Faculty of Computer Science and Information Technology

Dusun Language Vocabulary Learning in Augmented Reality

(DusunAR)

Michelle Td Leonard

Bachelor of Computer Science with Honours (Information Systems)

2019

Dusun Language Vocabulary Learning in Augmented Reality (DusunAR)

MICHELLE TD LEONARD

This project is submitted in partial fulfilment of the
Requirements for the degree of
Bachelor of Computer Science with Honours

Faculty of Computer Science and Information Technology
UNIVERSITI MALAYSIA SARAWAK
2019

UNIVERSITI MALAYSIA SARAWAK

THESIS STATUS ENDORSEMENT FORM

TITLE Dusun Language Vocabulary Learning in Augmented Reality (DusunAR)

ACADEMIC SESSION: 2018/2019

MICHELLE TO LEONARD

(CAPITAL LETTERS)

hereby agree that this Thesis* shall be kept at the Centre for Academic Information Services, Universiti Malaysia Sarawak, subject to the following terms and conditions:

1. The Thesis is solely owned by Universiti Malaysia Sarawak
2. The Centre for Academic Information Services is given full rights to produce copies for educational purposes only
3. The Centre for Academic Information Services is given full rights to do digitization in order to develop local content database
4. The Centre for Academic Information Services is given full rights to produce copies of this Thesis as part of its exchange item program between Higher Learning Institutions [or for the purpose of interlibrary loan between HLI]
5. ** Please tick (√)

[ ]	CONFIDENTIAL	(Contains classified information bounded by the OFFICIAL SECRETS ACT 1972)
[ ]	RESTRICTED	(Contains restricted information as dictated by the body or organization where the research was conducted)
[√]	UNRESTRICTED	

Validated by

(AUTHOR'S SIGNATURE)

(SUPERVISOR'S SIGNATURE)

Dr Dayang Hanani Bt Abang Ibrahim
Lecturer
Faculty of Computer Science & Information Technology
Universiti Malaysia Sarawak

Permanent Address

PETI SURAT 60935,
91118 LAHAD DATU,
SABAH.

Date: 15 / May / 2019

Date: 16/ May / 2019

Note * Thesis refers to PhD, Master, and Bachelor Degree
** For Confidential or Restricted materials, please attach relevant documents from relevant organizations / authorities

Declaration

I hereby declare that this project together with all of its content is my own work, and I have not copied from any other student's nor any part in this project had been written for me by other person except for research based information and related materials that were adapted and extracted from other resources, which have been cited or stated respectively.

……

MICHELLE TD LEONARD 14 May 2019

Faculty of Computer Science and Information Technology,

Universiti Malaysia Sarawak.

Acknowledgement

I would like to express my deepest gratitude to my supervisor, Dr. Dayang Hanani Binti Abang Ibrahim, and my examiner Hj Syahrul Nizam Junaini who had provided me with a continuous support, guidance and advice throughout my Final Year Project. Secondly, I would like to deliver my appreciation to my university, University Malaysia Sarawak (UNIMAS) and also to my beloved faculty, Faculty of Computer Science and Information Technology (FCSIT) for giving me this opportunity to experience and do this Final Year Project. I am beyond thankful for this opportunity because throughout this project I gain a lot of new knowledge in terms of developing and documenting new project which can help me to do better in future works.

Special thanks to my respondent through participating in my questionnaire, I valued and respect your opinion. Not to forget, to every respected individual who had taught me in giving information in terms of Dusun vocabulary. In addition, I am beyond thankful to Crispin Alexius and Maryline Leonard for their willingness in recording their voices for the pronunciation of the vocabulary that help the most in developing this project.

Lastly, I would like to deliver my greatest gratitude to my beloved parents who had giving me unconditional support and also to my friends and relatives in helping me and supported me in completing this Final Year Project.

Abstract

The concern of language endangered is serious when dominant speaker stop using theirs heritage language meanwhile begin using other language such as English and Bahasa Malaysia in their daily conversation. This scenario happens to Dusun language in Sabah. Where only older generation fluently spoken with this language meanwhile, most children rarely speak or do not know this language. This awareness of language extinction is a must for parents to teach their children to speak their own mother tongue instead of teaching major language. Therefore, the purpose of this application is to develop a mobile based application with implementation of augmented reality (AR) in motivates children to learn Dusun vocabulary besides preserving the existing of this Dusun language in the one-third of the population in Sabah.

Abstrak

Bahasa yang terancam menjadi serius apabila pengguna Bahasa ibunda berhenti menggunakan bahasa warisan mereka malahan menggunakan bahasa lain seperti Bahasa Inggeris dan Bahasa Malaysia didalam perbualan harian. Senario ini berlaku kepada Bahasa Dusun di Sabah. Di mana hanya generasi tua yang mahir bertutur dalam bahasa ini sementara itu, kebanyakan anak muda jarang bertutur atau tidak mengetahui bahasa ini. Kesedaran mengenai kepupusan bahasa adalah suatu pekara wajib bagi ibu bapa untuk mengajar anak-anak mereka untuk bertutur dalam bahasa ibunda mereka sendiri dan bukannya mengutamakan bahasa asing. Oleh itu, tujuan aplikasi berasaskan mudah alih dengan pelaksanaan teknologi 'augmented reality' (AR) ini dibangunkan adalah untuk mendorong kanak-kanak mempelajari perbendaharaan kata dalam Bahasa Dusun selain memelihara Bahasa Dusun yang ada di dalam jumlah sepertiga dari penduduk di Sabah.

