

CHAPTER I INTRODUCTION

1.1. Background

The advance of technology that continues to grow dynamically has a tremendous impact on human life. By the integration of information technology with various other fields in human life will produce innovation products that can facilitate various human activities

One result by the combination of information technology with the field of translation is a scanner in the form of software or applications that can be accessed using various electronic devices such as computers, laptops, tablets, and smartphones. Various language translators have been created such as Word Lens Translator, Odyssey Translator, Navita Translator, iTranslate, and Google Translate.

The existence of the scanner for translate the language is very helpful to human beings in the transfer of language, one example is Google Translate that can do the translate in 103 different languages. Starting from Afrikaans, Arabic, English, German, Russian, Indonesian, until to Javanese and various languages that can not be mentioned one by one.

The proliferation of Android smartphone users in the world, it's making Google Translate continue to innovate from Text to Speech feature that can change the text into sound or vice versa until real-time camera translation that can

scan the text from camera and then process the translation into text to the language which has been decided.

Real-time camera translation itself is the latest technology that have been developing because it combines image processing, optical character recognition, with augmented reality at the same time. This technology has been applied by machine of translator languages such as Google Translate and Word Lens Translator.

Regard the existence of Indonesian native language in the field of language conversion, nowadays Google Translate machine has been able to translate the language of 2 regions of Indonesia, Javanese and Sundanese. However, both languages can only be translated in text-based services.

Many research, development, and publications on image processing technology, optical character recognition, and augmented reality have been done to generate innovation in the field of language conversion with the Indonesian language especially Javanese language.

Due to the lack of publication about the scanner engine with real-time language conversion technology using the native regional language of Indonesia. The new research could be as a gateway to innovations in the field of language conversion with Javanese language in real-time camera translation technology

Google is providing an open source development tool with name Mobile Vision that can be use to develop real-time language translate applications

publicly and freely develop for smartphones with the Android anoperating system and iOS.

1.2. Problem Statement

Based on the background that has been proposed, the problem that can be formulated is how to design and develop the architecture of application of language translator with Javanese language using Google Mobile Vision in real-time based on Android.

1.3. Scope of Problem

The various limitation of the problems used in this research are as follows :

1. The translator application architecture is a combine of web services application architecture with translator mobile application.
2. Web services applications are store in shared hosting and can be access through a predefined domain.
3. Web services applications are develop using the Codeigniter framework.
4. A mobile operating system that can run applications is Android, with the minimum version is Android Ice Cream Sandwich.
5. To use the application, smartphone device must be equipped with built-in back camera.
6. It needs internet connection to use the application.
7. Applications can only scan text with Sans Serif type fonts such as Arial, Calibri, Verdana, etc.

8. This research uses Indonesian or Javanese Latin text to be used as the object.
9. This research uses Javanese language or Indonesian as the outcome of the language conversion.
10. Language translation is done on every word without changing the structure and layout of words.
11. Some Indonesian and Javanese words have been prepared which have been translated into Java languages or vice versa and stored in the database.
12. Differences in quality level, smartphone camera lighting, distance between the objects with the camera can provide the different results.
13. The camera's auto-focus and flash capabilities depend on the smartphone device that will be using.
14. The study is not tied to the different versions of the Android operating system, the size and thickness of the smartphone screen, the level of camera quality used, as well as the level of light illumination that is in the scanning location.
15. Users of the application assumes to have understand the words in Indonesian and Javanese.

1.4. Purpose and Objective

The purpose of this research is intending to design and implement real-time text-based translator application using Android Mobile Vision includes a

combination of mobile translator application architecture and web services applications, so that the application will have the ability, such as :

1. Scan the existing Latin text in camera frame images in real-time.
2. Read the results of the scanned text in terms of words, sentences, or paragraphs.
3. Stores the text results of each word that will scan and set into a particular variable.
4. Send request to web services with variables as parameters that contain the scanned word.
5. Performs a query to get data in the data record row of database.
6. Receive the results of requests from web services in the form of words results of converse language.
7. Displays the translate text output in real-time.
8. Easier for users to translate from Indonesian to Javanese or vice versa using the camera in real-time.

1.5. Research Benefit

The results of this research expect to be useful and the basis of research studies and application development of language translator utility especially with Javanese language in the future. For example, it can serve as a comparative research study in the development of similar applications.

On the other hand, it expect that the outcome of this research application is also useful as a language translator machine use in everyday life, so that more

people will get the benefit and indirectly will preserve the local Indonesian language especially Javanese language.

1.6. Method of Research

The research methods use in completing this thesis is as follows :

1.6.1. Study Review

The literature review stage is conducted in accordance with the field and title of this study. The steps in conducting literature studies start from search literature, problem formulation, data evaluation, then analysis and interpretation of literatures.

The various types of literature study in this phase include books, scientific papers, research journals, proceedings, conference summaries, undergraduate theses, handouts, dictionaries, abstractions, and articles from the website. Main of this stage is to analyze the material development and the conclusion of the study use as a consideration in preparing the writing of the thesis.

1.6.2. Analysis

Analysis stage is done by analyzing the problems, architecture needs, the methods, and theory studies that will be implemented in application development. This stage is done so that development can be completed effectively and efficiently.

1.6.3. Design

The design stage is done by designing the result of the analysis in form projection of the application architecture design with the method of development pattern that has been determined. This stage is done to prepare the application architecture design so that the development of the program can be done in accordance with the pattern of development that has been determined at the beginning of the design

1.6.4. Implementation

The implementation stage of the program is done by making the application based on the analysis that has been planned and the result of the prepared architecture design. This stage is done to realize the program has been designed.

1.6.5. Testing

The testing stage of the program is done by testing and run the application in accordance with the predetermined method and parameters. This stage is done to test the ability of the application whether it is running according to the design and is running smoothly.

1.7. Systematics of Writing

Systematics of writing used to compile and complete the thesis is as follows :

1.7.1. Chapter I :Introduction

The first chapter in the thesis contains some sub chapters, such as background, problem statement, scope of problem, purpose and objective, research benefits, research methods, and systematic writing of thesis.

1.7.2. Chapter II :Theoretical Basis

The second chapter discusses studies of scientific works in accordance with the field and theme of the thesis, as well as the theories that form the basis of application development.

1.7.3. Chapter III :Analysis and Design

The third chapter discusses the planning and needs, interface design, also explanation of the analysis and design pattern of application architecture development.

1.7.4. Chapter IV :Implementation and Testing

The fourth chapter describes the implementation and results of research, from the analysis phase, the design of the needs and architecture, program development, and program testing, also discuss how the application works

1.7.5. Chapter V :Discussion

This final chapter discusses the conclusions and suggestions that taken based on the results of the applications that have been made.