Improving the method of implementing the accelerometer for mobile

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Abstract. The introduction of Yogyakarta Culinary game is a game with Indonesia theme with the aim to introducing Indonesia culinary especially focused into Yogyakarta region. A many of tourist from local or foreign country just known culinary that exist and famous in Yogyakarta only Gudeg and Bakpia. This research managed to build a game that can help introduced the other culinary interestingly. This game tested on usability and also Accelerometer sensory used to make character movements. Based on testing which is conducted a people who play the game can be concluded that game is easy to use even tough still have a minor weakness inside the game.

Index Terms— Accelerometer, Android, Culinary, Mobile Application.

1. Introduction

Yogyakarta or better known as Jogja in tourist logo, Called as the city of student and culture located in south side java island Indonesia. Become a destination for domestic and foreigner for holiday because there a lot of tourist attraction in Yogyakarta. Besides that, Yogyakarta also offer regional specialty culinary with reasonable price and good taste. It is unfortunate that many tourist just knowing Bakpia and Gudeg as a ultimate culinary that exist in there. Used of a Personal computer or smartphone is common for every people that live in this world, It is not just for communicate each other or accessing social media and also playing games. Games can used as a media promotions for specialty culinary especially for region of Yogyakarta. This is certainly more facilitate local people for media of promotions for who want to travel to know what other food or culinary that have in Yogyakarta city without focused into one or two food packed with an interesting way of information. Based on the fact the author has an idea to promote a culinary in Jogjakarta using game and then implemented with smartphone.

2. Aim and Objective Research

Coming up from the existing problem, then aim for this research is
1. To develop an game as media promotions for Yogyakarta culinary and helping the society to give an information as a alternative culinary that exist in Yogyakarta city.
2. To develop an game that compatible using accelerometer in the Android smartphone.
3. Introducing Yogyakarta culinary with the easy way and fun.
Scope of research
To keep focused while developing game, the author determined scope of the research which are:

- How to take a food where the food is failing down from the sky to the basket that had been provided.
- Single player
- 2D
- Character used traditional Yogyakarta outfit.
- Food that exist in this game are Bakpia, Gudeg, Wingko, Klatak satay, and foods that available in the Angkringan such as Nasi Kucing, Gorengan, Joss Coffee, Mie Rebus, and egg satay.
- Used sensor Accelerometer for character movement.
- Offline games.

### 3. Significance of Research

With this research, be expected can give a benefit like:

1. This game application can be expected can increase player awareness that in Indonesia especially in Yogyakarta region have a various kind of culinary.
2. To be a reference for tourist while finding an alternative culinary that exists in Yogyakarta.
3. Can be a reference for game developer that wants to develop same game.

### 4. Previous Culture applications

One of application often people meet inside computer is a game. Game usually very attractive and fun to be play. A lot of people think game just only for fun or to release stressed. However, there is a something behind it all such as moral messages, development the way of thinking, agility of the player, and many more depends on what game they played. The culture that Indonesia have so many that can develop for story or source of creativity like through a game that can used as a new way to introducing culture to the other (Husaini, 2013). As an examples there is a developer game named Dwi Hardyanto who introducing Indonesia through a local ghost. According to him, introducing a culture of Indonesia via local ghost is a unique way from the other side to introducing Indonesia culture. Dwi develop an game where the story about a local ghost have a war with the other ghost around the world, the game called Ghost battle have an several local ghost such as Sundel Bolong, Leak, Tuyul, and other ghost where people hear inside their lives. Because of that Dwi Hardyanto be able to win at Dicital Creative Indonesia Competition 2014 (Ketahui.com, 2014).

### 5. Previous Game Related the Researcher

Author do a comparison between the game that will developed and the other same game that using accelerometer that can be expected reference for the author to made an game more better than the previous game.

1. Egrang race

Egrang race is a one of traditional game that made in android using accelerometer sensory as a balancer for the egrang. Egrang race is a game that use for running competition.

![Figure 1 : Egrang Race](image-url)
Description:

Name: Egrang race
Category: Race
OS: Android 2.3
Size: 9 MB
Creator: Indra Gustama Abdillah

2. **Crazy Drunk Man**

Crazy Drunk Man is a Game that describe a drunk man trying to walking flawless straight into the road. Accelerometer sensory helping player to keep the drunk man to stand up and walking straight.

![Crazy Drunk Man](image2.png)

**Figure 2:** Crazy Drunk Man

Description:

Rating: 5*
Update: 14 March 2013
Version: 2.2
OS: Android 2.2
Category: Casual
Size: 8 MB
Developer: Creatiosoft.

6. **Results and Discussion**

6.1 **Game Design:**

Inside the research for developing an game can be found a few of step. Early step to developing a game is determined concept from game itself. The concept from introduction of Yogyakarta culinary game is the concept game “introduction of Yogyakarta Culinary” is a game that have a concept about Alien invasion to the earth using spaceships called UFO for kidnapping Angkiran Store for them.

![Story Part 1](image3.png)

**Figure 3:** Story Part 1

In the middle of journey UFO spaceships shot by traditional weapon called ketapel and many more till make the UFO spaceship damaged.
Because the damaged of the spaceships cause the destroy of the fuselage and dropping all of the foods from the Angkringan before.

The food that falling down from the sky is a lot and make a young man that using Besek basket with traditional outfit have an idea to catching the goods.

