

## 2D Web-Based Battle Game "MONSTER BEATr" With Rhythm-Base Combat System

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### ABSTRACT

"Monster BEATr" is a rhythm genre game with 2D graphics developed for the Web. This game is developed by Unity game engine with the C# programming language. In this game, player will control the musical note character Bita to fight against musical notes which turned into monsters. The game has 10 levels with different songs and obstacles. This game offers the freedom to play using either a PC/Laptop or smart phone as long as it is connected to the internet. The Monster BEATr game testing is done by blackbox testing, alpha testing and beta testing methods. The test results show that the Monster BEATr game is a game that can be played anywhere as long as it has internet connection, has a high level of difficulty and has a unique gameplay.

### 1. INTRODUCTION

The rapid development of the game industry in the digital era makes everyone have very easy access to enjoy games anywhere and anytime. Game genres are also very varied, ranging from horror games, action adventures to music, all of which are according to players tastes.

Rhythm game is a video game genre that has a musical gameplay, where the player is tasked with pressing notes according to the beat map that responds to audio and visual cues in the game. [1]

"Monster BEATr" is a game that carries the action rhythm genre that is designed with a 2D appearance and applies a unique battle system. The game is designed to use the mechanics of gameplay like a traditional rhythm game but provides an atmosphere like playing a fighting game. An example of a game design with a similar genre is Catch the Beat, which is a rhythm genre game that has 15 levels with 15 traditional Indonesian songs. This game uses the touch screen as an input device and the player is tasked with avoiding obstacles in each level while the player also has to match the rhythm and tempo of the songs at that level. Catch the Beat game display can be seen in Figure 1. [2]

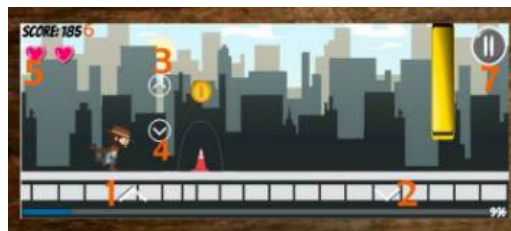


FIGURE 1 Catch the Beat

## 2. THEORITICAL BASIS AND METHOD

### 2.1 Game Designing

In game design, a game design stage is needed which becomes a benchmark in the desired game design process. The stages in making the game are divided into: [3]

#### 1. *Concept*

The required description of the game that will be made to provide an overview in determining what kind of game the developer want to make so as not to deviate from the predetermined design. Jelasin konsep gamenya.

#### 2. *Mechanics*

This step explains the features and rules in the game. The gameplay preparation stage is divided into the following stages:

- *Control Design*

Monster BEATer can be played both on PC/Laptop or Smartphone. The control on PC/Laptop is using keyboard like “A” button and “L” button to hit a monster from blue lane and red lane. As for the smartphone is using touchscreen control where the left side of the screen is use to hit a monster on the blue lane and the right screen is to hit a monster on the red lane.

- *Character Design*

Describes the game's characters. The characters described are the main character and the enemies. The designs of the main character can be seen in **Figure 2** and the enemy character can be seen in **Figure 3**



**Figure 2** Main Character



**Figure 3** Enemy Character

- *Object Design*

Describes the objects used in the game's level design. The objects are arranged in a level design that would eventually form the game's levels.

- *Level Design*

Describes the level design of the game. This design includes difficulty levels, level flow and object placement.

- *Sound Design*

Describes the sound used in the game level. All the songs that used in the game are varied base on their genre there are folk songs, EDM, pop and jazz. Not just the genre, but the rhythm is different from each song so it could give a different challenge on each level.

#### *Storyline*

“Monster BEATer” is set in the world of scores. The protagonist, “Bita” is the musical note who goes on an adventure to fight every musical notes that turned evil and determined to save the world of music from destruction using the power of music.

#### *Audience*

The game is made for all Ages and gender.

#### *Technology*

Monster BEATer can be played on PC/Laptop and smartphone that already support WEBGL feature to be able to run the game on browsers.

## **2.2 Genre**

Rhythm game is a genre of music-based games in which the player performs certain specific actions in response to audio and visual cues. [4] In this type of game, players are directed to beat enemies in the game by using visual patterns that match the rhythm or beat of the song. Therefore, the game "Monster BEATer" is a rhythm genre game.

## **3. TESTING AND RESULT**

After the game is successfully made, it will then continue with the testing process with the aim of ensuring that the game that has been made can run well according to the design and find deficiencies or discrepancies contained in the game.

