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FOR AWARD OF THE DEGREE OF  
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## **ABSTRAK**

Tujuan utama projek ini ialah untuk menghasilkan satu aplikasi 3D Walkthrough dengan menggunakan teknologi 3D Walkthrough untuk Kem Bumi Jati. Objektif projek ini ialah untuk membangunkan “Aplikasi Kem Bumi Jati 3D Walkthrough” yang mana ianya akan memaparkan persekitaran kawasan kem dan bangunan-bangunan dalam bentuk 3D dan projek ini akan memfokuskan pada semua kawasan pada Kem Bumi Jati yang di dalam kawasan itu mengandungi Dewan Cemerlang, Dewan Makan dan lain-lain. Projek ini dihasilkan apabali menyedari bahawa teknologi ini masih kurang digunakan dalam sektor pelancongan dan perniagaan di Malaysia. Projek ini memberikan banyak kelebihan kepada pengguna yang telah difokuskan iaitu pelancong, pelanggan sedia ada dan pekerja di Kem Bumi Jati itu di mana mereka boleh merasai model 3D itu secara lebih dekat lagi dan merasai teknologi yang terbaru ini. Aplikasi ini berasaskan Windows ini dibangunkan menggunakan perisian Unity3D untuk membina dan menghasilkan persekitaran Kem Bumi Jati dan perisian Maya untuk membina model-model 3D bangunan yang terlibat. Konklusinya, projek ini disiapkan untuk menjelaskan mengenai gerak kerja dan proses yang terlibat sepanjang projek ini berjalan.

## **ABSTRACT**

This main aim of this project is to develop a walkthrough application using 3D Walkthrough technology for Kem Bumi Jati. 3D walkthrough sometimes being called 3D Environment which means the technology that allows users to interact and immerse with a computer-simulated environment be it a real one or imagined one. The purpose of this project is to develop “Kem Bumi Jati 3D Walkthrough Application” where it will display and show the camping side environment and buildings in 3D environment and this project will cover for the whole Kem Bumi Jati which containing “Dewan Cemerlang”, “Dewan Makan” and etc. This proposal was propose when realizing this technology is still lack in the tourism and business area in Malaysia. This project has given benefits to the targeted audience who are potential visitors, existing clients and workers where they can interact to the 3D model nearer and feel the technology itself. This Windows based application will be develop using Unity3D to get the environment and Maya software to develop and create the building’s model. As a conclusion, this report was prepared so to make it clear about the workflow and process development through this project.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.0 INTRODUCTION AND AIM**

##### **AIM**

Developing a 3D Walkthrough application for Kem Bumi Jati.

##### **INTRODUCTION**

This project is to process a “3D Walkthrough Application for Kem Bumi Jati using Maya and Houdini” development.

Kem Bumi Jati was formed in December 1993 where it's located at Jln.Kebun, Shah Alam, Selangor. The camp was established to meet the requirements of the Human Development Programme (Camp Motivation). It is also used as an appropriate exercise of the courses organized by the government and the private sector or in connection therewith. So the idea of this project is to come up with new design ideas and exciting technology.

Kem Bumi Jati with a walkthrough, a new attraction point to get more customers. So that visitors can experience the real environment of an advance before they visit the camp.



## **1.1 PROBLEM STATEMENT AND OBJECTIVE**

### **1.1.1 PROBLEM STATEMENT**

Kem Bumi Jati still using traditional methods to attract customers to use the camp as a place of their courses, seminars and also suitable for organizing family days, “Team Building” and camping day. Such as using brochures to promote their place. This method will not attract customers interest because something common for them. The visitor difficult to search a building such as LDK room because many of the nearby that room and will waste their time.

### **1.1.2 OBJECTIVE**

1. To design of 3D Walkthrough for Kem Bumi Jati
2. To develop of 3D Walkthrough for Kem Bumi Jati
3. To test the Kem Bumi Jati 3D Walkthrough for introduction to user

## CHAPTER 2

### LITERATURE REVIEW

#### EXISTING SYSTEMS AND ITS LIMITATION, COMPARISON AND CASE STUDY

##### 2.1 EXISTING SYSTEMS

###### I. 3D Cottage Housing

3D Cottage Housing is a demo application of 3D exterior walkthrough of cottage housing founded by ARY Studios in year 2014. This application uses gesture control, gyroscope sensor and augmented reality to get complete idea of housing society. User can control the view and perspective view and move around of cottage housing. User can zoom in and zoom out the scale of view too. This application also use augmented reality to see whole area of cottage housing and also change color of sky which is warm blue or dark blue. This application got draft plans for house A and house B.[1]

