ABSTRACT

As the development of the game began to enter the world of Android and also advances the use of GPS or Global Positioning System to find out the location of the user wherever the user is located, the basis of this thesis to develop an Android-based adventure game that uses the GPS feature. With the city that will serve as a place to play, and the player is required to find a location that has been determined to be the background of the naming game is the ‘Real World Hunting’. The method used in this research is divided into two, namely the analysis phase in the form of literature by using a variety of research-related journals before and do a survey conducted for the needs of game design. The second stage of the game design phase using Scrum. This game can introduce players to the other side of the city containing many of Indonesia’s history, with the theme of the kingdom and interesting stories to attract more players to the play.

Keyword : GPS, Adventure Game, Android, location
Background

Global Positioning System (GPS) is a satellite navigation system that utilizes. GPS receiver acquire signals from satellites orbiting the earth. Satellites that orbit the Earth at short orbital arrangement consists of 24 satellites, with 21 active satellites and 3 satellite as a backup. With the arrangement of a certain orbit, the GPS satellites can be accepted on the entire surface of the earth with the appearance of between 4 to 8 pieces satellites. GPS can provide position and time with high precision.

As of the end of May 2012 the mobile ad market in Indonesia rose 99% to 27 billion from 13.6 billion in May 2012, where the Android platform showed a significant increase of 8.3 share points. In terms of market share nokia mastered half the rate 56%, followed by Android with 9.7% market share, RIM and Apple with 4% and 3%. (The Jakarta Post, 2012)

“The growth of Android mobile phone users in Indonesia are supported by reasonable prices, as some have the same price as a feature phone but offers much higher tech”. Head of Group Marketing Service Gerry Leo Nugroho. (The Jakarta Post, 2012)

Minimum Specifications Android OS used for this game is 2.3 Gingerbread OS. This is due to factors in the number of users of this OS market. Based on the survey conducted by Google’s own per 4 March 2013, found that the Gingerbread OS still ranks highest for the most widely used OS Android users today, followed by Ice Cream Sandwich and the new OS Jelly Bean. (Android Developer)

(A)Mazing, a GPS-based game developed by Hermans and Tianjiao Alexander Wang is one of them. This game is played by each player multiplayer and will compete against each other to win. Each player is required to move, and move they will make a track on the GPS screen. Player is the path that has been passed by the other player, then that player will lose. (Game Career Guide, 2012)

Player is the path that has been passed by the other player, then that player will lose. This game aims to make players explore the various places. On the GPS screen belongs player, there will be an icon or symbol that appears to be taken if the player went to the designated place at the GPS screen. Player can also share photos in order to give out a position player to player.

Based on a variety of games that have been developed, then dirangcang a GPS-based mobile game. Real World Hunting, the title of the game to be developed, is a GPS-based game where the player will explore once completed the challenge. Player is required to carry out exploration to the location designated on the GPS screen, and to receive his prize player will complete challenges.

OBJECTIVES AND BENEFITS

The objectives of this thesis are:

1. Integrating an adventure game genre with GPS.
2. Knowing the players interest in the game when playing a game conducted in outdoor.
3. Knowing the factors that influence the players to play the game, so it can be used as a reference other developers to design games that can be accepted by society.

The benefits to be achieved in making this thesis is as follows:

1. Players can recognize back and help preserve the history of Indonesia is presented in the game and outside the game such as when players visiting other destinations.
2. Android GPS function in the more familiar again.
3. Providing the opportunity to visit and traveled to the places specified destination within the game.

Research Methods

1. Analysis Methods
The analysis was conducted in order to determine the information needs of the user. With these analytical methods necessary information will be obtained more accurately.

1. Library Studies
At this stage the literature study by collecting journals and books to support the development of this game.
2. Questionnaires
At this stage, distribution of questionnaires to some respondents to complete library research has been done.

2. Game Design Methods
Application design method used is Scrum method of agile software development. Scrum is a framework for creating complex products. Scrum is not a process or methodology. Scrum is not specific enough to tell the programmer, designer, manufacturers how to complete their work. A studio adopting Scrum practices incorporate itself into the Scrum framework to establish a methodology.

- **Scrum process includes:**
  - Product Backlog is a prioritized list of requirements or features for a product that was developed.
  - Sprints, work backlog by dividing the backlog. Sprints have a predefined time duration between two to four weeks.
  - Release is a set of sprints that manufacture products with the latest features to potential buyers. The products in the production of the finished product are not entirely, but the product is to be used at trial.