Table of Contents

List of Figures

List of Tables

Chapter 1: Introduction

1.1 Introduction

Sabah population is consist of 33 native group that have various languages and ethic dialect to communicate. Kadazan-Dusun is the largest ethnic group in Sabah that makes up almost thirty percent of the population ("People & History", 2010). However, this Dusun language which also a part of heritage and identity may slowly endangered since fewer people claims this language as their own but do not use it in daily conversation or pass it to their children. As a result, their children may not understand nor fluently can speak this language.

Globalization also leads to the extinction of language. According to Skutnabb-Kangas, “Languages are today being killed and linguistic is disappearing at a much faster pace than ever before in human history” (as cited in Mohideen H., n.d). Children today, tends to learn language that would give them advantages in education, occupation, social life and urbanization for example English where it become the strong language during this era. Therefore, it makes ethic dialect not important hence being used fewer in daily activities.

1.2 Problem Statements

Living in this era of technology, it would be challenging to educate children in the form of a book only. Besides, having a book with less interactive leads to a low learning process especially in children that always want to discover things around them. Other than that, maintaining this language to the next generation and make their own tribe knows their language would be challenging especially for parents since kids nowadays tends to love spending their times with electronic gadgets.

Currently, Dusun language learning is deliver by people through social media such as Facebook, Blogs and mobile application. However, the knowledge is hard to apply for children as well as the non-Dusun speaker since it only consist of text and graphical representation. Therefore, it makes learners hard to pronounce the word as it does not provide any audio to assist in their learning process.

1.3 Objectives

1. To develop and design interactive Dusun language vocabulary in mobile application with augmented reality implementation that helps parent to teach their children.
2. To enable children and non-Dusun speaker to pronounce the vocabulary by listening to the sound of the word.
3. To enable children and non-Dusun speaker to learn Dusun vocabulary in various categories.

1.4 Methodology

Since we focus on planning and sequential design practices also working on a tight deadline therefore, Rapid Application Development (RAD) is the selected methodology for this project because it emphasizes rapid prototyping and iterative delivery to speed up the development process. Below is the graphical presentation of RAD invented by James Martin.

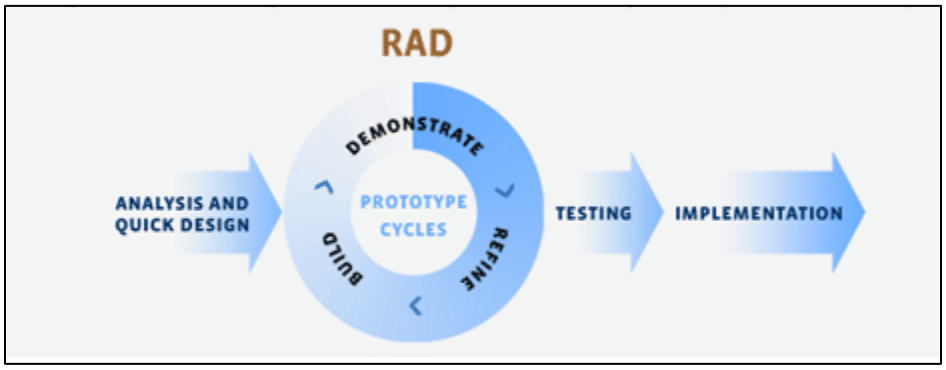

Figure 1.1: Graphical representation of RAD (Ghahrai, A., 2017)

The first step in this software development is planning requirements. During this stage, it figured out the project's scope, application requirements and estimated project timeline. Next, determining the system architecture where initial modelling and prototypes are created. In this development, the prototype cycle present a simple and intuitive approach with Augmented Reality (AR) content creation which are the creation of 3D models from real object using an image-based modelling tool and convert it into an interactive AR element using an AR authoring tool. After prototype cycle, testing phase takes place.

In this phase, user will provide a feedback such as likes and dislike also any usability issues in the virtual environment to improve the prototypes and meet the needs of the project. Lastly, in the implementation phase it involves implementing the new virtual learning environment to the user. In this phase, it mainly focus on the affective parameters where it evaluate the user engagement, improvement in gaining knowledge through this learning experience. Detailed methodology will be explained in Chapter 3.

1.5 Scopes

This vocabulary learning is a mobile application designed that used by the children to learn Dusun language in an interactive way with the addition of augmented reality in the application. Besides, it can ease parents to educate their children just by using smartphones hence, encourage their children to learn their own mother tongue and use it in daily conversations. Moreover, by having this proposed project non- Dusun language speakers utter with reasonable accuracy materials written in Dusun Language.

1.6 Significance of Project

This Dusun language vocabulary learning in augmented reality has the potential to help children learn in a creative way by introducing them with interactive visualisation with the help of sound features in each of the pictures created in this proposed project.

1.7 Project Schedule

A project schedule is a project planning for the process of developing the proposed project with a calculated start and end date of every activity. This proposed project for Final Year Project (FYP) is estimated to be complete in 182 days in total. This proposed project has a continuation from FYP 1 to FYP 2 which has been counted on 12 September 2018 until 21 December 2018 and being carried on from 28 January 2019 until 21 May 2019. Refer Appendix A for the Gantt chart of project schedule for this project.

1.8 Project Outcome

To develop an augmented reality of Dusun language vocabulary for children in order to encourages children to learn Dusun language.