take place

9.2. SOFTWARE
- Adobe Photoshop – Graphics editing software
- Android SDK – Android Software Development Kit which includes an emulator, Bluetooth classes, Dalvik Virtual Machine and Daemon tools
- Audacity – Sound editing software
- Eclipse IDE – Java Integrated Development Environment and this will also handle the XML requirements
- Java SDK – Java Software Development Kit
- Microsoft Office 2007 – Includes document, spreadsheet and presentation authoring tools
- Windows Vista Home Premium – Operating system

10. GAME DESIGN

10.1. LOOK AND FEEL

The outline given here is subject to change during the applications development process and this change directly relates to the chosen methodology, Rapid Application Development (RAD) which is discussed later in this document.

- The player will have a portrait, top down view of their cards and avatar, the community cards, and their opponents cards face down and their avatar.
- The player's stack and the pot's value will be shown in text and number format, and in chip/coin images.
- In a four player game, two players will be at the top of the screen and two at the bottom.
- There will be a user interface at the bottom of the screen for fold, check, call and bet/raise buttons. The touch screen allows the user to select a button. These buttons will exit the screen from the bottom when it is an opponent's turn.
- A small dialog box will be displayed for a couple of seconds at each turn to tell all players whose turn it is.
- When a player selects the raise button, a dialog box will be displayed to facilitate how much they are allowed (their current chip stack) and want to raise by.
- A dealer button will be displayed on screen at all times to indicate the dealer of the current hand.
- Small and big blinds will be indicated to the players in a text field above or below their name. This field will also indicate the amount a player has to call in a particular scenario.
- Any card movements on screen will be animated, (e.g.) if a player folds, their cards will exit the screen to the right or left.
- The animated action will be supplemented by sound effects, (e.g.) the rattle of chips landing on chips

10.2. BASIC MOCK UPS OF GAMEPLAY

The provided screenshots are taken from the skeleton application created for the purpose of a demo and initial stage presentation. It effectively illustrated the chosen technologies of the project working in unison.
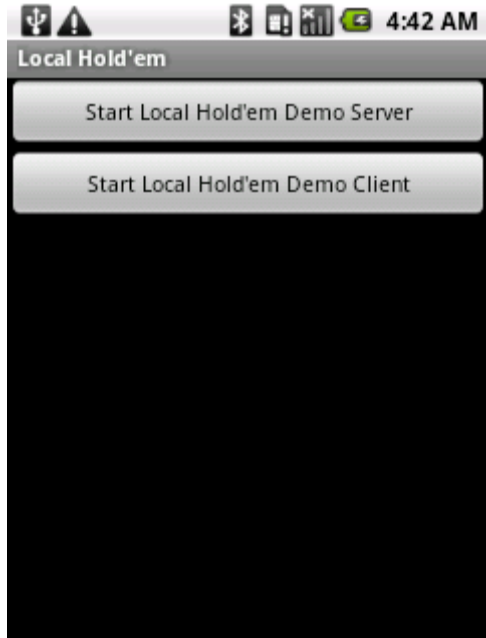
This shows a basic initial screen where one player will choose to be the server/host of the game and click the "Start Local Hold'em Demo Server" button to do so. The other players will choose to be the clients and click the "Start Local Hold'em Demo Client" button.

Figure 10.1. Basic home screen
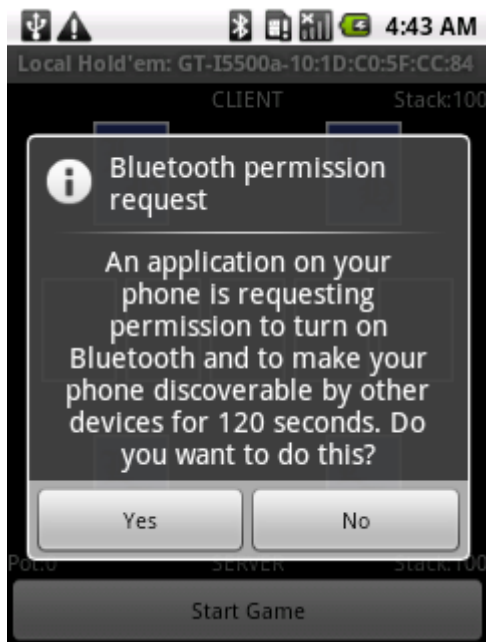
After clicking the server button, this screen is displayed. It is a request from the application to enable the Bluetooth discovery service so players can connect to the server/host of the game.

Figure 10.2. Bluetooth discovery permission request screen
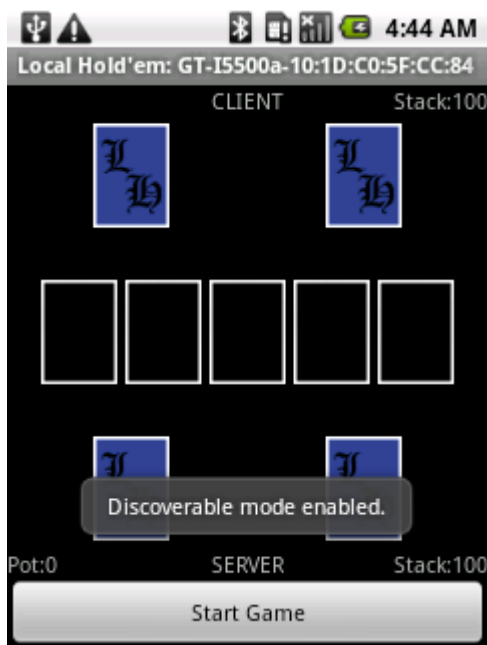
After enabling the Bluetooth discovery service, a dialog box is displayed to inform the user. The user's mobile name and address are displayed in the title bar at the top of the screen.

