Indonesian-Aceh Application Translation Design Based on Android

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Abstract: Language is a sign to communicate. In the world, there are many languages that characterize the country, for example, the State of Indonesia which has various regional languages, one of which is the Aceh language which is dominantly used by residents in the Aceh Province to communicate. The purpose of this research is to design and build an android-based digital dictionary application that can be used to make it easier to find translated vocabulary in Indonesian or in Acehnese so that they can be used in general so as to provide convenience for the user. The method used in this thesis is the prototyping method. Based on the test results on the Android-based Indonesian-Aceh application, it can be seen and can conclude several things, namely; The search system is designed to be able to display words in the text file in program code faster because it does not require large data, in the coding process using the auto-search model and an array that matches the application user input string, this dictionary application is designed using Xamarin Microsoft Visual Studio 2017 which can be exported on IOS and Windows Phone systems in a single project built.

Index Terms: Design; Application; Indonesian-Aceh; Android.

1. Introduction

Language is a sign to communicate [1]. In the world, there are many languages that characterize the country [2,3], for example, the State of Indonesia has various regional languages, one of which is the Aceh language which is dominantly used by residents in the Aceh Province to communicate. Communication between humans must be done because humans need interaction with other humans [4,5]. This communication process in certain conditions cannot be done because of the language barrier [6,7]. A lot of information is conveyed by other people in different languages, both in spoken form. and writings [8,9,10]. So it really needs a dictionary that can translate from one language to another.

Dictionaries can be in the form of books and also vary in size [11,12]. There is a very large vocabulary, but to carry it everywhere becomes very difficult because of its size, which is too large, heavy, and thick [13, 14] Android is a Linux-based operating system that can be used in various mobile devices [15]. Android has the main goal to advance the innovation of mobile devices so that users are able to explore capabilities and add to the experience more than other mobile platforms [16]. Until now, Android continues to develop, both in terms of system and application [17]. The purpose of this study is to design and build an Android-based digital dictionary application that can be used to make it easier to find translated vocabulary in Indonesian or in Acehnese so that they can be used in general so as to provide convenience for the user.

2. Research Method

To assist in the preparation of this research, it is necessary to have a clear framework in stages [18]. This framework represents the steps that will be taken in solving the problems that will be discussed [19]. The research framework used is as shown in Figure 1.
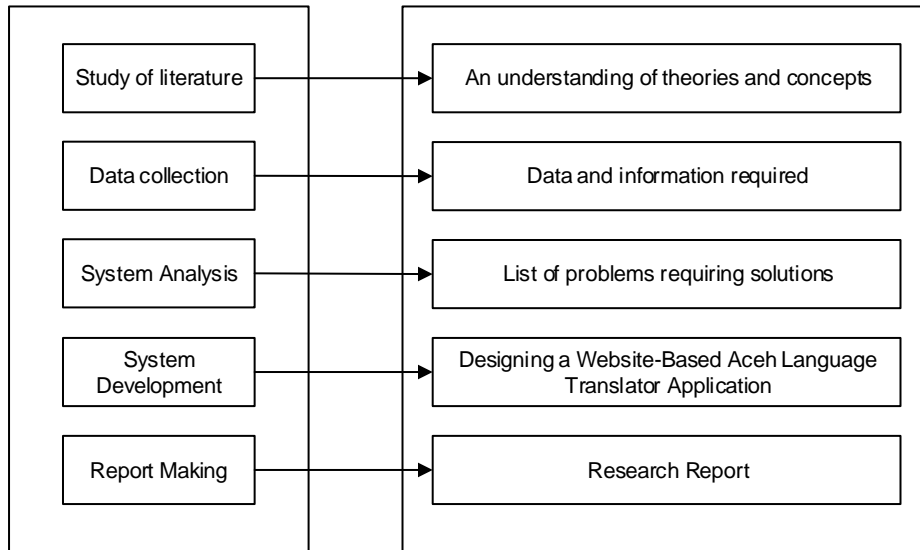
Fig.1. Research Framework

Based on the research framework described above, the discussion of each stage in the research can be described as follows:

1. Literature Study

   At this stage, the search for theoretical foundations obtained from various books and the internet is also carried out to complement the vocabulary of concepts and theories, so that they have a good and appropriate foundation and science.

