



Faculty of Computer Science and Information Technology

***DEVELOPMENT OF VIRTUAL WALKTHROUGH GAME FOR  
EXPLORING ZOO***

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Bachelor of Computer Science with Honours  
(Multimedia Computing)  
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**DEVELOPMENT O**

**THROUGH GAME FOR**

**EXPLORING ZOO**

**IZZAH ATIRA BINTI RAZALI**

This FYP Report is submitted in partial fulfillment of the requirement for the degree of Bachelor of Computer Science and Information Technology

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**PEMBANGUNAN PERMAINAN ALAM MAYA UNTUK  
MENGESKPLORASI ZOO**

**IZZAH ATIRA BINTI RAZALI**

Projek ini merupakan salah satu keperluan untuk Ijazah Sarjana Muda  
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## **ABSTRACT**

This project is about the development of virtual walkthrough game for exploring zoo. Virtual does not physically exist but by using software, it appears to do so while walkthrough is a tour or demonstration of an area. There are a few problem statements that can be found in this project; kids tend to only know the name of the animals without knowing their characteristics. Most parents will only bring their children to the zoo and then they will have a tour at the zoo. Parents will not explain the characteristics of the animals to their children. They will just tell them the name of the animal. This is the case with well-being family which can afford to visit the zoo.

Some families which cannot afford to bring their children to the zoo or being too busy with work will just buy books for their children which are cheaper. Problems with books are they do not provide the interactivity that can attract children's attentions. So, the children will only pay attention for a short time. Children that cannot go to the zoo will experience themselves on how the walkthrough game works. This game can help the children to provide the experience of virtually walking in a zoo while having fun playing the game. Since the game is targeted on kid that still cannot read well, guidance from teachers and parents are needed. They will explain the instructions and the characteristics on the animals to the children.

## ABSTRAK

Projek ini dijalankan untuk membangunkan satu permainan alam maya untuk mengeksplorasi zoo. Alam maya tidak wujud secara fizikal tetapi diwujudkan menggunakan perisian yang akan menjadikan satu permainan itu seperti alam realiti. Terdapat beberapa masalah yang dikenal pasti dalam projek ini; kanak-kanak didapati hanya mengenali haiwan berdasarkan namanya sahaja tanpa mengetahui ciri-ciri haiwan tersebut. Kebanyakan ibu bapa akan membawa anak-anak mereka ke zoo dan hanya memberitahu nama haiwan-haiwan di zoo kepada mereka. Mereka tidak akan menerangkan ciri-ciri haiwan tersebut kepada anak mereka. Ini merupakan kes untuk ibu bapa yang berkeupayaan untuk membawa anak-anak mereka melawat zoo.

Sesetengah keluarga yang tidak begitu berada, yang tidak mampu untuk membawa anak-anak mereka ke zoo ataupun terlalu sibuk dengan kerja hanya menyediakan sumber berupa bahan bacaan untuk anak-anak mereka yang jelas lebih murah kosnya. Masalah dengan bahan bacaan adalah ia tidak menyediakan interaksi yang boleh menarik perhatian kanak-kanak. Jadi, kanak-kanak hanya akan member perhatian dalam masa yang singkat sahaja. Permainan ini akan membantu kanak-kanak untuk menambah ilmu pengetahuan mereka mengenai haiwan-haiwan di zoo sambil berhibur. Oleh kerana permainan ini ditujukan untuk kanak-kanak yang belum boleh membaca dengan lancar, bimbingan ibu bapa dan guru diperlukan .



# **INTRODUCTION**

## **1.1 Introduction**

This is a 2D game and will be created using game maker software. All the game characters and objects in the game will be created by using an image editing software. Thus, skills in creating and editing images are needed to create this game. This also required some knowledge in creating a game by using 2D game maker software. Skills in animating objects and editing sounds are also required in creating this game.

This game is based on a zoo environment. The purpose of the development of this game is to help kids learn more about the animals that exist in a zoo. The player will start playing the game by exploring the virtual zoo. Each animal have their own descriptions and characteristics that will pop up once the player walkthrough the path where the animals are kept.

This game is included in serious game category targeted mostly on kids. So, it is focusing more on what would the kids learn after playing the game. They can learn while having fun playing the game. Guidance from teachers or parents is needed for the targeted player to play this game. This game can be played only on desktop.

## **1.2 Problem Statement**

Nowadays, most parents will only bring their children to the zoo and then they will have a tour at the zoo. Parents will not explain the characteristics of the animals to their children. They will just tell them the name of the animal. This is the case with well-being family which can afford to visit the zoo.

Some families which cannot afford to bring their children to the zoo or being too busy with work will just buy books for their children which are cheaper. Problems with books are they do not provide the interactivity that can attract children's attentions. So, the children will only pay attention for a short time.

Children that cannot go to the zoo will experience themselves on how the walkthrough game works. This game can help the children to provide the experience of virtually walking in a zoo while having fun playing the game. Since the game is targeted on kid that still cannot read well, guidance from teachers and parents are needed. They will explain the instructions and the characteristics on the animals to the children.