Figure 10.3. Dialog box informing the user that the Bluetooth discovery service has been enabled
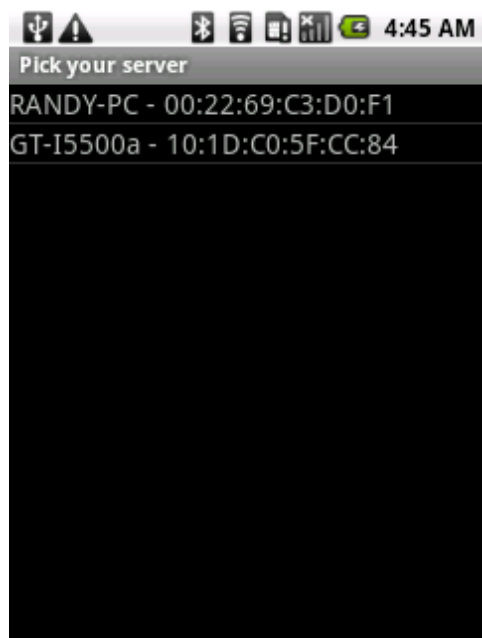
This screen is displayed when a user chooses the client button from the home screen. The user is presented with the applications that are discoverable currently and they can choose the correct on, GT-15500a in this case, to connect to host of the poker game.

Figure 10.4. Server/host selection screen so the client can connect to the poker game.
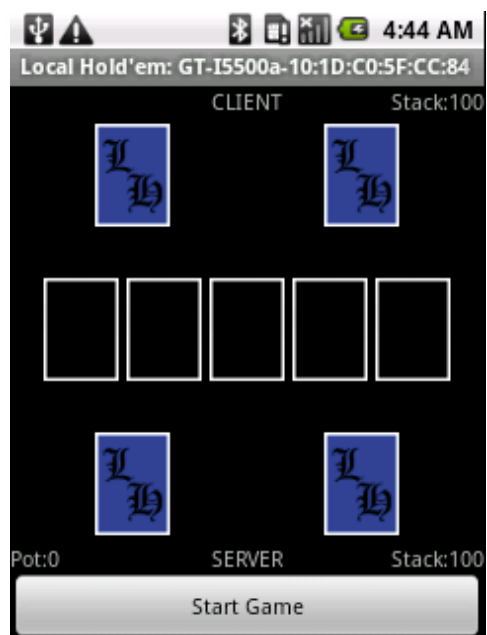
The start game screen is displayed on all the player's devices and any of the players can press the start game button to begin the game. The screen, on the left here, displays a two player game. The players are called SERVER and CLIENT. Their respective stacks are displayed and the pot is zero before the game begins.

Figure 10.5. Start game screen

14
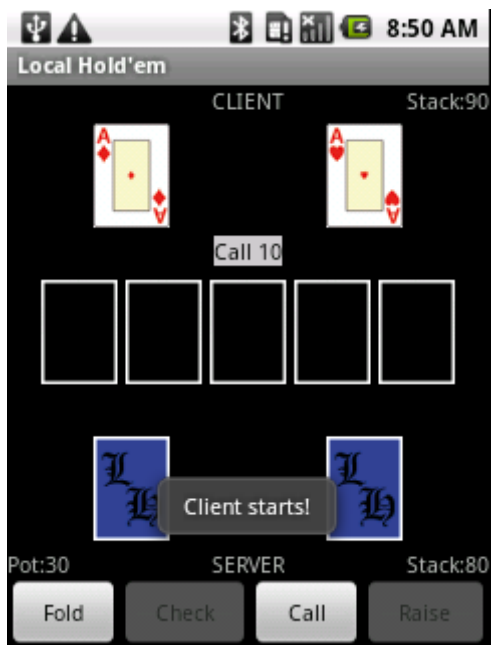
This is the client's screen which is showing their cards and the server's cards face down. The client pressed the start button so they take the small blind in a "heads up" (two player) situation. Small and big blinds have been entered into the pot, which is 30 now, and the client is being asked to call 10 to continue the hand. The raise function is disabled in this demo. The client can also fold.

Figure 10.6. Client started the game and is presented with these options

This is the server's screen when it is the client's turn. The buttons at the bottom are invisible during an opponent's turn. The "turn" card has just been dealt.

Figure 10.7. Server's screen when it is the client's turn

The "river" card has been dealt and both players checked so it's a "showdown". This is where the player's cards are turned face up and the best hand wins. In this case, the server wins with trip 5's (three 5's), and wins the pot so the server's stack is now 120, the pot is zero, and the client's stack is 80. The end demo button is displayed to end the demo and return to the home screen.

Figure 10.8. Showdown screen where the winner is displayed and the pot is added to the winner's stack

10.3. POKER ENGINE

Due to the vast amount of logic involved in creating a poker game, and the limited time allocated to this project, a number of open source poker games, that have been created in Java and other platforms, have been analysed and tested with the view to further develop specific poker methods, (e.g.) hand evaluation, betting algorithms, deck classes etc., that could be used in this project. These methods will have to be rewritten and reconfigured for implementation in a Bluetooth or wireless ad hoc network application but they will provide a useful starting point.

Oscar Stiger's (2009) Texas Hold'em in Java hosted on Google Code is an example of a project that could be very useful. It is the limit version of hold'em and uses Swing GUI's for a console interface which can't be used in the Android environment but his hand evaluator class could be successfully implemented with some slight changes to the code. Stiger's deck class could also be reconfigured to perform in the Android environment. The loops will have to be changed for performance reasons but this could be implemented.

10.4. PLAYER RECORD AND LEAGUE TABLE

The player's register/login screen will display three fields. A username, password, and an optional e-mail field for future news and updates if the project is continued in the future. The player's record and a league table will be persisted using an open source framework from Andoop (2010) called aHighScore. This will store the information on their site and access is gained through a private key which is acquired on registration. The private key is stored in the application's code so users will not need to know this and the application will take care of the mechanics behind the storage of the scores.