2. Data Collection

   At this stage, the process of collecting data by interviewing and observing methods is carried out to make observations and analysis of the translator application process that is currently running in order to obtain the data and information needed by researchers.

3. System Analysis

   At this stage, problem identification is carried out in the running system. Thus, it is hoped that researchers can find the obstacles and problems that occur in the translator application process in various applications such as google translate so that researchers can find solutions to these problems.

4. System Development

   At this stage, system development is carried out using the waterfall model.

5. Reporting

   At this stage, reports are prepared based on research results using primary and secondary data collection techniques so that they become research reports that can provide a complete picture of the system being built.

The method used in this thesis is the prototype method, which is a method in which the analysis results per part are directly applied to a model without having to wait after the system is completed [20]. The prototype method consists of:

1. Requirement Gathering

   It is the initial stage to analyze what needs are needed in making this final project, both in the form of hardware and software requirements for the system to be made.

2. Quick Design

   This stage is the design stage, in this stage, it includes the design and flow of the dictionary application program itself.

3. Building Prototype

   Is the stage of working on the software from the design results that have been determined at the Quick Design stage. It is at this stage that the entire program flow design and appearance are implemented so that it will produce a program model.

4. Customer Evaluation of Prototype

   That is, the evaluation stage of the program model that has been produced in the third stage, at this stage the developer carries out various kinds of testing to test the program model. A test is here to check for existing logic and layout errors. At this stage, it aims to produce logically correct software and in accordance with the design objectives at the beginning.
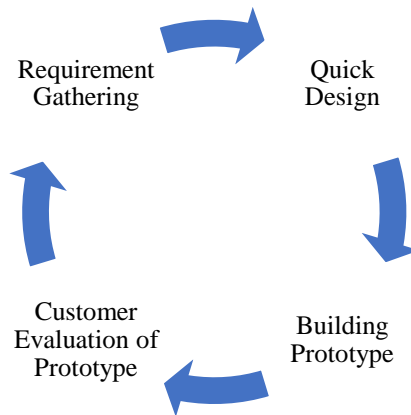
Fig. 2. Stages in the Prototyping Model.

The design is useful for describing the system data flow in translating Indonesian into Acehnese and from Acehnese into Indonesian. The design is in the form of a flow chart. Flowcharts are designed to make it easier to understand the system to be built. The image below is a flowchart of the Indonesian-Aceh dictionary application. Flowchart is a diagram that represents an algorithm or process using several geometric shapes to carry out the steps taken by the program in solving problems. In figure 3 it can be stated that the application starts with determining the language whether you want to translate Indonesian to Aceh or Acehnese to Indonesian. Furthermore, the word that is typed is taken to be checked on the application database and the type of word is in the database. If the word is available in the database, the translated word will be generated on the form and if it is not available it cannot be translated either in Indonesian or in Acehnese.
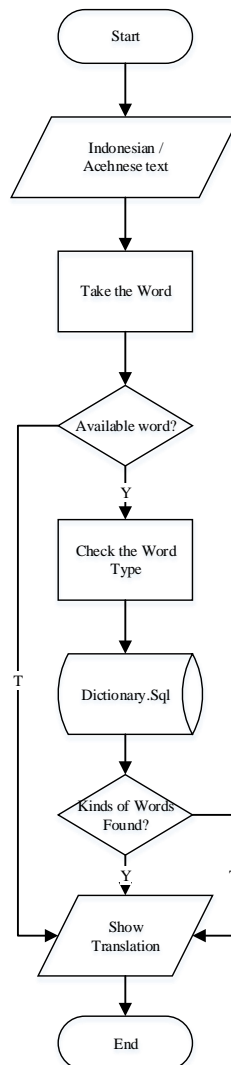