### *1. Blackbox Testing*

The game Monster BEATer was tested using the Black Box testing method, which included testing all of the game's features. These features include:

### *2. Main menu module test*

The Main menu display has 4 buttons, start to enter the level selection page, option to enter the game settings page such as BGM and SFX sound volume and also reset data, help to enter the help page on how to control the game and information about the characters in the game and about to enter a page containing information about the game designer. All buttons on the main menu module can function properly as can be seen in **Figure 4**.



**Figure 4** Main Menu display

### *3. Boss Selection module test*

In the Boss selection module, players choose the level of difficulty which is represented by various bosses. There are 3 options from easy (Treble), medium (Bass) and hard (Alto). All difficulty level selection buttons work fine as can be seen in **Figure 5**.



**Figure 5** Boss Selection Display

4. *Level Selection module test*

There are 3 easy songs, 3 medium songs and 4 hard songs. In this module there is also a start button to start the game with the selected song and a back button to return to the boss selection module. All buttons on this module can function properly as can be seen in **Figures 6 to Figure 8**.



**Figure 6** Easy level selection



**Figure 7** Medium level selection



**Figure 8** Hard level selection

5. *Option module test*

This module contains settings for adjusting the BGM and SFX sound volume during the game using the slide button and there is also a data reset button that can be used to delete the save file. All buttons work properly as can be seen in **Figure 9**.



Figure 9 Setting Display

## 6. Tutorial module test

The display of the help module can be seen in **Figures 11 to Figure 15**. In this module, players can find informations of how to control game characters and information about all the characters in the game. In this module there are 3 buttons in the form of arrow keys to the right and left to move pages and also the back button to return to the main menu. All buttons on this module can function properly.

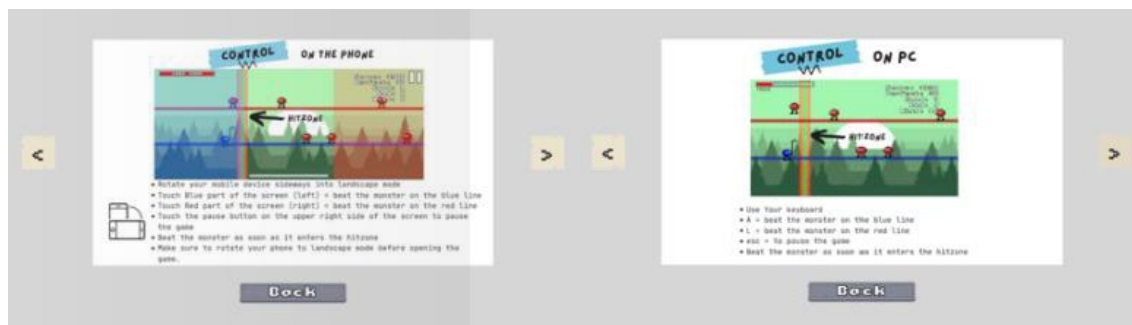


Figure 11 Help Mobile Control Display Figure 12 Help PC Control Display



Figure 13 Help Information Bita and Monster Minion



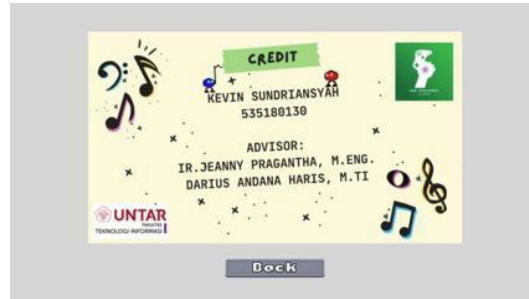
Figure 14 Help Character Information Healy and Resty



**Figure 15** Help Character Information Boss Character

7. *About module test*

In the about module, information about the developer and Advisors of the Monster BEATER game is displayed. The about module can function properly as can be seen in **Figure 16**.



