Universiti Teknologi MARA

Analysis of Dysgraphic Children Based on Letter Position

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Thesis submitted in fulfillment of the requirements
for Bachelor of Information Technology (Hons.)
Intelligent Systems Engineering
Faculty of Computer and Mathematical Sciences

August 2015

ACKNOWLEDGEMENT

"In the name of Allah, the most Gracious and the most Merciful"

Alhamdulillah, praise to Allah for providing me His blessings in order for me to complete my research project. Without His help, guidance, mercy and facility it would be impossible for me to complete this research project.

I would like to extend my thankfulness to the most precious persons in my life, my father, and my mother, and also my brother for all their moral support, financial support and Du'a throughout all my studies.

I am deeply grateful to my supervisor, Dr. Noor Elaiza Abd Khalid for her help, guidance, and patience with support that she had given throughout the two semesters she has supervised me. I considered myself very fortunate because I had a chance to work with such an encouraging and supporting supervisor such as her starting from the beginning until the end of this research project.

I also would like to thank my examiner, Pn. Shamimi Abd Halim, for approving the proposal that enable the continuation of the development of the project and also to all the lecturers that have nurtured and guided me throughout my time in UiTM, from my diploma in Jengka until my degree in Shah Alam.

Finally. I am thankful to have such an amazing classmates, CS2436A and CS2436B that has supported me in any respect during the completion of this project.

Thank you all and may Allah bless all of you.

ABSTRACT

This report will discuss about handwriting disability that is commonly known as dysgraphia. Currently, in Malaysia there are no system that can detect this disease automatically. This disease is detected when the teacher send the student to the occupational therapist when the student is having trouble in handwriting. This disease also cannot be cured or fixed. There are no medicine for dysgraphia and the children has to do therapy in order to get better. Dysgraphia cannot be detected easily by just looking at children handwriting because each child has a unique way of writing. The problem of lack of expert in Malaysia has made this disease is harder to detect. The objective for this project are to identify letter positioning features that can classify children with dysgraphia potential symptom. Another objective is to construct a prototype based on Kohonen (SOM) method to classify children with potential dysgraphia symptom whether it is high, medium or low potential. This project consists of six phases which are information gathering, data collection, preliminary data analysis, system design and development, performance evaluation and documentation. The data are collected from Sekolah Kebangsaan Bota Kanan, Bota Perak and Tadika Junior Cergas, Tangkak Johor. Through preliminary data analysis there are six features that has been detected which are overshooting, undershooting, over spacing, under spacing, inconsistent spacing and overlapping spacing. This features had been used in Kohonen algorithm to classify the children whether it is high, medium or low potential of dysgraphia. Based on the result, the system can classified the children same as what the expert are expected. There are many experiments that has been done in order to get a good classifying result. The experiments such as changing the learning rate and different type of activation function had been done in order to obtain the best result. It can be concluded that this prototype system can be a great help especially for identifying child with dysgraphia. The accuracy of the prototype are 60%. The researcher hope in the future this system can automatically detect full dysgraphia symptom.

TABLE OF CONTENTS

CONTENT PAGE