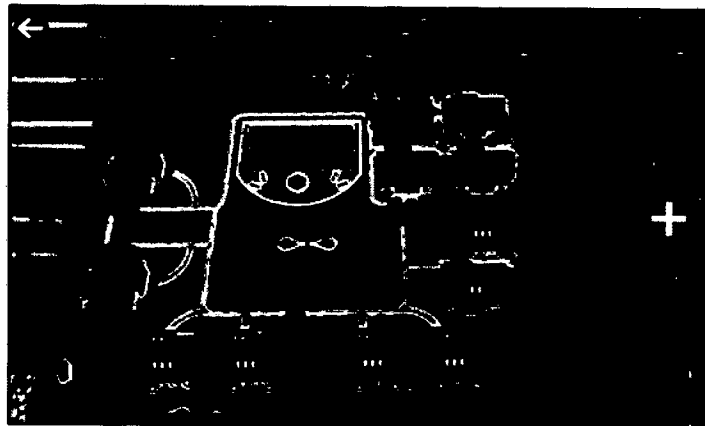


Figure 2.1



Figure 2.2

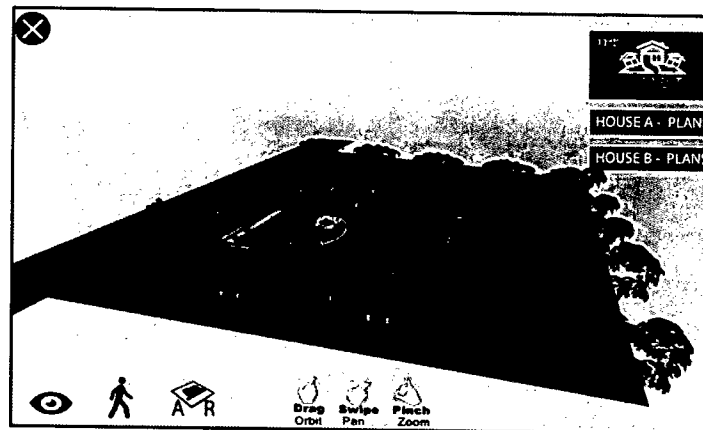


Figure 2.3

This application might need navigation tools which is more friendly user and easy to handle movement of 3D walkthrough. Sometime, this application also not smooths enough to handle it. In addition, the navigation tools quite hard to handle for first time and need more time to understand it.

## II. 3D Interior Walkthrough Demo

3D Interior Walkthrough Demo is a demo application of 3D interior walkthrough of house founded also by ARY Studios in year 2013. This application uses gesture control and gyroscope sensor to get complete idea of housing society. This application shows the walkthrough inside the house and got 360 degree view of eye. Users can control the movement up, down, right and left side to move. This application shows more of interior design of house.[2]