RESULTS AND DISCUSSION
Problems that occur in the world of gaming is whether a game for smartphone-based GPS where the arena of play is the environment around us could be a new alternative?
Seeing background problems arise our desire to create a GPS-based game that can be received well by fans in Indonesia.
To resolve the problems that occur in the game world, then developed an adventure game titled Real World Hunting using GPS technology, with the following restrictions:
- Real World Game Hunting is designed for Android smartphones version 2.3 and above.
- The design of this GPS-based adventure game with playground Jakarta
- *Real World Game Hunting is intended for all ages both male and female*

In order to support the course of this game, it is necessary that adequate system specifications. Devices needed to run the game is divided into two, namely:

1. **Hardware**
   - In order for this game to run, required hardware specifications as follows:
     a. *Android Smartphone with GPS*
     b. *Free space internal memory atau external memory*

2. **Software**
   - Software software required to run this game is:
     1. Minimal operating system Android 2.3 OS Ginger Bread
     2. *RealWorldHunting.apk application*

Here is the implementation of the adventure game Real World Hunting:
1. **Opening Game Application**
   - When the player opens the application, players will see a loading bar, the player must wait for this stage, if the player who store more data or have completed the mission would wait longer than the player who entered for the first time.
2. **Main Menu**
   After passing display loading, players will see the main menu, where the player asked to login if you already have an account, or sign up if you go in for the first time. When players choose players will log into the login menu display. If players choose to sign up, players will be entered into the registration menu display.

3. **Menu Log In**
   When player choose the login menu, players will be asked to enter your email and password that was in the register, then players will enter the game and resume a saved game while players out...
of the game. In this menu there is also a back button if the player wants to return to the main menu.

4. **Menu Sign Up**
   Sign up in the menu, the player was asked to fill in your name, email, password, gender, and photos. Once the player clicks submit, the display will show the prologue of the game. In this menu there is also a back button to return to the main menu.

5. **Menu Prolog**
The menu Prolog is the beginning step of the game, the player menu this prologue will be informed of the game's story outline. In this menu the player can choose skip this menu by clicking on the skip button. After clicking the skip button, the player will enter the initial stage.

![Screenshot Page Prolog](image)

**Picture 5** *Screenshot Page Prolog*

6. **Menu Stage**

The menu is a menu where the player stage missions. stage on the menu, there are 4 main menu at the bottom of the main screen, the menu map, items, mission, player. On the menu there is also a button stage check, which serves to check the player position coordinates at the time, in the form of longitude and latitude.

![Screenshot Page Stage](image)

**Picture 6** *Screenshot Page Stage*
7. **Found Location Display**
   Display found this location appears after player enters a predetermined range area.

   ![Screenshot Found Location](Picture 7)

8. **Get Item Display**
   Display get this item appears when the player managed to find the item after completing the first mission.

   ![Screenshot Get Item](Picture 8)
9. **GPS Tutorial Display**

This tutorial GPS display an initial appearance on a mission, which appears after the player enters a predetermined area range.

![Screenshot GPS Tutorial](image)

**Picture 9 Screenshoot GPS Tutorial**

10. **Menu Item**

Like the above map menu, the main menu has four menu items are located below the main screen. This menu item is used when a player wants to see a list of items that have been obtained, in the menu there is also a description of these items.

![Screenshot Page Menu Item](image)

**Picture 10 Screenshoot Page Menu Item**
11. **Menu Mission**
On the menu there are four mission also play menu. In the menu this mission the player can see the mission has been passed and the mission would be over.

![Picture 11 Screenshoot Page Menu Mission](image)

12. **Menu Player**
When a player wants to see the data yourself, then the player can enter the player’s menu. Here the player contains the data themselves, as well as the scores that have been obtained.

![Picture 12 Screenshoot Page Menu Player](image)
The following is the display of the Draft Mini Game:

1. Screenshot Cooking Mission Screen 1

   ![Screenshot Cooking Mission Screen 1](image1)

   **Picture 13** Screenshot Cooking Mission Screen 1

2. Screenshot Cooking Mission Screen 2

   ![Screenshot Cooking Mission Screen 2](image2)

   **Picture 14** Screenshot Cooking Mission Screen 2

INSTRUCTION

Players are given 8 pieces of ingredients to be sorted into the correct order within the time limit of 20 seconds.

Ingredients place will be randomly assigned when the player manages to make one dish.

