BORANG PENGESAHAN STATUS TESIS *

JUDUL: BLOOD TEST SYSTEM (BTS)

SESI PENGAJIAN: 2007/2008

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CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)
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BLOOD TEST SYSTEM (BTS)

WOO FOONG HUA

This repot is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Database Management)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2007

DECLARATION

I hereby declare that this project report entitled

BLOOD TEST SYSTEM (BTS)

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : _____ Date: 10 DEC 2007
(WOO FOONG HUA)

SUPERVISOR : _____ Date: 10 DEC 2007
(CIK NOR MAS AINA MD BOHARI)

DEDICATION

To my beloved parents whose support, prayer, inspiration and encouragement fuel my hope and perseverance during the difficult moments of this project.

To my supervisor, Miss Nor Mas Aina Md Bohari whose guidance, assistance and advice gave me wisdom and strength to complete the project.

To my friends, who always had been there when I'm in need.

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ABSTRACT

Content Based Image Retrieval (CBIR) is the retrieval of images based on visual features such as color, texture, and shape. In many large image databases, traditional methods of image indexing, ranging from storing an image in the database and associating it with a keyword or number, to associating it with a categorized description, have proven to be insufficient, laborious, and extremely time consuming. Whereas in CBIR, each image that is stored in the database has its features extracted and compared to the features of the query image. With this theory, image database retrieval for Blood Test System (BTS), specifically on Hematology Test, is proposed. The purpose of developing the system is to create a useful software program that enables doctors to do blood test without sending to laboratories. It can read the query image (patient's blood sample) and retrieve the stored images from database by comparing features which is texture information extracted from the images themselves using wavelet transform approach. In general, this system consists of two steps: Feature Extraction and Matching. Lastly, the stored images which have the most texture similarity with the query images will return to user. In this case, the blood sample image is used as the source of the subsequent task. At the same time, the system will also calculate the matching percentage. These processes will eventually replace the current manual microscopic work. BTS, an online application, will be developed using Microsoft Visual Studio 2005, Matlab and Microsoft SQL Server 2005 as database. The methodology used is Structures Systems Analysis and Design Method (SSADM), while database application is done under the guideline of Database Life Cycle (DBLC). The final output for this project is an online blood test system.

ABSTRAK

Pengembalian Imej Berdasarkan Kandungan (CBIR) adalah pengembalian imej berpandukan ciri-ciri ilustrasi seperti warna, tekstur dan bentuk. Dalam kebanyakan imej pangkalan data yang besar, langkah tradisional yang melibatkan pengindeksan imej, iaitu dari penyimpanan imej ke dalam pangkalan data dan memberi kata kunci atau nombor kepada imej tersebut, kepada pengaitan imej dengan penerangan berkategori telah dibuktikan sebagai tidak cekap, panjang leret dan memakan masa. Manakala dalam CBIR, setiap imej di dalam pangkalan data mempunyai ciri-ciri yang telah diekstrak dan dibandingkan dengan ciri-ciri suatu imej yang dimasukkan ke dalam sistem. Dengan berdasarkan teori ini, Sistem Ujian Darah (BTS), yang fokusnya terhadap Ujian Hematologi telah dicadangkan. Tujuan pembangunan sistem ini adalah untuk mewujudkan satu aplikasi perisian yang membolehkan para doktor melaksanakan ujian darah tanpa menghantarnya ke makmal pengujian darah. Sistem ini dapat membaca imej tompokan darah dari pesakit dan imej tompokan darah yang disimpan dalan pangkalan data dengan membuat perbandingan ke atas maklumat tentang tekstur yang diekstrak dengan cara penukaran wavelet. Secara amnya, sistem ini mempunyai dua langkah: Ekstrak Ciri dan Perpadanan. Akhirnya, imej tompokan darah dalam pangkalan data yang mempunyai keseragaman tekstur paling dekat dengan imej darah pesakit akan dikeluarkan. Pada masa yang sama, sistem ini juga akan megira peratus keseragaman antara kedua-dua jenis tompokan darah. Langkah dan proses ini akan menggantikan pengunaan mikroskop yang dilaksanakan sekarang. BTS adalah satu aplikasi atas-talian yang akan dibangunkan dengan menggunakan Microsoft Visual Studio 2005, Matlab and Microsoft SQL Server 2005 untuk pangkalan datanya. Bagi pembangunan projek, metadologi Teknik Analisa Struktur Sistem dan Rekabentuk (SSADM) digunakan manakala langkah-langkah dalam Kitar Hayat Pembangunan Pangkalan Data (DBLC) diikuti untuk pembangunan pangkalan data. Hasil projek ini adalah sebuah sistem ujian darah secara atas-talian.

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LIST OF ABBREVIATIONS

CBIR	Content-Based Image Retrieval
BTS	Blood Test System
OS	Operating System
IIS	Internet Information Services
DBMS	Database Management System
SQL	Structured Query Language
HZ	Hertz
RAM	Random Access Memory
PC	Personal Computer
TCP/IP	Transmission Control Protocol/Internet Protocol
SSADM	Structured Systems Analysis and Design Method
DBLC	Database Life Cycle
QBIC	Query by Image Content
CBVIR	Content-Based Visual Information Retrieval
ASCII	American Standard Code for Information Interchange
i.e.	*id est*
ERD	Entity Relationship Diagram
IDE	Integrated Development Environment
CPU	Central Processing Unit
GHz	Gigahertz
MB	Megabyte
GB	Gigabyte

LAN	Local Area Network
DFD	Data Flow Diagrams
FBC	Full Blood Count
FBP	Full Blood Picture
g/L	Gram per Liter
dL	Deciliter
HTTP	Hypertext Transfer Protocol
ASP	Active Server Pages
VB	Visual Basic