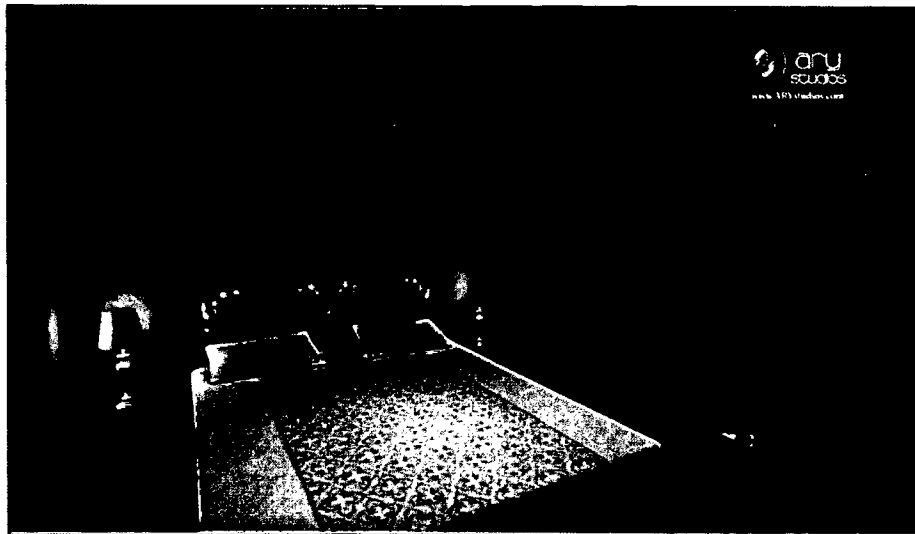


Figure 2.4

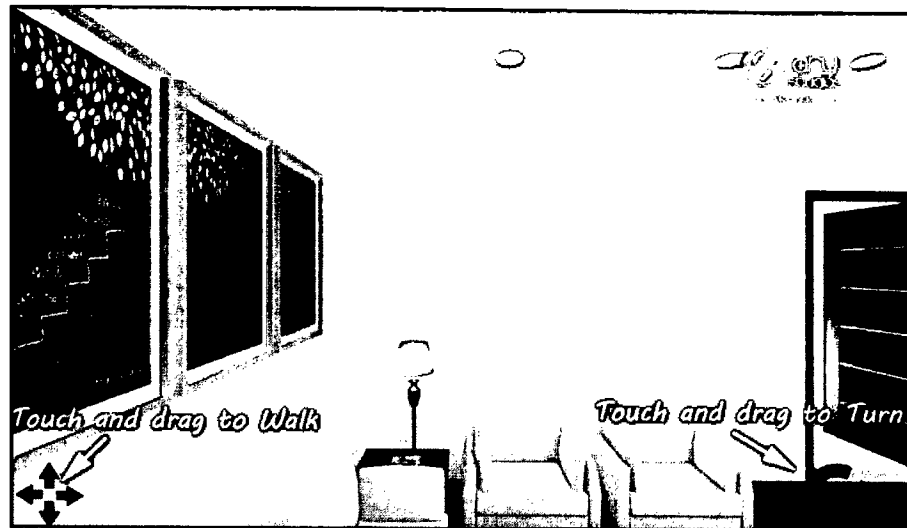


Figure 2.5

The only good reviews made by user regarding this application. This application might need navigation tools which is more friendly user and easy to handle movement of 3D walkthrough. Sometime, this application also not smooth enough to handle it.

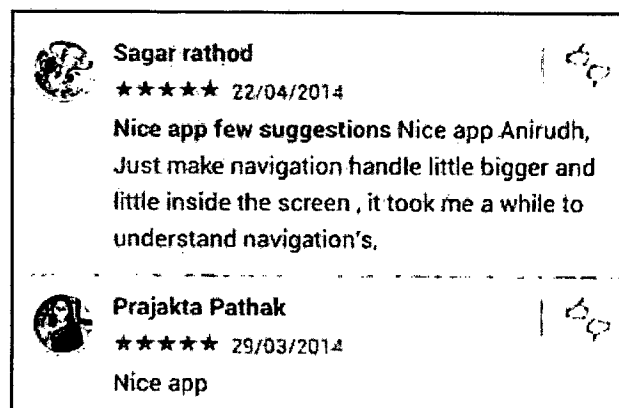


Figure 2.6

### III. Kem Bumi Jati



Figure 2.7

Kem Bumi Jati still using some of the traditional styles to have attractiveness which is by using pamphlets and brochure. Furthermore, by having this traditional method is not too bad but too common for attract the customer. Despite by using pamphlets or brochure, implementing the new technology will make customers and even clients eager to use and feel the technology which is the wave of the increasingly sophisticated technology this lately.

## 2.2 COMPARISON

As stated above, this project will develop a new technology called 3D walkthrough animation. By that, there are the best reasons to implement this technology to gain more clients and customers. In Kem Bumi Jati, the traditional method to promote their place is commonly implemented by majority business sector. For the 3D Cottage Housing, it is using 3D walkthrough to show area of cottage housing and got interaction between user and application. And for the 3D Interior Walkthrough Demo, it using 3D walkthrough panorama to show interior design of house which including bedrooms, living room and kitchen. This project will most likely doing the same thing but adding some interaction with the users.

## **2.3 CASE STUDY**

From previous chapter, currently at Kem Bumi Jati still using a traditional method which is by using pamphlets and brochures as promotion for their camp. This regular technique has discontinued a few major elements which is 'triple bottom level line'.

