WEB-BASED ELECTRICAL FAULT DIAGNOSIS USING EXPERT SYSTEM

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WEB-BASED ELECTRICAL FAULT DIAGNOSIS USING EXPERT SYSTEM

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ABSTRAK

Kajian ini merangkumi pembangunan sistem pakar untuk mengenalpasti kegagalan bekalan elektrik di dalam sesebuah bangunan atau premis khususnya dalam mengenalpasti punca dan lokasi kegagalan tersebut. Model sistem yang dibangunkan digunakan untuk penilaian unit pembangunan dan penyelenggaraan sesebuah bangunan berasaskan web supaya mudah dicapai oleh setiap pengguna. Asas pembangunan sistem ini adalah dengan menggunakan kaedah "Engineering Knowledge Based Expert system". Kaedah ini digunakan untuk menjana fakta dengan berasaskan satu set peraturan untuk mendapatkan keputusan. Sistem ini memilih sebahagian daripada fakta dengan merujuk kepada sebahagian daripada fakta yang lain yang berkenaan menggunakan "rule-base reasoning". Aktiviti utama dalam pembangunan sistem ini termasuk pencarian pengetahuan, validasi pengetahuan, penterjemahan pengetahuan, takbiran, serta penjelasan. Kesimpulannya, sistem pencarian kegagalan bekalan elektrik dalam sesebuah bangunan dibangunkan untuk membantu membuat satu keputusan terbaik terhadap lokasi dan punca kegagalan tersebut. Sistem pakar ini mempunyai potensi yang baik dalam membantu meningkatkan perkhidmatan bekalan elektrik masa kini.

Katakunci : sistem pakar, kegagalan bekalan elektrik, engineering knowledge based system, rule-base reasoning.

ABSTRACT

This thesis discusses the key issues of development of an Expert System (ES) proposed for diagnosing of electrical fault in a building in term of the location and cause of failure. This module used for self-assesment diagnosing in web-based environment so that easier for the maintenance and development unit in any building to get and use the system. The basic development of the system is based on the concept of Engineering Knowledge Based Expert System approach. This knowledge based approach, is used to generate facts by using a set of rules to retrieve a solution. It will choose parts of the texts by referring to other relevant texts by using rule-based reasoning. The main activities in developing the system include the knowledge acquisition, knowledge validation, knowledge representation, inference and explanation. In conclusion, the development of an expert system for diagnosing electrical fault in a building is to help the user to make a better decision on the location and cause of electrical fault in the building. Therefore, the expert system has a great potential in supporting and enhancing the services of electrical supply nowadays.

Keywords : expert system, electrical fault, engineering knowledge based system, rule-base reasoning.

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TABLE OF CONTENTS

CHAPTER 4: SYSTEM IMPLEMENTATION

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Overview

Modern power systems are required to generate and supply high quality electric energy to consumer. To achieve this requirement, computers have been applied to power system planning, monitoring, diagnosing, and controlling. Power system application program for analyzing system behaviors are stored in computer.

However the program developed for power system analysis and planning are based on mathematical models and implemented using languages that are suitable for numerical computation only. For sophisticated approaches to system analysis and diagnosis, development of methodologies and technique are needed to incorporate practical knowledge of planning engineers and numerical analysis program into the system.

The contents of the thesis is for internal user only

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