11. METHODS AND METHODOLOGIES

11.1. DESCRIPTION

The development methodology that has been chosen for this project is Rapid Application Development (RAD). This is a merger of various structured techniques, especially data-driven Information Engineering, with prototyping techniques to accelerate software systems development, (Whitten et al., 2004). Rapid prototyping is favoured over extensive planning which allows for changes to be incorporated if required. This methodology enables fast development of software.

The RAD methodology is especially suitable for this project because after the initial research and data gathering process where a minimal plan can be set for the application's development, prototyping will be vital in the process of writing test cases and unit testing to find any major bugs in the application. Finding these major bugs at the earliest possible stage will obviously decrease the number of iterations further down the line in the development of the game which will release more time to concentrate on other important facets of the project (e.g.) Bluetooth connectivity, game graphics, betting variables, client/server etc.

11.2. APPLICATION

Refer to Figure 15.2. in the Appendices for a Block diagram of the project.

11.3. WORK-BREAKDOWN SCHEDULE

11.3.1. LIST OF WORK PACKAGES AND WORK FLOWS

- **0.** Local Hold'em Poker for the Android OS
- **1.** Requirements Analysis
    - **1.1.** Feedback
        - **1.1.1.** Questionnaire
        - **1.1.2.** Unstructured Interviews
        - **1.1.3.** Similar Interest Groups
    - **1.2.** Complete the Android tutorial apps
    - **1.3.** Unit test Java Poker game engines
    - **1.4.** Research the Android Connectivity Library's
        - **1.4.1.** Bluetooth
        - **1.4.2.** Wireless ad hoc network
    - **1.5.** Report 1: Feasibility Study
    - **1.6.** Report 2
        - **1.6.1.** Analysis
        - **1.6.2.** Design
- **2.** Project Demo
    - **2.1.** Code skeleton app for demo purpose
    - **2.2.** Presentation
- **3.** Prototype 1
    - **3.1.** Implement Screens
        - **3.1.1.** App Welcome Screen
        - **3.1.2.** Game choice screen
        - **3.1.3.** Connection choice screen
    - **3.2.** Implement Bluetooth connection
    - **3.3.** Handover to project supervisor
        - **3.3.1.** Supervisor feedback
        - **3.3.2.** Implement feedback
- **4.** Report 3: Project progress update document
- **5.** Prototype 2
    - **5.1.** Handover to project supervisor
        - **5.1.1.** Supervisor feedback
        - **5.1.2.** Implement feedback
    - **5.2.** Implement card, table and player images
    - **5.3.** Test: Complete a Bluetooth hand
        - **5.3.1.** Two player hand of Hold'em
        - **5.3.2.** Bug fixing
    - **5.4.** Implement table GUI
    - **5.5.** Hand evaluator
- **6.** Prototype 3
    - **6.1.** Test: Complete a Bluetooth game
        - **6.1.1.** Two player game of Limit and No Limit Hold'em
        - **6.1.2.** Game of Limit and No Limit Hold'em with more than two players
        - **6.1.3.** Bug fixing
    - **6.2.** Implement betting function
        - **6.2.1.** Limit betting
        - **6.2.2.** No Limit betting
    - **6.3.** Handover to project supervisor
        - **6.3.1.** Supervisor feedback
        - **6.3.2.** Implement feedback
- **7.** Report 4: Final project progress update document
- **8.** Prototype 4
    - **8.1.** Test: Complete an ad hoc wireless game

       8.1.1. Two player game of Limit and No Limit Hold'em
       8.1.2. Game of Limit and No Limit Hold'em with more than two players
       8.1.3. Bug fixing
   8.2. Implement wireless ad-hoc network connection
   8.3. Handover to project supervisor
       8.3.1. Supervisor feedback
       8.3.2. Implement feedback
9. Final Project Test Feedback
   9.1. Android forum tester's feedback
   9.2. Implement feedback
10. Final handover to project supervisor
   10.1. Supervisor feedback
   10.2. Implement feedback

11.4. PROJECT MILESTONE SUMMARRY

Project Milestone Summary Table	
Task Name	**Date**
Project Start	20/09/2010
End of Analysis and Design Phase	07/12/2010
Prototype 1 Finished	07/01/2011
Prototype 2 Finished	02/02/2011
Prototype 3 Finished	02/03/2011
Prototype 4 Finished	15/04/2011
Project End	13/05/2011

Figure 21.2. Project Milestone Summary Table

12. RISK ANALYSIS

12.1. IDENTIFICATION

Risk ID	Risk Name	Likelihood	Impact
1	Unrealistic time estimates	High	High
2	Real-time performance shortfalls	High	High
3	Personal shortfalls	Significant	Significant
4	Health problems	Low	High
5	Develop the wrong user interface	Low	Significant

12.2. DESCRIPTION

Risk ID
1. Unrealistic time estimates have been set for the projects activities. This can happen when the individual or groups estimating the time allocation are not doing the implementation. (e.g.) A target of two weeks set for coding an application that will realistically take two months.

2. Real-time performance shortfalls occur when the use of memory, data storage, and processing speeds have not been assessed correctly.

3.   Personal shortfalls are evident when the developer isn't fully committed to the project's development for the total lifespan of the project and if the developer hasn't the correct combinations of skills for the project. (e.g.) the developer has a lack of experience with Java, XML, Android environment, etc.

4.   The developer may become ill during the project's development.

5.   Developers can create applications that technically work very well from a coder's point-of-view but it may be difficult for the user to experience the total functionality of the application due to the wrong user interface on the application.

12.3. IMPACT

Risk ID
1.   The project will not meet the set target date for the activity and possibly future activity target dates in the project which could lead to the project end date not being met.