### **1) Environmentally**

This regular technique has excessive impact on natural methods, particularly within safeguarded region. Additionally, it may possibly improve damaged for the setting any time you can find pamphlets, content along with other advertising linked within cardstock.

### **2) Socially and Culturally**

This regular technique usually are not harm any societal structure along with areas regional cultures however in upcoming all of us can surrounds with excessive technological innovation setting. All of us consider the advantages of technological innovation to be able to stay in concert to produce a couple factors far more tightly.

### **3) Economically**

The monetary well-being in the group a smaller amount play a role. Also, the standard technique put challenges. For that some other advertising design, it's going to produce the Kem Bumi Jati yearly spending budget degree simply by publishing along with other products and services linked.

## **2.4 INDICATION OF SCOPE AND THE DATA SET**

### **2.4.1 SCOPE**

This project involved building models in 3D. First, the project will model buildings in 3D – target is an area around Kem Bumi Jati. Houdini and Maya will used to model the buildings.

- **Potential customer**

From this project, the customers easier to know the real image overview environment of the camping site even though they not yet visit that site. The 3D environment will created new and exciting experience to the visitors and developed by using 3D software.

- **Existing clients**

The existing clients can locate main office or places of their interest more easily and save time.

- **Workers**

This application show Kem Bumi Jati staff or workers about their working environment, the building layout, who works where or about new changes at camp floor display.



## 2.4.2 DATA SET

Kem Bumi Jati is located at Jln Kebun, Shah Alam close to the Kota Kemuning. Kem Bumi Jati was formed in December 1993 where it's located at Jln. Kebun, Shah Alam, Selangor. The camp was established to meet the requirements of the Human Development Programme (Camp Motivation). It is also used as an appropriate exercise of the courses organized by the government and the private sector or in connection therewith.

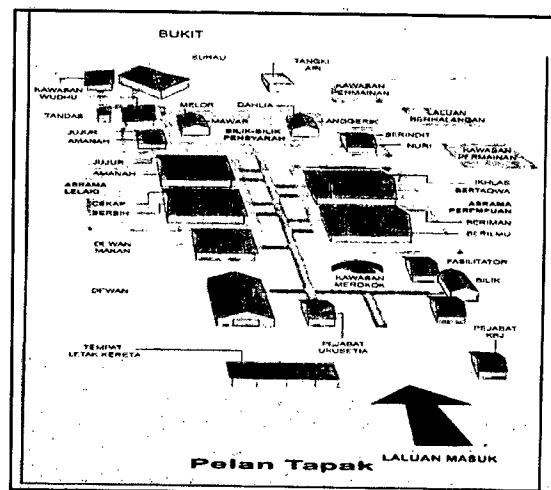


Figure 2.8

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 METHOD OF APPROACH**

##### **3.1.1 ADDIE MODEL**

The actual ADDIE product is often a figure performs which itemizing the universal course of action along with course of action conventionally utilized by educational developers along with teaching programmers. There was clearly several phases, Analysis, Design, Implementation and Development along with Evaluation. This particular ADDIE types it's one of the Instructional Design Technique (ISD). [3]

##### **3.1.1.1 ADDIE PHASE**

It is an important pre-design phase and also determines if there is in fact need for training, what knowledge needs to be acquired and what behaviors learners should demonstrate. The analysis is an elaborated process which provides essential information and elements that will guarantee positive results for your training intervention. This part of the process reflects the collection of data. The major outcome of the analysis is the ability to determine what learners will be able to do after the training or in other words what the difference in performance will be.

### **3.1.1.2 DESIGN PHASE**

The design phase is where core instructional tasks are planned to cover learning objectives, content organization, assessment activities, deployment and media. The main outcome reflects how the information gathered in the analysis phase was interpreted to construct a structured and meaningful learning architecture. The learning architecture demonstrates how learners will be guided to make sense of key information and construct knowledge.

### **3.1.1.3 DEVELOPMENT PHASE**

In this phase, all that was done in analysis and design will come in hand. The data collected, learning objectives, and assessments established are translated into learning events, tasks, or activities. Decisions to be made related to selection (and amount) of materials, type of activities and media are all oriented to one goal: lead learners to achieve learning objectives and be capable to bridge the performance gaps identified.

### **3.1.1.4 IMPLEMENTATION PHASE**

This is the actual delivery of what was designed and developed. If the process and outcomes of the previous phases were completed, the training is ready for launching. An important aspect in this phase is monitoring so, if needed, changes and adaptations can be made to avoid compromising desired results.

