INTELLIGENT PADDY DISEASE DIAGNOSIS SYSTEM USING CASE-BASED REASONING

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Master of Science Intelligent System (IS)

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ABSTRAK

(BAHASA MELAYU)

Pemutusan berasaskan kes, merupakan pendekatan terkini dalam menangani penyelesaian masalah dan pembangunan yang telah mendapat perhatian. Pendekatan ini merupakan satu teknologi inovatif yang mengimplimentasikan fungsi-fungsi pintar yang diadaptasi dalam sistem. Ia telah dibangunkan dalam pelbagai bidang dan bahagian. Kajian ini memperlihatkan penggunaan pendekatan teknik pemutusan berasaskan kes dalam pembangunan rekabentuk sistem pintar diagnosis penyakit padi.

ABSTRACT

(ENGLISH)

Case-based reasoning (CBR) is a recent approach to problem solving and learning that has got a lot of attention over the last few years. Case-based reasoning is an innovative technology that enables the implementation of 'intelligent' functions in embedded systems. It has been implemented in different kind of domain and area. In this study, we will look at the development and design of intelligent paddy disease diagnosis system using case-based reasoning technique.

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CHAPTER ONE
INTRODUCTION

Paddy is one of the most important crops worldwide and grown mainly in Asia. In humid and temperate climate paddy disease can easily spread. This has cause the most serious problem for crop yield. Paddy disease usually attacks the leaves and panicles of the plant. As the result of these diseases, the number of panicles and spikelets were reducing and decrease of grain-filling, grain-weight and starch content in the grains. For an example, *Tungro* virus is one of the paddy diseases that had been transmitted by the green leafhopper and the epidemic can cause outbreak (Muralidharan *et al.*, 2003). As a result of the outbreak is a maximum production loss up to 53 percent in a district and 23 percent in the state.

Early detection of such diseases can help farmer in preventing the disease from spreading. The main goal in developing this system is to diagnose the paddy disease according to the symptoms that appear at the paddy plant (Moi and Normah, 1987). By preventing the diseases in the early stage, this could control it from spreading and production loss can be minimized (Chin and Amin, 1986). The information and the knowledge and expertise in diagnose and recognizing the disease was obtained from the Muda Agricultural Development Authority (MADA) and the Department of Agriculture.

There are many type of diseases that attacking the paddy crops, one of them is Bacterial leaf blight (BLB) that was first noticed in 1966 (Duveiller *et al.*, 1994). According to, Xianglong Yuan (2004), the disease is caused by a rod shaped gram-negative bacteria, *Xanthomonas campestris* pv *oryzae*. In transplanted rice disease normally appears after six weeks of planting. In the flag leaf, the symptoms are frequently visible. The dying

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