2.   Slow down in the application's processing speed, shortage of application memory, lack of user support options.

3.   The project may miss milestones or task target dates due to coding taking longer than expected.

4.   There isn't a replacement for a sick developer to cover the workload which will lead to targets not been met and the project running later than the projected end date. The project will also run over projected costs.

5.   The user will become frustrated with the application because of its poor user interface and will not use the application again or at least until the user interface is redeveloped.

12.3. RECOMMENDED MITIGATION

Risk ID
1.   Multiple estimation techniques, group estimation instead of individual estimation, major input on allocated task time from the implementers of the task, incremental development, recording and analysis of past projects, support a project standard for estimation methods.

2.   Simulation of application tasks, benchmarking, prototyping, tuning the application's performance.

3.   Training and skill development for the developer, identify key areas in the project early on to make sure the developer will be able to handle this area properly or may need extra help or training.

4.   The developer must eat and sleep sufficient amounts to avoid sickness. Vitamin supplements and flu shots could be recommended to encourage a proactive attitude towards illness rather than a reactive one.

5.   Extensive analysis should be undertaken before development begins to ensure the features the user wants will be developed. This analysis can be in the form of questionnaires, structured or unstructured interviews, and interacting with forums and similar interest groups. Prototyping is vital to gauge user reaction and feedback to the

user interface at its current stage so that it can altered at the earliest possible time if needed.

13. COMPETITIVE AND MARKET ANALYSIS

There are numerous competitors in the Android hold'em game market but just to reiterate, while these hold'em games may be multiplayer, connection to an online network is required and this constant transfer of data during the game is **not free.** From extensive research of the available Android games and applications it has been found that a project of this type is currently not available on the market as of 12th November 2010. Here are three of the main competitors on the market:

- WSOP: Texas Hold'em Legend
- Red Poker Club
- WPT® Texas Hold'em 2!

In the next three sub-sections, 11.1., 11.2. and 11.3., the graphs and comments are taken from AndroLib (2010).

13.1. WSOP: TEXAS HOLD'EM LEGEND
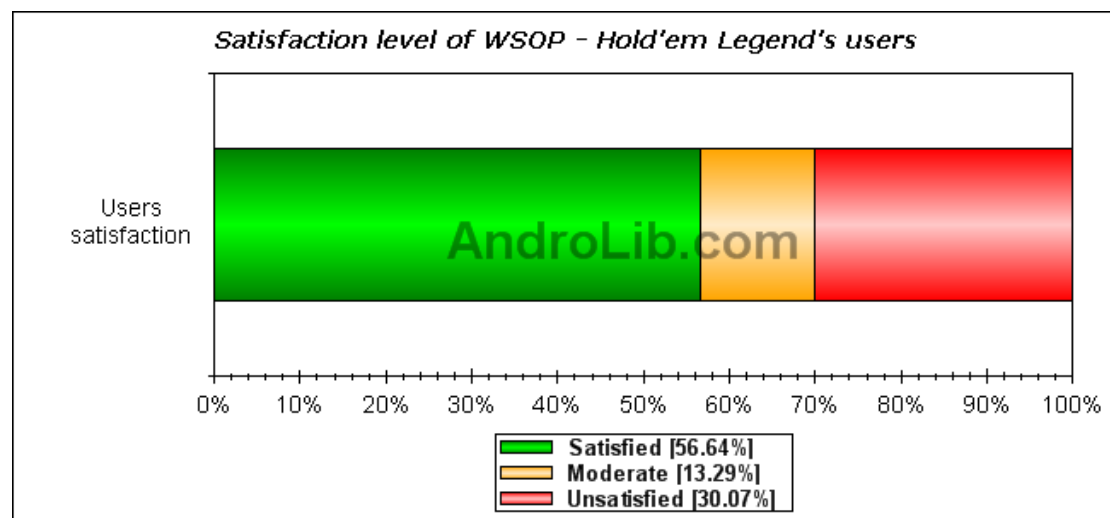
Figure 13.1. Satisfaction level of WSOP
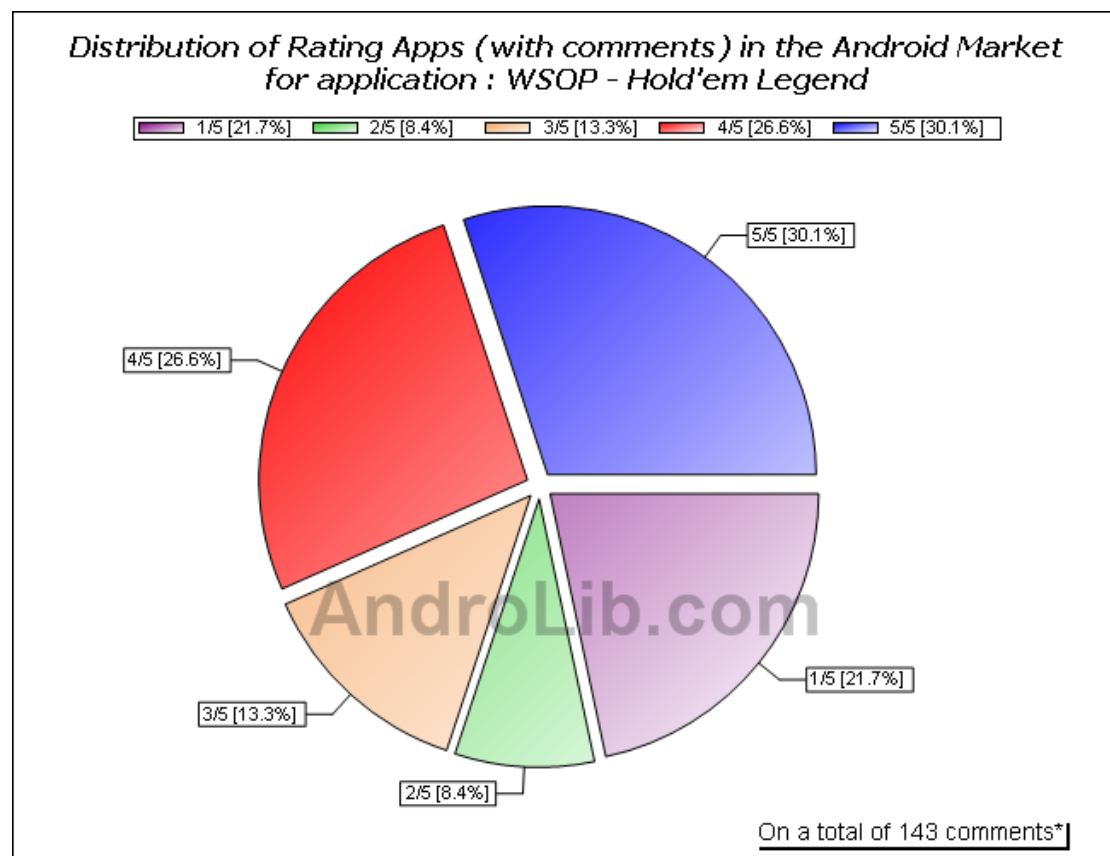
Figure 13.2. Distribution of rating apps in the Android Market for WSOP – Hold'em Legend