### 3.1.15 EVALUATION PHASE

Evaluation methods need to be in place in order to measure both the instruction and also participants' performance in the training event. Measurement should occur according to what the training plan anticipated.

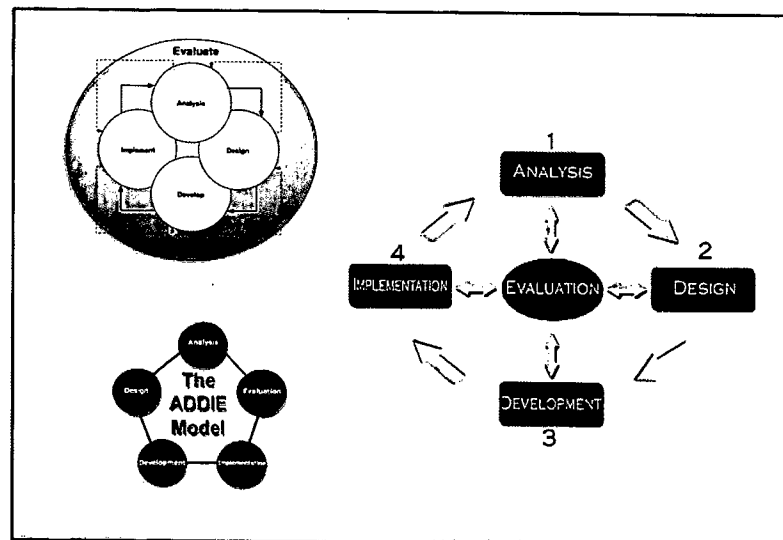


Figure 3.1: ADDIE

## **3.2 USER REQUIREMENT**

### **3.2.1 SOFTWARE REQUIREMENT**

This project will need to be use several of available application and software.

#### **I. Autodesk Maya 2013**

Autodesk Maya 2012 offers a comprehensive creative feature set for 3D computer animation, modelling, simulation, rendering and compositing on a highly extensible production platform. For the early stage of developing this system, all the models that include in the scenery of the walk-through have to be built. By using Autodesk Maya 2012, we can create 3D models of all object needed for the walkthrough. [6]



Figure 3.2 Logo of Autodesk Maya

#### **II. Unity 3D**

Unity is a game development ecosystem: a powerful rendering engine fully integrated with a complete set of intuitive tools and rapid workflows to create interactive 3D and 2D content; easy multiplatform publishing; thousands of quality, ready-made assets in the Asset Store and a knowledge-sharing community. Then, independent developers and studios, Unity's democratizing ecosystem smashes the time and cost barriers to creating uniquely beautiful games. They are using Unity to build a livelihood doing what they love: creating games that hook and delight players on any platform. [8]

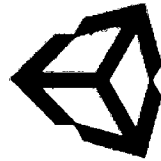


Figure 3.3 Logo of Unity 3D software

### 3.2.2 HARDWARE REQUIREMENT

Below table shows all the hardware requirement to develop Kem Bumi Jati 3D Walkthrough Application

Item	Specifications	Purpose
Dell Inspiron 15r	i7 intel processor Ram 8GB 15 inch	For documentation and development
Apple iMac (Desktop)	21.5 inch Mac OS	For developing models using high-standard software. Example, rendering process
External Hardisk	1 TB	Backup data and file storage

Figure 3.4

### **3.3 METHODOLOGY**

This particular component will take care of up around the strategy that is to be employed by means of this kind of task. Therefore, after contemplating accomplish and also dons, benefits and drawbacks and also pluses and minuses, this kind of task will use your ADDIE strategy. As we come to be easy-guide makers, your ADDIE Model is usually an edge, because the procedure usually takes your developer with the next phases: Analysis, Design, Development, Implementation and Evaluation.

#### **3.3.1 THE ADDIE INSTRUCTIONAL DESIGN MODEL**

Offering any comprehensive method, your ADDIE educational design allows education authorities program along with produce education programs. The ADDIE design revolves about the pursuing 5 ingredients which have been analysis, design, development, implementation along with evaluation.

