



## Implementation Of Augmented Reality As A Daihatsu Terios R Promotion Media Information System Using 3D Unity (Case Study of PT Tunas Mobilindo Perkasa Bandung)

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### ABSTRACT

Augment Reality (AR) is a technology which combines the virtual world with the real world. The use of AR technology is widely used in the fields of education, military, entertainment and advertising. Generally applications that implement AR technology aim to provide information to users more clearly, in real time and interactively. PT Tunas Mobilindo Perkasa is a business engaged in the promotion of sales of four-wheeled vehicles, one of which is located on Jl. Ahmad Yani No. 229-231 Bandung. PT. Tunas Mobilindo Perkasa did a promotion for the sale of four-wheeled vehicles, employees still came to the buyers and offered brochures, for some people who might be interested in buying it, the brochure would be stored for future buyers needing information about the sale, but for some others maybe the brochure will be thrown away and become trash. Therefore PT.Tunas Mobilindo Perkasa applies Augment Reality (AR) to be able to help in promotion and increase sales.

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## 1. Introduction

PT Tunas Mobilindo Perkasa is a business engaged in the promotion of sales of four-wheeled vehicles, one of which is located on Jl. Ahmad Yani No. 229-231 Bandung. PT. Tunas Mobilindo Perkasa does a promotion for the sale of four-wheeled vehicles, employees still come to the buyers and offer it with brochures, for some people who might be interested in buying it, the brochure will be stored for future buyers need information about the sale, but for some others maybe the brochure will be discarded and become garbage. Mobile phone technology is currently needed by all people to meet various needs and the development of this technology is increasingly leading to smartphones because this smartphone has facilities that are equipped with hardware support that is more modern so that it can support to work more effectively.

## 2. Literature Review

### 2.1. Implementation

Implementation is led to the activities, actions, actions, or the existence of a system mechanism. Implementation is not just an activity, but a planned activity and to achieve the objectives of the activity (Usman, 2002: 70).

### 2.2. Promotion Media





Media promotion based on the Big Indonesian Dictionary is media and promotion. Media means tools, means, intermediaries. Advertising media is a means of mass communication that provides several forms of advertising. While Promotion means promotion (level), introduction (product, in advancing a business).

### 2.3. Application

According to Jogiyanto application (2005: 52), the use in a computer, instructions (instructions) or statements (statements) are arranged in such a way that the computer can process input into output.

### 2.4. Augmented Reality

According to Ronald T. Azuma (1997) defines augmented reality as the merging of real and virtual objects in a real environment, running interactively in real time, and there is integration of objects in three dimensions, namely virtual objects integrated in the real world.

### 2.5. Google SketchUp

Google SketchUp is one of the many software that works to create 3D (3-dimensional) images. SketchUp can be used by practitioners in the fields of architecture, civil society, filmmakers, game developers, graphic designers, and even illustrators to create 3d images as needed.

### 2.6. 3D Studio Max

3D Studio Max is a 3-dimensional vector graphics and animation software, also a standard Windows-based 3D modeling program written by Autodesk Media & Entertainment

### 2.7. Unity 3D

Unity is an application that is used to develop multi-platform games that are designed to be easy to use. Unity is good and full of integration with professional applications.

### 2.8. Flowchart (Flow Chart)

According to Jogiyanto (2005: 795) "Flowchart is a chart that shows the flow (flow) in a system or procedure system logically". Flowchart is a systematic presentation of the process and logic of information handling activities or depictions graph of the steps and sequences of procedures of a program.

### 2.9. Storyboard

According to Cristiano (2005), Storyboard is an outline or draft of a production in the form of consecutive drawings. Storyboard is used to reduce the burden of time and costs for the producer

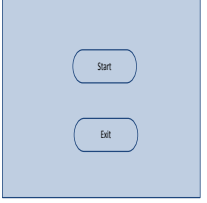
### 2.10. Photoshop

Adobe Photoshop, or commonly called Photoshop, is an image editing software made by Adobe Systems that is specialized for editing photos / images and making effects.

## 3. Methology

### 3.1. Location and Interface

Table 1.  
Storyboard Scene 001

ID Scene: Scene 001	
Scene Name: Main Menu	
	<u>Scene Description:</u> <u>Content: Main Menu</u> <u>Description: This scene displays the main menu of the application that will be created when opening the application.</u>









- The implementation environment includes the hardware environment and the software environment.
- Implementation of 3D models  
Requirements from hardware and software analysis meet the criteria, then this application program can be operated.
  - Implementation of the process

Table 2.  
Implementation of 3D Models

No.	Model Name	Implementation Results	Information
1.	Daihatsu Terios		
2.	Terios Dalam		

- Testing  
Testing the functionality of this application aims to ensure that the application has been made as expected. Following are the results of functionality testing:

Table 3.  
Testing Functionality

No	Testing	Information
1	The start menu includes start and exit.	successful
2	Get to know the maker	successful
3	3D objects appear in the maker.	successful
4	Color Button	successful
5	Interior button inside	successful
6	Button returns to the start menu	successful
7	Rotate 3D objects	successful
8	Exit the application	successful
9	Return to the previous 3D object view	successful
10	Displays the inner object	successful

- Performance Test based on distance  
Tests based on distance carried out 8 times. Testing is done by directing the mobile camera to marker paper. The experiment starts from a distance of 15 cm and is given a gap of 15 cm between the camera phone with marker paper.

Table4.  
Tests Based on Distance

Trial	Distance	Information
1	15 cm	Detected, animation not stable (size too large).
2	30 cm	Detected, stable animation.
3	45 cm	Detected, stable animation.
4	60 cm	Detected, stable animation.
5	75 cm	Detected, stable animation. (small size)
6	90 cm	Detected, stable animation. (small size)
7	105 cm	Detected, stable animation. (size too small)



8	120 cm	Marker not detected.
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f. Test Angle

Trials based on angles were conducted 6 times. Testing is done by directing the mobile camera to the marker with a distance of 60cm and an angle of  $90^\circ - 0^\circ$ . Each experiment was given an angle of  $10^\circ$

Table 5.  
Tests Based on Slope

Percobaan	Sudut	Keterangan
1	90 derajat	Detected, Terios object is stable.
2	80 derajat	Detected, Terios object is stable.
3	70 derajat	Detected, Terios object is stable.
4	60 derajat	Detected, Terios object is stable.
5	50 derajat	Detected, Terios object is stable.
6	40 derajat	Marker not detected.

## 5. Conclusions

From the results of the analysis and design and implementation of Augmented Reality as a promotional media, this augmented reality application that was built, became an alternative media in promoting Daihatsu Terios so that it can be a customer attraction and promotion process that becomes more interactive, because the application displays 3D visualization of Daihatsu types Terios. With this augmented reality application, Daihatsu officers will be facilitated in conducting promotions and can be implemented on Android mobile devices that many officers have.

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