Comments and Ratings for WSOP - Hold'em Legend

by Peter the 11/13/2010 ★★★★☆
Love the app. But like others, the betting wheel stinks. They need to fix the big blind folding when its been checked to.

by Marc the 11/12/2010 ★☆☆☆☆
This game is a joke.

by Daddy the 11/11/2010 ★★★★★
Not too shabby...

by Jake the 11/9/2010 ★★★★★
Great pocket poker. Maybe the best. Good purchase. Moto droid

by Matt the 11/9/2010 ★☆☆☆☆
Stupid game. Nothing like real poker. Complete waste of time and money. You get $125 to start & cant reload if you bust out & the game is then over

by gonsa the 11/9/2010 ★★★★★
when will we have the option to save our profile online to be able to restore it later?

by Joe the 11/8/2010 ★☆☆☆☆
Froze, too big 20mb, touch screen not reacting poor...Eris

Figure 13.3. Comments and ratings for WSOP

22
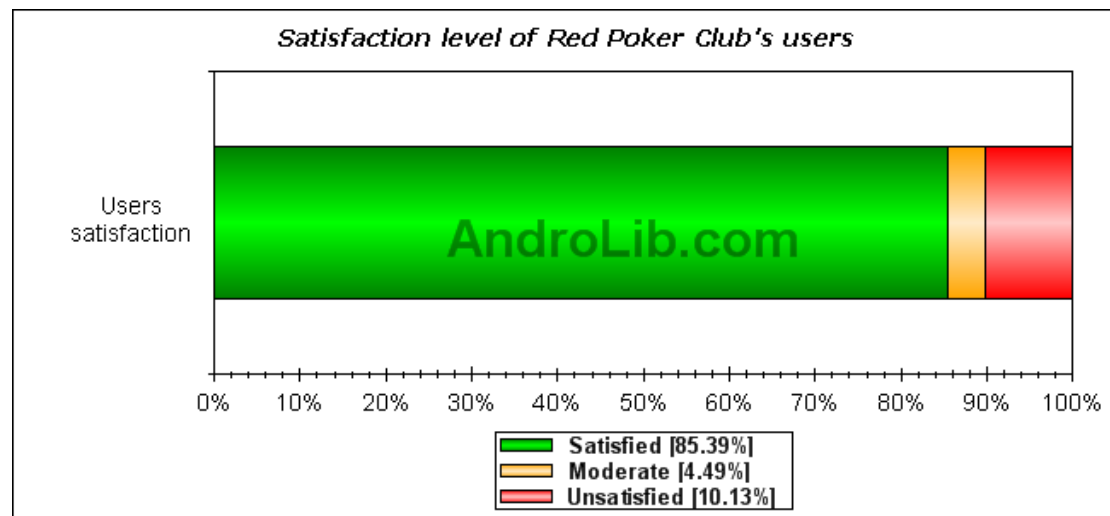
Figure 13.4. Satisfaction level of Red Poker Club
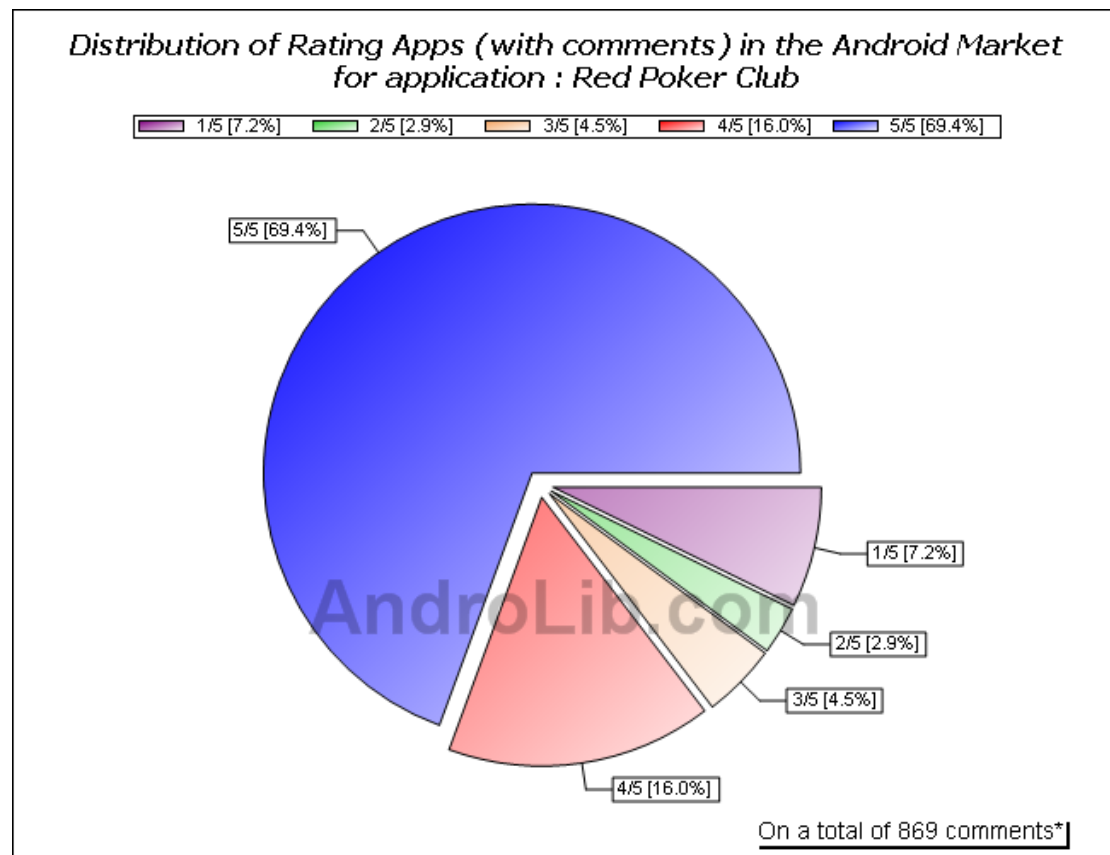
Figure 13.5. Distribution of rating apps in the Android Market for Red Poker Club