These kind of 5 periods of ADDIE design encompass the entire education improvement method; by step one of the project right to the stage where an individual actually actions the ultimate product or service as a result of this particular project. It's the Instructional Systems (ISD) design. Most of the existing educational design versions are versions in the ADDIE design; include the Dick & Carey along with Kemp ISD versions. A new commonly admissible progress to this particular design is usually the usage of speedy prototyping. Travel may be the concept that receiving steady as well as confirmative feedback along with educational supplies are increasingly being created. This kind of design attempts to save moment along with cash by capturing troubles though they are nonetheless simple established.

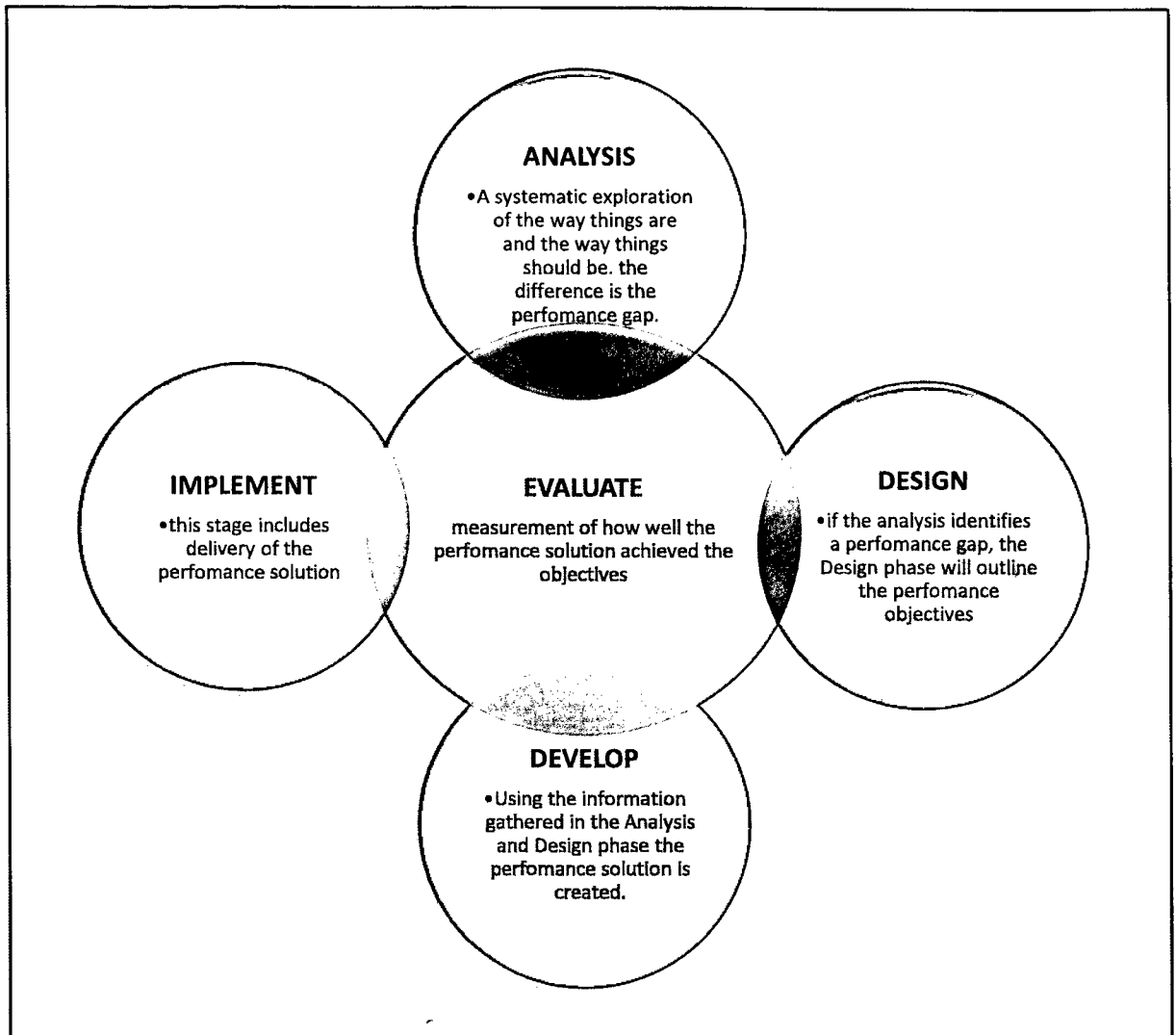


Figure 3.5: ADDIE Model with rough description