Fig.3. Flowchart of the Proposed Translator Application

In Figure 3 it can be explained that the application starts with determining the language selection whether you want to translate Indonesian to Aceh or Acehnese to Indonesian. Furthermore, the word that is typed is taken to be checked on the application database and checked for the type of word in the database. If the word is available in the database, the translation results will be displayed in the form of a word on the form and if it is not available then the translation cannot be displayed either in Indonesian or in Acehnese.

3. Result and Discussion

The design of the Android-based Indonesian-Aceh application that the author designed consists of several stages, namely input design, output design, process design. The writer hopes that this design will make it easier for each user or the user of the dictionary. This input design consists of several program files, namely; Indonesian Dictionary, Aceh Language Dictionary, and feedback in the form of suggestions via WhatsApp. The design of the Android-based Indonesian-Aceh application is designed on the Android operating system with a minimum of API 22 (Lollipop) and a target of API 26 or 27 (Oreo). The application trial will be carried out on the Asus Zenfone 2 with the Marshmallow version of the Android operating system (API 23). In this case, the development method used is the prototyping model; which consists of a number of stages starting from requirement gathering, quick design, building prototype, and customer evaluation of the prototype. This method is a method in which the results of the per-part analysis are directly applied to a model without having to wait after the system has been built. Implementation is the stage where the system is ready to operate at the actual stage so that it will be known whether the system that has been created is really as planned. In the implementation of this software, it will be explained how this system program works, by providing a view of the system or application being made. The implementation of this application consists of several pages that have their own functions. The pages will appear sequentially according to the order that has been programmed. The application that the author build consists of; home page, menu page, dictionary page, application page, and login page.
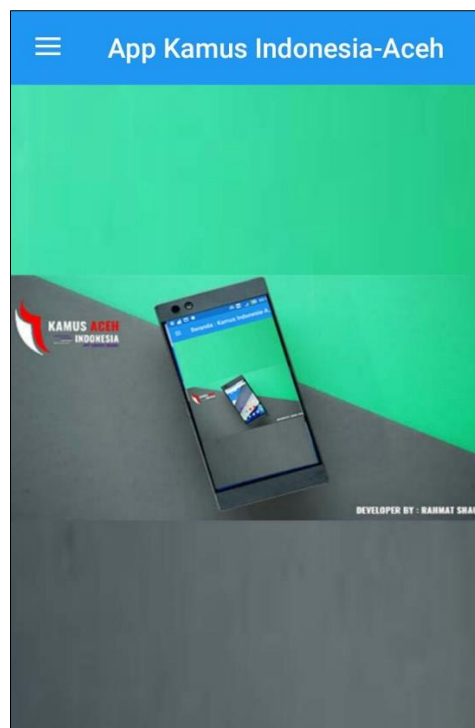

Fig. 4. Application Start Page

The home page is the starting page when the application is opened. In the background image and logo and application developer, on this page, there is also a menu icon that is placed in the upper left corner. The home page consists of 4 (four) menus, namely the homepage, Aceh dictionary, Indonesian dictionary, and login.
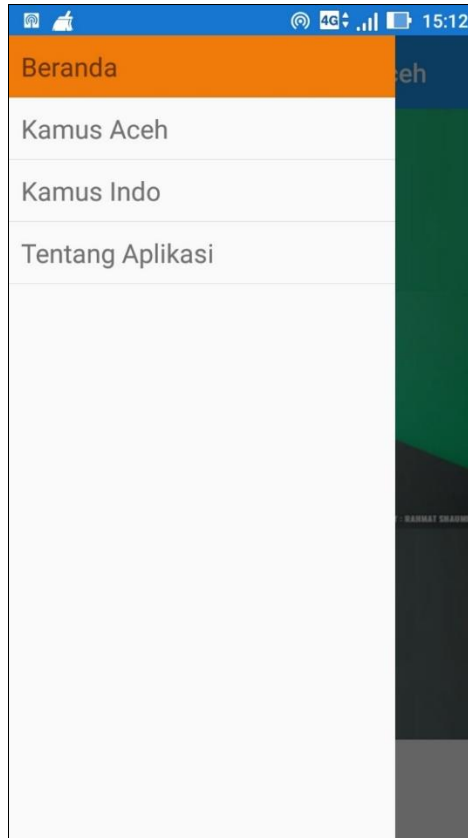
Fig. 5. Menu page