Comments and Ratings for Red Poker Club

by *Jay* the 7/30/2010 ★★★★☆

Needs ability to search for a specific user to add as a friend.

by *brent* the 7/30/2010 ★★★★★

FIX THE CONNECTION ISSUES!! @$tuntmanMike

by *dan* the 7/30/2010 ★☆☆☆☆

tells me I'm reconnecting. Kinda funny when I'm on wifi connection, next room from the router!!!!! Game has gone downhill, dev's page is also down...

by *Joseph* the 7/30/2010 ★★★☆☆

Fun app, but drains my battery fast. Full charge down to around 15-20% in about 30-45min. (Eris)

by *dictator* the 7/30/2010 ★☆☆☆☆

This game is a joke look no matter what u do the big money ppl on here always win and you lose ebony is bigmoney person lieing to u about this app

by *ebony* the 7/30/2010 ★★★★★

@shecall love this app play all day long the best app i ever played

by *Andre* the 7/30/2010 ★☆☆☆☆

Bullcrap game, rigged , way to many flushs to even be realistic, also most of the time the people with more money win...

Figure 13.6. Comments and ratings for Red Poker Club
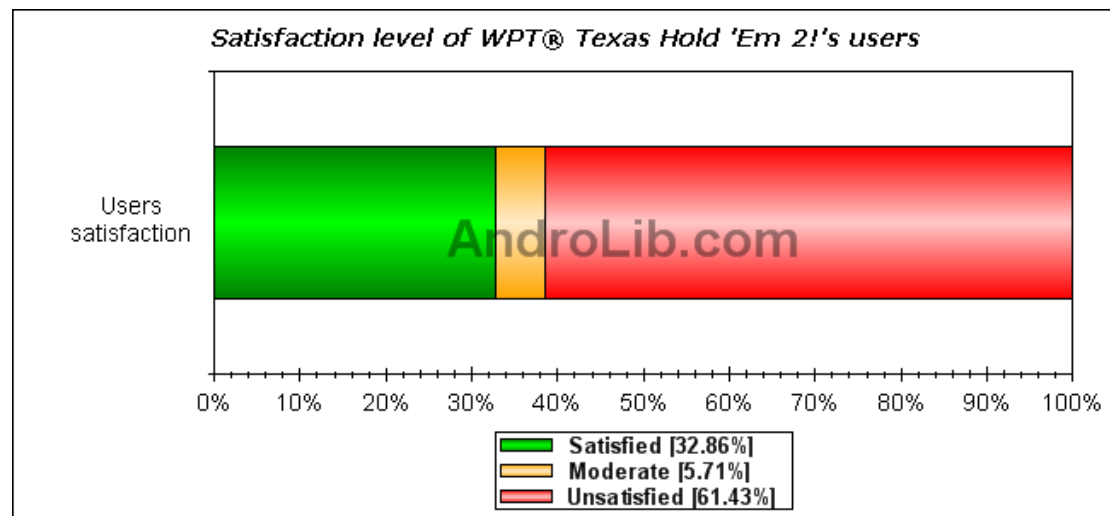
Figure 13.7. Satisfaction level of WPT® Texas Hold'em 2! users
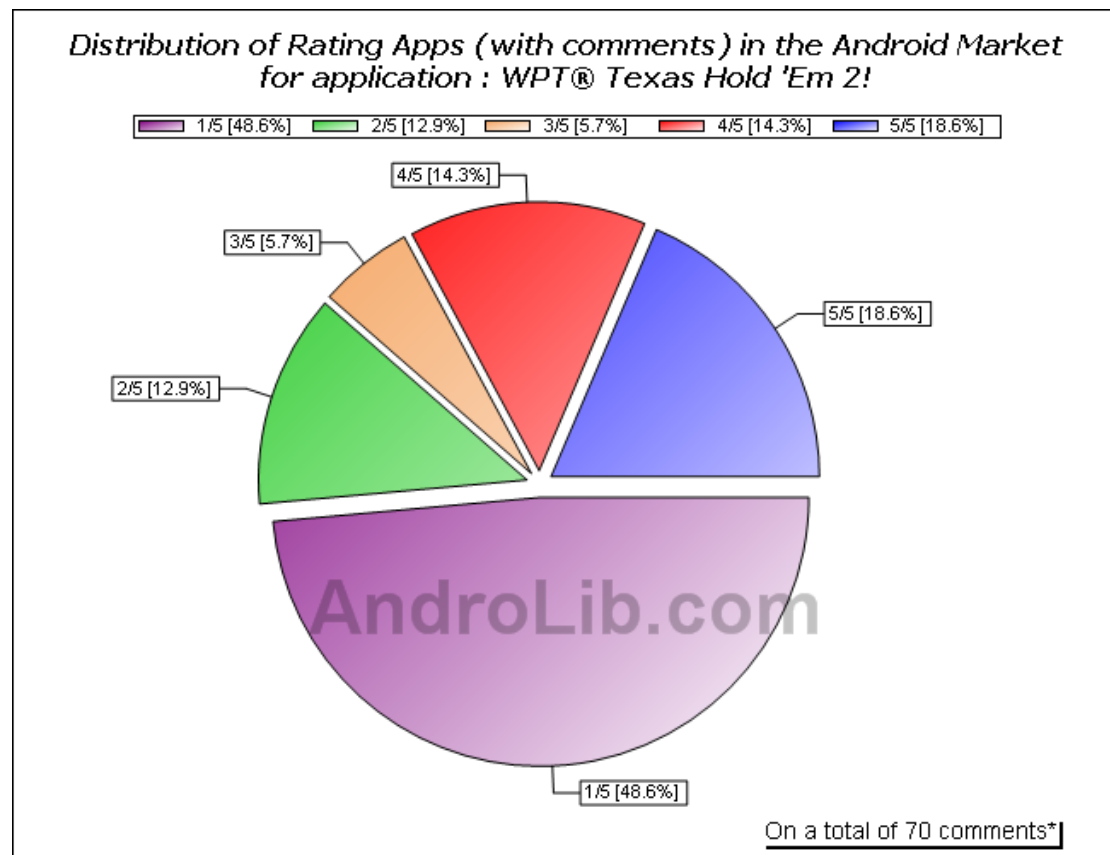
Figure 13.8. Distribution of rating apps in the Android Market for WPT® Texas Hold'em 2!

