UNIVERSITI TEKNOLOGI MARA

PROLEXIA: LEARNING APPLICATION FOR DYSLEXIA USING VOICE RECOGNITION TECHNOLOGY

MUHAMMAD IKHMAL HAKIM BIN MOHAMAD YUSRI

BACHELOR OF INFORMATION TECHNOLOGY(HONS.)

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Universiti Teknologi MARA

Prolexia: Learning Application for Dyslexia using Voice Recognition Technology

Muhammad Ikhmal Hakim Bin Mohamad Yusri

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SUPERVISOR'S APPROVAL

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By

MUHAMMAD IKHMAL HAKIM BIN MOHAMAD YUSRI
2019256434

This thesis was prepared under the supervision of the project supervisor, Dr Aznoora Binti Osman. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Information Technology (Hons).

Approved by

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Dr Aznoora Binti Osman	Dr Nadia Bt Abdul Wahab
Project Supervisor	Project Co Supervisor

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STUDENT DECLARATION

I certify that this thesis and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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MUHAMMAD IKHMAL HAKIM BIN MOHAMAD YUSRI
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ABSTRACT

Dyslexia is a type of learning disabilities that affects reading ability among children where they usually experience difficulty to recognize and to pronounce letters and words. This difficulty stems from confusion to recognize some alphabets that have similar shape such as b and d, m and w, n and u, and p and q. Therefore, in this study, a web-based learning application called Prolexia was developed by integrating it with Voice Recognition Technology. Prolexia aims to reduce confusion of alphabets. The principles used to design it is a combination of both Multisensory and Structured Literacy approach. In multisensory approach, it combines multiple senses such as visual, auditory, motion and tactile while Structured Literacy defines stages of learning from phonics, to alphabets, and to words. Voice Recognition Technology was embedded in Prolexia to detect and determine the pronunciation of words by learners. The learners will repeat the word sound provided by the learning module, and use the Voice Recognition Technology to learn its pronunciation until they can say it correctly. This implementation would help the dyslexic learners to improve their word recognition and pronunciation ability, hence their reading ability. Heuristics Evaluation was conducted with three specially trained teachers from Persatuan Disleksia Malaysia and three Computer Science lecturers from Universiti Teknologi Mara Perlis Branch. Findings showed the experts agreed that Prolexia is useful in helping dyslexic children to overcome their reading difficulty.