6.2 Scenario of the Game:
The game design covering general description and scenario that will give a information more detail about the game mechanic, which are:

Title of Game: Tangkap Makanan.
Genre: Arcade

General description: A player play the game use a smartphone that have accelerometer sensory.
• This game only can play by one person.
• Accelerometer used to drive a character into left and right.
• Player should catching a random food using Besek (basket)
• Besek is a basket to gathering the food
• Food that falling from the sky have a different point, like:
  • Bakpia, wingko, Telor puyuh, Nasi kucing got one point. Klatak satay, Kopijoss, Gorengan got two points. The highest score is gudeg that got three points. The last one is rotten food; if character got this food will reduced point by minus five point.
  • Point that collected by character will lose for minus five point if the character caughted rotten food.
• In the first game player can get 2 lifes.
• Character lives will go if the player fails to catch the food 5 times.

In the menu that have three choices which are:

1. Play button : to start the game
2. Gallery button : Photo of the food and brief information about the foods.
3. Sound button : to turn off or on the music sound.

**Figure 6 :** Main Menu

**Figure 7 :** Gallery Informations
4. About button : to show information about the developer.

![Figure 8: Credits](image)

Exit button : to exit the game

7. Implementation
This part is a implementation from the game design that created before. The outcome and discussion about game that created will be explained more detail in this part.

7.1 Modeling
the first time modeling is a background, character, food, and buttons. For background that author pick is a one of famous place in Yogyakarta called Pasar beringharjo (traditional market) as a main background. The character is a person using traditional dress that used by Abdi Dalem.

![Figure 9: Game Asset](image)
The next is modeling for the background music while the game played. Music that author pick is a Statiun Balapan by Didi Kempot that re-arranged in 8 bit music.

Figure 10 : Music arrangement

8. Testing

The test result will shown that the game can working perfectly. Testing used a few smartphone in various version of operation system such are:

**Table 1 : Type of Smartphone**

| No | Merk       | Versi | Versi android | Sistema Operasi |
|----|------------|-------|---------------|-----------------|
| 01 | Sony Xperia SP | C3302 | JellyBean 4.3 | Android         |
| 02 | Tab 2. Samsung Galaxy | P3110 | JellyBean 4.1.2 | Android |
| 03 | Oppo | R831k | JellyBean 4.2.2 | Color OS |
| 04 | Oppo | R829 | JellyBean 4.2.2 | Color OS |
| 05 | Samsung Mega | GT- | G7 | JellyBean 4.1.2 | Android |
| 06 | Samsung Grand | I9900 | GT | JellyBean 4.4.2 | Android |
| 07 | Samsung Galaxy Ace | GT- | S7500 | GingerBread 2.2.2 | Android |

The result can shown in table 2

**Table 2 : Testing Result**

| No | menu | Instruction button | testing |
|----|------|--------------------|---------|
| 1  | Pause | Pause | success |
|    |       | Resume | Success |
|    |       | Home | Success |
|    |       | Repeat | Success |
| 2  | Game Over | Score | Success |
|    |       | Repeat | Success |
|    |       | Home | Success |
| 2  | Main Menu | Game start | Success |
While testing can be found a few of bug likes:

1. Main Menu Picture corrupt. This bug only available in smartphone type Samsung Grand Neo GT-L19060.
2. While player play the game, the character suddenly disappear. But only disappear for a second. This bug only happens twice while testing. This bug available in the Samsung Galaxy Tab 2.
3. The size of game changed this bug only available on Color OS.

8.1 Test result of respondents
The result testing by respondent can get on a online survey in google form. The tester play a game in live can be downloaded in internet. The respondent not limited by ages.

**Table 3 : Questioners**

| No | Questions                                                                 | TA | A | D | TD |
|----|---------------------------------------------------------------------------|----|---|---|----|
| 1  | Are game Tangkap Makanan have a interesting display that good to be see?  | 14 | 7 | 1 | -  |
| 2  | Menu feature for gallery very helpful player for given information about the culinary? | 10 | 10 | 2 | -  |
| 3  | Are music in this game interesting to hear?                               | 11 | 11 | - | -  |
4. Character Movement easy to operate? (Accelerometer movement)  

|   | Character Movement easy to operate? (Accelerometer movement) |
|---|-------------------------------------------------------------|
| 4 | 12 | 7 | 3 | - |

5. Playing game Tangkap Makanan can make us more aware about culture especially for culinary side?  

|   | Playing game Tangkap Makanan can make us more aware about culture especially for culinary side? |
|---|------------------------------------------------------------------------------------------------|
| 5 | 10 | 11 | 1 | - |

6. Should this game develop into another operation system?  

|   | Should this game develop into another operation system? |
|---|--------------------------------------------------------|
| 6 | 15 | 6 | 1 | - |

After the respondent play the game will requested to fill the survey form about the game which are: 22 respondents involves in testing the game to test the usability system from the player side. In this session the player is trying to use all of the game system and the menu. From the survey above author can get conclude that the game have an impact for the promotion of the culinary because the game really interactive and give an information about the food inside the game. The player not only plays the game also get information about the culinary in a interesting way.

9. Summary of this Research

Summary on this research is the game success developed and easy to use for the player. This game also working perfectly in accordance with player will. The display of this game is very fascinating for the player in giving information about the foods. The last is this game shall develop for other operate system such as IOS and Desktop.

10. Conclusions

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