Comments and Ratings for WPT® Texas Hold 'Em 2!

by *avnor* the 10/21/2010

Bull

by *Dennis* the 10/17/2010

I use 2 have this on my other phone was a 10star now on my new phone its a 1star on my other phone i had over 1billion

by *Gus* the 10/14/2010

Great game and tech. Support

by *Larry* the 10/4/2010

Keeps freezing and force closing

by *Anna* the 9/16/2010

Slow, screen cuts off towards the right cards are small..this was my most favorite game on my flip top ph. But its terrible 0n my driod.

by *Dan* the 9/15/2010

Works ok rather slow single player. Live is ok...hate the slider to make a bet. Works fullscreen for me. mytouch slide

by *IDpros* the 9/11/2010

Can't see the entire screen. Not a good app and not worth the money.

Figure 13.9. Comments and ratings for WPT® Texas Hold'em 2!

14. REFERENCES

Andoop (2010). aHighScore. Retrieved on December 7, 2010 from
http://www.andoop.com/ahighscore

AndroLib (2010). Retrieved on November 14, 2010 from http://www.androlib.com/

Bray, T. (2010). "More Countries, More buyers, More sellers". Android Developers Blog.
Retrieved on October 14, 2010 from http://android-
developers.blogspot.com/2010/09/more-countries-more-sellers-more-buyers.html

Clark, B. (2006). "The Dying Days of Las Vegas 1-5 Stud". Two Plus Two Internet Magazine.
Retrieved on September 20, 2010 from
http://web.archive.org/web/20061123021244/http://www.twoplustwo.com/maga
zine/issue21/clark0906.html

FlopTurnRiver (2003). Retrieved on November 9, 2010 from http://www.flopturnriver.com/

Google Code (2008). "Issue 82: wifi - support ad hoc networking". Android – An Open Handset
Alliance Project. Retrieved on November 12, 2010 from
http://code.google.com/p/android/issues/detail?id=82&colspec=ID%20Type%20
Status%20Owner%20Summary%20Stars

Jradi, R.K. and Reedtz, L.S. (2010). "Ad-hoc network on Android". B.Sc. degree thesis, Technical
University of Denmark.

Man, M. (2002). "Bluetooth And Wi-Fi". Socket Communications Inc. White Paper, Socket
Communications Inc., Central Court Newark, California.

Meier, R. (2010). Professional Android 2 Application Development. Wiley Publishing, Inc.,
Indianapolis.

Stigter, O. (2009). Texas Hold'em in Java. Retrieved on November 7, 2010 from
http://code.google.com/p/texasholdem-java/

Whitten, J.L., Bentley, L.D. and Dittman, K.C. (2004). Systems Analysis and Design Methods,
6th Edition.