### **1.3 Objectives**

The objectives of this project are:

- a) To design a walkthrough game
- b) To develop a game application

### **1.4 Methodology**

In developing this game, the methodology used is agile development methodology. The methodology consists of a few phases; brainstorm, design, development, quality assurance and deployment.

#### 1.4.1 Brainstorm

In this phase, project planning is conducted. All the requirements are analyzed and specified. This includes gathering the ideas, doing some research, planning the schedules and setting the objectives for the project. This phase is crucial to make sure that the project is the smoothness of the game development.

#### 1.4.2 Design

In this phase, all the characters and objects that will be used in the game are created. Besides that, storyboarding will also be conducted in this phase. Storyboarding is the process where the characters are put together as an animation. A prototype of the game will be created that includes all the features of the game.

#### 1.4.3 Development

Game developer will work with the prototype of the game to create a demo. The demo will be tested. Feedbacks from users after testing the demo are gathered and the iterative model on the prototype will be worked on so that the design will fulfill user requirements. The iterative development is conducted so that any redundancies can be discovered at early development. This can avoid repetitive works.

#### 1.4.4 Quality Assurance

Any defects identified after the game being tested are corrected and bugs are resolved.

#### 1.4.5 Deployment

After correcting all the defects and resolving bugs, the game is deployed with changes being made following the user requirement.

### 1.5 Scope

The main target users for this project are young children in the kindergarten of age 5 to 6 years old. Kids at these ages learn fundamentals of reading, writing and basic math (School Age Developmental Milestones, n.d.). Kids need to learn from their early childhood years. At 5 years old, kids understand a lot more about things like space and time and they can recognize letters but do not necessarily start to read yet. They can copy some letters and write from memory. Kids at his age like to know a lot of facts. (Child Development, n.d.).

Six years old kids have improved their sentence construction and their word vocabulary ranges between 5000- 20, 000 words. Besides that, they can also identify six colors and three basic shapes (Barrington, n.d.). The game is not targeted to kids more than 6 years old but, teachers at schools can show them this game as one of their teaching aids. This game can be played only on desktop platform. The zoo that has been referred to while developing this game is Zoo Negara. This is to expose and familiarize the kids to animals that are kept in our country.

## **1.6 Significance of Project**

Through this project, kids can familiarize themselves with animals that can be found in the zoo. They can learn more about the animals and learn new things about them. They can gain more knowledge and know more facts about the animals.

## **1.7 Project Schedule**

As shown in Appendix 1 and Appendix 2.

## **1.8 Project Outcome**

A virtual walkthrough game based on a zoo environment is expected to be developed. Kids can learn more about the animals that are in the zoo. They will gain new knowledge on some characteristics and important details about the animals. Besides that, they will be exposed and experienced to the virtual walkthrough game.

## **1.9 Outline of Project Report**

### **1.9.1 Chapter 1: Introduction**

Chapter 1 consists of introduction, problem statements, the objectives, the methodology used, scope, significance of project, project schedule, and expected outcome of the project.

### **1.9.2 Chapter 2: Literature Review**

In this chapter, reviewed on the existing games that are similar with the proposed game is done. The comparisons are made and summarized. Justifications for the proposed game are also been made.

### 1.9.3 Chapter 3: Requirement Analysis and Design

This chapter discusses on the methodology used for the proposed game in details. The system requirements are defined.

### 1.9.4 Chapter 4: Implementation and Testing

In this chapter, the implementation of the project is discussed. The development of the project will be conducted.

### 1.9.5 Chapter 5: Conclusion

This will contain the summary of the project. In this chapter, the objectives of the project will be justified. Limitations and future works that can be done for the system also will be discussed

## 1.10 Conclusion

This chapter explains briefly about the game proposed. It has the objectives to design the walkthrough game and to develop the game application. The methodology used in developing this game is agile modeling that falls under agile development methodology. It has five phases which are brainstorm, design, development, quality assurance and deployment. A game called Zoo Walking is expected as the outcome.

## **LITERATURE REVIEW**

### **2.1 Introduction**

In this chapter, reviewed on the existing games are done. The features and the functionality of the existing games are discussed. The contents of the games are also being discussed. The existing games that are being reviewed are Alz, Endangered Animals, Elephant Odyssey, and Tiger Trail. All of the games that are being reviewed are basically game based learning games. The existing games need internet connection to be accessed which is a hassle to certain people.

### **2.2 Reviews on Existing Games**

#### **2.2.1 Alz**

Alz is a game created by Dylan Carter, a student at University of Texas for the Newgrounds Stencyl Jam 2014. It is created using Stencyl, the drag and drop game designing software. Alz tries to put player in the mind of someone with Alzheimer's disease. The game is a simple walkthrough, where the player will play a role of the patient, walking around while trying to remember things, but fail to do so. The game is accompanied with a melancholy tune that conveys the experience more.



Figure 2.1. Start-up Page

Figure 2.1 shows the start-up page of the game. On the start-up page of the game, there is a play button that leads the player straight to the game once it is clicked.



Figure 2.2. The monologue of the player

Figure 2.2 shows the monologue of the player. Once the player has contact with things, a conversation box as shown in the figure above will pop up after player press the space button on the keyboard. The conversation box contains the monologue of the player, what he feels about the things, and what he remembers about the thing.