The dictionary menu page is the goal of designing an Aceh-Indonesian language application, on this page it consists of a column to fill in the Aceh language and with the autosearch module so that when the user types the initial 3 letters the Aceh language will be displayed related to what you want to search for. When the word data has been filled in, the user can click on the transplanted button as shown in Figure 5 and the translation results will be displayed in the results below, as shown in Figure 6 below.
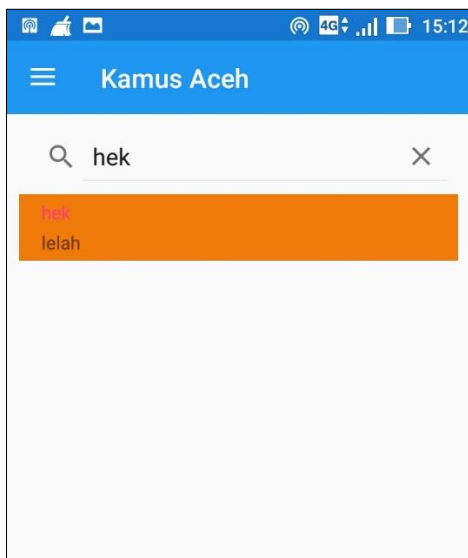

Fig. 6. Aceh Dictionary page

The dictionary menu page is the goal of designing an Indonesian-Aceh language application, on this page, it consists of a column to fill in Indonesian and with the auto search module so that when the user types the initial 3 letters the Indonesian language will be displayed related to what you want to search for. When the word data has been filled in, the user can click on the transplanted button as shown in Figure 7 and the translation results will be displayed in the results below, as shown in Figure 7 below.
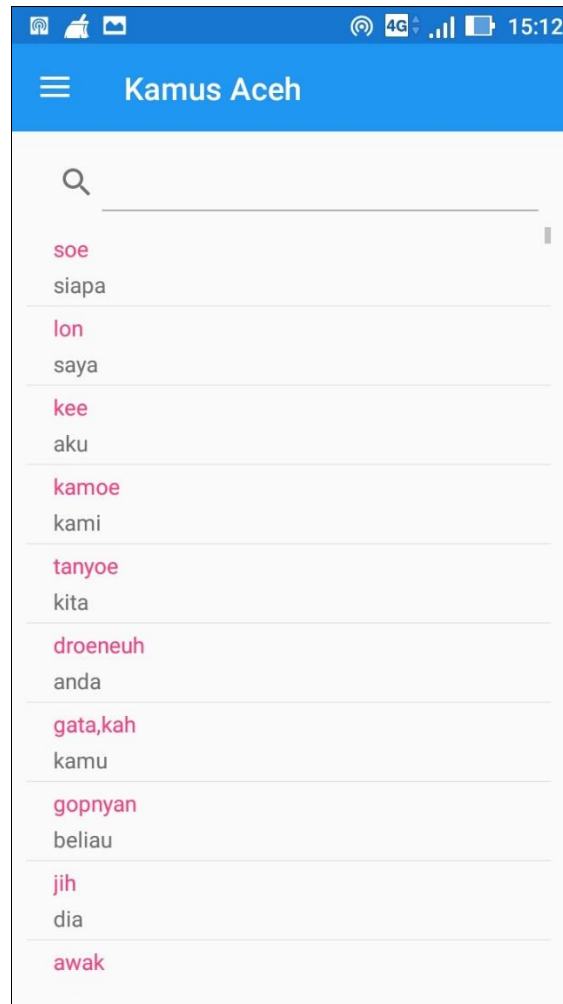
Fig. 7. Indonesian Dictionary page