Figure 15.1. Use Case Diagram for Local Hold'em Poker on the Android OS
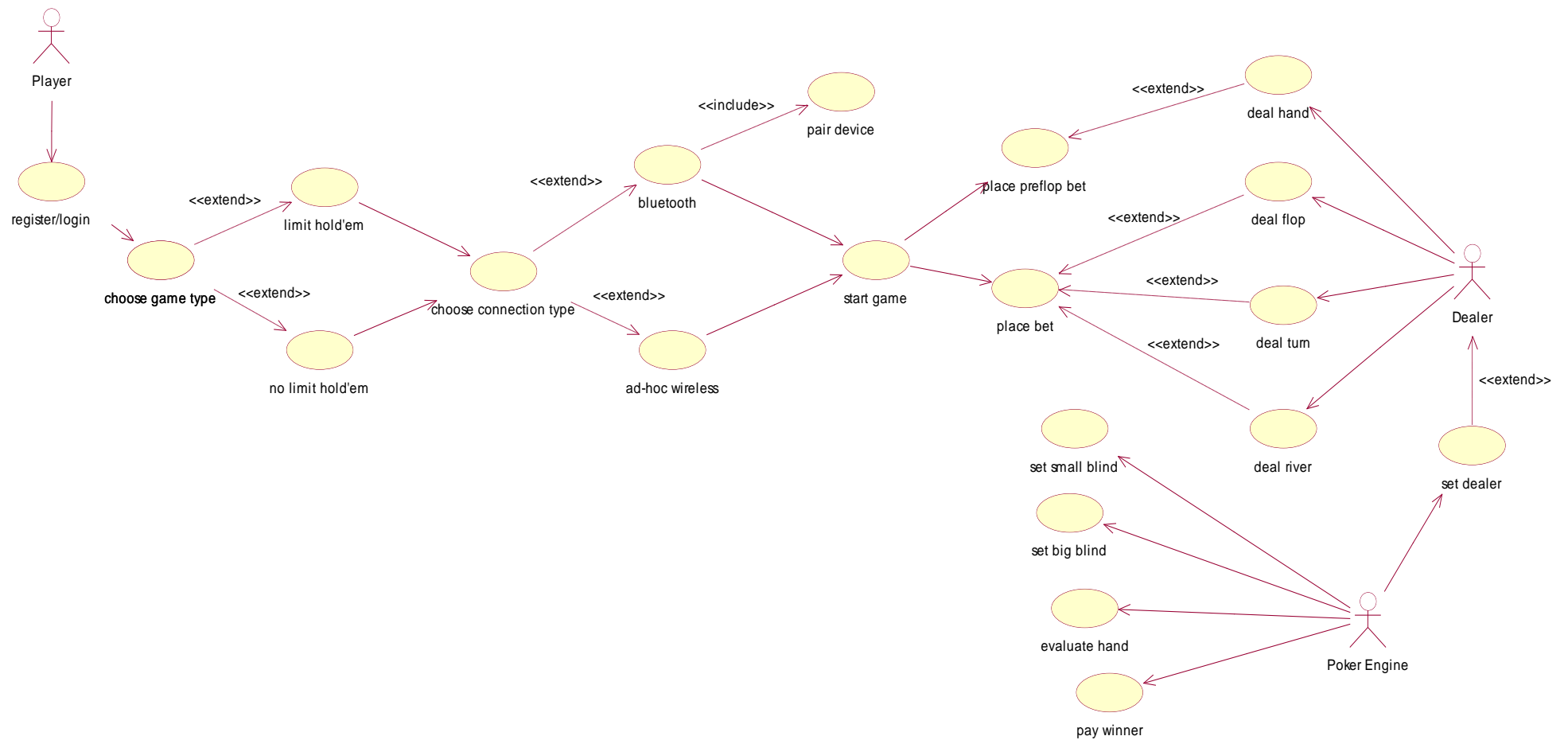
Figure 15.2. Block Diagram for Local Hold'em Poker on the Android OS

Local Hold'em Poker for the Android OS
[0.]

Requirements Analysis
[1.]

Project Demo
[2.]

Prototype 1
[3.]

Questionnaire
[1.1.1.]

Unstructured Interviews
[1.1.2.]

Similar Interest Groups
[1.1.3.]

Bluetooth
[1.4.1.]

Wireless ad hoc network
[1.4.2.]

Feedback
[1.1.]

Complete the Android tutorial apps
[1.2.]

Unit test Java Poker game engines
[1.3.]

Research the Android Connectivity Library
[1.4.]

Report 1: Feasibility Study
[1.5.]

Code skeleton app for demo purpose
[2.1.]

Presentation
[2.2.]

App Welcome Screen
[3.1.1.]

Game Choice Screen
[3.1.2.]

Connection Choice Screen
[3.1.3.]

Supervisor feedback
[3.3.1.]

Implement feedback
[3.3.2.]

Implement Screens
[3.1.]

Implement Bluetooth Connection
[3.2.]

Handover to Project Supervisor
[3.3.]

29

Analysis
[1.6.1.]

Design
[1.6.2.]

Report 2
[1.6.]

Report 3: Project
progress update
document
[4.]

Prototype 2
[5.]

Prototype 3
[6.]

Report 4: Final
project progress
update document
[7.]

Supervisor feedback
[5.1.1.]

Implement feedback
[5.1.2.]

Handover to Project
Supervisor
[5.1.]

Implement card,
table and player
images
[5.2.]

Two player hand of
Hold'em
[5.3.1.]

Bug fixing
[5.3.2.]

Test: Complete a
Bluetooth hand
[5.3.]

Implement full table
GUI
[5.4.]

Hand evaluator
[5.5.]

Two player game of
Limit and No Limit
Hold'em
[6.1.1.]

Game of Limit and
No Limit Hold'em
with more than two
players
[6.1.2.]

Bug fixing
[6.1.3.]

Limit betting
[6.2.1.]

No limit betting
[6.2.2.]

Test: Complete a
Bluetooth game
[6.1.]

Implement Betting
Function
[6.2.]

Handover to Project
Supervisor
[6.3.]

Supervisor feedback
[6.3.1.]

Implement feedback
[6.3.2.]

Prototype 4
[8.]

Final Project Test
Feedback
[9.]

Final Handover to
Project Supervisor
[10.]

Two player game of
Limit and No Limit
Hold'em
[8.1.1.]

Game of Limit and
No Limit Hold'em
with more than two
players
[8.1.2.]

Bug fixing
[8.1.3.]

Supervisor feedback
[8.4.1.]

Implement feedback
[8.4.2.]

Test: Complete an ad
hoc wireless game
[8.1.]

Implement wireless
ad-hoc network
connection
[8.2.]

Implement
register/login feature
[8.3.]

Handover to Project
Supervisor
[8.4.]

Android forum user
feedback
[9.1.]

Implement feedback
[8.2.]

Supervisor Feedback
[10.1.]

Implement feedback
[10.2.]

31