ASTHMATIC THERAPY EXPERT SYSTEM (ATES)

A thesis submitted to the Graduate Studies in partial
fulfillment of the requirement for the degree
Master of Science (Intelligent System)
Universiti Utara Malaysia

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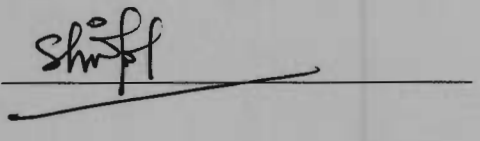
(Signature) : 

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ABSTRAK (BAHASA MELAYU)

Kebelakangan ini, kes kematian disebabkan oleh penyakit asma telah bertambah dengan mendadak. Oleh itu, tindakan yang berkesan perlu diambil untuk megatasi masalah ini. Oleh kerana penyakit asma tidak boleh diubati, tetapi pesakit asma mempunyai peluang untuk merawat penyakit ini. Walau bagaimanapun, untuk mencapai kualiti hidup yang baik walaupun mempunyai penyakit asma, pesakit asma perlulah mengawal dan mengurus asma mereka dengan baik dan tegas. Maka, adalah penting untuk menghasilkan sebuah sistem yang dapat membantu pesakit asma dalam mengenal pasti tahap asma mereka berdasarkan tahap bahaya asma tersebut. Objectif projek ini adalah untuk menghasilkan satu prototaip yang boleh memberi cadangan dari segi rawatan yang boleh dilakukan di rumah sama ada dari segi rawatan yang biasa diberi oleh doktor atau terapi menurut perspektif Islam dengan mengumpul pengetahuan dan maklumat daripada pakar-pakar (doktor-doktor perubatan) dan juga dokumen (buku, laporan, jurnal dll). Projek ini mengaplikasikan 'rapid prototyping' sebagai metodologi yang menjadi panduan sepanjang projek ini dijalankan supaya semua keperluan dapat dipenuhi. Kesimpulannya, prototaip yang dicadangkan berjaya dibina dan berdasarkan ujian pengguna yang dijalankan, pengguna prototaip ini berpuas hati dengan prototaip ini dan sanggup untuk menggunakan sistem ini di masa akan datang dalam membantu mereka menguruskan penyakit asma.

ABSTRACT (ENGLISH)

Due to striking increases of death caused by asthma illness, effective actions should be taken in order to overcome the problem. As there are no cure for asthma but there are chances for asthmatic patients to treat the illness. However, in order to get a better asthma-related quality of life, patients need to control or to manage their asthma with care and strictly. Therefore, it is important to provide a system that can help the patient to manage their asthma which can recognize level of asthma according to its severity. The project's objective is to develop a prototype that suggesting homecare treatment either towards conventional asthma medication or Islamic approach by acquitting knowledge from human expert (medical doctors) and from documents (medical books, journals, reports etc). The project used rapid prototyping as methodology to guide throughout the process from initial specification of the project until the evaluation stage in order to make sure all requirements have been met. As a result, the prototype is successfully being built and based on the user testing that have been conducted, users are fully satisfied with the prototype and they are willing to use the system to help them managing their asthma illness.

TABLE OF CONTENT

LIST OF TABLES

Page No.

LIST OF FIGURES

LIST OF ABBREVIATIONS

AI	Artificial Intelligence
ES	Expert System
ATES	Asthmatic Therapy Expert System
IgE	Immunoglobulin E

CHAPTER ONE: INTRODUCTION

Artificial Intelligence (AI) can be defined as the branch of computer science that is concerned with the automation of intelligent behavior (Luger, 2005). The goal of AI as in science perspective is to make machines do things that would require intelligence if done by humans. Based on Oxford Advanced Learner's Dictionary (2005), the meaning of artificial is something that is being made or produced in order to copy something that is natural. Intelligence is being defined by Essential English Dictionary (1990) as the ability to think, to understand and learn things instead of doing things by instinct or automatically. In the world of computer science, commonly AI is being described as a computer or program which exhibit behavior that indicates intelligence. How do we know whether the computer or program is intelligent? According to Legg and Hutter (2007), a computer or program can be categorized as intelligent when it has computational models of human behavior (act like human does), computational models of human "thought" (think like human does), can behave intelligently (can act exactly like a human does) and rationally (can differentiate between the right thing to do or otherwise) as shown in **Figure 1.1**:

The contents of the thesis is for internal user only

CHAPTER FIVE: CONCLUSION AND FUTURE WORK

This report has presented a prototype system called Asthmatic Therapy Expert System (ATES). ATES is an ES that has been developed based on expert's knowledge for monitoring asthmatic illness. This prototype can suggests to asthmatic patients appropriate treatments to be taken at home before they go to see a human doctor. The system also can recommend meditation therapies based on Islamic approach.

For the future works, prototype system should be embedded into mobile devices as it will give more impact on giving guidance to the user. Besides, it will be better for the system to be available all the time, anywhere in order to give more services to the users.

The prototype also needs to be integrated with other systems that already available on the market. It is suggested that the prototype is integrated with a system that can manage the patient records on peak flow rates that will give the patients or users more related information. Moreover, if the prototype is integrated with a system that can send direct reports of their current situation to the hospital or to their doctors, this will give more benefits to the asthmatic patients and also to medical doctors who handle their cases.

The prototype system should be enhanced such that users know the time for prayer (for Muslim user) as prayer also is one of the meditation.

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