Ingredients place will also be randomized every 3 seconds.
3. Screenshoot Cooking Mission Screen 3

![Picture 15 Screenshoot Cooking Mission Screen 3](image1)

4. Screenshoot Cooking Mission Screen 4

![Picture 16 Screenshoot Cooking Mission Screen 4](image2)
5. *Screenshot Cooking Mission Screen 5*

![Screenshot Cooking Mission Screen 5]

6. *Screenshot Cooking Mission Screen 6*

![Screenshot Cooking Mission Screen 6]
7. **Screenshoot Puzzle Screen 1**

![Screenshot of Puzzle Screen 1](image1)

**Picture 19** Screenshoot Puzzle Screen 1

8. **Screenshoot Puzzle Screen 2**

![Screenshot of Puzzle Screen 2](image2)

**Picture 20** Screenshoot Puzzle Screen 2
9. *Screenshoot Puzzle Screen 3*

![Screen 3](image)

**Puzzle Mission**

**INSTRUCTION**

Arrange the following puzzles into a complete picture within 20 seconds!

**Picture 21 Screenshoot Puzzle Screen 3**

10. *Screenshoot Puzzle Screen 4*

![Screen 4](image)

**Puzzle Mission**

17

**MISSION SUCCESS!**

Time’s up...

Time elapsed: 17s

Score: 8500

**Picture 22 Screenshoot Puzzle Screen 4**
11. *Screenshot Trivia Quiz Screen 1*

![Screenshot Trivia Quiz Screen 1](image1)

12. *Screenshot Trivia Quiz Screen 2*

![Screenshot Trivia Quiz Screen 2](image2)
13. Screenshoot Trivia Quiz Screen 3

Picture 25 Screenshoot Trivia Quiz Screen 3

14. Screenshoot Trivia Quiz Screen 4

Picture 26 Screenshoot Trivia Quiz Screen 4
15. Screenshoot Museum Mission Screen 1

16. Screenshoot Museum Mission Screen 2
17. *Sandya Tree Mission Screen 1*

![Picture 29 Screenshoot Sandya Tree Mission Screen 1]

18. *Sandya Tree Mission Screen 2*

![Picture 30 Screenshoot Sandya Tree Mission Screen 2]
19. *Sandya Tree Mission Screen 3*

![Image 1](image1)

**Picture 31 Screenshoot Sandya Tree Mission Screen 3**

20. *Sandya Tree Mission Screen 4*

![Image 2](image2)

**Picture 32 Screenshoot Sandya Tree Mission Screen 4**
21. **Sandya Tree Mission Screen 5**

![Screen Shoot Sandya Tree Mission Screen 5](image1)

**Picture 33 Screenshoot Sandya Tree Mission Screen 5**

22. **Screenshoot Sport Mission Screen 1**

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Sport Mission

INSTRUCTION

Players are given 20 seconds to insert 30 balls.

The more player insert the ball to the ring than the distance will be farther away.

There is a power gauge that must be adjusted to the distance so the ball can go in.
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![Screen Shoot Sport Mission Screen 1](image2)

**Picture 34 Screenshoot Sport Mission Screen 1**
23. *Screenshoot Sport Mission Screen 2*

![Screenshot Sport Mission Screen 2](image)

**Picture 35 Screenshoot Sport Mission Screen 2**

24. *Screenshoot Sport Mission Screen 3*

![Screenshot Sport Mission Screen 3](image)

**Picture 36 Screenshoot Sport Mission Screen 3**

**CONCLUSION AND RECOMMENDATIONS**

Based on the results of the evaluation questionnaire that has been distributed, obtained a positive response from the respondents. Summarized as follows:

1. In accordance with the objectives of this adventure game made through this game players can recognize and recall how Jakarta in the past, players can feel the atmosphere of the kingdom when playing this adventure game, where it is difficult to get in this metropolitan city.
2. This game can also make the player get around the city, seeing the other side of the city.
3. By using the method of distributing the questionnaire, we can find out what people’s expectations for this game that will be made, of the 200 respondents ¾ likes playing games using the gadget, so we have designed a game that is approaching as the respondents wanted.
4. In some developing countries the application of GPS has become a feature of daily consumption, therefore the presence of a GPS-based game was greeted warmly by them, but in Indonesia, not many people know the function of the GPS, it led to the slow development of GPS technology in
the country, with the introduction of Real World Hunting game, the public can get to know the basis of the use of GPS technology, and with the presence of a GPS-based game could be a consideration for developers able to develop GPS technology.

5. The flow between pages game well understood by the respondents, as well as the instructions that have been presented, able to help the respondent to play this game.

Based on the conclusions, suggestions found the results of this study:

- With the theme of stories about some of the history of Indonesia, was able to raise the interest of the audience of the game to be more aware of the historical accounts in Indonesia, so it can also be applied to other developers who want to raise the kind of theme similar stories.
- Based on the evaluations that have been distributed, the game will be developed in terms of both the diversity of characters and gameplay designed.

REFERENCES