The menu page about the application only displays information about the developer, namely the author himself, as shown in the image below.
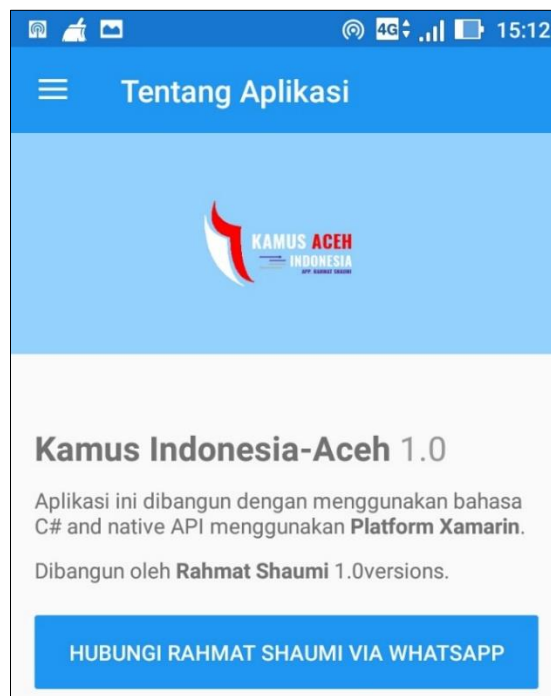

Fig. 8. About Application page

Black Box Application Testing

The implementation of the Android-based Indonesian-Aceh application program is carried out using the Black Box Testing method. The Black Box Testing method is a program testing that prioritizes testing the functional requirements of a program. The purpose of this Black Box Testing method is to find malfunctions in the program [21]. Testing with the Black Box Testing method is done by providing a number of inputs to the program [18]. The input is then processed according to its functional requirements to see whether the application program can produce the desired output and is also in accordance with the basic functions of the program. If the input given by the process can produce output that is in accordance with its functional requirements, then the program created is correct, but if the output produced does not match its functional requirements, there are still errors in the program, and then corrections are carried out to correct the errors that occur. occur. The following is a Black Box test table based on the Android-based Indonesian-Aceh application for the dictionary page function, which is as follows:

Table 1. Black box Testing Table on the Dictionary Page

No	Testing Scenarios	Expected results	Conclusion
1	Leave the Indonesian word blank, then immediately click the translation button. *Test Case* :	The system will not produce translations into Acehnese.	Valid
2	Fill in Indonesian and immediately click the translation button. *Test Case* :	The system will display the translation results in Acehnese. Test result :	Valid

The following is a Black Box test table based on the Android-based Indonesian-Aceh application for the dictionary page function, which is as follows:

Table 2. Black box Testing Table on the Indonesian Dictionary Page

No	Testing Scenarios	Expected results	Conclusion
1	Leave the Indonesian word blank, then immediately click the translation button. *Test Case* :	The system will not produce translations into Indonesian.	Valid

| 2 | Fill in Indonesian and immediately click the translation button.
Test Case :
 | The system will display the translation results in Indonesian.
Test result:
 | Valid |

4. Conclusion

Based on the test results on the Android-based Indonesian-Aceh application, it can be seen and can conclude several things, namely; The search system is designed to be able to display words in the txt file in program code faster because it does not require large data, in the coding process using the auto-search model and an array that matches the application user input string, this dictionary application is designed using Xamarin Microsoft Visual Studio 2017 which can be exported on IOS and Windows Phone systems in a single project built.

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