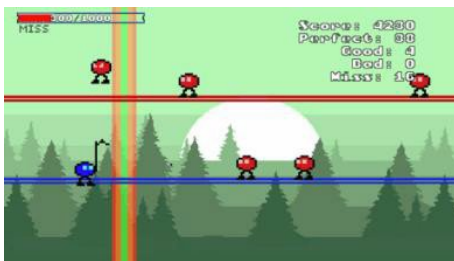
**Figure 16** About Display

8. *Gameplay module testing*

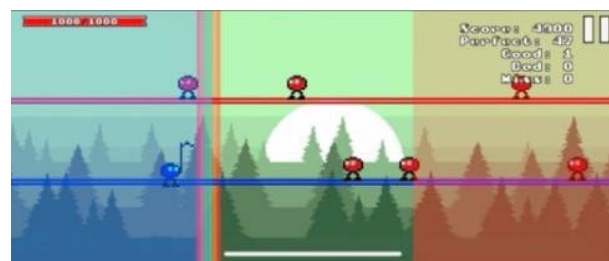
The gameplay view can be seen in **Figure 17** and **Figure 18**. In the gameplay module, there is score information and a pause button that functions to temporarily stop the game. In the gameplay module, there are several modules that are tested, namely:

8.1 *Character Control Testing*

The function of the player character being tested is the movement of the player character with control on the PC and the button on the smartphone, a successful hit, a failed hit, a reduced character's health point in the event of a miss hit. Based on the test results, the player's character functions well



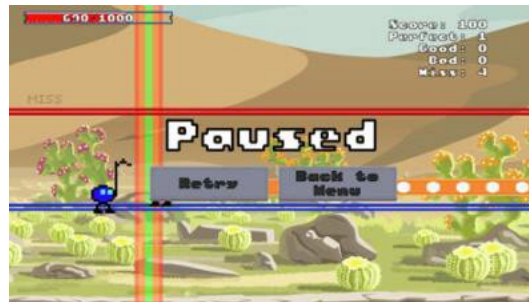
**Figure 17** In game Display on PC



**Figure 18** In game Display on Mobile

8.2 *Pause UI Testing*

There is a UI to pause which can be used to pause the game and there are also options for retry and back to menu. All the menu buttons are connected and can be navigated using the keyboard using escape button and touch screen as can be seen in **Figure 19**.



### 8.3 Game Over Module Testing

**Figure 19** Paused UI DisplayThe display of the game over module can be seen in **Figure 20**. The game over module will appear after the player's character runs out of health points. In this module, there are 2 buttons, namely retry and back to main menu.



**Figure 20** Game over Display

### 9. Result module testing

The display of the result module can be seen in **Figure 21**. The result module will appear after the player has successfully completed the game, this module will display the score achieved by the player during the game and 2 buttons namely retry and back to main menu.



**Figure 21** Result scoring Display

#### a. Alpha Testing

Alpha testing was done internally by those who act as representative of a player of the game. In this case, the test was done by the supervisors who understood the concept of the game. After the test was done, there are some changes in the game according to the comments of supervisors, namely:

3. the background level of the game should not be the same
4. in level selection, there should be a preview of the song from the selected level
5. Lack of level decoration/display in the game.

b. *Beta Testing*

Beta testing is testing that is carried out to the public after alpha testing has been tested. This test was carried out online by 44 respondents from June 16, 2022 to June 18, 2022 by distributing games using links and Google Form questionnaires through various social media such as Line, Discord and Whatsapp. After finishing playing the game, respondents were asked to fill out a questionnaire consisting of 22 questions.

c. *Testing Results*

1. Most of the respondents are aged 16 to 25 years compared to others.
2. The test results show that there are almost as many female players as male players with a total of 23 respondents were female (52.3%) and 21 respondents were male (47.7%).
3. There are 23 respondents (52.3%) playing using a PC/Laptop while the rest play using a smartphone device.
4. Chrome browser is the most widely used browser to play Monster BEATER games with a total of 26 respondents or 59.1%.
5. A total of 32 respondents (72.7%) stated that they had played games with the rhythm genre.
6. As many as 43.2% of respondents were very satisfied with the selection of songs in the game "Monster BEATER".
7. Regarding the level of satisfaction with the way of playing, with the average acquisition of the results of the respondents getting 4.06.
8. A total of 40 respondents (90.9%) stated that they would play Monster BEATER again in the future.

4. **CONCLUSION**

After completing the testing of the "Monster BEATER" game, through the results of the questionnaire that has been filled in by 44 respondents, the following conclusions can be drawn:

1. From the age data of the respondents, it can be concluded that this game can be played by all ages.
2. The most difficult level according to most respondents is level 10 on the hard difficulty level with a song Titled Funky by Bensound.
3. The game can be played using several browser applications on PC/Laptop devices or IOS and Android smartphone devices, so that the purpose of making this game has been achieved.
4. Game Monster BEATER can run well in HTML web.

5. **REFERENCES**

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